

REVISION AND PHYLOGENY OF THE TRIBE CURIINI LECONTE
(COLEOPTERA: CERAMBYCIDAE: CERAMBYCINAE)

By

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A THESIS PRESENTED TO THE GRADUATE SCHOOL
OF THE UNIVERSITY OF FLORIDA IN PARTIAL FULFILLMENT
OF THE REQUIREMENTS FOR THE DEGREE OF
MASTER OF SCIENCE

UNIVERSITY OF FLORIDA

2006

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To my parents, Joseph Eugene Nearn and Bruna Palanza Nearn

ACKNOWLEDGMENTS

I would like to thank my supervisory committee chair (Dr. Marc A. Branham) for his mentoring throughout my degree program. This work simply would not have been produced without Dr. Branham's support and guidance. I also thank my other committee members, Dr. Steven W. Lingafelter for his guidance, generous support, and for suggesting this project; and Dr. Michael C. Thomas for his guidance and friendship, and for being the catalyst that led me to study cerambycids.

For their friendship, advice, and encouragement, I am grateful to Joseph E. Nearns, Bruna P. Nearns, Bobbie Jo Nearns, Roberto Pandolfi, James E. Wappes, Roy F. Morris, Charyn J. Micheli, Julio Micheli, Frank T. Hovore, Miguel Monné, JC Marvin, Shane Bouchard, José Luis Aramayo, Julieta Ledezma Arias, Antonio Bonasso, Teresita de Zayas, Donald W. Hall, Pete Coon, Debbie Hall, and my labmates in the Branham Lab: Jennifer M. Zaspel, Seth M. Bybee, and Kyle A. Buecke.

I appreciate specimen loans and assistance from Michael C. Thomas and Paul E. Skelley (Florida State Collection of Arthropods); Robert Davidson and Bob Androw (Carnegie Museum of Natural History); John A. Chemsak and Cheryl Barr (Essig Museum of Entomology); Sharon Shute (The Natural History Museum); Lee Herman and David Grimaldi (American Museum of Natural History); Ed Riley (Texas A&M University); Victoria Bayless and Andrew R. Cline (Louisiana State Arthropod Museum); James E. Wappes (San Antonio, TX), Roy F. Morris (Lakeland, FL); Robert H. Turnbow (Ft. Rucker, AL); Frank T. Hovore (Santa Clarita, CA); Steven W.

Lingafelter and Warren Steiner (National Museum of Natural History); Charyn and Julio Micheli (Ponce, PR); Douglas Yanega (University of California Entomology Research Collection); Michael A. Ivie (West Indian Beetle Fauna Project); Angel Solís (Instituto Nacional de Biodiversidad); Nayla García Rodríguez and Ileana Fernández García (Instituto de Ecología y Sistemática); the Zayas family (Havana, Cuba); J. Howard Frank (University of Florida); Daniel Heffern (Houston, TX); Francesco Vitali (Genova, Italy); Robert E. Woodruff (Gainesville, FL); Miguel Monné (Museu Nacional, Universidade Federal do Rio de Janeiro); Kelvin A. Guerrero (Santo Domingo, Dominican Republic); Sergio Devesa (San Vicente, Spain), Julien Touroult (Paris, France); and Alain Audureau (Saint Gilles Croix de Vie, France).

Finally, I would like to thank my wife and best friend of nearly 20 years, Jodi Nearn, for the encouragement and support to pursue my passion.

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Abstract of Thesis Presented to the Graduate School
of the University of Florida in Partial Fulfillment of the
Requirements for the Degree of Master of Science

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August 2006

Chair: Marc A. Branham

Major Department: Entomology & Nematology

A revision and phylogenetic analysis of the tribe Curiini LeConte, 1873 is presented. A phylogenetic analysis of Curiini employing 31 ingroup taxa, 5 outgroup taxa, and 42 morphological characters was conducted. Results suggest that the tribe is paraphyletic with respect to the outgroup taxa chosen. The genus *Curius* is monophyletic and strongly supported by 7 synapomorphies. The genus *Plectromerus* is paraphyletic and strongly supported by 6 synapomorphies. Results of this analysis suggest that *Curiosa dominicana* Micheli, 1983 is a highly derived *Plectromerus*, therefore, *Plectromerus dominicanus* (Micheli, 1983), new combination, is proposed. Eight new species of *Plectromerus* are described and illustrated: *Plectromerus* new species 1 from Nicaragua, *Plectromerus* new species 2 from Guatemala, *Plectromerus* new species 3 from Costa Rica and Honduras, *Plectromerus* new species 4 and *Plectromerus* new species 8 from Dominican Republic, *Plectromerus* new species 5 from Haiti, *Plectromerus* new species 6 from Cayman Islands, and *Plectromerus* new species 7 from

Panama. The following new synonymies are proposed: *Plectromerus costatus* Cazier & Lacey, 1952 = *Plectromerus dentipes* (Olivier, 1790), and *Plectromerus crenulatus* Cazier, 1952 = *Plectromerus distinctus* (Cameron, 1910). Diagnoses of all known curiine species are presented with notes on distribution, diversity, and relationships. New country records are reported for *P. dentipes*; *P. exis* Zayas, 1975; *P. fasciatus* (Gahan, 1895); *P. pumilus* Cazier & Lacey, 1952; and *P. wappesi* Giesbert, 1985. Keys to the tribe as well as the four species of *Curius* and 27 species of *Plectromerus* are presented. A biogeographic analysis based on the results of a phylogenetic analysis of the tribe suggests that more basal species of *Curius* and *Plectromerus* are of Antillean distribution while more derived taxa are of Antillean, Central American, and South American distribution.

CHAPTER 1 INTRODUCTION AND LITERATURE REVIEW

The longhorned beetle tribe Curiini LeConte, 1873 (Coleoptera: Cerambycidae: Cerambycinae) is a medium-sized group of Neotropical cerambycid beetles. As currently defined, the tribe consists of three genera (*Curiosa* Micheli, 1983; *Curius* Newman, 1840; and *Plectromerus* Haldeman, 1847) containing 29 extant and 2 extinct species. The genus *Pentomacrus* White, 1855 was synonymized with *Plectromerus* in 1985. Based on a phylogenetic analysis of the tribe (Chapter 4), the synonymy of the monotypic genus, *Curiosa* Micheli, 1983, is proposed (Chapter 2). The curiines are of predominantly Antillean distribution and show a high level of endemism, with 17 of 31 species occurring in Hispaniola and Cuba, and they also occur in the SE USA and range from SE Mexico to Venezuela (Monné & Hovore, 2005).

The tribe has traditionally been defined by the presence of following morphological characters: coarsely faceted eyes; a flat, transverse head; and strongly clavate femora armed beneath with a broad tooth. In catalogs, the tribe has been placed in the subfamily Cerambycinae between the Ibdionini and Obriini.

Literature Review

The type genus of the tribe is *Curius* Newman, 1840 which currently contains four species: the type species for the genus *Curius dentatus* Newman, 1840 known only from SE USA; *Curius panamensis* Bates, 1885, known only from Panama; and *Curius chemsaki* Nearn & Ray, 2006, known only from Venezuela. In his classic work Cerambycidae of North America, Linsley (1963) expressed doubt about the placement of

C. panamensis in the genus *Curius* based on the original description and figure.

Craighead (1923) described the larva of *C. dentatus* and noted that it shared many morphological characters with *Euderces* (Cerambycidae: Cerambycinae: Tillomorphini). Fragoso (1978) illustrated the male and female genitalia of *C. dentatus* in his analysis of tribal classification within the subfamily.

The genus *Plectromerus* was first treated by LeConte (1873), LeConte & Horn (1883), and Leng (1885). Linsley (1963) designated *Obrium dentatum* LeConte, 1824 as the type species (= *Plectromerus dentipes* (Olivier, 1790)). There has been some confusion about the generic attributes of this genus and *Pentomacrus* (Linsley, 1963; Micheli, 1983; Micheli & Nearn, 2005), but no previous revisionary work has been done. Cameron (1910) described two species in *Pentomacrus* and provided a key for this genus only. Cazier and Lacey (1952) commented on the taxonomic problem clouding these two genera and included both in a single key. Later, Giesbert (1985) stated that the differences were not sufficient to justify two genera and thus synonymized *Pentomacrus* with *Plectromerus*. Though recent works still mention both genera (Piña et al., 2004; Vitali, 2004; Vitali & Rezbanyai-Reser, 2003), no formal discussion about the revalidation of *Pentomacrus* has been made. Several workers provided keys to the Curiini (Arnett, 1973; Arnett et al., 2002; Cameron, 1910; Cazier and Lacey, 1952; Micheli, 1983; Vitali, 2004; Vitali & Rezbanyai-Reser, 2003).

The monotypic genus *Curiosa* was created with the description of *Curiosa dominicana* Micheli, 1983 from a single female specimen collected in the Dominican Republic. Micheli (1983) stated that this species fit Linsley's (1963) tribal definition with a few exceptions, the most significant in his opinion being the lack of coarsely-

faceted eyes (*Curiosa* has finely-faceted eyes) and the number of antennomeres (*Curiosa* has 10-segmented antennae, all other described curiines have 11-segmented antennae). Only two additional specimens are known to have been collected since Micheli's work, one female deposited at the National Museum of Natural History (Washington, DC) and the other (sex undetermined) at the Museum of Comparative Zoology (Cambridge, MA) (MCZWeb, 2006).

Life History and Host Plant Associations

Little has been published about the life history and host plant associations for the majority of curiine species. With the exception of *Plectromerus dominicanus* (= *Curiosa dominicana*), all known curiine species have coarsely faceted eyes and are thought to be nocturnal. The finely faceted eyes of *Plectromerus dominicanus* (= *Curiosa dominicana*) suggest that it may be diurnal.

Various authors have listed host plant associations for *P. dentipes*, a commonly collected species found in the SE USA (Linsley & Chemsak, 1997; Monné, 1993; Ree, 2003). In general, curiines are attracted to light and may be collected by beating dead twigs and branches of various trees including pine (Giesbert, 1985; Ree, 2003; Zayas, 1975). *Plectromerus pinicola* has emerged from cut pine branches (Zayas, 1975), *Plectromerus fasciatus* has been reared from girdled *Inga ingoides* branches (Chalumeau & Touroult, 2005b), and *Plectromerus ramosi* has been reared from *Eugenia* nr. *ligustrina* branches (Micheli & Nearn, 2005). Females of *Curius dentatus* Newman were collected with pheromone-baited traps in Illinois (Lacey et al., 2004). Life history and host plant associations for the curiines are not well understood and merit further study.

Fossil Curiini

At least 8 fossil curiine specimens are known from Dominican amber, dated from mid-Miocene, approximately 17-20 MYO (Grimaldi, 1996; Grimaldi & Engel, 2005). The first fossil curiine to be described was *Plectromerus tertarius* Vitali from a single Dominican amber specimen (Vitali, 2004). Nearn & Branham (2005) described the second fossil curiine, *Plectromerus grimaldii*, from Dominican amber and provided additional notes on the holotype of *P. tertarius*. Evans & Bellamy (1996) illustrated a well-preserved curiine fossil (pl. 41) which unfortunately is unavailable for study (G. Poinar, pers. comm.). Two additional curiine fossils in excellent condition are deposited in the private collection of Ettore Morone, Italy (D. Grimaldi, pers. comm.), another undetermined curiine fossil is deposited in the American Museum of Natural History (No. DR-10-1857), and two undetermined fossil curiines are deposited in the private collection of F. Vitali (Genova, Italy).

Phylogenetic Analysis

The Curiini have been somewhat arbitrarily assigned to various genera (Linsley, 1963) and no previous revisionary work has been done (Micheli & Nearn, 2005). A thorough revision and phylogeny, using morphological and fossil data is needed to test the monophyly of the tribe and discover the evolutionary history among the genera and species. Historical placement of the Curiini within the subfamily Cerambycinae may provide insight for the selection of outgroup taxa in a phylogenetic analysis. In addition, a modern key to the tribe is needed, as all existing keys are incomplete and outdated.

Table 1-1. Classification of Curiini LeConte, 1873: 304.

Curiosa Micheli, 1983: 261
dominicana Micheli, 1983: 262

Curius Newman, 1840: 17
chemsaki Nearn & Ray, 2006: 51
dentatus Newman, 1840: 17
concinatus Haldeman, 1847: 43
panamensis Bates, 1885: 268
punctatus (Fisher, 1932: 55) *

Plectromerus Haldeman, 1847: 43
Pentomacrus White, 1855: 297
Curius; Lacordaire, 1869: 352 (not Newman, 1840)
acunai (Fisher, 1936: 344)
bidentatus Fisher, 1942: 16
costatus Cazier & Lacey, 1952: 30
dentipes (Olivier, 1790: 268)
dentatum J.E. LeConte, 1824: 172
scambus Newman, 1840: 79
distinctus (Cameron, 1910: 186) **
exis Zayas, 1975: 123
fasciatus (Gahan, 1895: 109)
femoratus (Fabricius, 1792: 316)
femoratus White, 1855: 297
grimaldii Nearn & Branham, 2005: 19 (fossil)
lingafelteri Micheli & Nearn, 2005: 25
ornatus Fisher, 1947: 34
pinicola Zayas, 1975: 125
pumilus Cazier & Lacey, 1952: 33
ramosi Micheli & Nearn, 2005: 30
serratus (Cameron, 1910: 185)
crenulatus Cazier, 1952: 1
tertiarius Vitali, 2004: 453 (fossil)
unidentatus Fisher, 1942: 17
wappesi Giesbert, 1985: 81

Classification based on Monné & Hovore (2005).

* *Curius punctatus* (Fisher) was transferred from *Plectromerus* by Nearn et al. (2005).

** *Plectromerus distinctus* (Cameron) was revalidated by Micheli & Nearn (2005).

Table 1-2. Revised classification of Curini LeConte, 1873: 304 as proposed by Nearn
(in progress).

- Curius* Newman, 1840:17
chemsaki Nearn & Ray, 2006: 51
dentatus Newman, 1840: 17
concinatus Haldeman, 1847: 43
panamensis Bates, 1885: 268
punctatus (Fisher, 1932: 55)
Plectromerus Haldeman, 1847: 43
Pentomacrus White, 1855: 297
Curius Lacordaire, 1869: 352 (not Newman, 1840)
Curiosa Micheli, 1983: 262
acunai (Fisher, 1936: 344)
bidentatus Fisher, 1942: 16
dentipes (Olivier, 1790: 268)
dentatum J.E. LeConte, 1824: 172
scambus Newman, 1840: 79
costatus Cazier & Lacey, 1952: 30
distinctus (Cameron, 1910: 186)
crenulatus Cazier, 1952: 1
dominicanus (Micheli, 1983: 262)
exis Zayas, 1975: 123
fasciatus (Gahan, 1895: 109)
femoratus (Fabricius, 1792: 316)
femoratus White, 1855: 297
grimaldii Nearn & Branham, 2005: 19 (fossil)
lingafelteri Micheli & Nearn, 2005: 25
ornatus Fisher, 1947: 34
pinicola Zayas, 1975: 125
pumilus Cazier & Lacey, 1952: 33
ramosi Micheli & Nearn, 2005: 30
serratus (Cameron, 1910: 185)
tertiarius Vitali, 2004: 453 (fossil)
unidentatus Fisher, 1942: 17
wappesi Giesbert, 1985: 81
new species 1 Nearn (in progress)
new species 2 Nearn (in progress)
new species 3 Nearn (in progress)
new species 4 Nearn (in progress)
new species 5 Nearn (in progress)
new species 6 Nearn (in progress)
new species 7 Nearn (in progress)
new species 8 Nearn (in progress)

CHAPTER 2 NEW SPECIES DESCRIPTIONS AND SYNONYMIES

Introduction

During the course of this revision, several taxonomic problems in the genus *Plectromerus* were identified: *Plectromerus distinctus* (Cameron) was revalidated by Micheli & Nearn (2005), *Plectromerus crenulatus* Cazier was found to be a junior synonym of *P. distinctus*, and *Plectromerus costatus* Cazier & Lacey was found to be a junior synonym of *Plectromerus dentipes* (Olivier). A phylogenetic analysis of Curini (Chapter 4) suggests that *Curiosa dominicana* Micheli is a highly derived *Plectromerus*. Therefore, a new combination, *Plectromerus dominicanus* (Micheli) is proposed. In addition, 12 new species of *Plectromerus* and one new species of *Curius* were noticed among specimens borrowed from various entomological collections. Of these, five have already been described: *Plectromerus lingafelteri* Micheli & Nearn, *Plectromerus ramosi* Micheli & Nearn, *Plectromerus grimaldii* Nearn & Branham, *Plectromerus navassae* Nearn & Steiner, and *Curius chemsaki* Nearn & Ray.

The remaining eight new species of *Plectromerus* are described in this chapter. A phylogenetic species concept is applied in this study. Species are defined as the smallest aggregation of populations (sexual) or lineages (asexual) diagnosable by a unique combination of character states in comparable individuals (semaphoronts) (Nixon & Wheeler, 1990). Article 9 of the International Code of Zoological Nomenclature (2000) states that a thesis does not constitute a publication; therefore a manuscript is in preparation to publish these taxonomic changes and species descriptions.

Materials and Methods

Approximately 800 specimens from various entomological collections were studied (Table 2-1). Observations of the specimens were made using a Nikon SMZ800 stereomicroscope with 20× eyepieces equipped with a drawing tube. Habitus photographs were produced with the Microptics Digital Lab XLT photography system, an Auto-Montage Pro© system, and a Nikon Coolpix 995 with an Optem microscope adapter. Specimens were imaged with a JEOL JSM-5510LV Scanning Electron Microscope operated at 1.5kV.

Genus *Plectromerus* Haldeman, 1847

= *Pentomacrus* White, 1855: 297

= *Curius* Lacordaire, 1869: 352 (not Newman, 1840)

***Plectromerus costatus* Cazier & Lacey, 1952: 30 = *Plectromerus dentipes* (Olivier, 1790: 268), new synonymy**

Cazier & Lacey (1952) described *Plectromerus costatus* and stated that it was most closely related to *Plectromerus dentipes* but could be separated from it “. . . by the much larger and more densely placed punctures on the pronotal disk and by the non-serrate, or but slightly serrate, posterior margin of the femoral spine” (Cazier & Lacey, 1952: 32). Unfortunately, the depository of the holotype of *P. dentipes* is unknown (Monné, 2005) and therefore, unavailable for study. However, after careful examination of the holotype of *P. costatus* (Figure 2-1a) and approximately 400 specimens of *P. dentipes* from USA, Bahamas, and Cuba, the characters mentioned by Cazier & Lacey (1952) were found to be variable in *P. dentipes*. In *P. dentipes*, metafemoral tooth serration ranges from very slightly serrate to moderately serrate. The size and density of pronotal punctation in *P. dentipes* is also variable, suggesting one species instead of two (Figure 2-1b).

***Plectromerus crenulatus* Cazier, 1952: 1 = *Plectromerus distinctus* (Cameron, 1910: 186), new synonymy**

Vitali & Rezbanyai-Reser (2003) synonymized *Plectromerus crenulatus* Cazier and *Plectromerus distinctus* (Cameron) with *Plectromerus serratus* (Cameron) without comparing type specimens. Micheli & Nearn (2005) restored *P. distinctus* from synonymy. The type specimens of *P. crenulatus* (Figure 2-1c) and *P. serratus* (Figure 3-25a) were examined carefully and differences between them suggest two species instead of one. The two species are similar but can be distinguished by the following characters: *P. crenulatus* has long, suberect hairs on the elytra and granulose punctures on the pronotum, whereas *P. serratus* lacks the hairs and granules and has microsculpturing on the pronotum.

In addition, the type specimens of *P. crenulatus* (Figure 2-1c) and *P. distinctus* (Figure 2-1d) were carefully examined and *P. crenulatus* was found to be a junior synonym of *P. distinctus*. Both type specimens are female, collected in Haiti, and have long, suberect setae on the elytra, granulose punctures on the pronotum, similar metafemoral serrations, and metatibial curvature.

***Plectromerus dominicanus* (Micheli, 1983: 262), new combination**

= *Curiosa dominicana* Micheli, 1983: 262

Micheli (1983) described *Curiosa dominicana* from a single female specimen, noting that it presented unusual characters for a curiine. Indeed, *C. dominicana* possesses several autapomorphies which are unique within the tribe, such as antennae with 10 segments (11 segments in *Curius* and *Plectromerus*), scape distinctly longest antennomere (third or fifth distinctly longer than scape in *Curius*, fifth distinctly longer than scape in *Plectromerus*), finely faceted eyes (coarsely faceted in *Curius* and

Plectromerus), and each elytron ornamented with a small, yellowish marking (absent in *Curius* and *Plectromerus*) (Figure 3-10, 3-11a-d). However, a phylogenetic analysis of Curiini (Chapter 4) suggests that *C. dominicana* is a highly derived *Plectromerus* (Figure 4-29). Based on this analysis, a new combination, *Plectromerus dominicanus* (Micheli) is proposed.

***Plectromerus* new species 1 Nearn**

Description: Male (Figure 2-2a-c). Length 9.9 mm, width 2.2 mm (measured across humeri). Habitus as in Figure 2-2a. General form small, narrow, subcylindrical. Integument testaceous, with head, basal antennomeres, portions of pronotum, venter, and femoral apices ferrugineous; each elytron testaceous with three major macular regions as follows: (1) basal third with a ferrugineous, oblique, narrow, irregular macula beginning below humerus and reaching sutural midpoint; (2) a ferrugineous, oblique, narrow, irregular macula from sutural midpoint to about apical third, not reaching margin; and (3) apical third testaceous, with broader, ferrugineous, oblique, irregular macula from just below apical third to about below suture midpoint. *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 slightly raised and separated by about the width of two antennal sockets; vertex microsculptured, with dense, shallow punctures; vertex with short, recumbent, pale pubescence. Eyes coarsely faceted, transverse, subreniform, shallowly emarginate. Antennae eleven segmented, slightly longer than body; scape bowed, third antennomere about as long as scape, about twice as long as fourth, fifth antennomere longest, almost 4 times longer than fourth, about 1.5 times longer than third, antennomeres 6-10 becoming progressively shorter, eleventh slightly longer than tenth, basal antennomeres subcylindrical, from fifth moderately flattened,

apices of antennomeres 5-10 produced externally. Scape with short, recumbent, pale pubescence; antennomeres 2-8 ciliate beneath with coarse, moderately long, suberect, pale hairs. *Pronotum* subcylindrical, about 1.3 times as long as wide, widest at middle, slightly broader at apex than base, sides broadly inflated, arcuately constricted at basal third, and a slight inflation just before apex; basal margin moderately arcuate; disk convex, slightly flattened, with one moderately raised, median callus at about the center, with two moderately raised, submedial calli slightly anterior to center, and two moderately raised, submedial calli slightly posterior to center; lateral margins of pronotum with patch of coarse, deep punctures, and two long, suberect setae anterolaterally. Basal third of disk with two long, pale, recumbent setae positioned submedially, arising from deep punctures. Surface microsculptured, with dense, shallow punctures. *Scutellum* small, rounded, almost as long as broad, impunctate. *Elytra* about 3 times as long as width at humeri, about 3.3 times as long as pronotal length, about 1.3 times broader basally than pronotum at widest point (at middle); sides nearly parallel, slightly sinuate around middle, somewhat evenly rounded to apex; elytral apices individually, broadly rounded; epipleural margin strongly sinuate. Elytral disk moderately concave medially, subsuturally, creating a distinct costa on each elytron; base of each elytron moderately raised. Elytral surface strongly shining; punctation moderately dense, coarse, and deep at basal third; punctures becoming more shallow toward apex and sides, almost obsolete at apical third; each puncture with a short, fine, pale hair. *Underside* with portions of prosternum strongly shining, one irregular patch of coarse, deep punctures front of and spanning the width of the procoxae; narrowest area of prosternal process between procoxae about 0.2 times as wide as procoxal cavity, and

about 0.3 times the width of apex of process which is subtriangular with rounded corners (Figure 2-2b), prosternal process between procoxae gradually declivous; procoxal cavities open behind. Mesosternum surface shining, sparsely and shallowly punctate. Metasternum surface shining, sparsely and finely punctate, with scattered deeper punctures and sparse suberect, pale hairs interspersed. Metepisternum sparsely clothed with short, recumbent, pale pubescence, which is denser posteriorly. Abdomen shining; finely, shallowly punctate; abdomen with sparse long, suberect, pale hairs and punctures each with a short, fine, pale hair; fifth sternite broadly subtruncate, slightly shorter than preceding sternite. *Legs* with femora pedunculate-clavate, basal portion of metafemora slightly shorter than metafemoral club; meso- and metafemora slightly arcuate, shining, clothed with moderately densely, recumbent, short, pale pubescence; clavate portion darker; underside of each femoral club with a broad triangular tooth; metafemoral teeth with posterior edge strongly, deeply serrate, with about 14 serration “peaks” of uneven height and distribution, each peak with a short, curved, pale hair; metatibiae very slightly sinuate, nearly straight, slightly flattened, about 0.8 times as long as metafemora, gradually expanded distally; clothed with moderately dense, fine, recumbent, pale pubescence, becoming longer and coarser distally (Figure 2-2c).

Type: Holotype, male (Figure 2-2a), NICARAGUA, El. 1400m, Cerro Chimborazo, 13°02'N, 85°56'W, 20 Nov. 71, Stockwell, beating dead branches (EMEC).

Geographic distribution: Known only from Jinotega department, Nicaragua (Central America).

Discussion: This species is described from a single male specimen, collected beating dead branches at 1,400 m elevation. The holotype described herein represents the only known specimen and nothing is known about its biology.

From congeners, *Plectromerus* new species 1 can be distinguished by the combination of the following characters: intricate elytral pattern; pronotal disk with moderately raised calli; fifth antennomere almost 4 times longer than fourth and about 1.5 times longer than third; and strongly, deeply serrate metafemoral teeth. *Plectromerus exis* (Figure 3-12a-c), *Plectromerus* new species 4 (Figure 2-5a-c), and *P. lingafelteri* (Figure 3-19a-c) also have rather intricate elytral patterns, however, *P. exis* can easily be distinguished by the distinct tubercle in the center of the pronotum (Figure 3-12b) and very weakly serrate (almost smooth) metafemoral teeth in both *Plectromerus* new species 4 and *P. lingafelteri*.

***Plectromerus* new species 2 Nearns**

Description: Female (Figure 2-3a-c). Length 7.2-8.0 mm, width 1.7-2.0 mm (measured across humeri). Habitus as in Figure 2-3a. General form small, narrow, subcylindrical. Integument testaceous, with portions of pronotum, scutellum and femoral apices ferrugineous; each elytron testaceous with three major macular regions as follows: (1) basal third with a ferrugineous, oblique, narrow, macula beginning below humerus and reaching sutural midpoint; (2) a ferrugineous, oblique, narrow, macula from sutural midpoint to just above apical third; and (3) apical third testaceous, with ferrugineous, arcuate-transverse, macula. *Head* with front nearly flat, transverse, with a median, shallow line from between eyes to just beyond vertex, nearly flat between antennal tubercles, which are very slightly raised and separated by about the width of two antennal sockets; vertex microsculptured, with moderately dense, shallow punctures; vertex with

short, recumbent, pale pubescence. Eyes coarsely faceted, transverse, subreniform, shallowly emarginate. Antennae eleven segmented, about as long as body; scape bowed, third antennomere about as long as scape, about 1.5 times longer than fourth, fifth antennomere longest, slightly more than twice as long as fourth, about 1.3 times longer than third, basal antennomeres subcylindrical, from fifth slightly flattened, apices of antennomeres 6-10 produced externally, eleventh antennomere slightly longer than tenth. Scape with short, pale, recumbent pubescence; antennomeres 2-6 ciliate beneath with coarse, moderately long, suberect, pale hairs. *Pronotum* subcylindrical, about 1.5 times as long as wide, widest at middle, slightly broader at apex than base, sides broadly inflated, arcuately constricted at basal third, and a slight inflation just before apex; basal margin slightly arcuate; basal third of disk with two long, pale, recumbent setae positioned submedially, arising from deep punctures; lateral margins of pronotum without patch of coarse, deep punctures, but with one long, suberect seta anterolaterally. Surface opaque, microsculptured, very sparsely and shallowly punctate, with a slightly raised median callus; surface with moderately dense short, recumbent, pale pubescence. *Scutellum* small, rounded, almost as long as broad, impunctate. *Elytra* about 2.8 times as long as width at humeri, about 2.6 times as long as pronotal length, about 1.3 times broader basally than pronotum at widest point (at middle); sides moderately sinuate around middle (Figure 2-3c), evenly rounded to apex, elytral apices individually, broadly rounded; epipleural margin strongly sinuate. Elytral disk moderately concave medially, subsuturally, creating a distinct costa on each elytron; base of each elytron slightly raised. Elytral surface strongly shining; punctation moderately dense, coarse, and deep at basal third; punctures becoming finer towards apex and sides, almost obsolete at apical third;

each puncture with a short, fine, pale hair. *Underside* with prosternum moderately shining, area in front of procoxae without patch of coarse punctures; narrowest area of prosternal process between procoxae about 0.3 times as wide as procoxal cavity, and about 0.5 times the width of apex of process which is subtriangular with rounded corners; prosternal process between procoxae gradually declivous; procoxal cavities open behind. Meso- and metasternum and surface moderately shining, sparsely and finely punctate, with dense, short, recumbent, pale pubescence. Metepisternum sparsely clothed with short, recumbent, pale pubescence, which is denser posteriorly. Abdomen moderately shining, finely, shallowly punctate; abdomen with sparse long, suberect, pale hairs and punctures each with a short, fine, pale hair; fifth sternite broadly rounded, slightly longer than preceding sternite. *Legs* with femora pedunculate-clavate, basal portion of metafemoral slightly longer than metafemoral club, meso- and metafemora moderately arcuate, shining, clothed with sparsely to moderately densely, recumbent, short, pale pubescence; underside of each femoral club with a broad triangular tooth; metafemoral teeth with posterior edge moderately serrate, with about 20-24 serration “peaks”, each serration peak with a short, pale, curved hair; metatibiae strongly sinuate, slightly flattened, about half as long as metafemora, gradually expanded distally; clothed with moderately dense, fine, recumbent, pale pubescence, becoming longer and coarser distally (Figure 2-3b).

Types: Holotype, female (Figure 2-3a), GUATEMALA, Izabal Dpto., Cerro Negro Norte, 15°21'N, 88°41'W, 1180m, 18-19. vii. 2001 DCH, DY, Univ. Calif. Riverside, Ent. Res. Museum, UCRC ENT 68968 (UCRC). Paratype, 1 female, GUATEMALA, Izabal, 25km SE Morales, 900m, May 31-June 2, 1997, E. Giesbert, J. Monzon (FSCA).

Geographic distribution: Known only from Izabal department, Guatemala (Central America).

Discussion: This species is described from two females and the male is unknown. The type series described herein represents the only known specimens and nothing is known about its biology.

From congeners, *Plectromerus* new species 2 can be distinguished by the combination of the following characters: pronotal surface with moderately dense, short pubescence; each elytron with two distinct oblique maculae and one arcuate-transverse macula; and metafemora strongly pedunculate-clavate with moderately serrate teeth. *Plectromerus* new species 2 is most similar to *Plectromerus* new species 3 (Figure 2-4a-c) but can be distinguished by the moderately serrate teeth with about 20-24 serration “peaks” (strongly, deeply serrate with about 10-14 serration “peaks” in *Plectromerus* new species 3) and the three distinct maculae per elytron (two distinct maculae per elytron in *Plectromerus* new species 3).

***Plectromerus* new species 3 Nearns**

Description: Male (Figure 2-4a-c). Length 5.8-6.8 mm, width 1.4-1.7 mm (measured across humeri). Habitus as in Figure 2-4a. General form small, narrow, subcylindrical. Integument testaceous, with portions of head, pronotum ferrugineous; each elytron testaceous with two major macular regions as follows: (1) basal third with a ferrugineous, oblique, narrow, macula beginning below humerus and reaching sutural midpoint; (2) apical third with a ferrugineous, arcuate-transverse, narrow, macula. *Head* with front nearly flat, transverse, with a median, shallow line from between eyes to just beyond vertex, shallowly concave and nearly flat between antennal tubercles, which are slightly raised and separated by about the width of two antennal sockets, vertex

microsculptured, with scattered, shallow punctures; vertex with short, recumbent, pale pubescence. Eyes coarsely faceted, transverse, subreniform, shallowly emarginate. Antennae eleven segmented, slightly longer than body; scape bowed, third antennomere about as long as scape, about twice as long as fourth, fifth antennomere longest, about 3 times longer than fourth, about 1.5 times longer than third, basal antennomeres subcylindrical, from fifth slightly flattened, apices of antennomeres 6-10 produced externally. Scape with short, pale, recumbent pubescence; antennomeres 2-7 ciliate beneath with coarse, moderately long, suberect, pale hairs. *Pronotum* subcylindrical, about 1.3 times as long as wide, widest at middle, slightly broader at apex than base, sides broadly inflated, arcuately constricted at basal third, and a slight inflation just before apex; basal margin moderately arcuate; lateral margins of pronotum with patch of coarse, deep punctures, and one or two long, suberect setae anterolaterally. Surface opaque, microsculptured, very sparsely and shallowly punctate, with a slightly raised median callus; basal third of disk with one or two long, pale, recumbent setae positioned submedially, arising from deep punctures. *Scutellum* small, rounded, almost as long as broad, impunctate. *Elytra* about 3 times as long as width at humeri, nearly 3 times as long as pronotal length, about 1.3 times broader basally than pronotum at widest point (at middle); sides moderately sinuate around middle, evenly rounded to apex, elytral apices individually, broadly rounded; epipleural margin strongly sinuate. Elytral disk moderately concave medially, subsuturally, creating a distinct costa on each elytron; base of each elytron slightly raised. Elytral surface strongly shining; punctation moderately dense, coarse, and deep at basal third; punctures becoming finer towards apex and sides, almost obsolete at apical third; each puncture with a short, fine, pale hair. *Underside*

with prosternum moderately shining, one irregular patch of coarse, deep punctures in front of each procoxa (Figure 2-4b); narrowest area of prosternal process between procoxae about 0.2 times as wide as procoxal cavity, and about 0.3 times the width of apex of process which is subtriangular with rounded corners; prosternal process between procoxae gradually declivous; procoxal cavities open behind. Mesosternum surface moderately shining, sparsely and finely punctate. Metasternum surface moderately shining, sparsely and finely punctate, with sparse deeper punctures and suberect, pale hairs interspersed. Metepisternum sparsely clothed with short, recumbent, pale pubescence, which is denser posteriorly. Abdomen strongly shining; finely, shallowly punctate; with sparse long, suberect, pale hairs and punctures each with a short, fine, pale hair; fifth sternite broadly subtruncate, slightly longer than preceding sternite. *Legs* with femora pedunculate-clavate, metafemoral club about as long as basal portion, meso- and metafemora moderately arcuate, shining, clothed with sparsely to moderately densely, recumbent, short, pale pubescence; underside of each femoral club with a broad triangular tooth; metafemoral teeth with posterior edge very strongly, distinctly serrate, with about 10-14 serration "peaks", each serration peak with a short, pale, curved hair; metatibiae strongly arcuate, slightly flattened, about 0.7 times as long as metafemora, gradually expanded distally; clothed with moderately dense, fine, recumbent, pale pubescence, becoming longer and coarser distally (Figure 2-4c).

Female. Length 6.2-6.8 mm, width 1.5-1.7 mm (measured across humeri). Very similar to male except pronotal sides lacking coarse punctures and prosternum lacking irregular patch of punctures in front of each procoxa. Abdomen with terminal sternite evenly, broadly rounded, slightly longer than preceding sternite.

Types: Holotype, male (Figure 2-4a), HONDURAS: Francisco Morazán, El Rincon, 1 Dec. 1995, R. Turnbow (FSCA). Allotype, female, COSTA RICA, Est. Cacao, 1000-1400m, Lado suroeste del Volcan Cacao, Prov. Guan., Tp Malaise, 1990, L-N 323300, 375700, INBIO CRI000 070459 (INBio). Paratypes, 15 (all from COSTA RICA): 1 male, Est. Cacao, 1000-1400m, Lado suroeste del Volcan Cacao, Prov. Guan., MalaiseTp, Jul 1989 - Mar 1990, L-N-323300, 375700, INBIO CRI000 258383(INBio); 1 male, Est. Cacao, 1000-1400m, Lado suroeste del Volcan Cacao, Prov. Guan., MalaiseTp, Jul 1989 - Mar 1990, L-N-323300, 375700, INBIO CRI000 258362 (INBio); 1 male, Est. Cacao, 1000-1400m, Lado suroeste del Volcan Cacao, Prov. Guan., MalaiseTp, Jul 1989 - Mar 1990, L-N-323300, 375700, INBIO CRI000 258102 (INBio); 1 male, Est. Cacao, 1000-1400m, Lado suroeste del Volcan Cacao, Prov. Guan., MalaiseTp, Jul 1989 - Mar 1990, L-N-323300, 375700, INBIO CRI000 258096 (INBio); 1 male, Est. Cacao, 1000-1400m, Lado suroeste del Volcan Cacao, Prov. Guan., MalaiseTp, GNP Biodiv. Surv. Jul 1989 - Mar 1990, L-N-323300, 375700, INBIO CRI000 247525 (USNM); 1 male, Est. Cacao, 1000-1400m, Lado suroeste del Volcan Cacao, Prov. Guan., MalaiseTp, Jul 1989 - Mar 1990, L-N-323300, 375700, INBIO CRI000 258213 (INBio); 1 female, Est. Cacao, 1000-1400m, Lado suroeste del Volcan Cacao, Prov. Guan., MalaiseTp, Jul 1989 - Mar 1990, L-N-323300, 375700, INBIO CRI000 258079 (INBio); 1 male, Est. Maritza, 600m, lado O Vol. Orosi, Prov. Guanacaste, Tp Malaise, Ene a abr 1992, L-N 326900, 373000, INBIO CRI000 377644 (FSCA); 1 male, Est. Maritza, 600m, lado O Vol. Orosi, Prov. Guanacaste, Tp Malaise, Ene a abr 1992, L-N 326900, 373000, INBIO CRI000 377788 (ENPC); 1 female, Estac. Cacao, 1000-1400m, SW side Volcan Cacao, Guanacaste, Jul 1989 - Mar 1990, Malaise

Tp. - GNP Biod. Survey, INBIO CRI000 168806 (ENPC); 1 female, Estac. Cacao, 1000-1400m, SW side Volcan Cacao, Guanacaste, Jul 1989 - Mar 1990, Malaise Tp. - GNP Biod. Survey, INBIO CRI000 168868 (INBio); 1 female, Estac. Cacao, 1000-1400m, SW side Volcan Cacao, Guanac. Pr., Malaise Tp. 1988-1989, GNP Biodiv. Survey, 323300, 375700, INBIO CRI000 103614 (INBio); 1 female, Estac. Cacao, 1000-1400m, SW side Volcan Cacao, Guanac. Pr., Malaise Tp. 1988-1989, GNP Biodiv. Survey, 323300, 375700, INBIO CRI000 073785 (USNM); 1 female, Est. Maritza, 600m, lado O Vol. Orosi, Prov. Guanacaste, P. Campos, Feb 1992, L-N 326900, 373000, INBIO CRI000 888519 (FSCA); 1 male, Est. Cacao, 1000-1400m, SW side Volcan Cacao, Guanacaste, Jul 1989 - Mar 1990, Malaise Tp. - GNP Biod. Survey, NBIO CRI000168807 (INBio).

Geographic distribution: Known only from Francisco Morazán department, Honduras; and Guanacaste province, Costa Rica (Central America).

Discussion: This species is described from 17 specimens and the type series described herein represents the only known specimens. All specimens except the holotype were collected in Malaise traps, most at 600-1,400 m elevation.

From congeners, *Plectromerus* new species 3 can be distinguished by the combination of the following characters: pronotal surface opaque, microsculptured; each elytron with one distinct oblique macula and one arcuate-transverse band; and metafemora strongly pedunculate-clavate with strongly, deeply serrate teeth.

Plectromerus new species 3 is most similar to *Plectromerus* new species 2 (Figure 2-3a-c) but can be distinguished by the strongly, deeply serrate teeth with about 10-14 serration “peaks” (moderately serrate with about 20-24 serration “peaks” in *Plectromerus*

new species 2) and the two distinct maculae per elytron (three distinct maculae per elytron in *Plectromerus* new species 2).

***Plectromerus* new species 4 Nearns**

Description: Male (Figure 2-5a-c). Length 5.6-7.0 mm, width 1.3-1.5 mm (measured across humeri). Habitus as in Figure 2-5a. General form small, narrow, subcylindrical. Integument testaceous, with portions of head, pronotum, and antennae ferrugineous; each elytron testaceous with three major macular regions as follows: (1) basal third with a ferrugineous, oblique, narrow, irregular, vaguely defined, macula beginning below humerus and reaching sutural midpoint; (2) a ferrugineous, oblique, thicker, irregular, vaguely defined, macula from sutural midpoint to about apical third, not reaching margin; and (3) apical third testaceous, with narrow, ferrugineous, oblique, irregular, vaguely defined, macula from just below apical third to about below suture midpoint. *Head* with front nearly flat, transverse, with a median, shallow line from between eyes to just beyond vertex, somewhat concave between antennal tubercles, which are moderately raised and separated by the width of about 2.3 antennal sockets, vertex microsculptured, with dense, coarse, shallow punctures; vertex with short, recumbent, pale pubescence. Eyes coarsely faceted, transverse, subreniform, shallowly emarginate. Antennae eleven segmented, slightly longer than body; scape bowed, third antennomere slightly longer than scape, nearly twice as long as fourth, fifth antennomere longest, almost 3 times longer than fourth, antennomeres 6-10 becoming progressively shorter, eleventh antennomere slightly longer than tenth, basal antennomeres subcylindrical, from fifth slightly flattened, apices of antennomeres 5-10 produced externally. Scape with short, pale, recumbent pubescence; with shallow excavation dorsally; antennomeres 2-6 ciliate beneath with coarse, moderately long, suberect, pale

hairs. *Pronotum* subcylindrical, about 1.5 times as long as wide, widest at middle, apex about as wide as base, sides broadly inflated, arcuately constricted at basal third, and a slight inflation just before apex; basal margin slightly arcuate; disk convex, somewhat flattened, with one moderately raised, median callus immediately posterior to center, and two moderately raised, submedial calli slightly anterior to center, and two smaller slightly raised, submedial calli slightly posterior to center (Figure 2-5b); basal third of disk with two long, pale, recumbent setae positioned submedially, arising from deep punctures; lateral margins of pronotum with patch of coarse, deep punctures, and two long, suberect setae anterolaterally. Surface opaque, microsculptured, feebly shining, with portions of calli granulate. *Scutellum* small, rounded, almost as long as broad, impunctate. *Elytra* about 2.8 times as long as width at humeri, about 2.5 times as long as pronotal length, about 1.3 times broader basally than pronotum at widest point (at middle); sides nearly parallel, slightly sinuate around middle, evenly rounded to apex; each elytron individually, evenly rounded; epipleural margin moderately sinuate. Elytral disk slightly concave medially, subsuturally, creating a moderately raised costa on each elytron; base of each elytron slightly raised. Elytral surface moderately shining; punctation moderately dense, coarse, and deep at basal third; punctures becoming finer towards apex and sides, almost obsolete at apical third; each puncture with a short, fine, pale hair. *Underside* with prosternum moderately shining, one irregular patch of coarse, deep punctures in front of procoxae; narrowest area of prosternal process between procoxae about 0.2 times as wide as procoxal cavity, and about 0.5 times the width of apex of process which is subtriangular with rounded corners; prosternal process between procoxae gradually declivous; procoxal cavities open behind. Mesosternum surface moderately shining,

sparsely and finely punctate. Metasternum surface moderately shining, sparsely and finely punctate, with sparse deeper punctures and suberect, pale hairs interspersed. Metepisternum sparsely clothed with short, recumbent, pale pubescence, which is denser posteriorly. Abdomen strongly shining; finely, shallowly punctate; abdomen with sparse long, suberect, pale hairs and punctures each with a short, fine, pale hair; fifth sternite broadly subtruncate, slightly longer than preceding sternite. *Legs* with femora gradually clavate, metafemoral club about as long as basal portion, meso- and metafemora slightly arcuate, shining, clothed with sparsely to moderately densely, recumbent, short, pale pubescence; underside of each femoral club with a broad triangular tooth; metafemoral teeth with posterior edge nearly smooth, very weakly serrate, with indistinctly and irregular serration “peaks”; metatibiae moderately sinuate, slightly flattened, about 0.7 times as long as metafemora, gradually expanded distally; clothed with moderately dense, fine, recumbent, pale pubescence, becoming longer and coarser distally (Figure 2-5c).

Female. Length 9.2 mm; width 2.1 mm (measured across humeri). Very similar to male except pronotal sides lacking coarse punctures and prosternum lacking irregular patch of punctures in front of each procoxa. Abdomen with terminal sternite evenly, broadly rounded, slightly longer than preceding sternite.

Types: Holotype, male (Figure 2-5a), DOMINICAN REPUBLIC, La Cumbre de Puerto Plata, 2000', May 8-9, 1985, E. Giesbert, Coll. (FSCA). Allotype, female, DOMINICAN REPUBLIC, La Cumbre, Puerto Plata, Prov., Puerto Plata, R.D., 26-XII-1978, Cols. Dominguez-Silfa, M.N.H.N. (MNDR). Paratypes, 2 (all from DOMINICAN REPUBLIC): 1 male, same data as holotype (FSCA); 1 male, P. Plata Prov. 2000', La Cumbre Rsh. Sta., V-8, 9-1985, J. E. Wappes (JEWG).

Geographic distribution: Known only from Puerto Plata province, Dominican Republic (Greater Antilles).

Discussion: This species is described from four specimens. The type series described herein represents the only known specimens and nothing is known about its biology.

From congeners, *Plectromerus* new species 4 can be distinguished by the combination of the following characters: scape with shallow excavation dorsally; pronotal disk with moderately raised calli; and metafemoral teeth very weakly serrate (almost smooth). *Plectromerus* new species 4 is most similar to *P. lingafelteri* (Figure 3-19a-c) but can be distinguished by the moderately raised pronotal disk calli (more weakly raised in *P. lingafelteri*), testaceous integument (darker in *P. lingafelteri*), and vertex of head with moderately dense, coarse, shallow punctation (vertex of head with sparse, smaller, more shallow punctation in *P. lingafelteri*).

***Plectromerus* new species 5 Nearns**

Description: Female (Figure 2-6a-c). Length 8.5 mm, width 2.1 mm (measured across humeri). Habitus as in Figure 2-6a. General form small, narrow, subcylindrical. Integument testaceous, with portions of head, pronotum, and femoral apices ferrugineous; pronotum with dark reddish-brown to black maculae; each elytron testaceous with two large, irregular, ferrugineous macular regions, one at basal third, the other at apical third, elytral apices testaceous. *Head* with front nearly flat, transverse, with a median, shallow line from between eyes to just beyond vertex, moderately concave between antennal tubercles, which are somewhat raised and separated by the width of about 2.5 antennal sockets, vertex microsculptured, with moderately dense, shallow punctures; vertex with short, recumbent, pale pubescence. Eyes coarsely faceted, transverse, subreniform,

shallowly emarginate. Antennae eleven segmented, slightly longer than body; scape bowed, third antennomere about as long as scape, only slightly longer than fourth, fifth antennomere longest, almost twice as long as fourth, about 1.3 times longer than third, antennomeres 6-10 becoming progressively shorter, eleventh slightly longer than tenth, basal antennomeres subcylindrical, from fifth slightly flattened, apices of antennomeres 6-10 produced externally. Scape microsculptured with dense, shallow punctation; antennomeres 2-7 ciliate beneath with coarse, moderately long, suberect, pale hairs.

Pronotum subcylindrical, about 1.3 times as long as wide, widest at base, broader at base than apex, sides nearly parallel, slightly constricted at basal third, and a slight inflation just before apex; disk convex, with one strongly raised, median callus at about the center, with two strongly raised, submedial calli slightly anterior to center, and two moderately raised, submedial calli slightly posterior to center. Basal third of disk with one long, pale, suberect seta positioned submedially on each side, arising from a deep puncture (setae broken off); lateral margins of pronotum without patch of coarse, deep punctures; lateral margins with one slightly raised callus just anterior to middle; pronotum with two or three long, suberect setae anterolaterally. Surface strongly shining, microsculptured, with sparse, shallow punctation. *Scutellum* small, rounded, almost as long as broad, impunctate. *Elytra* about 2.8 times as long as width at humeri, about 3.5 times as long as pronotal length, about 1.7 times broader basally than pronotum at widest point (at base); sides nearly parallel, slightly sinuate around middle, evenly rounded to apex; elytral apices individually, evenly rounded; epipleural margin slightly sinuate. Elytral disk slightly concave medially, subsuturally, creating a faint costa on each elytron; base of each elytron slightly raised. Elytral surface shining; punctation moderately dense, coarse,

and deep at basal two-thirds; punctures becoming finer towards apex and sides; each puncture with a short, fine, pale hair; elytra with scattered, long, suberect, pale hairs. *Underside* with prosternum strongly shining, with very sparsely and finely punctate, short, pale pubescence; narrowest area of prosternal process between procoxae about 0.3 times as wide as procoxal cavity, and about 0.5 times the width of apex of process which is subtriangular with rounded corners; prosternal process between procoxae gradually declivous; procoxal cavities open behind (Figure 2-6b). Meso- and metasternum surface strongly shining, very sparsely and finely punctate. Metepisternum sparsely clothed with short, recumbent, pale pubescence, which is denser posteriorly. Abdomen strongly shining, finely, shallowly punctate; abdomen with few long, suberect, pale hairs and punctures each with a short, fine, pale hair; fifth sternite broadly rounded, slightly longer than preceding sternite. *Legs* with femora pedunculate-clavate, basal portion distinctly longer than metafemoral club, meso- and metafemora slightly arcuate, shining, clothed with sparsely to moderately densely, recumbent, short, pale pubescence; underside of each femoral club with a broad, acute, triangular tooth; metafemoral teeth with posterior edge nearly smooth, metatibiae slightly sinuate, slightly flattened, about 0.7 as long as metafemora, gradually expanded distally; clothed with moderately dense, fine, recumbent, pale pubescence distally (Figure 2-6c).

Type: Holotype, female (Figure 2-6a), HAITI, Morne Guimy, 22km., SE. Fond Verrettes, 19 JUL 1956, 6500' B.&B. Valentine, Foret des Pins, Hardwood cloud forest, beating (WIBF, to be deposited at USNM).

Geographic distribution: Known only from Morne Guimy, Haiti (Greater Antilles).

Discussion: This species is described from a single female specimen collected beating at approximately 1,980 m elevation. The holotype described herein represents the only known specimen and nothing is known about its biology.

This species is a very distinctive from known congeners and can easily be distinguished by the combination of the following characters: third antennomere only slightly longer than fourth; pronotal disk with dark reddish-brown to black maculae and with strongly raised calli; and metafemoral club small, with tooth very weakly serrate (Figure 2-6a-c).

***Plectromerus* new species 6 Nearns**

Description: Female (Figure 2-7a-c). Length 6.7 mm, width 1.5 mm (measured across humeri). Habitus as in Figure 2-7a. General form small, narrow, subcylindrical. Integument testaceous, with portions of antennae, and pronotum ferrugineous; head dark reddish-brown; each elytron testaceous with two vaguely defined macular regions as follows: (1) basal third with one narrow, transverse, ferrugineous, macula not reaching epipleural margins, and (2) apical third with one thicker, subcircular, ferrugineous, macula not reaching epipleural margins. *Head* with front nearly flat, transverse, with a median, shallow line from between eyes to just beyond vertex, nearly flat and very slightly concave between antennal tubercles, which are separated by about the width of two antennal sockets, vertex microsculptured, with dense, shallow punctures; vertex with short, recumbent, pale pubescence. Eyes coarsely faceted, transverse, subreniform, shallowly emarginate. Antennae eleven segmented, about as long as body; scape bowed, third antennomere about as long as scape, a little longer than fourth, fifth antennomere longest, about twice as long as fourth, about 1.5 times as long as third, basal antennomeres subcylindrical, from fifth slightly flattened, apices of antennomeres 5-8

slightly produced externally (antennomeres 9-11 missing on left antenna, and 5-11 missing on right). Scape with short, pale, recumbent pubescence; antennomeres 2-7 ciliate beneath with coarse, moderately long, suberect, pale hairs. *Pronotum* subcylindrical, about 1.3 times as long as wide, widest at middle, about as wide at base as apex, sides slightly inflated, slightly constricted at basal third, and a slight inflation just before apex; basal margin very slightly arcuate; disk convex, somewhat flattened, with two very slightly raised, submedial inflations slightly anterior to center, and two smaller very slightly raised, submedial inflations slightly posterior to center; lateral margins of pronotum without patch of coarse, deep punctures, with one long, recumbent seta anterolaterally. Surface opaque, microsculptured, slightly shining, with dense, shallow punctation, basal third of disk with two long, pale, recumbent setae positioned submedially, arising from deep punctures. *Scutellum* small, rounded, almost as long as broad, impunctate. *Elytra* about 2.8 times as long as width at humeri, about 2.8 times as long as pronotal length, about 1.3 times broader basally than pronotum at widest point (at middle); sides nearly parallel, very slightly sinuate, evenly rounded to apex, elytral apices individually rounded, nearly subtruncate; epipleural margin slightly sinuate (Figure 2-7c). Elytral disk slightly concave medially, subsuturally, creating a faint costa on each elytron; base of each slightly raised. Elytral surface moderately shining; punctation moderately dense, coarse, and deep at basal third; punctures becoming finer towards apex and sides, almost obsolete at apical third; punctures each with a short, fine, pale, recumbent hair, with scattered long, suberect setae (each about as long as scape) (Figure 2-7c). *Underside* with prosternum moderately shining, with scattered, coarse, shallow punctation; narrowest area of prosternal process between procoxae about 0.2 times as

wide as procoxal cavity, and about 0.5 times the width of apex of process which is subtriangular with rounded corners; prosternal process between procoxae gradually declivous; procoxal cavities open behind. Mesosternum surface moderately shining, sparsely punctate with coarse, shallow punctures. Metasternum surface moderately shining, with moderately dense, deep punctures, with a few suberect, pale hairs interspersed. Metepisternum sparsely clothed with short, recumbent, pale pubescence, which is denser posteriorly. Abdomen moderately shining; finely, shallowly punctate, with scattered coarse punctures; abdomen with sparse long, suberect, pale hairs and punctures each with a short, fine, pale hair; fifth sternite broadly rounded, slightly longer than preceding sternite. *Legs* with femora pedunculate-clavate, metafemoral club slightly longer than basal portion, meso- and metafemora slightly arcuate, shining, clothed with sparse, recumbent, short, pale pubescence; underside of each femoral club with a broad, acute triangular tooth; metafemoral teeth with posterior edge weakly, very shallowly serrate, with about 16 irregular serration “peaks”; each peak with a short, curved, pale hair; metatibiae nearly straight, very slightly sinuate, slightly flattened, about 0.7 times long as metafemora, gradually expanded distally; clothed with moderately dense, fine, recumbent, pale pubescence, becoming longer and coarser distally (Figure 2-7b).

Type: Holotype, female (Figure 2-7a), CAYMAN ISLANDS, Grand Cayman, West Bay (Town Hall Crescent), 21-VII-1-VIII-1986, Diderot Gicca, blacklight trap (FSCA).

Geographic distribution: Known only from Grand Cayman, Cayman Islands (Greater Antilles).

Discussion: This species is described from a single female specimen collected in a blacklight trap. The holotype described herein represents the only known specimen and nothing is known about its biology.

From congeners, *Plectromerus* new species 6 can be distinguished by the combination of the following characters: elytra with scattered long, suberect setae; pronotal disk microsculptured with dense, shallow punctation; and metafemoral teeth weakly, irregularly serrate. This species is very similar to *P. wappesi* and *P. unidentatus* in several characters including antennal segment proportions, pronotal disk punctation, shape of elytral apices, and metafemoral and metatibial shape. However, *Plectromerus* new species 6 can be easily be distinguished from *P. unidentatus* by the scattered long, suberect setae on the elytra (elytra without long, suberect setae *P. unidentatus*), and from *P. wappesi* by the very weakly, irregularly serrate metafemoral teeth (moderately, evenly serrate in *P. wappesi*), and lack of scattered long, suberect setae on scape, pronotal disk, and metafemora (scape, pronotal disk, and metafemora with long, suberect setae in *P. wappesi*).

***Plectromerus* new species 7 Nearns**

Description: Female (Figure 2-8a-d). Length 6.2 mm, width 1.4 mm (measured across humeri). Habitus as in Figure 2-8a. General form small, narrow, subcylindrical. Integument testaceous, with portions of head, pronotum, elytra, and femoral apices ferrugineous. *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 slightly raised and separated by the width of about two antennal sockets; vertex microsculptured, with dense, shallow punctures; vertex with short, recumbent, pale pubescence. Eyes coarsely faceted, transverse, ovate, very shallowly emarginate.

Antennae eleven segmented, slightly longer than body; scape bowed, third antennomere about as long as scape, about 1.5 times longer than fourth, fifth antennomere longest, slightly more than twice as long as fourth, about 1.5 times longer than third, only slightly longer than sixth and seventh, eleventh slightly longer than tenth, about as long as scape, basal antennomeres subcylindrical, from fifth slightly flattened, apices of antennomeres 6-10 produced externally. Scape with short, pale, recumbent pubescence; antennomeres 2-5 ciliate beneath with coarse, moderately long, suberect, pale hairs. *Pronotum* subcylindrical, about 1.5 times as long as wide, widest at middle, slightly broader at apex than base, sides broadly inflated, arcuately constricted at basal third, and a slight inflation just before apex; basal margin slightly arcuate; disk convex, with scattered, long, suberect, pale hairs; basal third of disk with two long, pale, recumbent setae positioned submedially, arising from deep punctures; lateral margins of pronotum with patch of coarse, deep punctures, and two long, suberect setae anterolaterally. Surface opaque, slightly shining; pronotal disk somewhat wrinkled, moderately granulose. *Scutellum* small, rounded, almost as long as broad, impunctate. *Elytra* about 2.8 times as long as width at humeri, about 2.3 times as long as pronotal length, about 1.3 times broader basally than pronotum at widest point (at middle); sides slightly sinuate around middle, evenly rounded to apex, elytral apices individually, sinuately rounded; epipleural margin strongly sinuate. Elytral disk slightly concave medially, subsuturally, creating a faint costa on each elytron; base of each elytron slightly raised. Elytral surface strongly shining; punctation moderately dense, coarse, and deep at basal third; punctures becoming finer towards apex and sides, almost obsolete at apical third; each puncture with a short, fine, pale hair; elytra with scattered, long, suberect, pale hairs. *Underside*

with prosternum strongly shining, one irregular patch of coarse, deep punctures in front of each procoxa; narrowest area of prosternal process between procoxae about 0.2 times as wide as procoxal cavity, and about 0.3 times the width of apex of process which is subtriangular with rounded corners; prosternal process between procoxae gradually declivous; procoxal cavities very narrowly open behind (Figure 2-8b). Meso- and metasternum surface strongly shining, sparsely and finely punctate. Metepisternum sparsely clothed with short, recumbent, pale pubescence, which is denser posteriorly. Abdomen strongly shining, sparsely and finely punctate, abdomen with two long, suberect, pale hairs per sternite; fifth sternite broadly subtruncate, slightly longer than preceding sternite. *Legs* with femora pedunculate-clavate, metafemoral club slightly longer than basal portion, meso- and metafemora slightly arcuate, shining, clothed with sparsely to moderately densely, recumbent, short, pale pubescence and with sparse, scattered, suberect, pale hairs arising from shallow punctures; underside of each femoral club with a broad triangular tooth; metafemoral teeth with posterior edge strongly, deeply serrate, with about 14-17 serration “peaks”; each peak with a short, curved, pale hair; metatibiae moderately sinuate slightly flattened, about 0.5 times as long as metafemora, gradually expanded distally; clothed with moderately dense, fine, recumbent, pale pubescence, becoming longer and coarser distally (Figure 2-8d).

Male. Length 5.0-6.8 mm; width 1.1-1.5 mm (measured across humeri). Very similar to male except pronotal sides lacking coarse punctures and prosternum lacking irregular patch of punctures in front of each procoxa (Figure 2-8c). Abdomen with terminal sternite evenly, broadly rounded, about 1.5 times longer than preceding sternite.

Types: Holotype, female (Figure 2-8a), PANAMA, Pan. Pr., 12 km N El Llano, 24 Jan 1993, F.T. Hovore, coll (USNM). Allotype, male, PANAMA, Pma Province, Cerro Campana 850m, 8°40'N, 79°56'W, 12 Mar. '71 W. Biven (USNM). Paratypes, 2 (all from PANAMA): 1 female, Pma. Pr., Liano-Carti Rd., Km-9, El. 350m., 16 Feb. '91, Stockwell (FTHC); 1 female, C.Z., Diablo, 2 April '78, Wm. Biven (FSCA).

Geographic distribution: Known only from Panama province, Panama (Central America).

Discussion: This species is described from one male and three females. The type series described herein represents the only known specimens and nothing is known about its biology.

This species is unusual among *Plectromerus* species in having the procoxal cavities very narrowly open behind (Figure 4-17b), similar only to *P. dominicanus* (= *Curiosa dominicana*). From congeners, *Plectromerus* new species 7 can be distinguished by the combination of the following characters: pronotal disk opaque, moderately granulose; elytral apices individually, sinuately rounded; and metafemoral teeth strongly, deeply serrate. This species is most similar to *P. wappesi* but differs from it in having the pronotal disk somewhat wrinkled, nearly granulose (microsculptured with dense, round, shallow punctation in *P. wappesi*), strongly, deeply serrate metafemoral teeth (moderately, evenly serrate in *P. wappesi*), and elytra apices individually, sinuately rounded (jointly rounded to subtruncate in *P. wappesi*).

***Plectromerus* new species 8 Nearns**

Description: Male (Figure 2-9a-d). Length 8.5-10.2 mm, width 1.9-2.4 mm (measured across humeri). Habitus as in Figure 2-9a. General form small, narrow, subcylindrical. Integument testaceous, with portions of head, antennae, and elytra

ferrugineus. *Head* with front nearly flat, transverse, with a median, shallow line from between eyes to just beyond vertex, shallowly concave between antennal tubercles, which are slightly raised and separated by the width of about two antennal sockets; vertex lightly microsculptured, with scattered, moderately deep punctures; vertex with short, recumbent, pale pubescence. Eyes coarsely faceted, transverse, subreniform, moderately emarginate. Antennae eleven segmented, slightly longer than body; scape bowed, third antennomere about as long as scape, more than twice as long as fourth, fifth antennomere longest, more than 3 times longer than fourth, basal antennomeres subcylindrical, from fifth slightly flattened, apices of antennomeres 5-10 produced externally. Scape with short, pale, recumbent pubescence, with shallow to moderately deep excavation dorsally (Figure 2-9d); antennomeres 2-7 ciliate beneath with coarse, moderately long, suberect, pale hairs. *Pronotum* subcylindrical, about 1.3 times as long as wide, widest at middle, slightly wider at base than at apex, sides broadly inflated, arcuately constricted at basal third, and a slight inflation just before apex; basal margin slightly arcuate; disk convex, somewhat flattened, with one slightly raised, median callus immediately posterior to center, about as long as the fourth antennomere, and two moderately raised, submedial calli slightly anterior to center, and two smaller very slightly raised, submedial calli slightly posterior to center; basal third of disk with one long, pale, recumbent or suberect seta positioned submedially, arising from deep punctures; lateral margins of pronotum with patch of coarse, deep punctures, and one or two long, suberect setae anterolaterally. Surface opaque, microsculptured, moderately shining, with dense, moderately deep, somewhat evenly spaced punctation. *Scutellum* small, rounded, almost as long as broad, impunctate. *Elytra* nearly 3 times as long as width at humeri, about 3 times as long as

pronotal length, about 1.3 times broader basally than pronotum at widest point (at middle); sides nearly parallel, very slightly sinuate, evenly rounded to apex, elytral apices individually rounded to weakly subtruncate; epipleural margin moderately sinuate. Elytral disk slightly concave medially, subsuturally, creating a faint costa on each elytron; base of each slightly raised. Elytral surface moderately shining; punctation moderately dense, coarse, and deep at basal third; punctures becoming finer towards apex and sides, almost obsolete at apical third; each puncture with a short, fine, pale hair; elytral apices with few long, pale, suberect hair. *Underside* with prosternum strongly shining, with scattered, coarse, deep punctation, one irregular patch of 2-3 coarse, deep punctures in front of each procoxa; narrowest area of prosternal process between procoxae about 0.2 times as wide as procoxal cavity, and about 0.5 times the width of apex of process which is subtriangular with rounded corners; prosternal process between procoxae gradually declivous, procoxal cavities open behind. Mesosternum surface strongly shining, sparsely punctate with coarse, deep punctures. Metasternum surface strongly shining, with moderately dense, deep punctures, with a few suberect, pale hairs interspersed (Figure 2-9c). Metepisternum sparsely clothed with short, recumbent, pale pubescence, which is denser posteriorly. Abdomen strongly shining; finely, shallowly punctate, with scattered coarse punctures; abdomen with sparse long, suberect, pale hairs and punctures each with a short, fine, pale hair; fifth sternite broadly subtruncate, slightly longer than preceding sternite. *Legs* with femora gradually clavate, metafemoral club slightly longer than basal portion, meso- and metafemora slightly arcuate, shining, clothed with sparse, recumbent, short, pale pubescence; underside of each femoral club with a broad, acute triangular tooth; metafemoral teeth with posterior edge very weakly

serrate, with indistinctly and irregular serration “peaks”; each peak with a short, curved, pale hair; metatibiae nearly straight, very slightly sinuate, slightly flattened, about as long as metafemora, gradually expanded distally; clothed with moderately dense, fine, recumbent, pale pubescence, becoming longer and coarser distally (Figure 2-9b).

Female. Length 7.4-10.2 mm; width 1.8-2.4 mm (measured across humeri). Very similar to male except pronotal sides lacking patch of deep, coarse punctures and prosternum lacking irregular patch of punctures in front of each procoxa. Abdomen with terminal sternite evenly, broadly rounded, slightly longer than preceding sternite.

Types: Holotype, male (Figure 2-9a), DOMINICAN REPUBLIC, Pedernales, PN Sierra de Bahoruco, Las Abejas, 1150 m. at tree fall, Spec.ID: 6903, E. Nearn & S. Lingafelter 18-VI-2005 (USNM). Allotype, female, DOMINICAN REPUBLIC: Independencia, Sierra de Bahoruco, north slope, 13.5 km SE Puerto Escondido, 18-12-18N, 71-31-08W, 1789 m. 24-26 Mar 2004, R. Davidson, J. Rawlins, C. Young, C. Nunez, M. Rial, ecotonal *Pinus* grassland, malaise trap, Sample 41183 (CMNH). Paratypes, 4 (all from DOMINICAN REPUBLIC): 1 male and 2 females, Pedernales. La Abeja, 38 km NNW Cabo Rojo (18°09N, 71°38W), 1160m. 13 July 1987, J. Rawlins, R. Davidson (CMNH); 1 male, Payaso, 13 July 1996, R. Turnbow (RHTC).

Geographic distribution: Known from Barahona and Pedernales provinces, Dominican Republic (Greater Antilles).

Discussion: This species is described from six specimens, several of which were collected at between 1,150-1,789 m elevation. The type series described herein represent the only known specimens and nothing is known about its biology.

From congeners, *Plectromerus* new species 8 can be separated from congeners by the combination of the following characters: scape with shallow to moderately deep excavation dorsally; pronotal disk with slightly to moderately raised calli; metafemora gradually clavate; and metafemoral teeth very weakly serrate. This species is most similar to *P. fasciatus* in several characters including antennal segment proportions, gradually clavate metafemora, and very weakly serrate metafemoral teeth. However, *Plectromerus* new species 8 differs in having the pronotum with dense, moderately deep, somewhat evenly spaced punctation (pronotum with dense, confluent, very shallow punctation in *P. fasciatus*), and elytral apices with few long, pale, suberect setae (elytra with scattered to moderately dense, long, pale, suberect, setae in *P. fasciatus*).

Table 2-1. Acronyms of entomological collections studied.

AMNH	American Museum of Natural History, New York, NY, USA
BMNH	The Natural History Museum, London, United Kingdom
CMNH	Carnegie Museum of Natural History, Pittsburgh, PA, USA
DHPC	Daniel Heffern Private Collection, Houston, TX, USA
EFGC	Edmund F. Giesbert Collection, Gainesville (at FSCA), FL, USA
EMEC	Essig Museum of Entomology, University of California, Berkeley, CA, USA
ENPC	Eugenio H. Nearn's Private Collection, Gainesville, FL, USA
FDZC	Fernando de Zayas Collection, Havana, Cuba
FSCA	Florida State Collection of Arthropods, Gainesville, FL, USA
FTHC	Frank T. Hovore Private Collection, Santa Clarita, CA, USA
FVPC	Francesco Vitali Private Collection, Genova, Italy
IESC	Instituto de Ecología y Sistemática, Havana, Cuba
INBio	Instituto Nacional de Biodiversidad, Santo Domingo de Heredia, Costa Rica
JAMC	Julio and Charyn Micheli Private Collection, Ponce, PR, USA
JEWC	James E. Wappes Private Collection, San Antonio, TX, USA
LSAM	Louisiana State Arthropod Museum, Baton Rouge, LA, USA
MCZ	Museum of Comparative Zoology, Harvard University, Cambridge, MA, USA
MNDR	Museo Nacional de Historia Natural, Santo Domingo, Dominican Republic
MNHN	Museo Nacional de Historia Natural, Havana, Cuba
MNRJ	Museu Nacional, Universidade Federal do Rio de Janeiro, Rio de Janeiro, Brazil
REWC	Robert E. Woodruff Private Collection, Gainesville, FL, USA
RFMC	Roy F. Morris Private Collection, Lakeland, FL, USA
RHTC	Robert H. Turnbow, Jr. Private Collection, Ft. Rucker, AL, USA
SDPC	Sergio Devesa Private Collection, San Vicente, Spain
TAMU	Texas A&M University, College Station, TX, USA
UCRC	University of California Entomology Research Collection, Riverside, CA, USA
USNM	National Museum of Natural History, Smithsonian Institution, Wash., DC, USA
WIBF	West Indian Beetle Fauna Project, Michael A. Ivie, Bozeman, MT, USA

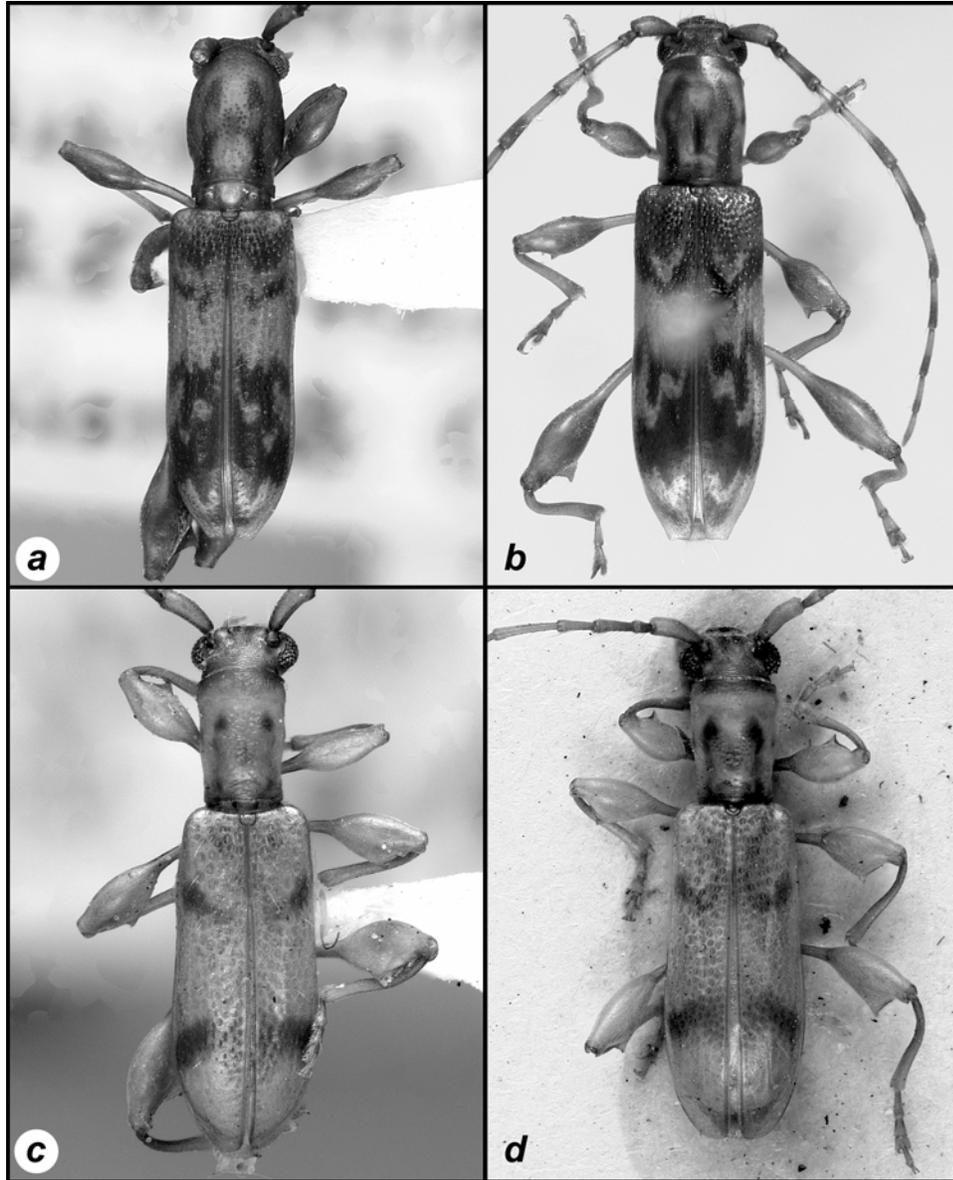


Figure 2-1. Four species of *Plectromerus*. A) *Plectromerus costatus* Cazier & Lacey, holotype, male, dorsal habitus. B) *Plectromerus dentipes* (Olivier), female, dorsal habitus. C) *Plectromerus crenulatus* Cazier, holotype, female, dorsal habitus. D) *Plectromerus distinctus* (Cameron), holotype, female, dorsal habitus.

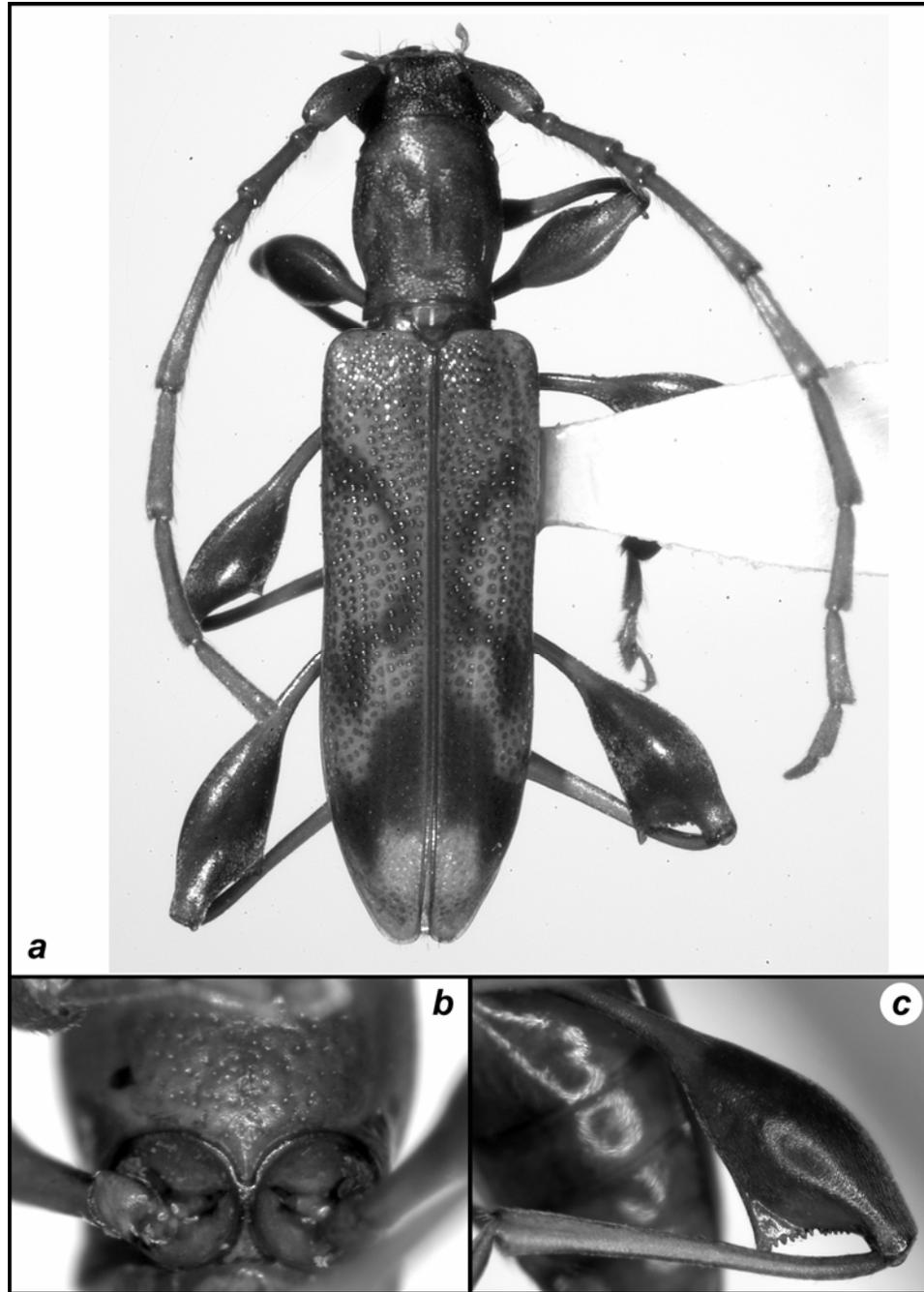


Figure 2-2. *Plectromerus* new species 1 Nearn, holotype, male. A) Dorsal habitus. B) Closeup of prosternum. C) Closeup of metafemur and metatibia, ventral view.

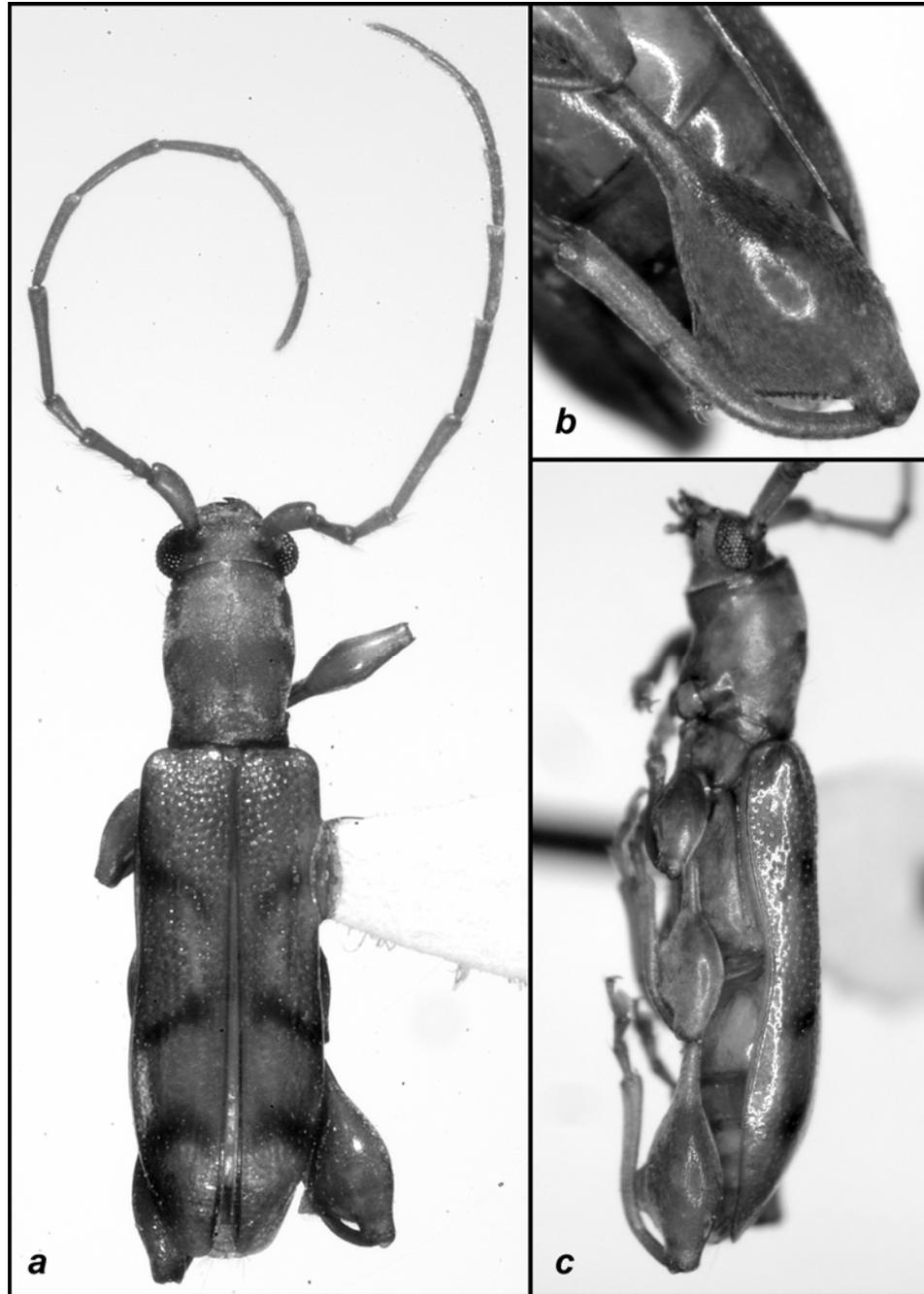


Figure 2-3. *Plectromerus* new species 2 Nearn, holotype, female. A) Dorsal habitus. B) Closeup of metafemur and metatibia, ventral view. C) Lateral habitus.

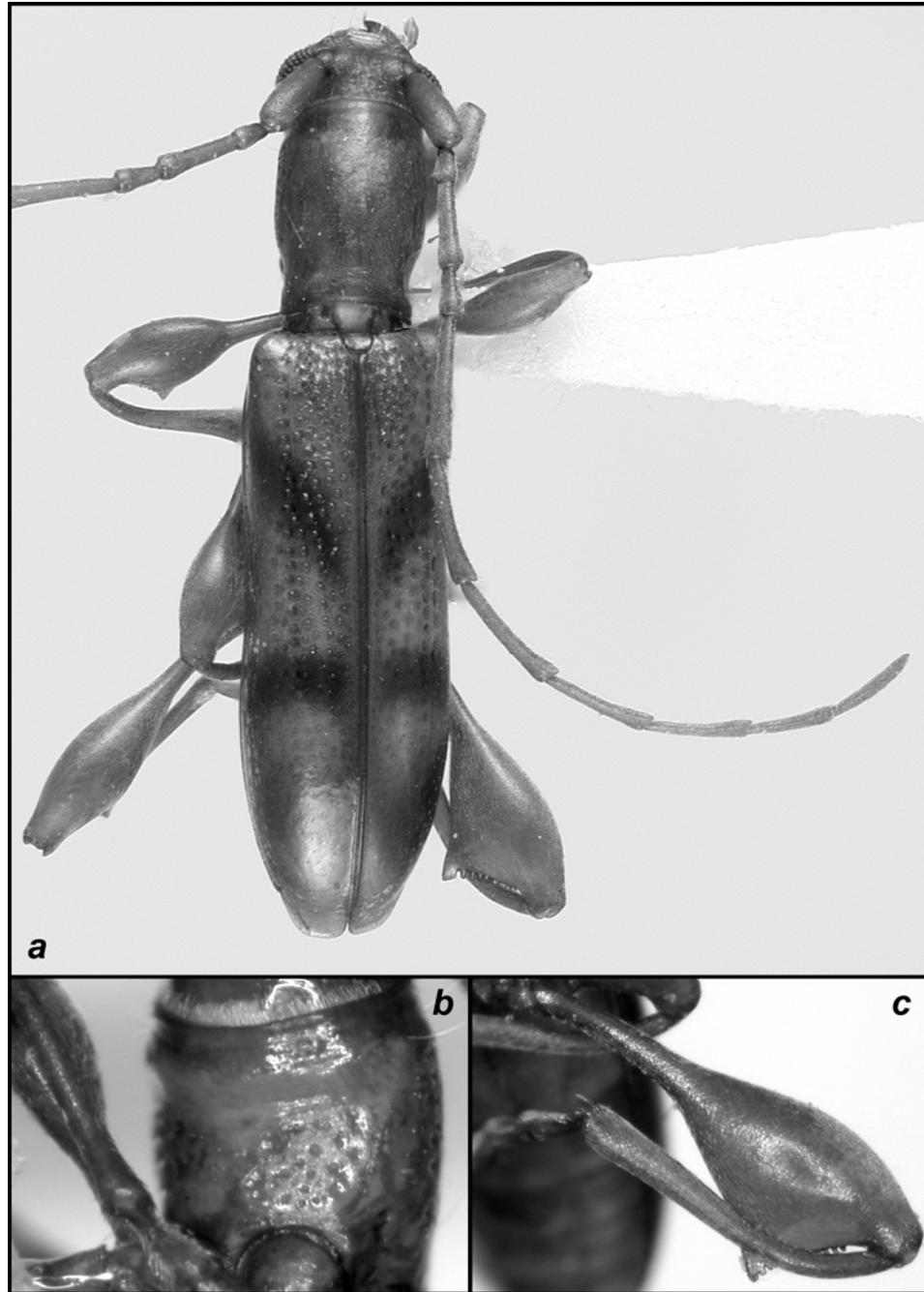


Figure 2-4. *Plectromerus* new species 3 Nearn, holotype, male. A) Dorsal habitus. B) Closeup of prosternum. C) Closeup of metafemur and metatibia, ventral view.

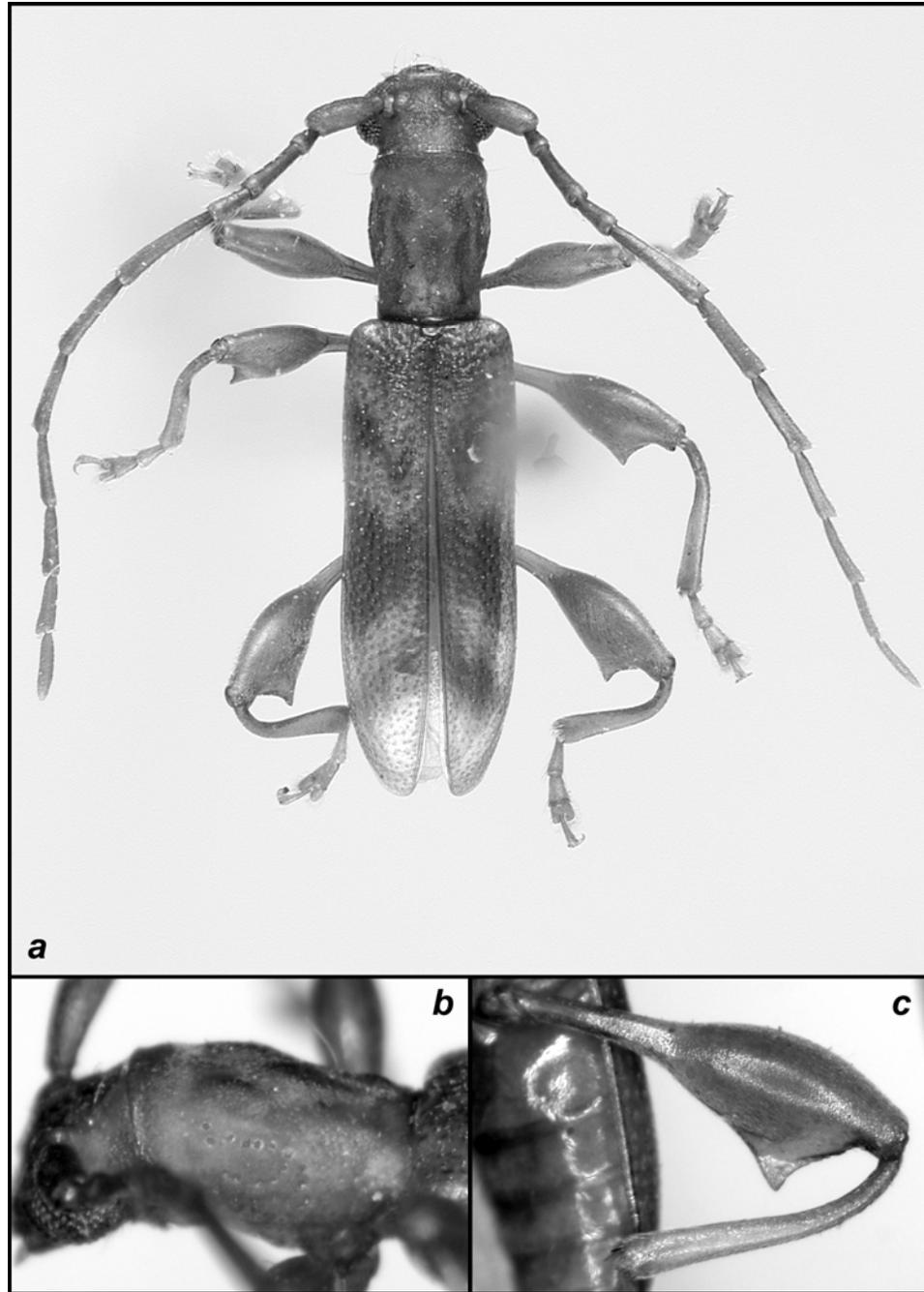


Figure 2-5. *Plectromerus* new species 4 Nearn, holotype, male. A) Dorsal habitus. B) Closeup of pronotum, lateral view. C) Closeup of metafemur and metatibia, ventral view.

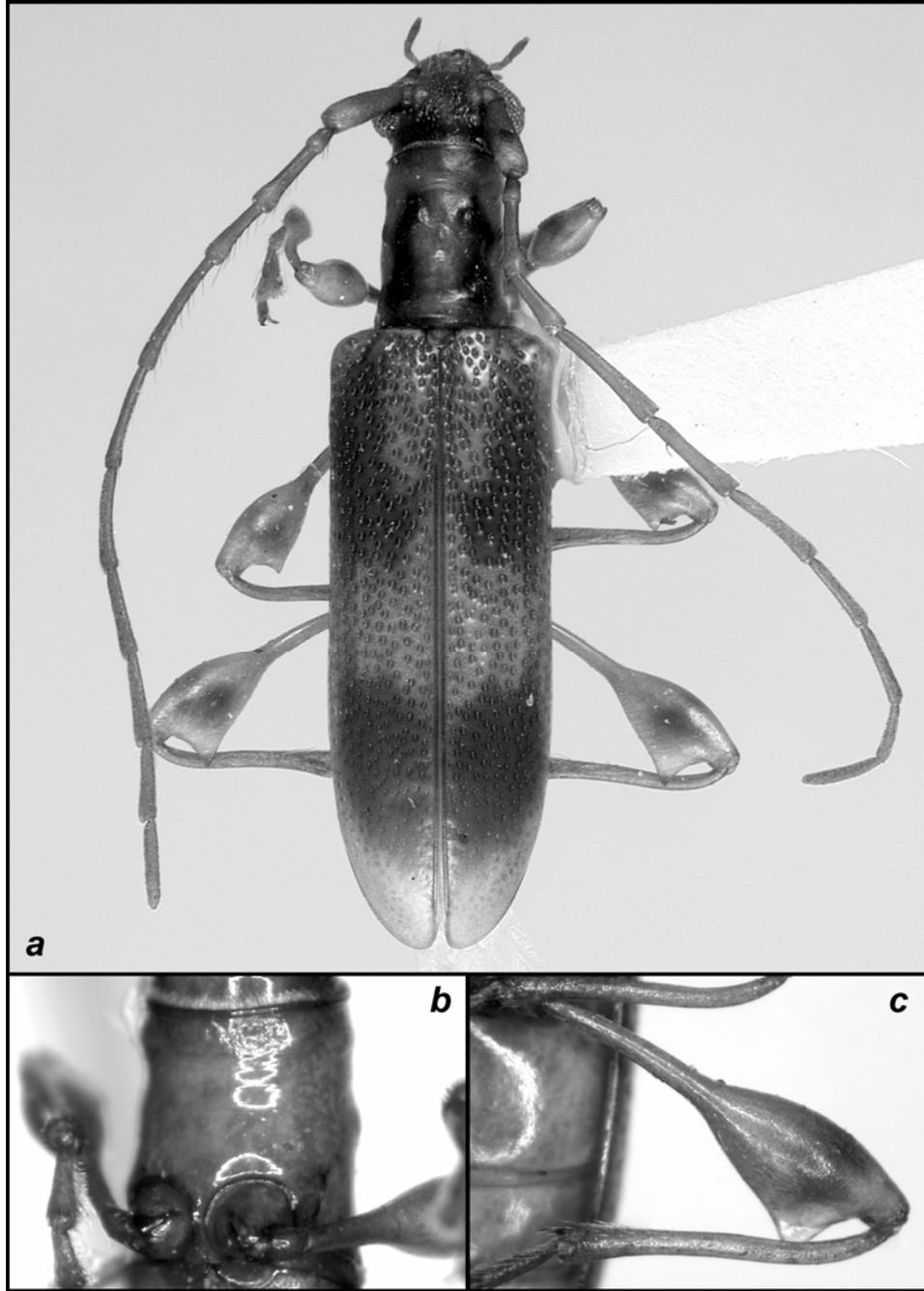


Figure 2-6. *Plectromerus* new species 5 Nearn, holotype, female. A) Dorsal habitus. B) Closeup of prosternum. C) Closeup of metafemur and metatibia, ventral view.

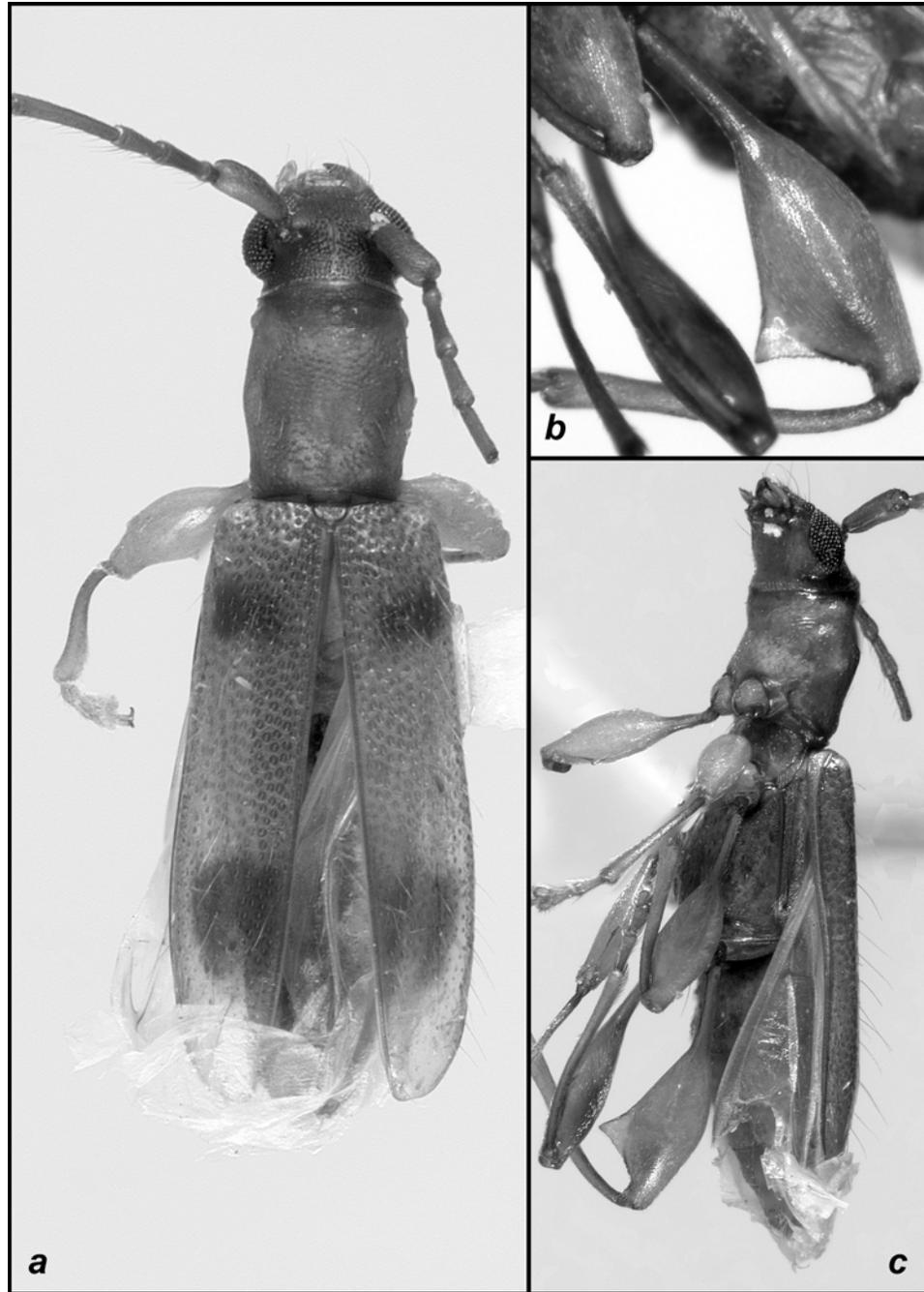


Figure 2-7. *Plectromerus* new species 6 Nearn, holotype, female. A) Dorsal habitus. B) Closeup of metafemur and metatibia, ventral view. C) Lateral habitus.

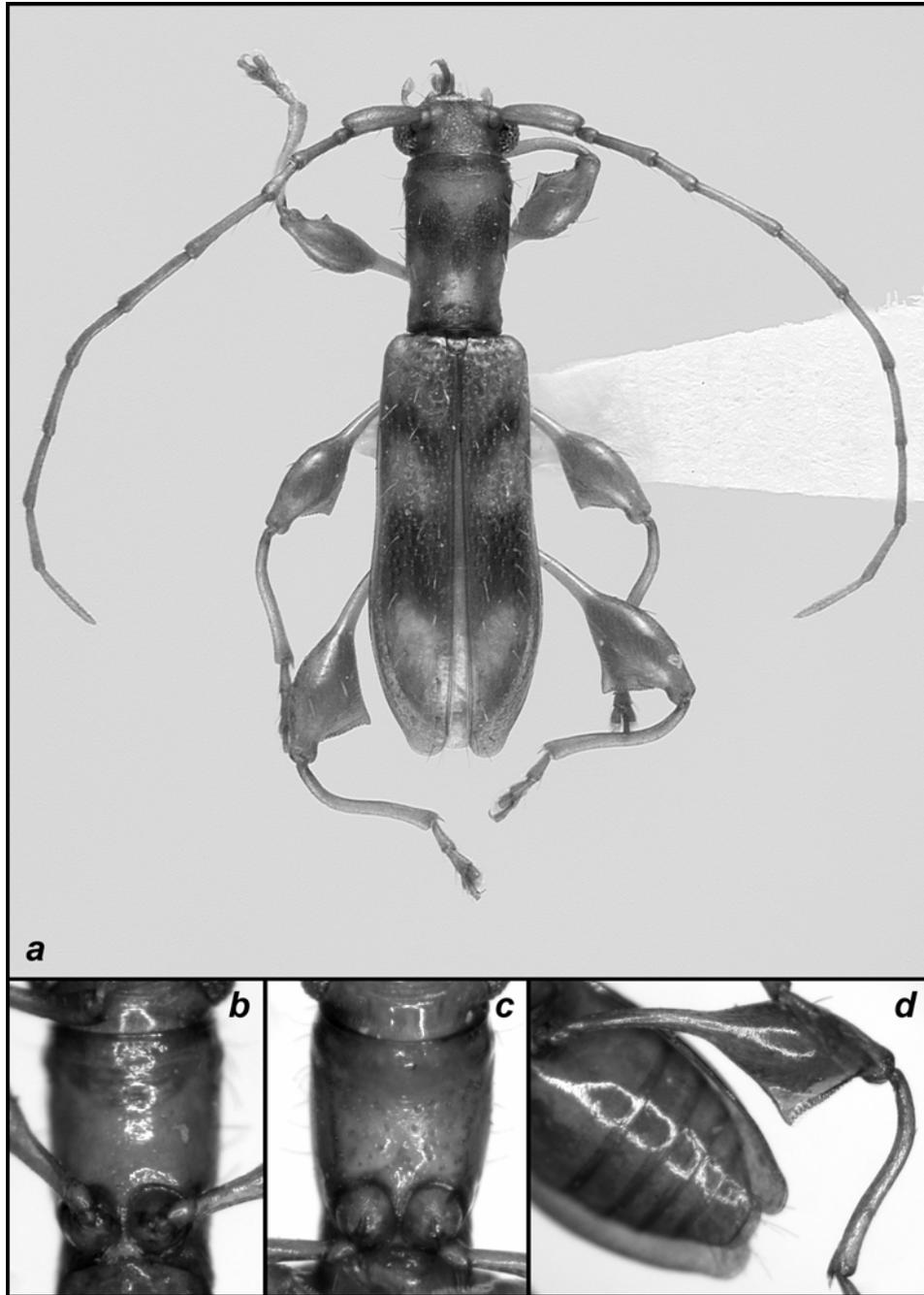


Figure 2-8. *Plectromerus* new species 7 Nearn. A) Holotype, female, dorsal habitus. B) Holotype, female, closeup of prosternum. C) Allotype, male closeup of prosternum. D) Holotype, female, closeup of metafemur and metatibia, ventral view.

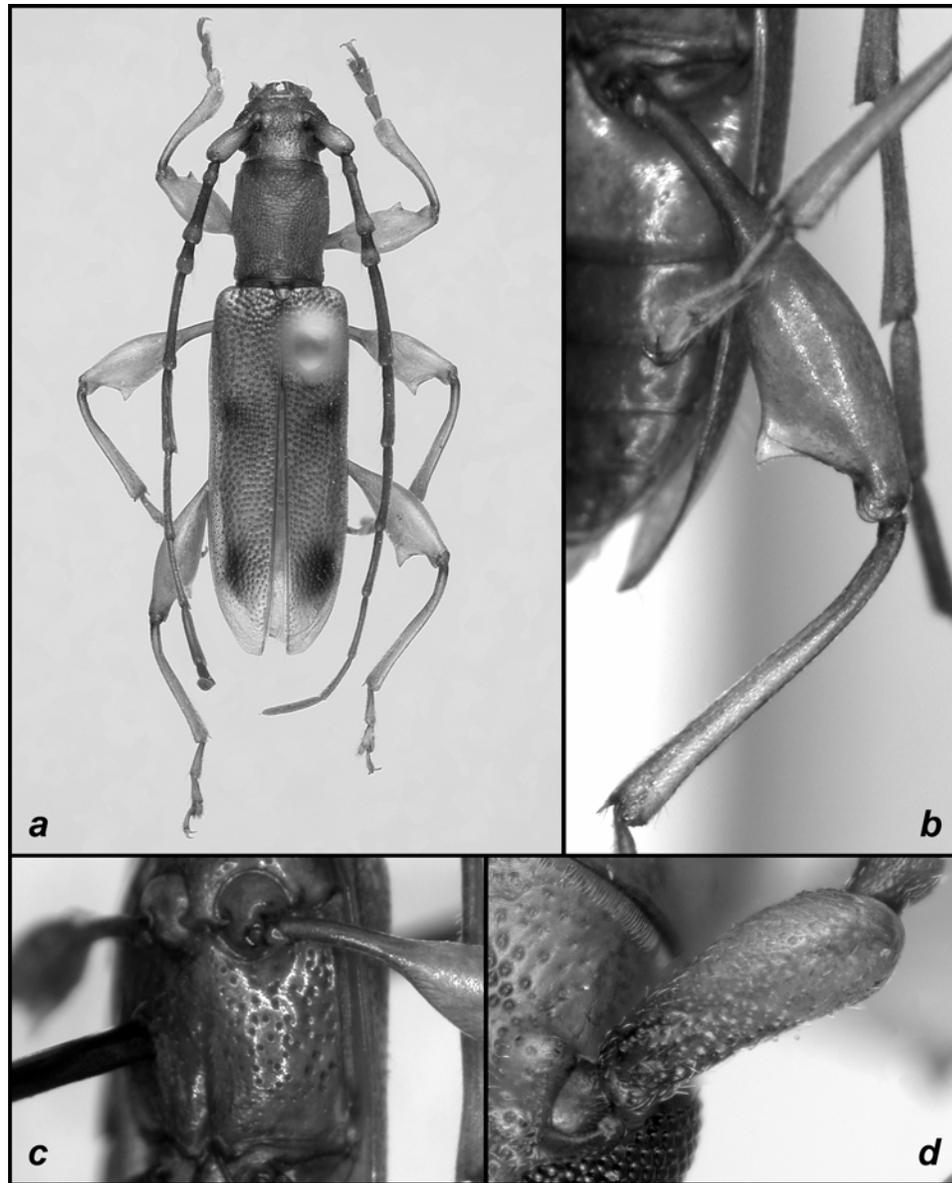


Figure 2-9. *Plectromerus* new species 8 Nearn, holotype, male. A) Dorsal habitus. B) Closeup of metafemur and metatibia, ventral view. C) Closeup of metasternum. D) Closeup of scape excavation, dorsal view.

CHAPTER 3
REVISION OF CURIINI LECONTE

Curiini LeConte, 1873: 304

The longhorned beetle tribe Curiini LeConte, 1873 (Coleoptera: Cerambycidae: Cerambycinae) is a medium-sized group of Neotropical cerambycid beetles. As currently defined, the tribe consists of three genera (*Curiosa* Micheli, 1983; *Curius* Newman, 1840; and *Plectromerus* Haldeman, 1847) containing 29 extant and two extinct species. The genus *Pentomacrus* White, 1855 was synonymized with *Plectromerus* in 1985 and the synonymy of a fourth genus (*Curiosa* Micheli, 1983) with *Plectromerus* is proposed in Chapter 2. The curiines are of predominantly of Antillean distribution but also occur in the SE USA, and range from SE Mexico to Venezuela.

The tribe has traditionally been defined by the presence of the following morphological characters: coarsely faceted eyes, a flat, transverse head, and strongly clavate femora armed beneath with a broad tooth. In catalogs, the tribe has been placed consistently within the subfamily Cerambycinae between the Iridionini and Oribini. A previous phylogenetic analysis of the Curiini has not been conducted and the monophyly of the tribe is untested. Recent works on the curiines have been provided by Vitali (2004), Vitali & Rezbanyai-Reser (2003), Micheli & Nearn (2005), Nearn & Branham (2005), Nearn & Ray (2006), Nearn & Steiner (2006), Nearn & Turnbow (2005), and Nearn et al. (2005).

The genera of the Curiini were first grouped together by LeConte (1873) who included the genera *Curius* and *Plectromerus* in “Group IV, the Curii” and placed the

tribe before the Oabriini. LeConte also provided a description of the unifying characters for the tribe. In his *Coleopterum Catalogus*, Aurivillius (1912) listed the Curiini for the first time and included the genera *Curius*, *Plectromerus*, and *Pentomacrus*. Leng (1920) and Blackwelder (1944) also placed the Curiini before the Graciliini. Arnett (1973) placed the Curiini between the Ibdionini and the Hyboderini. Linsley (1963) and Downie & Arnett (1996) placed the Curiini between the Ibdionini and the Oabriini. The more recent literature placed the Curiini between the Callidiopini and the Graciliini (Arnett et al., 2002; Monné & Hovore, 2003; Peck, 2005).

Early workers provided very brief, non-specific descriptions of new species and illustrations were either missing or of poor quality (Bates, 1885; Fabricius, 1792; Newman, 1840; Olivier, 1790; White, 1855). Improved work began with Gahan's description of *Pentomacrus fasciatus* in 1895. Gahan (1895) also recognized that White (1855) and other workers overlooked Fabricius' description with regard to *Pentomacrus femoratus*. Other notable workers include Fisher, Linsley, and Zayas. Fisher was a prolific worker who described five new species of curiines from 1932 to 1947. Zayas (1975) described two Cuban species and provided illustrations to all described Cuban curiines except *Plectromerus ornatus* in his revision of the family. Linsley (1963) made a significant contribution when he provided a description of the tribe and keys to genera as well as species for North America.

Key to the Genera of Curiini

Previous keys to the genera of Curiini were provided by Linsley (1963) and Micheli (1983).

- 1 Third antennomere distinctly longer than scape; prosternal process between procoxae nearly straight (not gradually declivous). *Curius*

- Third antennomere about as long or distinctly shorter than scape; prosternal process between procoxae gradually or abruptly declivous. *Plectromerus*

Genus *Curius* Newman, 1840: 17

Original description:

Caput porrectum, oculis magnis, ferè retundis, ad antennarum basim vix emarginatis; antennae corpore longicores, graciles, 11-articulatae, articulus 1us caeteris paullò crassior, 2us brevis, 3us caeteris longior, 4us et sequentes longitudine ferè aequales: prothorax capite duplò longior, dorso paullò complanatus, lateribus convexus: elytra prothorace latiora, lateribus parallela, apice rotundata: pedes longitudine mediocres, femoribus tumidis, subtùs dente magno mediano armatis. (Newman, 1840: 17)

Linsley's redescription:

Form depressed; integument opaque. Antennae with fourth segment a little shorter than fifth. Pronotum rounded at sides; prosternum with anterior coxal cavities nearly contiguous. Legs with femora gradually clavate. Abdomen with first segment as long as following 2 together. (Linsley, 1963: 134)

Additions to Linsley's redescription:

Fifth antennomere a little shorter to half as long as fifth. Males with sexually dimorphic, prothoracic punctation.

Type species: *Curius dentatus* Newman, 1840.

Geographic distribution: SE USA, Cuba, Panama, and Venezuela.

***Curius chemsaki* Nearn & Ray, 2006: 51**

Introduction:

As currently defined, the genus *Curius* Newman, 1840 contains three species: *Curius dentatus* Newman, 1840, known from southeastern United States, *Curius panamensis* Bates, 1885, known only from Panama, and *Curius punctatus* (Fisher, 1932), an endemic Cuban species (Monné, 2005; Monné & Hovore, 2005; Nearn et al., 2005; Peck, 2005). LeConte (1873) designated the tribe Curiini (= Curii) with *Curius* as the type genus and synonymized *Plectromerus concinnatus* Haldeman, 1847 with *C. dentatus*. Linsley (1963) provided a diagnosis of the tribe and genus based on the two North American species, *C. dentatus* and *Plectromerus dentipes* (Olivier, 1790). Zayas (1975) provided a description and illustration of *Pentomacrus punctatus* Fisher, 1932 and Lingafelter & Nearn (2005) provided a

color photograph of the holotype. Nearn et al. (2005) transferred *P. punctatus* to *Curius*.

During the senior author's revisionary work on the tribe Curiini, 23 specimens of a new species of *Curius* collected in Aragua, Venezuela were discovered. The species described herein is the first record of a curiine in South America and represents a significant range extension for the genus. (Nearn & Ray, 2006: 49)

Original description:

Male. Length 8.4 mm, width 1.7 mm (measured across humeri). Habitus as in Figure 3-1a. General form small, narrow, subcylindrical. Integument testaceous, with portions of head, antennal apices, pronotum, elytra, apical portions of femora and tibiae, and sternum ferrugineous. *Head* with front nearly flat, transverse, with a median, shallow groove from between eyes to just beyond vertex, concave between antennal tubercles, which are moderately raised and widely separated. Eyes coarsely faceted, transverse, subreniform, shallowly emarginate. Antennae eleven-segmented, subcylindrical, about 1.5 times longer than body; scape slightly bowed, slightly longer than fourth antennomere, third antennomere longest, more than 2 times longer than fourth, slightly longer than fifth, fifth is second longest, seventh slightly longer than sixth. Antennomeres 2-8 ciliate beneath with coarse, moderately long, suberect, hairs. *Pronotum* subcylindrical, about 1.5 times as long as wide, evenly rounded at sides, widest at middle, slightly broader at base than apex, slightly constricted at basal third; disk convex, each side of pronotum with one long, suberect, pale hair anterolaterally. Surface opaque, granulate-punctate, with a dense field of gland pores (rounded, elevated tubercles with circular median impressions, for example, Fig. 3-2c); surface ornamented with ferrugineous markings as follows: a narrow, longitudinal, median vitta, extending from anterior margin to middle, where it is divided into two longitudinal vittae, which extend to the base, a thinner longitudinal sinuate vitta on each side (Fig. 3-1a). Lateral margins of pronotum ferrugineous. *Scutellum* small, subquadrate, a little longer than broad, granulose. *Elytra* about 3 times as long as width at humeri, a little more than 4 times as long as pronotal length, about 1.4 times broader basally than pronotum at widest (at middle); sides moderately sinuate around middle; elytral apices separately pointed; epipleural margin moderately sinuate. Elytral disk nearly flat; base of each elytron slightly raised. Elytral surface opaque, with three irregularly shaped, ferrugineous, lateral vittae arranged as follows: one at basal half, two at apical half (Fig. 3-1a); punctation moderately dense, coarse, and deep at basal third; punctures becoming shallower towards apex and sides, almost obsolete at apical third. *Underside* with prosternum slightly shining, granulate-punctate, with raised nodules interspersed among a dense field of gland pores (rounded, elevated tubercles with circular median impressions) (Fig. 3-2a, c); prosternal process between coxae nearly flat, narrowest area of prosternal process about 0.3 times as wide as coxal cavity, and about 0.5 times the width of apex of process which is cordate (Fig. 3-2a). Mesosternum surface shining, sparsely and finely punctate. Metasternum surface shining, sparsely punctate, with moderately dense deeper punctures. Metepisternum sparsely clothed with short, recumbent, pale

pubescence. Abdomen shining; sparsely, shallowly punctate; abdomen with a few long, suberect, pale hairs and punctures with a short, fine, pale hair; fifth sternite broadly subtruncate, slightly shorter than preceding sternite. *Legs* with femora clavate, meso- and metafemora slightly arcuate, shining, clothed with recumbent, short, pale pubescence; underside of each femoral club with a small, acute triangular tooth with posterior edge smooth; metatibiae nearly straight, very slightly sinuate; clothed with fine, recumbent, pale pubescence, becoming longer apically.

Female. Length 7.5-8.6 mm; width 1.5-1.7 mm (measured across humeri). Very similar to male except pronotum not as elongate, about 1.3 times as long as wide; pronotum and prosternum lacking gland pores, prosternum with sparse, shallow punctures with a short hair (Fig. 3-2d); narrowest area of prosternal process 0.3-0.5 times as wide as coxal cavity (Fig. 3-2b). Abdomen with terminal sternite evenly, broadly rounded, slightly longer than preceding sternite. (Nearns & Ray, 2006: 51)

Holotype: male (Figure 3-1a), VENEZUELA, Rancho Grande, II-14-21-1969, P.

& P. Spangler, collected at blacklight (USNM).

Material examined:

Holotype, male, VENEZUELA, Aragua, Rancho Grande, II-14-21-1969, P. & P. Spangler, collected at blacklight (USNM). Allotype, female, VENEZUELA, El Encantado, Arajua [sic] 30-VI-2001, Cope collection (JAMC). Paratypes, 3 (all from VENEZUELA): 1 female, Aragua, Rancho Grande, 1100 m., 17-20 I 1978, blacklight, cloud forest, J.B. Heppner (USNM); 2 females, Aragua: Geremba, 2050 m, VII.1991 (MNRJ).

Additional specimens have been reported to us by Alain Audureau (Saint Gilles Croix de Vie, France), but were not available for study in time for inclusion as part of the type series: 18 specimens, all from VENEZUELA, Aragua, Geremba (2050m), Alain Audureau, collection dates: 12/04/1999, 15/05/1999, 07/1999, 09/06/2000, 07/2002, 25/09/2002, 29/09/2002, 15/02/2003, 22/02/2003, 07/04/2003, 21/02/2004, 12/05/2005, 14/05/2005, 28/05/2005. (Nearns & Ray, 2006: 53)

Geographic distribution: Known only from Aragua province, Venezuela (South America).

Discussion:

This species can be distinguished from its presently known congeners by the following characters: the third antennomere is longest, slightly longer than the fifth and without a spine, the fifth antennomere is about twice as long as the fourth, and the elytral apices are separately pointed. *Curius chemsaki* can be confused with *C. panamensis* and the two species share similar pronotal proportions and markings

(Fig. 3-1a-b, e) as well as similar pronotal and prosternal punctation and nodules. However, the new species can be distinguished by antennal morphology: both sexes of *C. panamensis* have a strong spine at the apex of the third antennomere (absent in *C. chemsaki*) and the third antennomere is equal to or slightly shorter than the fifth in *C. panamensis* (the third antennomere is slightly longer than the fifth in *C. chemsaki*). Also, the pronotum and elytra of *C. panamensis* are clothed with short, pale, recumbent, moderately dense hairs (absent in *C. chemsaki*) and the elytral apices of *C. panamensis* are rounded (separately pointed in *C. chemsaki*).

Linsley (1963) defined the genus based on the North American species, *C. dentatus*. Based on Bates' original description and figure, Linsley (1963) expressed doubt about the placement of the only other *Curius* species at the time of his writing, *C. panamensis*. Our detailed examination of the pronotal and prosternal punctation of *C. dentatus*, *C. panamensis*, *C. punctatus*, and *C. chemsaki*, revealed a new synapomorphy for the genus overlooked by previous workers, male-specific gland pores (rounded, elevated tubercles with circular median impressions).

Notes on sexual dimorphism seen in gland pores: Sexual dimorphism in pronotal and/or prosternal punctation has been noted in morphological descriptions of cerambycine species from several tribes (e.g. LeConte, 1873; Casey 1912; Dusham, 1921; Linsley, 1963; Mermudes & Napp, 2000; Mermudes & Napp, 2004; Monné & Napp, 2005; Micheli & Nearn, 2005; Nearn & Steiner, 2006). Within taxonomic literature, male-specific punctures have not previously been linked to aspects of natural history or behavior. We here include the presence of male-specific pheromone gland pores as a morphological character and suggest that the presence of gland pores may indicate that volatile pheromones play a role in the reproductive behavior of this species. Histology and SEM studies of three cerambycine species revealed that male-specific punctures contain gland pores that are pheromone release sites (Iwabuchi, 1986; Nakamura et al., 1994; Noldt et al., 1995). We have identified male-specific gland pores (rounded, elevated tubercles with circular median impressions) on the pronota and prosterna of *C. chemsaki* (Fig. 3-2c), as well as on the pronota and prosterna of males of *C. dentatus*, *C. panamensis*, and *C. punctatus* (unpublished data). In addition, we have identified male-specific gland pores with a different morphological structure on the prosterna of another curiine, *Plectromerus dentipes* (Olivier, 1790) (unpublished data). Volatile pheromone production by curiine species is supported by the presence of *C. dentatus* in traps baited with synthetic pheromone (Lacey et al., 2004). A recent morphological survey by Ray et al. (2006) used SEM to identify male-specific gland pores in 50 additional cerambycine species, suggesting gland pores are an informative morphological character that provides information about natural history. (Nearn & Ray, 2006: 54)

***Curius dentatus* Newman, 1840: 17**

= *Plectromerus concinnatus* Haldeman, 1847: 43

= *Curius concinnatus* Melsheimer, 1853: 106

Original description:

Testaceus, obscurus, subtilitèr ac crebrè punctus; caput fuscum, antennae pallidae, articulis apice fuscis: prothorax testaceus, vittâ longitudinali ante marginem posticam divisâ, fuscâ: elytra testacea, fusco nubila: femora apice latè fusca. (Corp. long. .275 unc. Lat. .075 unc.) (Newman, 1840: 17)

Linsley's redescription:

Male. Form depressed; integument dull, brownish-testaceous, very obscurely pubescent; pronotum and elytra with vague longitudinal dark areas. Head densely, contiguously punctate; antennae exceeding elytral apices by about 3 ½ segments, finely punctate, annulate, second segment much longer than broad, third segment longest, fourth segment much shorter than third, about 1/10 shorter than fifth. Pronotum flattened, sides rounded, surface very densely punctate; prosternum impressed, finely, densely punctate; metasternum minutely punctate, sparsely pubescent, with scattered very coarse punctures. Elytra nearly 3 times as long as subbasal width; surface shallowly, moderately coarsely punctate, basal punctures mostly separated by 1 diameter or less; pubescence very short, obscure, sparse; apices rounded to suture. Legs with femora finely punctate and pubescent, gradually clavate, armed beneath with a tooth, larger on anterior pair; tibiae slender. Abdomen finely punctate, sparsely pubescent, with a few coarse punctures, particularly at sides; fifth sternite shorter than fourth, subtruncate at apex. Length, 5-7 mm. *Female.* Antennae exceeding elytral apices by about 2 segments; abdomen with fifth sternite longer than fourth, rounded at apex. Length, 5-7mm. (Linsley, 1963: 134)

Additions to Linsley's redescription: Males with pronotal and prosternal surface opaque, granulate-punctate, with a dense field of gland pores (rounded, elevated tubercles with circular median impressions) (Figure 3-3b); females lacking pronotal and prosternal gland pores, prosternum with sparse, shallow punctures each with a short hair (for example, Figure 3-2d). Male specimens examined measured: length 5.0-9.2 mm, width 1.0-2.1 mm (measured across humeri); female specimens examined measured: length 5.0-10.0 mm; width 1.2-2.3 mm (measured across humeri). Male genitalia with parameres as in Figure 4-28a.

Holotype: female (BMNH).

Material examined: Specimens, 2 (all from ALABAMA, USA): 1 male, Baldwin Co., R'd - Pecan, VII - 1972 (JEWG); 1 male, Mobile, V.12.1957, B.K. Dozier, at light (FSCA).

Specimens, 38 (all from FLORIDA, USA): 8 males and 1 female, Dixie Co., 4 mi. N. Old Town, May 18-20 1978, E. Giesbert, Coll. (EFGC); 2 males, Dixie Co., 4 mi. N. Old Town, May 11-12 1978, E. Giesbert, Coll. (EFGC); 3 males and 1 female, 2-IX-77, Alachua Co., T.H. Atkinson (FSCA); 1 male and 2 females, Miami, V. 1917, 14,278, H. Klages Coll'n, C.M. Acc. 11414 (CMNH); 1 female, Miami, V. 2, 14,278, H. Klages Coll'n, C.M. Acc. 11414 (CMNH); 1 male, Miami, IV. 16, 14,278, H. Klages Coll'n, C.M. Acc. 11414 (CMNH); 1 female, Hernando Co., Withlacoo. S.F., Croom Area, beating dead branches, SpecimenID: 1459, Gino Nearn 07/26/2003 (ENPC); 1 male, Liberty Co., Torreya S.P., at UV light, flood plain forest, SpecimenID: 3594, Gino Nearn 05/22/2004 (ENPC); 1 female, Gadsden Co., Aspalaga Landing, UV light, SpecID: 6639, Nearn, Morris & Wappes, 29-V-2005 (ENPC); 1 female, Polk Co., vic. Bartow, along Peace River, 29-IV-1990, R. Morris (FSCA); 1 male, Polk Co., vic. Bartow, along Peace River, 24-IV-1990, R. Morris (FSCA); 1 male and 1 female, Carn. Mus. Acc. 349 (CMNH); 1 female, Highlands Co., Archbold Biol. Stat., 14-18 April 1989, Chen Wen Young (CMNH); 1 female, Indian River Co., SR512 .5mi W I-95, 1-10-V-1977, Fla. Med. Ent. Lab., Suction trap (FSCA); 1 female, Lake County, Alexander Spgs. Cpgd., 6 Mi. S. Astor Park, 21-IV-1975, at (UV) black light, J.B. Heppner collector (FSCA); 1 female, Leon Co., Tall Timbers Res. Sta., Hammock Wood Yard, 15-VIII-1972, light trap (FSCA); 1 female, Gainesville, Alachua County, Grace Thomas Coll. V-

1964, at light (FSCA); 1 male, Alachua Co., Gainesville, 22-V-1983, M.C. Thomas (FSCA); 2 females, 3367 Hopk. U.S., Jun. 19/05 reared, WF Fiske Collector, Apalchcla [sic], *Juniperus* (USNM); 2 females, 3369 Hopk. U.S., Reared Nov. 10/05, Fiske WF Colr., Apalachicola, *Taxodium distichum* (USNM); 1 male, Crescent City, Coll Hubbard & Schwarz (USNM).

Specimens, 41 (all from GEORGIA, USA): 1 male, Clarke Co., Whitehall Forest, window trap, 31 July - 6 Aug. 1976, R. Turnbow (AMNH); 1 male, Clarke Co., Athens, 25 June 1972, R. Turnbow (AMNH); 1 female, Clarke Co., Whitehall Forest, 2 July 1973, R. Turnbow (AMNH); 1 male and 1 female, Clarke Co., Whitehall Forest, window trap, 6-13 Aug. 1976, R. Turnbow (USNM); 2 females, Clarke Co., Whitehall Forest, window trap, 20-27 Aug. 1976, R. Turnbow (USNM); 1 female, Clarke Co., Whitehall Forest, 14 July 1976, R. Turnbow (FSCA); 1 female, Clarke Co., Whitehall Forest, window trap, 24-31 July 1976, R. Turnbow (FSCA); 1 female, Clarke Co., Whitehall Forest, window trap, 25 June - 2 July 1976, R. Turnbow (FSCA); 1 female, Clarke Co., Whitehall Forest, window trap, 25 June - 2 July 1976, R. Turnbow (FSCA); 1 male and 1 female, Clarke Co., Whitehall Forest, window trap, 16-23 July 1976, R. Turnbow (FSCA); 1 male, Clarke Co., Whitehall Forest, window trap, 9-16 July 1976, R. Turnbow (FSCA); 1 male, Clarke Co., Whitehall Forest, window trap, 6-13 Aug. 1976, R. Turnbow (USNM); 1 male, Clarke Co., Whitehall Forest, emerged, July 1974, R. Turnbow, ex. sweet gum (FSCA); 1 female, Jackson Co., Hardeman Forest, 5-7 Aug. 1975, R. Turnbow (AMNH); 1 female, Thomasville, V-12-1948, Werner-Nutting (EMEC); 4 males and 3 females, Sumter Co., 1982, W.L. Tedders, 83-1134, #33473, Host: Pecan (USNM); 1 female, Dekalb Co., VI-13-69 (TAMU); 1 female, Dekalb Co., VIII-1-79

(JEWG); 1 male, Buena Vista, 3 VII 46, John Lutz III, J.C. Lutz Collection 1961 (USNM); 1 male, Grady Co., Beachton, 1-7-VII-1967, E.V. Komareck, Sr.(USNM); 1 male, Greene Co., R'd Pecan, VII-1972 (JEWG); 1 male, 3744 Hopk. U.S., July 18/06 reared, WF Fiske Collector, Griffen, Deodar (USNM); 1 male, 3744 Hopk. U.S., Nov. 12/07 reared, WF Fiske Collector, Griffen, Deodar (USNM); 1 female, 3744 Hopk. U.S., July 3/07 reared, WF Fiske Collector, Griffen, Deodar (USNM); 2 males and 2 females, 3744a Hopk. U.S., Jun. 26/06 reared, WF Fiske Collector, Griffen, Deodar (USNM); 2 females, 1629b Hopk. U.S., reared, WF Fiske Collector, Jesup, *Taxodium ditichum* (USNM); 1 male, 1629c Hopk. U.S., Apr. 29, 03, WF Fiske Collector, Jesup, *Cupressus* (USNM); 1 male, 3743 Hopk. U.S., Jun. 1/06 reared, WF Fiske Collector, Griffen, Deodar (USNM).

Specimens, 5 (all from LOUISIANA, USA): 1 male, Baton Rouge, VII-21-22, O.W. Rosewall (LSAM); 1 male, St. Martin Par., 4mi S of Belle River, 20-VII-1995, D.A. Duerr II, 7-20 BP ST8 (LSAM); 1 male, Baton Rouge, X-22 1965, D.K. Pollet (LSAM); 1 male, Henry Ulke Beetle Coll. CMNH Acc. No. 1645 (CMNH); 1 female, Covington, 28/5, Collection H. Soltau (USNM).

Specimens, 6 (all from MARYLAND, USA): 1 male, Calvert Co., Sunderland, ex. oak - 1981, J. Glaser (CNMH); 1 male, Balto Co., Towson, 7-VII-81, J. Glaser (CMHN); 1 male, Calvert Co., Battle Creek Cypress Swamp, 18 Aug. 1987, Collectors: A. & B. Norden & D. Williams (USNM); 1 male, Plummers I, 30.7.'10, EA Schwarz Collector (USNM); 2 females, Plummer's I., 25.7, HS Barber Collector (USNM).

One male, MISSISSIPPI, Hancock Co., 28.8, Collection H. Soltau (USNM).

Specimens, 22 (all from NORTH CAROLINA, USA): 1 female, Cleveland Co., June 7-19, 1970, at light, J.S. Ashe (TAMU); 1 female, Killdevil Hills, Dare Co., 27-VII-1955, KV Krombein (USNM); 1 female, Killdevil Hills, Dare Co., 24-VII-1955, KV Krombein (USNM); 3 males, Catawba Co., Hog Hill, bl trap, 20-27-July-1976, R. Turnbow (FSCA); 2 males and 1 female, 3657 Hopk. U.S., Aug 20/07, reared, WF Fiske collector, Tryon, *Pinus* (USNM); 3 males, 3657d Hopk. U.S., Oct 3 '06, reared, WF Fiske collector, Tryon, *Pinus* (USNM); 1 female, 3188a Hopk. U.S., Apr. 7/06, reared, WF Fiske collector, Tryon, *Pinus* (USNM); 2 males and 1 female, 3111G Hopk. U.S., Jul. 1-'05, reared, WF Fiske collector, Tryon, *Pinus* (USNM); 1 female, 3111G Hopk. U.S., Aug. 8 '05, reared, WF Fiske collector, Tryon, *Pinus* (USNM); 1 male, 3646c Hopk. U.S., Aug. 1-06, reared, WF Fiske collector, Tryon, *Pinus* (USNM); 2 males, 3663 Hopk. U.S., Aug. 20/07, reared, WF Fiske collector, Tryon, *Pinus* (USNM); 1 male, 3663P Hopk. U.S., Jun. 18/06, reared, WF Fiske collector, Tryon, *Pinus* (USNM); 1 female, 3663f Hopk. U.S., Aug. 1/06, reared, WF Fiske collector, Tryon, *Pinus* (USNM).

One female, OKLAHOMA, Latimer Co., VII-85, K. Stephan (TAMU).

One male, PENNSYLVANIA, York Co., 5mi NW Davidsburg, 23 VII 1971, PJ Spangler, black lite (USNM).

Specimens, 19 (all from TENNESSEE, USA): 1 female, Pulaski, July 8, 1946, at light near farm (USNM); 3 males, Bolivar, Hardeman Co, July 1974, R.D. Ward, emerged from *Cercis canadensis* (CMNH); 1 female, Bolivar, Hardeman Co, 20-24 May 1974, R.D. Ward, emerged from *Cercis canadensis* (CMNH); 1 female Bolivar, Hardeman Co, 4-11 June 1974, R.D. Ward, emerged from *Cercis canadensis* (CMNH); 1 male, Bolivar, Hardeman Co, 4-11 June 1974, R.D. Ward, emerged from *Cercis*

canadensis 1-III 1975 (CMNH); 3 males, Bolivar, Hardeman Co, 27 Mar 1974, R.D. Ward, emerged from *Cercis canadensis* 6-IV 1975 (CMNH); 3 females, Bolivar, Hardeman Co, 27 Dec 1974, R.D. Ward, emerged from *Cercis canadensis* 8-III 1975 (CMNH); 4 males and 2 females, Bolivar, Hardeman Co, 27 Mar 1974, R.D. Ward, emerged from *Cercis canadensis* 12-IV 1975 (CMNH).

Specimens, 15 (all from TEXAS, USA): 1 male and 1 female, San Augustine Co., Piney Woods Conserv. Ctr., 14 mi. SE Broaddus, VII-15-21-1993, E.G. Riley, Malaise trap (TAMU); 1 male, Sabine Co., E. Hemphill, "Beech Bottom", VI-23-VII-2 1989, R. Anderson & E. Morris, malaise trap (TAMU); 1 female, Tyler Co., Kirby State Forest, 30°34'30"N, 94°25'03"W, V-19-VI-8-2003, E. Riley, Lindgren funnel trap (TAMU); 2 males, Sabine Co., 9 mi. E Hemphill, "beech bottom" VIII-25-IX-10-1989, R. Anderson & E. Morris, flight intercept trap, beech-magnolia forest (TAMU); 2 males, Tyler Co., Kirby State Forest, 30°34'30"N, 94°25'03"W, VII-20-VIII-24-2003, E.G. Riley, Lindgren funnel trap (TAMU); 1 male and 1 female, Sabine Co., 9 mi. E Hemphill, "Beech Bottom" VIII-6-16-1989, R. Anderson & E. Morris, Malaise trap, beech-magnolia forest (TAMU); 1 male, Montgomery Co., Jones St. Forest, 8mi. S Conroe, VI-21-27-1987, R. Wharton, Malaise trap (TAMU); 1 female, Montgomery Co., The Woodlands, June 20-26 1977, J.E. Wappes (JEWG); 2 males, Chambers Co., I-10 at Trinity R., emerged IV-28/V-10 1993, D.J. Heffern, reared from *Taxodium distichum* coll'd II-12-1993 (TAMU); 1 male, Chambers Co., I-10 at Trinity R., emerged V-11/V-31 1993, D.J. Heffern, reared from *Taxodium distichum* coll'd II-12-1993 (TAMU).

Specimens, 24 (all from VIRGINIA, USA): 2 females, Essex Co., 1 mi. SE Dunnsville, 37°52'N, 76°48'W, 24 vi-9 viii 1992, Malaise trap, D.R. Smith (USNM); 1

female, Essex Co., 1 mi. SE Dunnsville, 37°52'N, 76°48'W, 14 viii - 2 ix 1993, Malaise trap, D.R. Smith (USNM); 4 male and 2 females, Cape Henry, vi-2, J.N. Knull (AMNH); 1 female, Arlington, 27 June 1950, J.G. Franciemont (USNM); 1 male, 6939 Hopk. U.S., Reared, A.D. Hopkins Collector, Virginia Beach, *Pinus* (USNM); 1 male, 11876i, Hopk. U.S., Aug 28-16 Reared, FC Craighead Collector, Falls Church, *Acer rubrum* (USNM); 1 male, Hopk. U.S. 12286, Reared Aug. 3-14, H.B. Kirk Collector, Falls Church, *Pinus* (USNM); 3 males and 3 females, Hopk. U.S. 12286, Reared 7/21/14 H.B. Kirk, H.B. Kirk Collector, Falls Church, *Pinus* (USNM); 4 females, 6923a Hopk. U.S., Reared, AD Hopkins Collector, Cape Henry, *Pinus* (USNM); 1 female, Collected on ? suet cage, Arlington, 7-2-32, FW Poos Coll., Fred W. Poos Collection 1955 (USNM).

Specimens, 10 (all from WASHINGTON, D.C., USA): 5 males and 2 females, Henry Ulke Beetle Coll. CMNH Acc. No. 1645 (CMNH); 1 female, Coll. ML Linell, Ac. 5409 CollChasPalm (AMNH); 1 male, no label data (USNM); 1 male, 20.6, Coll Hubbard & Schwarz (USNM).

Geographic distribution: Widely distributed in the SE USA (AL, DC, GA, FL, IL, LA, MD, MS, NC, OK, PA, TN, VA).

Discussion: This species (3-1c, 3-3a-c) is widely distributed in the SE USA. Lacey et al. (2004) collected a series of female specimens in pheromone-baited traps in Illinois. Linsley & Chemsak (1997) listed the following host plants: *Acer* spp., including *A. rubrum*, *Celtis*, *Cupressus*, *Juniperus*, *Pinus*, and *Taxodium distichum*. *Curius dentatus* is attracted to lights and has been collected in a variety of traps (Lindgren funnel, Malaise, flight intercept, and window) as well as reared from various hosts, including *Cercis canadensis* and sweet gum. Craighead (1923) described the larva of *C. dentatus*

and noted that it shared many morphological characters with *Euderces* (Cerambycidae: Cerambycinae: Tillomorphini). Fragoso (1978) illustrated the male and female genitalia of this species in his analysis of the tribal classification within the subfamily Cerambycinae.

In Newman's (1840) description of this species he stated that the holotype ". . . is in the cabinet of the Entomological Club." Monné's (2005) catalog does not list where this type is deposited. However, a curator of Coleoptera at the BMNH stated that the holotype was included in the material donated to the museum by the Entomological Club in 1844. The holotype is a female, 8.1 mm in length, and in very poor condition: the apical segments of the antennae are absent, only the left metaleg is complete, the remaining legs have missing tarsi and the right proleg is missing the tibia. The holotype bears the following labels: handwritten number 298 registration Ent. Club/[18]44-12, handwritten determination label in Newman's hand *Curius* Newm./*dentatus* Newm; a second handwritten label: *Curius dentatus* Newman type in Arrow's handwriting (S. Shute, pers. comm.).

This species ranges in size from 5.0-10.0 mm in length. Male specimens examined measured: length 5.0-9.2 mm, width 1.0-2.1 mm (measured across humeri); female specimens examined measured: length 5.0-10.0 mm; width 1.2-2.3 mm (measured across humeri). This species is very similar to *C. punctatus* but can be separated by the following characters: eyes nearly subreniform (eyes ovate-emarginate in *C. punctatus*); antennae very slightly flattened (more strongly flattened in *C. punctatus*); and femora with distal half distinctly darker in most specimens (femora with knees distinctly darker in *C. punctatus*).

Curius panamensis* Bates, 1885: 268*Original description:**

Oblongo-linearis, depressus, breviter incumbenti-pilosus, opacus, fusco-testaceus; antennis, articulis apice exceptis, femorum pedunculis, tibiis et tarsis elytrorumque lituris, pallido-testaceis; antennis (♂) quam corpus duplo longioribus, tenuibus, pubescentibus et infra sparsim ciliatis, scapo graditum clavate, articulis 3° et 4° apice extus acute productis, 5° quam caeteri multo longiori (quam 4^{us} duplo longiori); thorace valde elongate, cylindrico subdepresso, punctulato, opaco; elytris apice conjunctim acute rotundatis passim creberrime punctulatis, fascia angusta antemediana, macula triangulari suturali versus apicem, apice et vitta irregulari marginali pallide testaceis; pedibus valde elongates, femoribus longe pedunculatis, clavis subtus acute dentatis. Long. 4 ½ lin. Hab. Panama, Tolé (Champion). One example. (Bates, 1885: 268)

Redescription: Male (Figure 3-1e, 3-4a-c). Length 6.4-10.7 mm, width 1.2-2.0 mm (measured across humeri). Habitus as in Figure 3-4a. General form small, narrow, subcylindrical. Integument testaceous, with portions of head, antennal apices, pronotum, elytra, distal portions of femora and tibiae, and sternum ferrugineous. *Head* with front nearly flat, transverse, with a median, shallow groove from between eyes to just beyond vertex, concave between antennal tubercles, which are strongly raised and separated by about the width of two antennal sockets; vertex granulose; with short, recumbent, pale pubescence. Eyes coarsely faceted, transverse, ovate-emarginate, deeply emarginate. Antennae eleven-segmented, subcylindrical, almost twice as long as body; scape slightly bowed, about as long as fourth antennomere; third antennomere equal to or slightly shorter than fifth, almost twice as long as fourth, armed with acute mesal spine, fifth antennomere equal to or slightly longer than third. Scape and antennomeres 2-8 ciliate beneath with coarse, moderately long, suberect, hairs. *Pronotum* subcylindrical, about 1.7 times as long as wide, evenly rounded at sides, widest at middle, slightly broader at apex than base, slightly constricted at basal third; disk convex, each side of pronotum with one long, suberect, pale hair anterolaterally. Surface opaque, granulate-punctate,

with a dense field of gland pores (rounded, elevated tubercles with circular median impressions) (Figure 3-4b); surface ornamented with ferrugineous markings as follows: a narrow, longitudinal, median vitta, extending from anterior margin to middle, where it is divided into two longitudinal vittae, which extend to the base, a thinner longitudinal sinuate vitta on each side. Lateral margins of pronotum ferrugineous. *Scutellum* small, subquadrate, a little longer than broad, granulose, with short, recumbent, pale pubescence. *Elytra* about 3 times as long as width at humeri, about 2.3 times as long as pronotal length, about 1.2 times broader basally than pronotum at widest (at middle); sides moderately sinuate around middle; elytral apices separately, narrowly rounded, forming a blunt point; epipleural margin moderately sinuate. Elytral disk nearly flat; base of each elytron slightly raised. Elytral surface opaque, with three irregularly shaped, broad, ferrugineous, lateral maculae arranged as follows: one at basal third, one at apical half, and one at apical third not quite reaching elytral apices; punctation nearly uniformly spaced, moderately dense, deep at basal third; punctures becoming shallower towards apex and sides, almost obsolete at apical third; each puncture with a short, recumbent, pale hair. *Underside* with prosternum slightly shining, granulate-punctate, with raised nodules interspersed among a dense field of gland pores (rounded, elevated tubercles with circular median impressions) (Figure 3-4b); prosternal process between procoxae nearly flat, narrowest area of prosternal process about 0.2 times as wide as procoxal cavity, and about 0.5 times the width of apex of process which is subtriangular; procoxal cavities open behind. Mesosternum surface shining, densely and finely punctate. Metasternum surface shining, densely and finely punctate, with scattered deeper punctures and a few long, suberect, pale hairs. Metepisternum clothed with short,

recumbent, pale pubescence. Abdomen shining, clothed with short, recumbent, pale pubescence; densely and shallowly punctate; with a few long, suberect, pale hairs; fifth sternite broadly subtruncate, slightly shorter than preceding sternite. *Legs* with femora very gradually clavate; distal portion of femora and tibiae distinctly darker; meso- and metafemora slightly arcuate, weakly shining, clothed with recumbent, short, pale pubescence; underside of each femoral club with a small, acute triangular tooth with posterior edge very weakly serrate, nearly smooth; metatibiae nearly straight, very slightly sinuate (Figure 3-4c); clothed with fine, recumbent, pale pubescence, becoming longer distally; metalegs with first tarsomere about twice as long or longer than second.

Female. Length 8.5-13.0 mm; width 1.7-2.7 mm (measured across humeri). Very similar to male except pronotum not as elongate; pronotum and prosternum lacking gland pores, prosternum with sparse, shallow punctures each with a short hair (for example, Figure 3-2d). Abdomen with terminal sternite evenly, broadly rounded, slightly longer than preceding sternite.

Holotype: PANAMA, Chiriquí: Tolé. (BMNH).

Material examined: Specimens, 18 (all from PANAMA): 1 male, C.Z., Barro Colorado Is., 9°9'N, 79°51'W, 05-11-1997, Pickering-Windsor, Lot # 7319 (JEW); 2 females, Panama Pr., Altos de Pacora, Jan 4-10, E. Giesbert, Coll. (EFGC); 1 female, C.Z., Barro Colorado Is., 9°9'N, 79°51'W, 29-I-1997, Pickering-Windsor, Lot #7295 (USNM); 2 males and 1 female, Panama pr., Cerro Azul, 2200', Jan 4-9, E. Giesbert, Coll. (EFGC); 1 male and 3 females, Canal Zone, Vic. Ft. San Lorenzo, Jan 5 1983, E. Giesbert, Coll. (EFGC); 1 male, C.Z., Barro Colorado Is., 9°9'N, 79°51'W, 05-11-1997, Pickering-Windsor, Lot #7819 (JEW); 1 male, C.Z., Barro Colorado Is., 9°9'N,

79°51'W, 29-I-1997, Pickering-Windsor, Lot #7295 (JEWG); 1 male and 1 female, Panama, Cerro Azul, em. 26 Dec. 1991, R. Turnbow (RHTC); 1 female, Panama, Cerro Azul, em. 20-30 Jan. 1992, R. Turnbow (RHTC); 1 female, Pn Prv, C. Azul Altus de, Pacoras 4,10-I-94, JE Wappes (JEWG); 1 male, Vic. Ft. San Lorenzo, Jan 2 1983, E. Giesbert, Coll. (EFGC).

Geographic distribution: Known only from Panama province, Panama (Central America).

Discussion: *Curius panamensis* is endemic to Panama and nothing is known about its biology.

This species is most closely related to *C. chemsaki* but can easily be distinguished from all congeners by the presence of the mesal spine on the third antennomere.

***Curius punctatus* (Fisher, 1932: 55)**

= *Pentomacrus punctatus* Fisher, 1932: 55

= *Plectromerus punctatus* (Fisher, 1932: 55)

Original description:

Male. Broadly elongate, rather strongly flattened above, and feebly shining. Above and beneath pale yellow, with the head, tips of antennal joints, sides of sternum, tips of femora, numerous irregular spots on pronotum, and three broad, transverse, zigzag fasciae on each elytron, black.

Head coarsely, confluent punctate, glabrous, front rather strongly constricted by the eyes, with a narrow, longitudinal, median groove, broadly concave between the antennal tubercles, which are widely separated, and rather strongly elevated; eyes large, strongly convex, feebly emarginate, and widely separated from each other on the top. Antenna about one and one-half times as long as the body, sparsely clothed with short, inconspicuous pubescence, with numerous long, erect hairs on the underside of the joints, which are slightly flattened, but unarmed at apices; first joint robust, cylindrical, arcuate, slightly expanded toward apex, and one-half as long as the third joint, which is distinctly longer than the fourth; eleventh joint subequal in length to the tenth.

Pronotum distinctly longer than wide, and subequal in width at base and apex; sides feebly, arcuately rounded, slightly constricted at base; disk slightly uneven, and

more or less flattened; surface glabrous, densely, coarsely, irregularly ocellate-punctate, irregularly scabrous, and ornamented with black or dark brown spots as follows: A narrow, longitudinal, median vitta, extending from anterior margin to middle, where it is divided into two longitudinal vittae, which extend to, or nearly to, the base, and from two to four round or elongate spots on each side. Scutellum transverse, broadly rounded at apex, and the surface glabrous.

Elytra two and one-half times as long as pronotum, and at base feebly wider than pronotum at middle; humeri rather strongly elevated; sides nearly parallel from base to near the tips, which are separately, rather narrowly rounded; surface coarsely, densely punctate, scabrous in basal regions, with a very short, inconspicuous hair in the center of each puncture, each elytron ornamented with three broad, transverse, zigzag fasciae, one near base, one at middle, and the other one at apical fourth.

Abdomen beneath feebly, sparsely punctate, and clothed with a few long, semierect hairs; last segment broadly rounded at apex. Prosternum broadly, transversely concave, glabrous, feebly, coarsely rugose; prosternal process rather narrow between the coxal cavities, and strongly declivous posteriorly. Legs rather long, glabrous; femora strongly, abruptly clavate, petiolate at bases, and each femur armed with a short tooth on underside near the apex; tibiae slightly flattened, and the anterior pair feebly arcuate.

Female. Differs from the male in having the antennae only slightly longer than the body, pronotum about as wide as long, and the surface coarsely, uniformly scabrous.

Length, 5-10 mm.; width, 1.4-2.8 mm. Type locality. Santiago de las Vegas, Cuba. Type, allotype, and paratypes. U.S.N.M. No. 43736. Paratypes. In American Museum of Natural History and in S. C. Bruner collection. (Fisher, 1932: 55)

Holotype: male (Figure 3-5a), CUBA, Sep. 7/30, Santiago de las Vegas, Habana, E.E.A. de Cuba No. 9399, Type No 43736 U.S.N.M. (USNM).

Material examined: Holotype, male (Figure 3-5a), CUBA, Sep. 7/30, Santiago de las Vegas, Habana, E.E.A. de Cuba No. 9399, Type No 43736 U.S.N.M. (USNM).

Allotype, female, CUBA, E.E.A. de Cuba, No. 9399, Nov.29/30, Santiago de Las Vegas, Habana, Allotype No 43736 U.S.N.M. (USNM). Specimens, 7 (all from CUBA): 1 female, paratype, E.E.A. de Cuba, No. 9399, Nov.29/30, Santiago de Las Vegas, Habana, Paratype No 43736 U.S.N.M. (USNM); 1 male, paratype, E.E.A. de Cuba, No. 9399,

Nov.29/30, Santiago de Las Vegas, Habana, Paratype No, *Punctatus* Fisher (AMNH); 1 female, Minacarloza, Cienfuegos, XII-1-27, Wilson (FSCA); 1 female, paratype, E.E.A. de Cuba, No. 9399, Nov 29/30, Santiago de las Vegas, Habana, J. Acuña, Col. (IESC); 1 male, Casa de Visita FAME, Topes de Collantes, S. Spíritus, Luz, Fecha 5-VI-2002, Col. R. Nunez Luz (ENPC); 1 specimen, sex undetermined, Rio Yao, Sierra Maestra, Oct. 25/41, J. Acuna, col. (IESC); 1 specimen, sex undetermined, E.E.A. de Cuba, No. 9399 (IESC).

Geographic distribution: Known from Cienfuegos, Ciudad de la Habana, Granma, and Sancti Spíritus provinces, Cuba (Greater Antilles).

Discussion: This species (Figure 3-1d, 3-5a-c) is most closely related the *C. dentatus* (Figure 4-29). Nearn et al. (2005) transferred this species to *Curius* from *Plectromerus*. Fisher (1932) stated that the eight specimens in the type series emerged from native (Cuban) wood but the host plant is not reported. Fisher (1932) also stated that this species is allied to *P. femoratus*, but it is clear that he never saw the type specimen of that very large, distinct species (Figure 3-14a). Piña et al. (2004) listed this species from the Trinidad Mountains, Cuba.

Male specimens examined: length 8.9-12.0 mm, width 2.0-2.7 mm (measured across humeri); female specimens examined: length 8.3-11.0 mm; width 2.0-2.5 mm (measured across humeri). This species is very similar to *C. dentatus* but can be separated by the following characters: eyes ovate-emarginate (eyes nearly subreniform in *C. dentatus*); antennae more strongly flattened (very slightly flattened in *C. dentatus*); and femora with knees distinctly darker (femora with distal half distinctly darker in most specimens of *C. dentatus*).

Key to the Species of *Curius*

- 1 Fifth antennomere equal to or only slightly longer than fourth. 2
 1' Fifth antennomere about twice as long as fourth. 3
- 2(1) Antennae not distinctly flattened; distal half of femora distinctly darker than basal half; body length 5.5-10 mm (SE USA). *dentatus* Newman (Figure 3-3a)
 -- Antennae distinctly flattened; femoral knees distinctly darker; body length 9.0-12.5 mm (Cuba). *punctatus* (Fisher) (Figure 3-5a)
- 3(1') Third antennomere armed with spine, equal to or slightly shorter than fifth; pronotum and elytra clothed with short, pale, recumbent, moderately dense hairs; body length 6.5-15 mm (Panama). *panamensis* Bates (Figure 3-4a)
 -- Third antennomere without spine, slightly longer than fifth; pronotum and elytra not as above; body length 7.5-8.6 mm (Venezuela).
 *chemsaki* Nearn & Ray (Figure 3-1a)

Genus *Plectromerus* Haldeman, 1847: 43

= *Pentomacrus* White, 1855: 297

= *Curius* Lacordaire, 1869: 352 (not Newman, 1840)

Linsley's redescription:

Form cylindrical, integument shining. Antennae with fourth segment very much shorter than fifth. Pronotum with sides nearly straight; prosternum with anterior coxae distinctly separated. Legs with femora suddenly clavate. Abdomen with first segment as long as following 3 together. (Linsley, 1963: 135)

Additions to Linsley's redescription

Pronotum with sides nearly straight to globose. Legs with femora gradually to pedunculate clavate.

Type species: *Obrium dentatum* J. E. LeConte, 1824 (Linsley designation, 1963: 135) [= *Callidium dentipes* Olivier, 1790].

Geographic distribution: SE USA, Mexico, Greater Antilles, Lesser Antilles, Guatemala, Honduras, Nicaragua, Costa Rica, and Panama.

Discussion:

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 & 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*. Vitali & Rezbanyai-Reser (2003) provided a key for all species of *Plectromerus*, which later was modified by Vitali (2004) to include a new fossil species and to subdivide the genus into two groups, *Plectromerus* and *Pentomacrus*. (Micheli & Nearn, 2005: 23)

***Plectromerus acunai* (Fisher, 1936: 344)**

= *Pentomacrus acuña* Fisher, 1936: 344

Original description:

Slender, subcylindrical, subopaque, uniformly brownish yellow, the pronotum and elytra ornamented with dark brown markings.

Head with front transverse, flat between the antennal tubercles, which are widely separated and feebly elevated; surface feebly, coarsely, irregularly punctate, with a few long, erect hairs; eyes coarsely granulated, strongly convex, elongate, feebly emarginate, widely separated from each other on the top. Antenna about as long as the body, unarmed, feebly, longitudinally carinate, rather densely ciliate beneath with short, erect hairs.

Pronotum distinctly longer than wide, cylindrical, subequal in width at base and apex; sides nearly parallel, feebly sinuate; disk slightly uneven, strongly convex; surface glabrous, feebly, coarsely, irregularly punctate, ornamented with dark brown as follows: A small median spot and a narrow, sinuate, longitudinal vitta on each side. Scutellum transverse, broadly rounded at apex, with the surface glabrous.

Elytra three times as long as pronotum, distinctly wider than pronotum; sides nearly parallel from base to apical fourth, then arcuately narrowed to the tips, which are separately arcuately, obliquely emarginate, with a large tooth at each outer angle; disk slightly flattened; surface glabrous, densely, coarsely punctate basally, finely, obsolete punctate toward apices, and each elytron ornamented with three dark brown spots, one at basal fourth, one at middle, and one at apical fourth.

Body beneath glabrous, impunctate; last abdominal segment broadly rounded at apex. Legs clothed with short, inconspicuous yellowish pubescence; femora strongly, abruptly clavate, petiolate at bases, each femur armed on the under side near apex with a large tooth, which is smooth on posterior margin.

Length, 9-9.5 mm.; width, 1.75-2 mm. Type locality. Loma del Gato, Sierra del Cobre, Oriente Province, Cuba. Type. United States National Museum, Cat. No. 51749. Paratype in the collection of S. C. Bruner. Described from two specimens collected by J. Acuña (E. E. A. Entom. Cuba, No. 10815). The type was collected at the type locality, July 4-7, 1936, and the paratype was collected at Pico Turquino, Oriente Province, Cuba, at an elevation of 3,750 feet, June 10-29, 1936. (Fisher, 1936: 344)

Holotype: female (Figure 3-6a), CUBA, Loma del Gato, Sierra del Cobre, Oriente, July 4-7/36, J. Acuna, Col., E.E.A. Cuba, Ento. No.10815, Type No. 51749 U.S.N.M. (USNM).

Material examined: Holotype, female (Figure 3-6a), CUBA, Loma del Gato, Sierra del Cobre, Oriente, July 4-7/36, J. Acuna, Col., E.E.A. Cuba, Ento. No.10815, Type No. 51749 U.S.N.M. (USNM). Specimens, 24 (all from CUBA): 1 male, paratype, Pico Turquino, 3750 feet, E.E.A. Cuba, Ento. No. 10815, Junio 10-29/36, J. Acuña Col. (IESC); 1 male and 1 female, Soledad, Cienfuegos, XI-16 1927, Gavinas Wilson (FSCA); 2 females, Cardero, Turquino, Ote., X - 1966, Col. I. Garcia (IESC); 1 female, Casa de Visita FAME, Topes de Collantes, S. Spíritus, Luz, Fecha 30-IV-9-V.2002, Col. L. Garcia (IESC); 1 male, Casa de Visita FAME, Topes de Collantes, S. Spíritus, Luz, Fecha 30-IV-9-V.2002, Col. R. Nunez (IESC); 17 specimens, sex undetermined (FDZC).

Geographic distribution: Known from Cienfuegos, Sancti Spíritus, and Santiago de Cuba provinces, Cuba (Greater Antilles).

Discussion: This species (Figure 3-6a-c) is endemic to Cuba. Zayas (1975) redescribed this species in his revision of the family and stated that he had collected a series at the following localities: Sierra Cristal, Gran Piedra, Loma del Gato, Buenos

Aires, and Topes de Collantes. Piña et al. (2004) listed this species from the Trinidad Mountains, Cuba. The holotype measures: length 8.7 mm, width 1.8 mm (measured across humeri).

This species most closely resembles *P. bidentatus* but can be easily distinguished by the metafemora armed with a single acute tooth (metafemora with two distinct acute teeth in *P. bidentatus*). From *P. dentipes*, this species can be easily distinguished by the apex of each elytron armed with a strong, acute spine (elytral apices subtruncate to strongly truncate in *P. dentipes*).

***Plectromerus bidentatus* Fisher, 1942: 16**

Original description:

Slender, subcylindrical, rather strongly shining, uniformly pale brownish yellow, pronotum and elytra ornamented with dark brown markings.

Head with the front transverse, flat between the antennal tubercles, which are widely separated and feebly elevated; surface feebly, coarsely, irregularly punctate, finely densely granulose, with a few long, erect hairs; eyes feebly emarginate, strongly convex, coarsely granulated, and very widely separated from each other on the top. Antenna about as long as the body, unarmed, slightly flattened, ciliate beneath with moderately long, erect hairs, the segments feebly, obtusely angulate on inner margins at apices.

Pronotum distinctly longer than wide, cylindrical, subequal in width at base and apex; sides parallel, feebly, broadly, arcuately constricted on basal half; disk even, strongly convex; surface nearly smooth at middle, coarsely, sparsely, irregularly punctate at sides, indistinctly pubescent, ornamented with dark-brown markings as follows: A narrow, elongate, median spot, and a narrow, sinuate vitta on each side, the vitta not extending to base or apex, and more or less interrupted at the middle, Scutellum transverse, broadly rounded at apex, with the surface glabrous.

Elytra nearly three times as long and distinctly wider than pronotum; sides nearly parallel from humeral angles to apical fifth, then feebly converging to the tips, which are separately feebly, broadly, arcuately emarginate, with a large, acute tooth at the outer angle; disk slightly flattened; surface rather densely, coarsely punctate basally, more obsoletely punctate toward apices, with a few scattered, erect hairs, and each elytron ornamented with three narrow, transverse, zigzag, dark-brown markings, one at basal third, one near middle, and the other at apical third.

Body beneath nearly glabrous, strongly shining; abdomen impunctate, the last visible sternite broadly rounded at apex; prosternum coarsely, very sparsely, irregularly punctate. Legs clothed with short, inconspicuous pubescence; femora petiolate, strongly, abruptly clavate, the anterior and middle pairs armed on the under sides near apices with a short, acute tooth, and the posterior pair each armed with two acute teeth, which are not serrate on posterior margins; tibiae arcuate or sinuate.

Length 7-8 mm., width 1.5-1.75 mm. Type locality. Loma de la Peña, northwest of Constanza, Dominican Republic. Type and paratype. In the Museum of Comparative Zoology, Cambridge, Mass., No. 23773. Paratype in the United States National Museum, No. 53735. Described from three specimens (one type, sex not determined) collected at the type locality at an elevation of 5,000 feet, during August 1938 by P. J. Darlington, Jr. (Fisher, 1942: 16)

Holotype: (sex not determined), DOMINICAN REPUBLIC, Constanza: Loma de la Peña, northwest of Constanza, No. 23773 (MCZ).

Material examined: Specimens 9 (all from DOMINICAN REPUBLIC): 2 males and 3 females, Duarte. Reserva Loma, Quita Espuela, Camelo, 13.2 km NNE San Francisco de Macoris, 19°24.46'N, 70°09.52'W., 515 m. 6 Apr 2004, C. Young, R. Davidson, J. Rawlins, edge of wet broadleaf forest, canopy trap, Sample 11293 (CMNH); 1 male, Duarte. Reserva Loma, Quita Espuela, Camelo, 13.1 km NNE San Francisco de Macoris, 19°24.44'N, 70°09.47'W., 512 m. 6 Apr 2004, C. Young, R. Davidson, J. Rawlins, burned patch in broadleaf forest, canopy trap, Sample 11393 (CMNH); 1 male, La Vega. Cordillera Central, 4.1 km SW El Convento, 18-50-38N, 70-42-51W., 1733 m. 31 May 2003, J. Rawlins, R. Davidson, C. Young, C. Nunez, P. Acevedo, montane forest with pines near pasture, canopy trap, Sample 22192 (CMNH); 1 male, Monsenor Nouel Prov., Cabo Vito 19-01.165'N, 70°31.197'W, 4 July 2004, beating C. J. Micheli, coll. (JAMC); 1 male, Prov. La Vega, ca. 10km E. Constanza, 1295m, 31AUG1988, beating in pine, guava forest, M.A. Ivie, T.K. Philips & K.A. Johnson (WIBF).

Geographic distribution: Known from Duarte, La Vega, and Monseñor Nouel provinces, Dominican Republic (Greater Antilles).

Discussion: This species (Figure 3-7a-c) is endemic to Hispaniola and has been collected beating vegetation and in canopy traps. Male specimens examined measured: length 6.2-8.5 mm, width 1.5-1.9 mm (measured across humeri); female specimens examined measured: length 7.8-8.1 mm; width 1.7-1.8 mm (measured across humeri).

The prosternal process between the procoxae is very distinctive in this species, being abruptly declivous instead of gradually declivous and not expanded distally as in all other known *Plectromerus* species (Figure 3-7c). *Plectromerus bidentatus* most closely resembles *P. dentipes* but can be easily distinguished by the apex of each elytron armed with a strong, acute spine (elytral apices subtruncate to strongly truncate in *P. dentipes*). *Plectromerus bidentatus* and *P. acunai* both have the apex of each elytron armed with a strong, acute spine however, *P. bidentatus* can be easily distinguished by the metafemora armed with a two distinct acute teeth (Figure 3-7b) (metafemora with one acute tooth in *P. acunai*).

***Plectromerus dentipes* (Olivier, 1790: 268)**

= *Callidium dentipes* Olivier, 1790: 268

= *Obrium dentatum* J.E. LeConte, 1824: 172

= *Curius scambus* Newman, 1840: 79

= *Plectromerus costatus* Cazier & Lacey, 1952: 30, **new synonymy**

Original description:

Callidium thorace cylindrico, testaceum, elytris fasciis duabus fuscis, femribus dentatis, Ent. ou hist. nat. des ins. Il est de la grandeur du Callidie mystique. Les antennes sont testacées, de la longueur du corps. Les antennules sont testacées, filiformes, avec le dernier article un peu plus gros que les autres. La tête est testacée, & les yeux sont bruns; ils ont une petite échancrure à coté de l'insertion des antennes. Le corcelet est testacé, arrondi, presque cylindrique. L'écusson est petit & arrondi postérieurement. Les élytres sont pointillées, testacées, avec des bandes obscures. Le dessous du corps & les pattes sont testacées. Les cuisses sont

un peu renflées, & a mées chacune d'une dent, dont celle des postérieures est la plus longue. Il se trouve dans l'Amérique Septentrionale, la Géorgie. (Olivier, 1790: 268)

Linsley's redescription:

Male. Form elongate; subcylindrical; integument shining, brown or reddish-brown, pronotum and elytra with paler areas; sparsely and very obscurely pubescent. Head finely, not densely punctate above; antennae exceeding elytral apices by about 2 segments, basal segments cylindrical, outer segments a little expanded at apex, scape a little longer than third segment, second segment longer than wide; fourth segment a little more than half as long as long as third segment, fifth segment $1\frac{1}{2}$ times as long as third segment, $2\frac{1}{4}$ times as long as fourth, segments 5 to 10 successively decreasing in length, eleventh segment longer than tenth. Pronotum subcylindrical, $1\frac{1}{2}$ times as long as basal width, but little wider at middle, surface polished, shining, very sparsely punctate; prosternum polished, glabrous, impunctate except for a group of coarse punctures on each side in front of coxae. Elytra a little more than $2\frac{1}{2}$ times as long as basal width; surface coarsely punctate, punctures dense at base and in dark areas of basal $\frac{3}{5}$, sparser in pale areas, very sparse and much finer over posterior $\frac{2}{5}$; apices feebly truncate. Legs with femora suddenly clavate, armed beneath with a tooth, finely punctate, thinly clothed with fine appressed pubescence. Abdomen shining, subglabrous, impunctate; fifth sternite broadly rounded. Length, 6-8 mm. *Female.* Antennae barely attaining elytral apices; prosternum glabrous and impunctate; abdomen with fifth sternite rounded at apex. (Linsley, 1963: 135)

Holotype: USA, Georgia (depository unknown).

Material examined: Holotype of *Curius scambus* Newman (= *P. dentipes* (Olivier)), male (BMNH).

Specimens, 9 (all from ALABAMA, USA): 1 male, 16-V-1948, W. Rosenberg (USNM); 1 male and 1 female, 19-V-1949, W. Rosenberg (USNM); 1 female, 6-V-1949, W. Rosenberg (USNM); 1 female, 14-V-1948, W. Rosenberg (USNM); 1 male, Baldwin Co., reared, pecan, 1971 (JEWG); 1 male, Baldwin Co., R'd: Pecan, 1972 (USNM); 1 female, Baldwin Co., 1972, R'd: Pecan (JEWG); 1 female, Highlands Co., H. Hammock St. Pk., 7-VII-94, RF Morris II (USNM).

1 male, CALIFORNIA, Orange Co., Palos Verdes Peninsula, July 1995, F.T. Hovore, coll., inside hotel restaurant, alive on tabletop, walking on butter (ENPC).

Specimens, 222 (all from FLORIDA, USA): 1 male, L. Worth, 2.6, Coll Hubbard & Schwarz (USNM); 1 male, Orlando, bred from pecan, 15 May 08, Chittenden No 317, Russell Coll (USNM); 1 male, Escambia Co., Sta. Rosa Isl., Ft. Pickens, 30°19.5'N, 87°17'W, MV UV light, 27-28 May 2003, A.K.& M.A. Tishechkin (LSAM); 1 male, Gainesville, 5-14-1947, H.V. Weems, Jr., at light (FSCA); 1 male, Babson Park, R.E. Vild Coll. 12-X-61, in Steiner Trap (FSCA); 1 male, Collection of Msr. A.T. Slosson, Ac. 26226 (AMNH); 1 male, L. Worth, 5-6, Schwarz, M.A. Cazier Collection Acc. 38903 (AMNH); 1 male, Crescent City, IV-24-08, Van Duzee Coll (AMNH); 1 male, Key Largo, C. Schaeffer Collection (AMNH); 1 male, Key Largo Key, Monroe Co., H.V. Weems, Jr. Coll. 3 IV 66, beating hammock vegetation at night (FSCA); 1 male, 3368, Hopk. U.S., May 8/05 reared, WF Fiske Collector, Apalchela [sic], evergreen scrub oak (USNM); 1 male, Paradise Key, Feb. 27, 1919, A Wetmore Collector (AMNH); 1 female, Everglade, Apr. 9-'12 (AMNH); 1 male, Elliots Key, C. Schaeffer Collection (AMNH); 1 male, L. Worth, C. Schaeffer Collection (AMNH); 1 male, Taylor Co., Williams Landing, 24-25-VII-1967, R. Smith (USNM); 1 female, 2-IX-77, Alachua Co., T.H. Atkinson, in window-pane trap with ethanol in hardwood hammock (USNM); 1 female, 23-V-78, Flagler Co., T.H. Atkinson, in window-pane trap with ethanol in slash pine plantation (USNM); 1 female, 22-VI-78, Flagler Co., T.H. Atkinson, in window-pane trap with ethanol in slash pine plantation (USNM); 1 female, Key Largo, F.W. Mead Coll., 2 V 57 (FSCA); 1 male, Key Largo, March 23-24, 1973, ex brush pile, J.S. Ashe (TAMU); 1 female, St. Petersburg, W.C. Carroll Coll. 9 X 64, in Steiner Trap (FSCA); 1 female, Long Key, VIII-24-70 (TAMU); 1 female, Royal Palm Park, 9-IX-31, L Bottimer (USNM); 1 female, Ft. Lauderdale, 9-26-1962, Cat. No. 11109 (FSCA); 1 female,

Knights Key, Marathon, XII-1-1970 (USNM); 1 female, Knight's Key, Marathon, II-1-1971 (JEWIC); 1 female, Marathon, Fla. Keys, V-24-1971 (USNM); 1 female, Biscayne, 36.4, Coll Hubbard & Schwarz (USNM); 1 female, DeLand, G.W. Desin Coll. 10-X-61 (FSCA); 1 female, Paradise Key, Feb. 26. (USNM); 1 female, Miami, O.D. Link Coll., 26 III 49, S.P.B. Acc. 104064 (FSCA); 1 female, Gainesville, 5-11-1947, H.V. Weems, Jr., 14279 (FSCA); 1 female, Matheson Hamm., D.R. Paulson Coll. II-15-57 (FSCA); 1 female, Jackson Co., F.W. Mead coll. 4 VIII 54, coll. at light (FSCA); 1 female, Courtney, G.W. Desin Coll. 5 XI 63, in Steiner Trap (FSCA); 1 female, Miami, XII 15 1961, B.K. Dozier (FSCA); 3 females, Miami, V-27-1963, B.K. Dozier (FSCA); 2 females, Monroe Co., Flamingo, Florida Bay, 26 November 1990, S. Thompson (CMNH); 1 female, Miami, V-2, H. Klages Coll'n, C.M. Acc. 11414 (CMNH); 1 male and 2 females, Carn. Mus. Acc. 349 (CMNH); 1 female, ex *Rhacoma crossopetim* [sic], Big Pine, Schwarz & Barber '19 (USNM); 1 female, no label data (AMNH); 1 female, Paradise Key, Mar. 1-'19, H Barber collector (USNM); 1 female, Ormond Beach, John N. Pott Coll. 3-XI-67, in Steiner Trap (FSCA); 4 females, Sea Horse Key, Levy Co., H.A. Denmark coll. 7 IX 57, at black light (FSCA); 2 females, Destin, G.W. Desin coll. 10 V 62, in Steiner Trap (FSCA); 1 male and 2 females, Destin, R.E. Woodruff coll. 16 V 60 (FSCA); 1 female, 10087d, Hopk. U.S., H.S. Barber, Colr., Martha, Mar. 7/10 (USNM); 1 female, Dade Co., 10-XII-36, O.D. Link Coll. (FSCA); 1 female, Palmetto, VI-8-45, on weed, #45-13816 (USNM); 1 female, South Miami, IV-17-45, In Cassia pod, #45-7861 (USNM); 1 female, Highlands Co., Archbold Biol. Sta., 14-18-IX-1978, H.V. Weems, Jr. & Fred E. Lohrer, insect flight trap (FSCA); 1 female, Monroe Co., Key Largo, emerged 24-31 Dec. 1976, R. Turnbow (FSCA); 1 female, Long Key, Cotton Bloom, XI-11-32,

CF Rainwater Coll., #88 (USNM); 1 male, Highlands Co., Archbold Biol. Sta., 8 mi. S of Lk. Placid, 7-VII-1988, P. Skelley, blacklight trap (FSCA); 1 female, Highlands Co., Archbold Biol. Sta., UVL 1-X-1977, L.L. Lampert, Jr. (FSCA); 1 male and 1 female, Highlands Co., Archbold Biol. Sta., 29-IX-1980, UVL, L.L. Lampert, Jr. (FSCA); 1 male and 1 female, Highlands Co., Archbold Biol. Sta., UVL 20-IV-1976, L.L. Lampert, Jr. (FSCA); 1 male, Highlands Co., Archbold Biol. Sta., 24-IX-1978, L.L. Lampert, Jr. (FSCA); 1 male, Highlands Co., Archbold Biol. Sta., 25-IX-1978, L.L. Lampert, Jr. (FSCA); 1 male, Archbold Biol. Sta., Lake Placid, 17-IX-1975, Rosenberg Collection (USNM); 1 female, Highlands Co., Archbold Biol. Sta., 8 mi. S of Lk. Placid, 30-VI-1988, P. Skelley, beating bushes (FSCA); 1 female, Fort Pierce, St. Lucie Co., E.W. Campbell Coll. 31-XII-80, Jackson trap (FSCA); 1 female, Monroe Co., Big Pine Key, 5-V-1990, M.C. Thomas (FSCA); 1 female, Dade Co., Miami, L.D. Howarton, 16-IV-84, Jackson Trap (FSCA); 1 female, Cudjoe Key, W.H. Pierce coll. 4-V-71, in McPhail trap (FSCA); 1 female, Monroe Co., Key Largo, emerged 11-20 Aug. 1979, R. Turnbow, ex *Mastichodendron foetidissimum* (Jacq.) Cronquist (FSCA); 1 female, Kissimmee, R.E. Vild, Coll. 19-XI-61 (FSCA); 2 females, Mascotte, C.L. Felshaw coll. 20-V-63, in Steiner Trap (FSCA); 1 female, Key Largo, 16-III-1972, J. Wappes, UVL (FSCA); 1 female, Broward Co., Hollywood, 4-V-1994, B. Coy, X *Citrofortunella microcarpa* (FSCA); 1 female, Brevard Co., Merritt Isl., F.A. Smith, 1-XII-81, Calamondin (FSCA); 1 female, Marathon, Fla. Keys, VII-10-1971 (AMNH); 1 female, Jupiter, XII.17.38, Acc. 36406, Collectors F.E. Watson, L.J. Sanford (AMNH); 1 female, Miami, Nov. 5.1911 (AMNH); 1 female, Fort Myers, Apr. 20-12 (AMNH); 1 male and 2 females, Marco, Apr. 19, '12 (AMNH); 2 males and 2 females, Key Largo, Ac. 5409, Coll Chas Palm

(AMNH); 1 male and 2 females, Marco, Apr. 17 12, Wm. T. Davis Collection, from Sapodilla, M.A. Cazier Collection Acc. 38903 (AMNH); 1 female, Sanford, IV-26-08, Van Duzee Coll (AMNH); 1 female, Key Largo, M.A. Cazier Collection Acc. 38903 (AMNH); 1 female, Leng, M.A. Cazier Collection Acc. 38903 (AMNH); 1 female, Key Largo, Fla. Keys, III-22-1971 (AMNH); 1 female, St. Petersburg, W.E. Wynn Coll. 10 XI 64, in Steiner Trap (EMEC); 2 females, Manatee Co., D.C. Chancey Coll. 30-VI-64, in Steiner Trap (EMEC); 1 female, East Bradenton, D.C. Chancey and Frederick Coll. 21-V-64 (EMEC); 2 females, Miami, VI-13-1963, B.K. Dozier, Va. Key (EMEC); 1 female, Lake Placid, 7-13-1948, B.T. McDermott (EMEC); 1 male, St. Lucie, 20.4, Coll. Hubbard & Schwarz (USNM); 1 female, Biscayne, 17.5, Coll. Hubbard & Schwarz (USNM); 1 male, Monroe Co., VII.6.1961, Big Pine Key lights, C.F. Harbison, Nat. Hist. Mus. San Diego, Calif. Acc'n. No. 1961.c (EMEC); 1 female, Everglades N.P. XII.4.1961, Flamingo Prairie, C.F. Harbison, Nat. Hist. Mus. San Diego, Calif. Acc'n. No. 1961.c (EMEC); 2 females, L. Worth (AMNH); 1 male and 1 female, L. Worth, IV-1918, 14.278, H. Klages coll'n, C.M. Acc. 11414 (CMNH); 1 male, Miami, V-4, H. Klages Coll'n, C.M. Acc. 11414 (CMNH); 1 male, Coral Gables, IV-'57, from Jamaica, R.W. Swanson coll. (FSCA); 1 female, 3369, Hopk. U.S., reared Nov. 10/05, Fiske WF Collector, Apalachicola, *Taxodium distichum* (USNM); 1 male and 2 females, 3367, Hopk. U.S., June 19/08 reared, WF Fiske Collector, Apalchcla [sic], *Juniperus* (USNM); 1 male, Biscayne, 21-5, Coll. Hubbard & Schwarz (USNM); 1 male, Key Largo, R.E. Woodruff coll. 7 XII 66, J.H. Knowles Coll. 7 XII 66, beating at night (FSCA); 1 female, Longwood, G.W. Desin coll. 18 X 61, in Steiner Trap (FSCA); 1 male, Orange City, G.W. Desin coll. 9 X 61, in Steiner Trap (FSCA); 1 male, Big Pine, iii Schwarz (USNM);

1 male, Paradise Key, Mar. 10 (USNM); 1 male, Miami, VI-1-1963, B.K. Dozier (FSCA); 1 male, Miami, VI-13-1963, Va. Key, B.K. Dozier (FSCA); 1 male, Paradise Key, 22-26-iii-19, CA Mosier (USNM); 1 male, Paradise Key, 13.3.19, HS Barber, Shoemaker Collection 1956 (USNM); 1 male, Key West, 20-III-12, EA Schwarz Collector (USNM); 1 male, U.S.N.M. Acc. 10725, Wing mounted HG Good (USNM); 1 male, Bay Co., St. Andrew's St. Rec. Area, 13 May 1984, R. Turnbow (FSCA); 1 male, Pinellas Co.: Weedon Key, 7-iv-1995, W. Lu (ENPC); 1 male, Ft. Meyers, May 3-5, '08, Van Duzee Wickham Collection 1933 (USNM); 1 male, L. Worth, Schwarz (AMNH); 2 males and 3 females, Key Largo, Catal. No. 1610, Brooklyn Museum Coll. 1929 (USNM); 1 male, Key West, IV, Coll. Hubbard & Schwarz (USNM); 1 male, Tampa, 21.4, Coll. Hubbard & Schwarz (USNM); 2 males, Miami, VI-13-1963, B.K. Dozier, Va. Key (FSCA); 2 males and 1 female, Center Hill, E.W. Holder, Jr. coll. 20-IV-65, in Steiner Trap (FSCA); 1 female, Volusia Co., H.A. Denmark coll. 11-VIII-56 (FSCA); 1 male, Jefferson Co., Aucilla Wldlf. Mgt. Area jct. hwys 59 & 98, 11 June 1988, R. Turnbow (FSCA); 1 male, Pinellas Co., St. Petersburg, 10-VI-1982, K. Hickman, Calomondin (FSCA); 1 male and 1 female, Up. Key Largo, Fla. Keys, III-18-1972 (JEWG); 1 male, Bradford Co., S. of Keystone Heights, G.B. Edwards, 13-X-1979 (FSCA); 1 female, Orlando, J.R. Woodley coll. 25-X-61 (FSCA); 1 female, Monroe Co., Upper Key Largo, 10-VI-1994, R. Morris (FSCA); 1 male, Alachua Co., Gainesville, Doyle Conner Building, 6-VIII-1990, P. Skelley, light (FSCA); 2 males, Broward Co., V-17-1937, Pampano, D.R. Paulson coll., on *P. clausa* (FSCA); 3 males, Monroe Co., Key Largo, March 23, 1973, J.R. Ables (TAMU); 1 male, Dixie Co., 4 mi. N. Old Town, May 18-20 1978, E. Giesbert, Coll. (EFGC); 1 male, Dade Co., Matheson Hammock, Dec 15

1978, E. Giesbert, Coll. (EFGC); 1 female, Dade Co., Matheson Hammock, Dec 16 1978, E. Giesbert, Coll. (EFGC); 1 male and 1 female, Monroe Co., Big Pine Key, May 1 1977, E. Giesbert, Coll. (EFGC); 1 male, Monroe Co., Big Pine Key, Emg'd Oct 19, 1977, E. Giesbert, Coll. (EFGC); 1 female, Monroe Co., Big Pine Key, Emg'd Jan, 1978, E. Giesbert, Coll. (EFGC); 1 female, Monroe Co., Upper Key Largo, May 13-15 1979, E. Giesbert, Coll. (EFGC); 1 male, Hernando Co., Withlacoochee State Forest, beating dead oak branches, Croom Moto. Area, near Brooksville, SpecmenID 1463, Gino Nearn - 07/26/2003 (ENPC); 1 female, Hernando Co., Withlacoochee State Forest, beating dead oak branches, Croom Moto. Area, near Brooksville, SpecmenID 1466, Gino Nearn - 07/26/2003 (ENPC); 1 male, Hernando Co., Withlacoochee State Forest, beating dead oak branches, Croom Moto. Area, near Brooksville, SpecmenID 1464, Gino Nearn - 07/26/2003 (ENPC); 1 female, Hernando Co., Withlacoochee S.F., Croom Area, beating dead oak branches, Croom Moto. Area, near Brooksville, SpecmenID 1469, Gino Nearn 07/26/2003 (ENPC); 1 male, Monroe Co., Sugarloaf Key, along CR 939, beating mangrove & buttonwood, SpecID: 6119, 26-III-2005, Nearn & Leavengood (ENPC); 1 female, Dade Co., Miami Bch, 16-XI-1989, W. Franchillon & D. Storch, sticky board in *Terminalia catappa* (FSCA); 1 male, Dade Co., Matheson Hammack Park, May 8, 1990, coll. E. G. Riely (TAMU); 1 female, Pascoe Co., Holiday, 10-10-1993, W.H. Yackley (CMHN); 1 male and 1 female, Monroe Co., Big Pine Key, Cactus Hammock, V-15-1990: Coll. E.G. Riley, night beating (TAMU); 1 male, Monroe Co., Big Pine Key, Watson's Nature Trail & vic., V-14-1990: E. Riley (TAMU); 1 female, Monroe Co., Marathon, Point Crane Hammock, 5-V-1990, M.C. Thomas (FSCA); 1 male and 1 female, Jefferson Co., Aucilla Wldlf. Mgt. Area, jct. hwys. 59 & 98, 11 June 1988, R.

Turnbow (FSCA); 1 male, Dade Co., Miami, 3-X-1988, D. Gruber, F.F.D trap (FSCA); 1 female, Key Largo, 18-III-1972, L.L. Lampert, UVL (FSCA); 1 female, Alachua County, Gainesville, NW 42nd Terrace, September 2000, JL Foltz (Frontalin + Turp. Lindgren Funnel) (ENPC); 1 male, Monroe Co., Upper Key Largo, VI-3-5-1993, Androw, Brattain, Keeney & Morris (CMNH); 1 male, Dade Co., Camp Mahachee, 8-IV-1991, M.C. Thomas (FSCA); 1 female, Charlotte Co., Charlotte Harbor, 11-IV-1991, S. Wilson, Jackson trap (FSCA); 1 male, Highlands Co., Archbold Biol. Sta. 18-X-1980, UVL, L.L. Lampert, Jr. (FSCA); 1 male, Escambia Co., Sta. Rosa Isl., Ft. Pickens, 30°19.5'N, 87°17'W, beating dead twigs, 28 May 2003, A.K. Tishechkin (LSAM); 1 male, Orange Co., V-28-29, H Clark, Florida Fruit Fly Trap Surv (USNM); 1 male, St. Augustine, CW Johnson Collector (USNM); 1 male, Paradise Key, Mar 1-19, H Barber Collector (USNM); 2 males, Paradise Key, Apr. 27, CA Mosier '19 (USNM); 1 male, Sebastian, Feb, 10, 1919, A Wetmore Collector (USNM); 1 male, Key Largo, M.A. Cazier Collector, Acc. 38903 (AMNH); 1 male, St. Petersburg, S.O. Storms Coll. 12-XI-64, in McPhail trap (FSCA); 1 male, Levy Co., H.V. Weems, Jr. Coll. 9-IX-55, coll. at light (FSCA); 5 males, Miami, VI-13-1963, B.K. Dozier, Va. Key (FSCA); 1 male, Hallandale, VII-1-1962, B.K. Dozier (FSCA); 2 males, Monroe Co., Fla. Keys, IV-3-5-1953, coll. E.L. Mockford (FSCA); 1 male, Wildwood, E.W. Holder, Jr., coll. 6-V-65, in Steiner trap (FSCA); 2 males, Henry Ulke Beetle Collection, CMNH Acc. No. 1645 (CMNH); 1 male, John Pennekamp St. Park, Key Largo, VI-17-1965, Collectors: L. & C.W. O'Brien (EMEC); 1 male, L. Harney, May 4, Coll. Hubbard & Schwarz (USNM); 1 male, Biscayne, 27-4, Coll. Hubbard & Schwarz (USNM); 1 male, Marco, Apr. 19. '12 (AMNH); 1 male, Dade Co., X 1953, L.N. Bell, UA (EMEC); 1 male, Paradise Key, 27-

II-'19, EA Schwarz (USNM); 1 male, St. Nicholas, Collection WH Ashmead (USNM); 1 male, Bartow, 16.7, Coll. Hubbard & Schwarz (USNM); 1 female, Crescent City, Coll. Hubbard & Schwarz (USNM); 1 male, Biscayne, 17-5, Coll. Hubbard & Schwarz (USNM); 1 male, Biscayne, 29-4, Coll. Hubbard & Schwarz (USNM); 1 male, Homestead, VIII-12-1960, R.M. Baronowski (FSCA); 1 male, Key Largo, 14278, Shoemaker Collection 1956 (USNM); 1 male, Monroe Co., 3 mi. NE Tavernier, Plantation Key, 12 DEC 1985, M.A. Ivie (WIBF); 1 male, 20-III-12, EA Schwartz Collector (USNM); 1 male, Hopk. U.S., Jun-1/05 reared, WFFiske collector, Apalchola, evergreen scrub oak (USNM).

Specimens, 6 (all from GEORGIA, USA): 1 female, Greene Co., R'd - pecan, V-1972 J. Wappes (JEWG); 1 female, Clinch Co., R'd - pecan, VI+VII-1972 J. Wappes (JEWG); 1 male, Lowndes Co., VII-62 (FSCA); 1 male, Henry Ulke Beetle Coll. CMNH Acc. No. 1645 (CMNH); 1 male and 1 female, 16108, Hopk. U.S., Apr. 25/03, WF Fiske Collector, Brunswick, *Cupressus* (USNM).

Specimens, 26 (all from LOUISIANA, USA): 1 female, E. Baton Rouge Parish, 26-IX-1972, Coll. D.F. Andrews (LSAM); 1 female, Henry Ulke Beetle Coll. CMNH No. 1645 (CMNH); 1 female, Baton Rouge, 8-18-28, Attractant Butyraldehyde, CE Smith Coll, Norman Allen Coll (LSAM); 1 female, in pecan limb, Bellechase, V-12-1935, J.C. Pritchett, N.O. # 12024 (USNM); 1 male and 1 female, Cameron Par., Grand Chenier, Dead limbs coll., III-11-82: E. Riley, reared from dead limbs, emerged VIII-10-20, 1982 (TAMU); 1 female, E. Baton Rouge, Par., Baton Rouge, VI-1987, Coll. E.G. Riley (TAMU); 1 female, E. Baton Rouge, Par., Baton Rouge, VI-1987, Coll. E.G. Riley, reared from dead Cypress, *T. disticum* (TAMU); 1 male, Cameron Par., Grand Chenier,

Dead limbs coll., III-11-82: E. Riley, reared from dead limbs, emerged V-9-, 1982 (TAMU); 1 female, M.A. Cazier Collector, Acc. 38903 (AMNH); 1 male, New Orleans, 24-IX-1974, V.A. Brou (FSCA); 1 male, New Iberia, 16/6/45, Collection H. Soltau (USNM); 1 male, Grant Parish, 23-3-V-1972, Boll Weevil Sex Attractant Trap (LSAM); 1 male, Baton Rouge, East B.R. Parish, 6-VII-1982, R. Levy collector (LSAM); 1 male and 1 female, Rapides Parish, 6-V-1973, Boll Weevil Sex Attractant Trap (LSAM); 1 male and 1 female, E. Baton Rouge, Baton Rouge, LSU, 9-11-V-1986, Coll. D.A. Rider, collected at light (LSAM); 1 male, W. Feliciana Par., 5 mi. E Hwy 61; cabin, 15 Sept 2000, coll. A.R. Cline, MV light (ENPC); 1 female, EBR Par. nr. LSU campus, 31 July 2003, D. Henne collr. ex. *Quercus virginiana* (ENPC); 1 male and 1 female, New Orleans, 31-III-45, Rau, in *Cercis canadensis*, 45-8777 (USNM); 1 male, St. Landry Parish, 18-V-1974, C.E. Eastmand, in soy beans (LSAM); 1 female, St. Landry Parish, 13-VI-1974, C.E. Eastmand, in soy beans (LSAM); 1 female, St. Landry Parish, 30-V-1974, C.E. Eastmand (LSAM); 1 female, Latourche Parish, near Chackbay, November 10, 2000, Coll. Sadie L. Granier (ENPC); 1 female, EBR Par., LSU Campus, 28 May 2001, A. Tishechkin, hand collected at lights (ENPC).

Specimens, 58 (all from TEXAS, USA): 20 males and 29 females, Brazos Col, College Station, Riley Estate, 30°35'18''N, 96°15'12''W, emerged by IX-2003, Coll. E.G. Riley, ex. *Juniperus virginiana* limbs cut, IV-2001 (TAMU); 2 males and 1 female, Brazos Col, College Station, Riley Estate, 30°35'18''N, 96°15'12''W, emerged by V-15-2002, E.G. Riley, ex. *Juniperus* (TAMU); 1 female, Oragne Co., Orange, 30°10'25''N, 93°45'36''W, V-25-1997, Coll. E.G. Riley - 533 (TAMU); 1 female, Brazos Co, College Station, Lick Creek Pk., X-31-XI-11-1998, M. Yoder, G. Gorena, B. Rodriguez & I.

Warriner, malaise trap (TAMU); 2 females, Brazos Col, College Station, Lick Creek Pk., IX-2-3-1995, R.R. Garces, Malaise trap (TAMU); 1 female, Brazos Col, College Station, Lick Creek Pk., IX-23-30-1995, R.R. Garces, Malaise trap (TAMU); 1 female, M.A. Cazier Collection Acc. 38903 (AMNH).

Specimens, 18 (all from BAHAMAS): Holotype of *P. costatus* Cazier (= *P. dentipes* (Olivier)), male (Figure 2-1a), South Bimini Isl., B.W.I., V-25-1951, Cazier & Gertch (AMNH), 1 male, paratype of *P. costatus* Cazier (= *P. dentipes* (Olivier)), South Bimini Isl., June 1951, M. Cazier, C. & P. Vaurie collectors (AMNH); 2 males, Gladstone Road, Nassau, XI-24-1959, A.M. Nadler (AMNH); 1 male and 1 female, Eleuthera, Rainbow Bay, XI-1986, D.B. & R.W. Wiley, malaise trap (FSCA); 4 females, Eleuthera, Rainbow Bay, 1-VII-1987, J.R. Wiley, malaise trap (FSCA); 1 female, Eleuthera, 9-15, Wickham collection, 1933 (USNM); 2 males and 1 female, Man-O-War Cay, nr Abaco, Aug. 15-24, 1971, H. & A. Howden (WIBF); 1 male, Andros Isl., San Andros, June 22, 1976, J.W. Smith and F.D. Bennett (TAMU); 1 male and 1 female, Andros Island, Nicoll's Town, 6-VI-2001, coll. M.C. Thomas, beating palmetto & slash (FSCA); 1 female, Andros Island, Bowen Sound, 8-VI-2001, coll. M.C. Thomas, beating (FSCA).

Specimens, 67 (all from CUBA): 1 male, Holguin, 1904, Sharp Coll. 1905-313 (WIBF); 1 male, Cayamas, 1-6, EA Schwarz Collector (USNM); 1 male, Cayamas, 10-1, EA Schwarz Collector (USNM); 1 male, Cayamas, 12-5, EA Schwarz Collector (USNM); 2 males, Cayamas, 10-6, EA Schwarz Collector (USNM); 1 female, Cayamas, 6-6, EA Schwarz Collector (USNM); 1 male, Cayamas, 14-2, EA Schwarz Collector (AMNH); 1 male, Camaguey, Col. J. Acuna, Julio 19 1923 (USNM); 1 male and 2

females, Cayamas, 29-5, EA Schwarz Collector (USNM); 1 male and 1 female, Cayamas, 23-5, EA Schwarz Collector (USNM); 1 female, Cayamas, ?, EA Schwarz Collector, 290 (USNM); 1 female, coll. Geitner, Tippman Coll. '57, 213112 (USNM); 1 male, Soledad, Cienfuegos, J. Bot. v. 1986, Las Villas (FSCA); 1 male, Soledad, 2-VI-1925, Museum of Comparative Zoology (EMEC); 1 male, Soledad (Cienfuegos) May, 1936, Darlington, Museum of Comparative Zoology (USNM); 1 female, Florida Bianca, nr. Alto Songo, Oriente Prov., 23-24 MAY 1959, M.W. Sanderson, C59-3 (WIBF); 1 male, Smithsonian Parish Expedition, Port Moa, Feb. 8, 1930, #14, 109546 (USNM); 1 female, Camagüey, Sept. 26-21, Col. J. Rutz, finca "La Ciegas" vino a luz por noche (IESC); 2 males, Camagüey, Col. J. Acuña, Julio 19, 1923 (IESC); 1 female, Niguero Cabo Cruz, Ote., VI-1965, Col. Zayas-Valdés (IESC); 1 male, Loma la Llaga, Najasa, Cam., X-1964, Col. Zayas (IESC); 1 female, Loma la Llaga, Najasa, Cam., V-1964, Col. Zayas (IESC); 1 male, San Felipe, Arroyo Blanco, L.V. 10-IV-1975, L.F. Armas (IESC); 1 male, Tortuguilla, XII 1965, Prov. Ote, Zayas-Garcia (IESC); 1 female, Ciénaga de Zapata, P. Larga, V 1963, Las Villas, Alayo-Zayas-Garcia (IESC); 1 male, Ciénaga de Zapata, V 1963, Las Villas, Alayo-Garcia (IESC); 1 male, Ciénaga de Zapata, V 1963, Las Villas, Alayo-Zayas-Garcia (IESC); 1 female, no label data (IESC); 1 female, Cuabitas, Stgo. de Cuba - Ote., P. Alayao, Col., VII-1950 (IESC); 1 male, Soledad, Cienfuegos, J. Bot, V 1976, Las Villas, Col. Coralía Sanchez (IESC); 1 male, Cayo Canuco, Caibarien, L.V.II 1974, L.F. Armas (IESC); 30 specimens (FDZC); 1 specimen, sex undetermined (MNHN); 1 specimen, sex undetermined, Playa Larga- Ciénaga de Zapata- Matanzas. 15 X 1999, col. Sergio Devesa (SDPC); 1 specimen, sex undetermined, Estación Jarico-Banao- Sancti Spíritus. 15 III 2006, col. Sergio Devesa (SDPC).

Geographic distribution: Widely distributed in SE USA (AL, FL, GA, LA, TX), Cuba (Camagüey, Cienfuegos, Guantánamo, Holguín, Santiago de Cuba, and Villa Clara provinces), and Bahamas, **new country record** (Abaco, Eleuthera, New Providence, and South Bimini Island).

Discussion: This species (Figure 3-8a-c, 3-18e) is widely distributed in the SE USA, Bahamas, and Cuba. A single specimen recently collected in California is believed to be introduced (F.T. Hovore, pers. comm.). Zayas (1975) stated that *P. dentipes* is commonly collected throughout Cuba. Linsley & Chemsak (1997) listed the following host plants: *Carya pecan*, *Cercis canadensis*, *Conocarpus erectus*, *Crossopetalum rhacoma*, *Lysiloma latisliqua*, *Metopium toxiferum*, and *Quercus*. *Plectomerus dentipes* is attracted to lights and has been collected in a variety of traps (Lindgren funnel, McPhail trap, Jackson trap, flight intercept, FFD, Steiner trap, boll weevil sex attractant trap, traps baited with attractant Butyraldehyde, and traps baited with “frontalin + turp”), and associated with various plants (mangrove & buttonwood, oak branches, sticky board in *Terminalia catappa*, *Juniperus virginiana*, in soy beans, *Cupressus*, *Pinus clausa*, *Taxodium distichum*, calamondin, *Sapodilla*, *Citrofortunella*, and *Mastichodendron foetidissimum*). Ree (2003) list this species as attacking pecan.

Plectomerus dentipes ranges in size from 4.5 mm-9.0 mm in length. Male specimens examined measured: length 4.3-8.7 mm, width 1.0-2.2 mm (measured across humeri); female specimens examined measured: length 4.5-9.0 mm; width 1.0-2.1 mm (measured across humeri). This species most closely resembles *P. acunai* and *P. bidentatus* but can easily be separated from both by the subtruncate to strongly truncate elytral apices (apex of each elytron armed with a strong, acute spine in *P. acunai* and *P.*

bidentatus). In addition, the metafemora of *P. dentipes* are armed with a single acute tooth (metafemora armed with two distinct acute teeth in *P. bidentatus*).

***Plectromerus distinctus* (Cameron, 1910: 186)**

= *Pentomacrus distinctus* Cameron, 1910: 186

= *Plectromerus crenulatus* Cazier, 1952: 1, **new synonymy**

Original description:

Testaceous, rather shining. Head shallowly punctured, slightly infuscate on the front. Thorax almost cylindrical, much longer than broad, with shallow puncturation, disc marked on either with ill-defined ferruginous spot. Elytra shining testaceous, rather coarsely punctured, each marked with two ferruginous bands, one situated before the middle and convex backwards, the other placed behind the middle and slightly convex forwards, each pair meets its fellow at the suture. Antennae and legs testaceous, all the femora armed with a tooth, that of the middle and posterior, larger and having the posterior edge of the tooth of the hinder femora serrated. All the tibiae distinctly sinuated. Length, 5 mm. Taken by sweeping near Port au Prince, Haiti, in February, 1908. (Cameron, 1910: 186)

Redescription: Male. Length 4.0-6.0 mm, width 0.9-1.3 mm (measured across humeri). Habitus as in Figure 3-9a. General form small, narrow, subcylindrical. Integument testaceous, with portions of head and pronotum ferruginous; each elytron testaceous with two vaguely defined macular regions as follows: (1) basal third with one narrow, transverse to slightly oblique, ferruginous, macula not reaching epipleural margins, and (2) apical third with one broader, subcircular, ferruginous, macula not reaching epipleural margins. *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 separated by about the width of two antennal sockets, vertex with dense, shallow punctures; vertex with short, recumbent, pale pubescence. Eyes coarsely faceted, transverse, subreniform, shallowly emarginate. Antennae eleven segmented, about as long as body; scape bowed, third antennomere equal to or slightly shorter than scape, a little longer than fourth, fifth antennomere longest, about twice as long as fourth,

slightly longer than scape, basal antennomeres subcylindrical, from fifth slightly flattened, from sixth progressively shorter; apices of antennomeres 5-8 slightly produced externally. Scape with short, pale, recumbent pubescence, rarely with long, suberect setae; antennomeres 2-6 ciliate beneath with coarse, moderately long, suberect, pale hairs. *Pronotum* subcylindrical, about 1.5 times as long as wide, widest at middle, slightly wider at apex than base, sides slightly inflated, nearly parallel, slightly constricted at basal third, and a slight inflation just before apex; basal margin slightly arcuate; disk convex; lateral margins of pronotum with patch of coarse, deep punctures, with one long, recumbent seta anterolaterally. Surface with portions microsculptured, moderately shining; disk with granulose punctures (for example Figure 3-9b), basal third of disk with two long, pale, recumbent setae positioned submedially, arising from deep punctures. *Scutellum* small, rounded, almost as long as broad, impunctate. *Elytra* about 2.8 times as long as width at humeri, about 2.8 times as long as pronotal length, about 1.3 times broader basally than pronotum at widest point (at middle); sides nearly parallel, very slightly sinuate, evenly rounded to apex, elytral apices individually, broadly rounded to nearly subtruncate; epipleural margin slightly sinuate. Elytral disk slightly concave medially, subsuturally, creating a faint costa on each elytron; base of each slightly raised. Elytral surface strongly shining; punctation moderately dense, rather evenly spaced, deep at basal third; punctures becoming finer towards apex and sides, almost obsolete at apical third; punctures each with a short, fine, pale, recumbent hair, with sparse to dense scattered long, suberect setae (each about as long as scape). *Underside* with prosternum strongly shining; one irregular patch of coarse, deep punctures in front of each procoxa; narrowest area of prosternal process between procoxae about 0.2 times as wide as

procoxal cavity, and about 0.5 times the width of apex of process which is subtriangular with rounded corners; prosternal process between procoxae gradually declivous; procoxal cavities open behind. Mesosternum surface strongly shining, sparsely punctate with coarse, shallow punctures. Metasternum surface strongly shining, with sparse, fine punctures, with a few suberect, pale hairs interspersed. Metepisternum sparsely clothed with short, recumbent, pale pubescence, which is denser posteriorly. Abdomen strongly shining; finely, shallowly punctate; with sparse long, suberect, pale hairs and punctures each with a short, fine, pale hair; fifth sternite broadly rounded, slightly longer than preceding sternite. *Legs* with femora pedunculate-clavate, metafemoral club slightly longer than basal portion, meso- and metafemora slightly arcuate, shining, clothed with sparse, recumbent, short, pale pubescence; underside of each femoral club with a broad, acute triangular tooth; metafemoral teeth with posterior edge moderately to strongly, deeply serrate, with about 10 irregular serration “peaks”; each peak with a short, curved, pale hair; metatibiae strongly sinuate, slightly flattened, about 0.7 times long as metafemora, gradually expanded distally; clothed with moderately dense, fine, recumbent, pale pubescence, becoming longer and coarser distally (for example Figure 3-9c).

Female (Figure 3-9a-c, 3-18a, 3-18c, 3-21b, 3-21h). Length 4.1-6.7 mm; width 0.9-1.5 mm (measured across humeri). Very similar to male except pronotal sides lacking coarse punctures and prosternum lacking irregular patch of punctures in front of each procoxa. Abdomen with terminal sternite evenly, broadly rounded, about 1.5 times longer than preceding sternite.

Holotype: female (Figure 3-9a), HAITI, Dr. Cameron (BMNH).

Material examined: Holotype, female (Figure 3-9a), HAITI, Dr. Cameron (BMNH). Holotype of *P. crenulatus* Cazier (= *P. distinctus*), female, HAITI, about 60 ft. alt. F. 4629 L., Manville, Feb. 6.10.1922 (AMNH). Specimens, 70 (all from DOMINICAN REPUBLIC): 1 female, San Pedro Prov., 13 km. E. Boca Chica, 27-V-1992, coll. M.C. Thomas (FSCA); 1 male, San Pedro Prov., 13 km. E. Boca Chica, 15-V-1992, coll. M.C. Thomas (FSCA); 5 males and 1 female, Barahona, 4.5 km. S. Barahona, 22-V-1992, coll. M.C. Thomas (FSCA); 1 female, San Pedro Prov., 4 km, E Tintero, 15-V-1992, coll. M.C. Thomas (FSCA); 1 female, Puerto Plata Prov., 14 km. W. P. Plata, V-11-1985, J.E. Wappes (USNM); 1 male and 3 females, San Pedro Prov., Nr. Juan Dolio, V-13, 18-1985, J.E. Wappes (JEWG); 2 females, Prov. Pedernales, 24 km. N. Cabo Rojo, 610m., 21 AUG 1988, wet forest at light & night beating, M. Ivie, Philips & Johnson (WIBF); 1 female, Prov. Barahona, 32 km. S. Barahona, nr. coast, 29 AUG 1988, on dead logs, M.A. Ivie, T.K. Philips & K.A. Johnson colrs (WIBF); 1 female, Prov. Pedernales, P.N. Sierra de Baoruco, Las Abejas, 1240m., 18°09.023'N, 71°37.387'W, 09 AUG 1999, M.A. Ivie (WIBF); 1 female, Prov. Barahona, hill above Barahona, 19 JULY 1999, 75m, M.A. Ivie colr., beating at night (WIBF); 1 male and 1 female, Prov. La Altagracia, P.N. del Este, Boca de Yuma entrance, 05 AUG 1999, at night, 18°21.904'N, 68°37.087'W, M.A. Ivie, beating veget. (WIBF); 1 male, Prov. La Altagracia, P.N. del Este, Boca de Yuma entrance, 05 AUG 1999, 18°21.904'N, 68°37.087'W, M.A. Ivie, beating at night (WIBF); 2 males and 2 females, Prov. Barahona, E. of Cachon, Hotel Oasis, 18°14.029'N, 71°08.379'W, 26 JULY 1999, at light, M.A. Ivie & K.A. Guerrero (WIBF); 2 males and 8 females, Barahona, 4.5 km. S Barahona, 17 May 1992, R. Turnbow (RFTC); 5 males and 2 females, Barahona, 4.5 km. S Barahona, 22 May 1992, R.

Turnbow (RFTC); 1 female, Barahona, 4.5 km. S Barahona, 16 May 1992, R. Turnbow (RFTC); 2 females, San Pedro, 13 km. E Boca Chica, 27 May 1992, R. Turnbow (RFTC); 1 female, Pedernales, 25.5 km. N Cabo Rojo, 21 May 1992, R. Turnbow (RFTC); 1 male and 1 female, Barahona, 4-5 km. S Barahona, 13 July 1996, R. Turnbow (RFTC); 3 males and 2 females, 12 km W San Pedro de Macoris, May 5-19 1985, E. Giesbert, Coll. (EFGC); 1 female, Prov. Pedernales, Km. 24 N. Cabo Rojo 3000ft, 2-VII-98 blacklight trap, R.E. Woodruff & R.M. Baranowski (REWC); 1 female, Prov. Pedernales, Cabo Rojo, "Alcoa" headquarters, 10-VI-1998 blacklight trap, R.E. Woodruff, P.H. Freytag (REWC); 1 male, Pedernales Prov., PN Jaragua, trail to Carlitos ca. 6 km S of Hwy 44, 106 meters, blacklight, 17°48.932'N, 71°28.271'W, 8 July 2004 - Perez, Lingafelter (USNM); 1 male, Prov. Monte Cristi, 13 km. N. Villa Elisa, 31-V-1994, coll. M.C. Thomas (FSCA); 1 male, Prov. La Altagracia, 5 km. W. La Laguna Nisibon, 17-VI-98, R.E. Woodruff, citrus (REWC); 1 male, Prov. La Altagracia, P.N. del Este, Boca de Yuma, 18°21.904'N, 68°37.094'W, 05 AUG 1999, 2m, at light, M.A. Ivie & K.A. Guerrero (WIBF); 1 male, Prov. La Altagracia, Boca de Yuma entr., Par. Nac. del Este, 06 AUG 1999, 12m, 18°21.904'N, 68°37.094'W, M.A. Ivie, beating vegetation (WIBF); 1 male, Barahona Prov., 4.5 km. S Barahona, 22 May 1992, R. Turnbow (RFTC); 1 male, Barahona, Punta Prieta, 13 July 1996, R. Turnbow (RFTC); 2 males, San Pedro, 4 km. E Tintero, 15 May 1992, R. Turnbow (RFTC); 1 male, Pedernales, 14.5 km N Cabo Rojo, 165 m., 18-03N, 71-39W, 26-27 September 1991, C. Young, S. Thompson, R. Davidson, J. Rawlins, arid thornscrub (CMNH); 1 male, Pedernales, 26 km N Cabo Rojo, 18-06N, 71-38W, 730m, 13 July 1990, J. Rawlins, C. Young, S. Thompson (CMNH); 1 male, Pedernales, along Rio Mulito, 13 km N Pedernales., 18-

09N, 71-46W, 230m, 17 July 1992, J. Rawlins, S. Thompson, C. Young, , R. Davidson, riparian woodland (CMNH); 1 male, Barahona, 5 km SE Polo, slopes of Loma la Torre, 18-03N, 71-16W, 980m, 18 July 1992, disturbed forest with coffee, C. Young, , R. Davidson, S. Thompson, J. Rawlins, Carnegie Museum Specimen Number CMNH-239,093 (CMNH); 1 female, Pedernales, 26 km N Cabo Rojo, 760m, 17 July 1987, J. Rawlins, R. Davidson (CMNH); 1 female, Pedernales, 14.5 km N Cabo Rojo, 18-03N, 71-39W, 165 m., 19 July 1990, J. Rawlins, C. Young, S. Thompson (CMNH); 1 female, Pedernales, Sierra de Baoruco, Aceitillar, 25.2 km ENE Pedernales, 18-05-29N, 71-31-16W, 1272 m, 14 June 2003, C. Young, J. Rawlins, C. Nunez, R. Davidson, P. Acevedo, M. de la Cruz, dense broadleaf forest, pine, UV light, sample 42212 (CMNH); 5 specimens, sex undetermined, La Altagracia, Punta Cana near Ecological Reserve, 0-5 meters, beating, Nearn&Lingafelter 12-VI-2005 (ENPC), 1 specimen, sex undetermined, La Altagracia, Boca de Yuma, 3-20 meters, beating, Nearn&Lingafelter 27-VI-2005 (ENPC).

Geographic distribution: Known from Haiti and Dominican Republic (Barahona, La Altagracia, Monte Cristi, Pedernales, Puerto Plata, and San Pedro provinces) (Greater Antilles).

Discussion: This species is endemic to Hispaniola and has been collected at UV light and beating vegetation. Vitali & Rezbanyai-Reser (2003) synonymized *P. distinctus* with *P. serratus* and Micheli & Nearn (2005) subsequently revalidated *P. distinctus* after comparing type specimens for both species (Figs. 3-18a-d).

Plectromerus distinctus is one of the smallest species in the genus, ranging in length from 4.0 mm-6.7 mm. From congeners, *P. distinctus* can be distinguished by the

combination of the following characters: elytra with scattered long, suberect setae; pronotal disk granulose; and metafemoral teeth moderately to strongly, deeply serrate.

This species is very similar to *P. wappesi* but can be distinguished by the granulose pronotal disk (pronotal disk with dense, round, shallow punctures in *P. wappesi*).

***Plectromerus dominicanus* (Micheli, 1983: 262), new combination**

= *Curiosa dominicana* Micheli, 1983: 262

Original description:

Holotype female: Length 5.7 mm; greatest width 1.6 mm at apical $\frac{1}{3}$ of elytra.

General appearance. Small, moderately narrow, integument dark reddish-brown, becoming feebly lighter in color on antennae, portions of underside, palpi and legs; moderately sparsely clothed with long and short, recumbent and suberect whitish hairs on head, pronotum and elytra; each elytron ornamented at basal $\frac{1}{3}$ with a small, transverse, yellowish spot, which is placed within a large, subtriangular, blackish, glabrous area. *Head.* Front about $1\frac{1}{2}$ times broader than long, feebly convex, shallowly foveate on each side, with a feeble, narrow, median groove extending from about anterior $\frac{1}{4}$ to beyond vertex; antennal tubercles widely separated at base. Surface feebly shining, alutaceous in part; front shallowly, irregularly, moderately finely punctate and finely rugose; vertex and posteriorly shagreened and sparsely, very inconspicuously punctate; mandibles coarsely rugose-punctate on external face; ventral surface moderately shining, with transverse rugae. Eyes ovate, transverse, narrowing posteriorly, feebly emarginate on upper margin. Pubescence short, fine, recumbent, moderately sparse on vertex and posteriorly, elsewhere long, coarse, suberect and very sparse. Antennae reaching to about apical $\frac{1}{4}$ of elytra; scape about 4 times longer than broad and about $1\frac{1}{4}$ times as long as the distance between antennal sockets, slightly longer than next 2 segments together; 2nd segment twice as long as broad, 3rd about $1\frac{1}{3}$ times length of 4th, 5th about $1\frac{1}{8}$ times length of 3rd, 6th to 9th becoming progressively slightly shorter, 7th subequal in length to 3rd, 10th slightly longer than 9th. All segments feebly shining, alutaceous; punctures fine on basal segments becoming finer on distal ones; pubescence sparse on basal segments becoming denser on distal ones and consisting of short, fine, recumbent, inconspicuous hairs with long, coarse, suberect ciliae intermixed.

Prothorax strongly arched in lateral view. *Pronotum:* One and $\frac{1}{3}$ times longer than broad, widest at middle, a little narrower at base than at apex. Lateral outline broadly arcuately expanded from anterolateral angle to middle, thence broadly rounded to basal $\frac{1}{5}$ where it is strongly constricted, thereafter sinuate to basal margin. Basal margin straight; anterior margin broadly arcuately produced. Surface subopaque, finely granulose-rugose dorsally, becoming very finely

granulose on sides; punctation sparse, very fine. Pubescence consisting of long, suberect hairs which are sparse on disk, very sparse on sides, and short, fine, recumbent hairs which are moderately densely distributed along base. Scutellum subtruncate at apex; moderately densely clothed with long, recumbent hairs.

Elytra. Two and $\frac{1}{2}$ times longer than subbasal width; $2\frac{5}{8}$ times longer, and about $1\frac{1}{3}$ times broader basally than pronotum at middle. Disk unevenly depressed from base to basal $\frac{1}{3}$, each elytron tumid centrobasally; posterior two-thirds strongly convex. Humeral angles not prominent. Outline of sides slightly convergent from posthumeral region to basal $\frac{1}{3}$, thence slightly divergent to about apical $\frac{1}{3}$, thereafter broadly, evenly rounded to apices, which are separately and moderately narrowly rounded. Epipleural margin moderately sinuate. Each elytron ornamented at basal $\frac{1}{3}$ with a small, transverse, yellowish spot which is placed within a large, subtriangular, blackish area, the anterior margin of which is obliquely, arcuately expanded forward, the posterior margin extending obliquely from subsutural basal $\frac{1}{3}$ to about lateroapical $\frac{1}{3}$. Surface deeply, moderately coarsely, closely and occasionally confluent punctate basally in front of subtriangular areas, punctures becoming finer toward sides, but coarse along margins; humeri impunctate; subtriangular areas finely alveolate; regions extending from posterior margins of subtriangular areas to apices finely rugose with sparse, inconspicuous punctures. Pubescence moderately sparse, becoming very sparse around humeral angles and sides anteriorly, and consisting of moderately long, recumbent hairs with a few longer, suberect hairs intermixed; subtriangular areas and yellowish spots glabrous.

Prosternum. Anterior margin narrowly, feebly emarginate a middle; prosternal process between coxae about $\frac{1}{3}$ as broad as width of coxal cavity. Surface along anterior margin shining, with transverse rugae and a few fine punctures; remaining portion subopaque, shagreened, very finely, very sparsely punctate; process sulcate between raised margins of coxal cavities. Pubescence consisting of a few scattered hairs.

Mesosternum. Surface shining, very sparsely and very finely punctate; very sparsely clothed with a few short, except outer portion of mesepisternum which is moderately densely clothed.

Metasternum. Surface shining, very sparsely and very finely punctate; very sparsely clothed with a few short and long hairs, becoming moderately densely clothed about posterolateral angles.

Legs. Anterior legs with femora longer than tibiae; ventral femoral tooth small, acute, feebly compressed basally; tibiae moderately sinuate. Intermediate legs with femora and tibiae subequal in length; femoral ventral tooth acute, broad at base, strongly compressed; tibiae feebly sinuate. Posterior legs with femoral ventral tooth acute, obliquely directed backward, compressed, smaller and narrower than same on mesofemora; femora barely reaching 5th abdominal sternite in female; tibiae slender, feebly arcuate, feebly compressed apically, subequal in length to

femora. Surface on all legs moderately strongly shining, finely wrinkled in part, very finely and sparsely punctate. Pubescence on femora and tibiae consisting of sparse, short, fine, recumbent hairs with longer, coarser, suberect hairs intermixed.

Abdomen. Surface shining, very sparsely, very finely punctate and clothed with a few short and long hairs; 5th sternite broadly, evenly rounded at apex. (Micheli, 1983: 262)

Holotype: female (Figure 3-11a), DOMINICAN REPUBLIC: La Vega, 20 km. SE. Constanza, May 26, 1978, C.W. & L.B. O'Brien & Marshall (USNM).

Material examined: Holotype, female (Figure 3-11a), DOMINICAN REPUBLIC: La Vega, 20 km. SE. Constanza, May 26, 1978, C. W. & L. B. O'Brien & Marshall (USNM). Specimens, 2 (all from DOMINICAN REPUBLIC): 1 female, Pico Duarte Trail - 8000 ft., Below La Comparticion, beating vegetation, 19°02.254N, 70°58.155'W, 1 July 2004 S. W. Lingafelter (USNM); 1 specimen, sex undetermined, Prov. La Vega, Trail from La Comparticion-La Pelona, P. N. A. Bermudez, 2450-3070 m, 18 July 2002, coll. D. Perez, B. Hierro, R. Bastardo (MCZWeb, 2006).

Geographic distribution: Known only from La Vega province, Dominican Republic (Greater Antilles).

Discussion: *Plectromerus dominicanus* (= *Curiosa dominicana*) is endemic to Hispaniola and is known only from three specimens, all collected at high altitude in the Sierra Central region of the Dominican Republic (Figure 3-10, 3-11a-d). This species has been collected beating dead *Pinus occidentalis* branches (S.W. Lingafelter, pers. comm.). The finely faceted eyes of this species suggest that it may be diurnal. All other known curiine species have coarsely faceted eyes and are thought to be nocturnal.

Micheli (1983) described *Curiosa dominicana* from a single female specimen, noting that it presented unusual characters for a curiine. Lingafelter & Nearn (2005) provided a color habitus photograph of the holotype. A phylogenetic analysis of the tribe

suggests that this species is a highly derived *Plectromerus* with several autapomorphies. The combination of the following characters make this the most distinctive species in the genus: antennae with 10 segments, scape distinctly longest antennomere, finely faceted eyes, and each elytron ornamented with a small, yellowish marking (Figure 3-11 a-d).

***Plectromerus exis* Zayas, 1975: 123**

Original description:

Estrecho, alargado, color castaño-ferruginoso amarillento, brillante, marcado con manchas castaño oscuras en el pronoto y en los élitros. La cabeza es corta y está fuertemente punzada, y marcada con dos manchas en forma de Y invertida entre los tubérculos antenales, cuyas ramas laterales se unen en la base. Antenas como de una y media vez el largo del cuerpo, finas, anilladas y algo compresas. Pronoto alargado, subcilíndrico, ensanchado delante del medio, la superficie lisa y con fuertes punciones por los lados, manchado en el dorso con manchitas más o menos alargadas que adoptan distintas formas en los individuos. Elitros como del ancho de los ojos, con los hombros brevemente redondeados, moderadamente prominentes, lados paralelos, aguzadamente redondeados hacia el extreme, y truncados en el ápice. Son aplanados en el dorso con una costilla amplia poco elevada, situada a lo largo y por el centro poco conspicua; en la base y el ápice están fuerte, gruesa y esparcidamente punzados, y manchados con una banda en zigzag en la base, un manchón en cada elitro detras de esta, otra franja transversal delante del ápice y un manchón a cada lado, más o menos cuadrados. Las patas con los fémurs engrosados; la maza oscurecida, con el consabido denticito, fémurs arqueados. El diente de los metafémurs es aserrado en su borde exterior, y las metatibias son sumamente aqueadas. Largo: 5-8 mm. (Zayas, 1975: 123)

Redescription: Male (Figure 3-12a-c, 3-18f). Length 6.7-8.2 mm, width 1.3-1.5 mm (measured across humeri). Habitus as in Figure 3-12a. General form small, narrow, subcylindrical. Integument testaceous, with head, apices of antennomeres 3-11, portions of pronotum, elytra, and femoral apices ferrugineous. *Head* with front nearly flat, transverse, with a median, shallow line from between eyes to just beyond vertex, concave between antennal tubercles, which are slightly to moderately raised and separated by about the width of two antennal sockets; vertex microsculptured, with dense, shallow punctures; vertex with short, recumbent, pale pubescence. Eyes coarsely faceted,

transverse, subreniform, deeply emarginate. Antennae eleven segmented, antennomere 8 surpassing elytral apices; scape bowed, third antennomere slightly longer than scape, about twice as long as fourth, fifth antennomere longest, slightly longer than width of elytra at humeri, about 3 times longer than fourth, about 1.5 times longer than third, antennomeres 6-10 becoming progressively shorter, eleventh slightly longer than tenth, basal antennomeres subcylindrical, from fifth slightly flattened. Scape with short, recumbent, pale pubescence; antennomeres 2-7 ciliate beneath with coarse, moderately long, suberect, pale hairs. *Pronotum* subcylindrical, about 1.8 times as long as wide, widest at middle, slightly broader at apex than base, sides nearly parallel, arcuately constricted at basal third, and a slight inflation just before apex; basal margin slightly arcuate; disk convex, with one strongly raised, median tubercle (Figure 3-12b); lateral margins of pronotum with two long, suberect setae anterolaterally. Surface strongly microsculptured, with scattered, shallow punctures; surface ornamented with a narrow, longitudinal, irregular, ferrugineous vitta on either side of median tubercle; median tubercle ferrugineous. *Scutellum* small, rounded, distinctly longer than broad, impunctate. *Elytra* about 3 times as long as width at humeri, about 2.5 times as long as pronotal length, about 1.5 times broader basally than pronotum at widest point (at middle); sides strongly sinuate around middle; elytral apices individually, broadly rounded; epipleural margin moderately sinuate. Elytral disk slightly concave medially, subsuturally, creating a faint costa on each elytron; base of each elytron moderately raised. Elytral surface microsculptured, with portions glabrous and strongly shining; punctation moderately dense, coarse, and deep at basal third; punctures becoming more shallow toward apex and sides, almost obsolete at apical third; each puncture with a short, fine, pale hair.

Underside with prosternum strongly shining, with moderately dense, fine punctures; narrowest area of prosternal process between procoxae about 0.1 times as wide as procoxal cavity, and about 0.3 times the width of apex of process which is subtriangular with rounded corners, prosternal process between procoxae gradually declivous; procoxal cavities open behind. Mesosternum surface strongly shining, very sparsely and finely punctate. Metasternum surface strongly shining, very sparsely and finely punctate, with scattered deeper punctures and sparse suberect, pale hairs interspersed. Metepisternum sparsely clothed with short, recumbent, pale pubescence, which is denser posteriorly. Abdomen shining; finely, shallowly punctate; abdomen with sparse long, suberect, pale hairs and punctures each with a short, fine, pale hair; fifth sternite broadly subtruncate, slightly longer than preceding sternite. *Legs* with femora pedunculate-clavate, basal portion of metafemora distinctly longer than metafemoral club; meso- and metafemora slightly arcuate, shining, clothed with moderately densely, recumbent, short, pale pubescence; clavate portion darker; underside of each femoral club with a small triangular tooth; metafemoral teeth with posterior edge nearly smooth, very weakly serrate; metatibiae very slightly sinuate, nearly straight, slightly flattened, about 0.7 times as long as metafemora, gradually expanded distally; clothed with moderately dense, fine, recumbent, pale pubescence, becoming longer and coarser distally (Figure 3-12c); metalegs with first tarsomere about twice as long or longer than second.

Holotype: male, CUBA, Col. F. de Zayas, Loma del Gato, 6-1959, Oriente (FDZC).

Material examined: Holotype, male, CUBA, Col. F. de Zayas, Loma del Gato, 6-1959, Oriente (FDZC). Specimens, 7 (all from CUBA): 1 male, Col. F. de Zayas, Sierra Maestra, Turquino, 8 1964, Oriente (FDZC); 2 specimens, Col. F. de Zayas, Sierra Cristal, 6 1959, Oriente (FDZC); 1 specimen, sex undetermined, Col. F. de Zayas, Jiguaní, Oriente (FDZC); 1 male, P. Guijaibón, P. Rio, 5-1953 (FDZC); 1 male, Pico Turquino, Ote., VI - 1964, Zayas - Gracia (IESC); 1 specimen, sex undetermined (MNHN). Specimens, 2 (all from DOMINICAN REPUBLIC): 1 male, Pedernales, 25.5 km., N Cabo Rojo, 20 May 1992, R. Turnbow (RHTC); 1 male, Dajabon, 13km. S. Loma de Cabrera, V-27-1978, O'Briens & Marshall (JAMC). 1 specimen, JAMAICA, sex undetermined (FVPC).

Geographic distribution: Known from Cuba (Granma, Pinar del Rio, and Santiago de Cuba provinces), Dominican Republic (Dajabón and Pedernales provinces), and Jamaica, **new country record** (Greater Antilles).

Discussion: Zayas (1975) stated that this species was common throughout Cuba and that all of the type specimens collected were perching on vegetation, but no host information was provided. Nearns (2006) listed *P. exis* and Nearns et al. (2006) provided a color habitus photograph of the holotype deposited in the FDZC. Nearns & Turnbow (2005) provided the first record of this species outside of Cuba. Subsequently, a photograph of a specimen collected in Jamaica (sex undetermined) was provided to the author by F. Vitali (FVPC).

This species is easily distinguished from all other presently known congeners by the distinctly elongate pronotal dimensions and distinctly elevated tubercle on the pronotal disk (Figure 3-12b).

***Plectromerus fasciatus* (Gahan, 1895: 109)**

= *Pentomacrus fasciatus* Gahan, 1895: 109

= *Plectromerus* n. sp., Chalumeau & Touroult, 2005b: 113

Original description:

Fulvous-testaceous; elytra subnitid, each with three ferruginous brown bands, the first a little behind the base, and crossing in a slightly oblique direction, the second behind the middle and transverse, the third near the apex. Prothorax distinctly longer than broad, somewhat rounded at the middle of each side, punctured above, and having a not very distinct oblong brownish spot on each side of the disk. Elytra strongly and rather thickly punctured, each almost rounded at the apex. Femora each armed underneath with a sharp and distinct tooth. Antennae about half as long again as the body, with the third joint twice as long as the fourth, and distinctly shorter than the fifth. Long. 6-9 mm.

Hab. Grenada-Balthazar, on the Windward side and St. Vincent-Leeward side (H. H. Smith). Var. Bands of elytra obsolete. One of the St. Vincent specimens. (Gahan, 1895: 109)

Redescription: Male (Figure 3-13a-c). Length 8.0-10.2 mm, width 1.9-2.2 mm (measured across humeri). Habitus as in Figure 3-13a. General form small, narrow, subcylindrical. Integument testaceous, with portions of head, pronotum, and elytra ferruginous. *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 slightly raised and separated by about the width of two antennal sockets; surface of vertex microsculptured, with moderately dense, irregular, shallow, punctures. Eyes coarsely faceted, transverse, subreniform. Antennae eleven segmented, about 1.3 times longer than body; scape bowed, third antennomere slightly longer than scape, more than twice the length of fourth, fifth antennomere longest, more than 3 times longer than fourth, antennomeres 6-11 becoming progressively shorter, basal antennomeres subcylindrical, from fifth slightly flattened, apices of antennomeres 6-10 produced externally. Scape with few long, suberect, pale hairs; antennomeres 2-7 ciliate beneath

with coarse, moderately long, suberect, pale hairs. *Pronotum* subcylindrical, about 1.3 times as long as wide, widest at middle, slightly broader at base than apex, sides moderately inflated, arcuately constricted at basal third, and a slight inflation just before apex; basal margin slightly arcuate; disk convex, with scattered, long, suberect, pale hairs arising from deep punctures; each side of pronotum with coarse, deep punctures laterally and one or two long, suberect setae anterolaterally. Surface microsculptured, densely, shallowly punctate, slightly shining. *Scutellum* small, rounded, almost as long as broad, impunctate. *Elytra* about 2.8 times as long as width at humeri, about 2.8 times as long as pronotal length, about 1.3 times broader basally than pronotum at widest point (at middle); sides nearly parallel, very slightly sinuate around middle, evenly rounded to apex, elytral apices strongly subtruncate to truncate; epipleural margin moderately sinuate. Elytral disk slightly concave medially, subsuturally, creating a faint costa on each elytron; base of each elytron slightly raised. Elytral surface moderately shining; punctation moderately dense, coarse, and deep at basal third; punctures becoming finer towards apex and sides, almost obsolete at apical third; each puncture with a short, fine, pale hair; elytra with moderately dense, scattered, long, suberect, pale hairs. *Underside* with prosternum strongly shining, one irregular patch of coarse, deep punctures in front of procoxae; narrowest area of prosternal process between procoxae about 0.2 times as wide as procoxal cavity, and about 0.5 times the width of apex of process which is subtriangular with rounded corners; procoxal cavities open behind. Mesosternum surface strongly shining, sparsely and finely punctate. Metasternum surface strongly shining, sparsely and finely punctate, with few deeper punctures and suberect, pale hairs interspersed. Metepisternum sparsely clothed with short, recumbent, pale pubescence,

which is denser posteriorly. Abdomen strongly shining; very finely, shallowly punctate; abdomen with sparse, long, suberect, pale hairs and punctures each with a short, fine, pale hair; fifth sternite broadly subtruncate, slightly longer than preceding sternite. *Legs* with femora gradually clavate, meso- and metafemora slightly arcuate, shining, clothed with sparsely to moderately densely, recumbent, short, pale pubescence and with scattered, suberect, pale hairs arising from shallow punctures; underside of each femoral club with a broad, acute triangular tooth with posterior edge weakly serrate, with irregular, indistinct “peaks”; meso- and metatibiae nearly straight; clothed with moderately dense, fine, recumbent, pale pubescence, becoming longer and coarser distally (Figure 3-13c).

Female. Length 7.3-10.2 mm; width 1.7-2.2 mm (measured across humeri). Very similar to male except pronotal sides lacking coarse punctures and prosternum lacking irregular patch of punctures in front of procoxae. Abdomen with terminal sternite evenly, broadly rounded, slightly longer than preceding sternite.

Lectotype: male (Figure 3-13a), GRENADA, Balthazar, (Windward side), W.I., H.H. Smith, 107 (BMNH).

Material examined: Lectotype, male (Figure 3-13a), GRENADA, Balthazar, (Windward side), W. I., H. H. Smith, 107 (BMNH). Specimens, 13 (all from MONTSERRAT): 1 female, Cassava Ghaut, Beattie House, 16°45.91'N, 62°12.95'W, 23-03 Apr Mar 2002, 632 ft, A. Krakower, u. v. light (WIBF); 1 male and 1 female, Cassava Ghaut, Beattie House, 16°45.91'N, 62°12.95'W, 08-17 Apr 2002, 632 ft, A. Krakower, Malaise tr. (WIBF); 1 male: Cassava Ghaut, Beattie House, 16°45.91'N, 62°12.95'W, 14-21 June 2002, 632 ft, A. Krakower, light trap (WIBF); 1 male, Cassava

Ghaut, Beattie House, 16°45.91'N, 62°12.95'W, 21 Jan - 15 Feb 2002, 632 ft, A. Krakower, u. v. light (WIBF); 1 male and 1 female, Cassava Ghaut, Beattie House, 16°45.91'N, 62°12.95'W, 05-15 Feb 2002, 632 ft, A. Krakower, Malaise tr. (WIBF); 1 male and 1 female, Cassava Ghaut, Beattie House, 16°45.91'N, 62°12.95'W, 11-23 Mar 2002, 632 ft, A. Krakower, u.v. light (WIBF); 1 male, Trail from Cassava Ghaut south to waterpipe, 22 May 2003, K.A. Marske colr. (WIBF); 1 female, Cassava Ghaut to Lawyer's Mountain, 28 May 2003, M.A. Marske colr. (WIBF); 1 female, Cassava Ghaut, Beattie House, 30 May-06 June 2002, A. Krakower, uv light (WIBF); 1 female, between Anne-Maries and Beattie house, 28 June 2002, M.A. Ivie colr. (WIBF).

Geographic distribution: Known from Grenada, St. Vincent, and Montserrat, **new country record** (Lesser Antilles).

Discussion: *Plectromerus fasciatus* is endemic to the Lesser Antilles and has been collected at UV light and in Malaise traps. Chalumeau & Touroult (2005b) provided a color habitus photograph and stated that it had been reared from “pois doux” (*Inga ingoides*) branches girdled by *Oncideres amputator* (Fabricius) (Cerambycidae: Lamiinae: Onciderini) collected on Saint Vincent at 450 m elevation. Chalumeau & Touroult (2005a) designated the lectotype for this species and Woodruff et al. (1998) listed this species from Grenada.

A series of specimens from Montserrat (WIBF), mentioned by Chalumeau & Touroult (2005b, p. 113) as a new species, was examined by the author and identified as *P. fasciatus*. Although the Montserrat specimens have less dense setae on the elytra, femora, and tibiae compared to the holotype of *P. fasciatus*, the series otherwise has very similar antennal segment proportions, pronotal and elytral punctation, elytral apices,

metafemoral club shape, and metafemoral tooth serrations. Three additional specimens collected on Martinique (moist forest near Fort-de-France, emerged in June-July 2006) are also believed to be *P. fasciatus* (J. Touroult, pers. comm.).

Vitali (2004) correctly noted that Zayas' (1975) listing of *P. fasciatus* from Cuba was incorrect. Chalumeau & Touroult (2005b) also commented on this in their treatment of *P. fasciatus*. The specimens in the FDZC were examined by the author, confirming Vitali's (2004) statement that these were instead *P. pumilus* (Figure 3-24b).

This distinctively large species is most similar to *Plectromerus* new species 8 in several characters including antennal segment proportions, gradually clavate metafemora, and very weakly serrate metafemoral teeth. However, *P. fasciatus* differs in having the pronotum with dense, confluent, very shallow punctation (pronotum with dense, moderately deep, somewhat evenly spaced punctation in *Plectromerus* new species 8), elytral apices strongly subtruncate to truncate (rounded to weakly subtruncate in *Plectromerus* new species 8), elytra with scattered to moderately dense, long, pale, suberect setae (elytra with few long, pale, suberect setae in *Plectromerus* new species 8).

***Plectromerus femoratus* (Fabricius, 1792: 316)**

= *Saperda femoratus* Fabricius, 1792: 316

= *Pentomacrus femoratus* White, 1855: 297

Original description:

S. thorace antice fusco postice testaceo, elytris fasciis tribus nigris testaceisque, antennis longissimis. Habitat - - Mus. Britann. Media. Caput nigrum, antennis longis, flavis, anticulis apice subspinosus. Elytra obtussa fasciis tribus testaceisque alternis: fascia prima nigra, puncto flavo. Pedes flavi, femoribus incrassatis, apice unidentatus. (Fabricius, 1792: 316)

Redescription: Male (holotype) (Figure 3-14a-c). Length 17.0 mm, width 4.0 mm (measured across humeri). Habitus as in Figure 3-14a. General form medium-sized, narrow, subcylindrical. Integument testaceous, with head, portions of scape, anterior portion of pronotum, and portions of elytra ferrugineous. *Head* with front nearly flat, transverse, with a median, shallow line from between eyes to just beyond vertex, concave between antennal tubercles, which are moderately raised and separated by about the width of two antennal sockets. Eyes coarsely faceted, transverse, subreniform. Antennae eleven segmented, about twice as long as body; scape bowed, third antennomere almost twice the length of scape, about twice the length of fourth; fifth antennomere longest, more than twice as long as fourth, distinctly longer than pronotum; antennomeres 6-11 becoming progressively shorter, seventh slightly bowed, sixth through eleventh distinctly longer than scape, antennomeres subcylindrical, 4-11 very slightly flattened, apices of antennomeres 5-6 very slightly produced externally. Scape with distinct dorsal and ventral excavation at base (Figure 3-14b); scape with sparse, short, pale, recumbent pubescence; antennomeres 2-3 ciliate beneath with coarse, moderately long, suberect, pale hairs. *Pronotum* globose, about as long as wide, widest at middle, slightly broader at base than apex, sides broadly and evenly rounded, abruptly constricted at basal third, and a very slight inflation just before apex; disk convex, somewhat flattened, with one very slightly raised, median callus immediately posterior to center, about as long as pedicel, and two very slightly raised, submedial calli slightly anterior to center, and two smaller slightly raised, submedial calli slightly posterior to center; basal third of disk with two long, pale, recumbent or suberect seta positioned submedially, arising from deep punctures; lateral margins of pronotum with patch of coarse, deep punctures, and one or

two long, suberect setae anterolaterally. Surface opaque, microsculptured, weakly shining, with dense, shallow punctation. *Scutellum* small, rounded, almost as long as broad, impunctate. *Elytra* about 2.8 times as long as width at humeri, slightly more than 3 times as long as pronotal length, about 1.2 times broader basally than pronotum at widest point (at middle); sides nearly parallel, slightly sinuate around middle, evenly rounded to apex; elytral apices individually, evenly rounded; epipleural margin moderately sinuate. Elytral disk slightly concave medially, subsuturally, creating a faint costa on each elytron; base of each elytron slightly raised. Elytral surface opaque; punctation moderately dense, rather evenly spaced, and deep at basal third; punctures becoming finer towards apex and sides, almost obsolete at apical third; each puncture with a short, fine, pale hair. *Underside* with prosternum moderately shining, one irregular patch of coarse, shallow punctures in front of procoxae; narrowest area of prosternal process between procoxae about 0.2 times as wide as procoxal cavity, and about 0.7 times the width of apex of process which is subtriangular with rounded corners; prosternal process between procoxae gradually declivous; procoxal cavities open behind. Mesosternum surface moderately shining, sparsely and shallowly punctate. Metasternum surface moderately shining, microsculptured, sparsely punctate, with short, pale, recumbent seta arising from each puncture. Metepisternum sparsely clothed with short, recumbent, pale pubescence, which is denser posteriorly. Abdomen moderately shining, very finely, shallowly punctate; abdomen with sparse long, suberect, pale hairs and punctures each with a short, fine, pale hair; fifth sternite broadly subtruncate, slightly longer than preceding sternite. *Legs* with femora gradually clavate; clavate portion distinctly elongate, distinctly longer than basal portion (Figure 3-14c); meso- and

metafemora slightly arcuate, shining, clothed with sparse, recumbent, short, pale pubescence; underside of each femoral club with a small triangular tooth; metafemoral teeth with posterior edge very weakly serrate, with about 12 very small and irregular serration “peaks”; each peak with a short, curved, pale hair; metatibiae nearly straight, very slightly sinuate, slightly flattened, about as long as metafemora, gradually expanded distally; clothed with moderately dense, fine, recumbent, pale pubescence, becoming longer and coarser distally.

Holotype: male (Figure 3-14a), JAMAICA, handwritten label states: “this specimen is almost certainly the type of *Saperda femorata* Fabr., Ent. Syst. I. 2. P. 316” signed “C.J.G.” (BMNH).

Material examined: Holotype, male (Figure 3-14a), JAMAICA, handwritten label states: “this specimen is almost certainly the type of *Saperda femorata* Fabr., Ent. Syst. I. 2. P. 316” signed “C.J.G.” (BMNH).

Geographic distribution: Known only from Jamaica (Greater Antilles).

Discussion: At 17 mm, *Plectromerus femoratus* is distinctly larger than any other species in the tribe. The holotype is the only known specimen and nothing is known about its biology. A handwritten label on the holotype, signed C.J.G., is believed to have been placed by C.J. Gahan, who stated:

The Fabrician description of this species seems to have been overlooked by White and other authors. I have little doubt that one of White’s type specimens was the original type described by Fabricius (who states that it was in the British Museum). The species is one that may be easily identified. (Gahan, 1895: 109)

In addition to its size, the combination of the following characters will serve to distinguish this species from all congeners: antennae about twice the body length; scape with deep excavation on dorsal surface (Figure 3-14b); fifth antennomere distinctly

longer than pronotum; pronotum globose, sides strongly, evenly rounded; and metafemoral club gradually clavate, distinctly elongate (Figure 3-14c).

***Plectromerus grimaldii* Nearn & Branham, 2005: 19**

Introduction:

Dominican amber is renowned for its well-preserved and highly diverse insect inclusions. These ancient resins formed from extinct *Hymenaea* trees from the mid-Miocene, approximately 17-20 MYO, and have yielded a rich fauna of over 400 families and 1,500 species of insects (Grimaldi, 1996; Grimaldi & Engel, 2005). However, specimens of the beetle family Cerambycidae are not especially common in Dominican amber. Linsley (1961) observed that although cerambycid fossils were known from various parts of the world, they were generally not well studied. Approximately two dozen species of cerambycids were described from compression fossils of the Florissant (Meyer, 2003) and a cerambycid in Dominican amber has been described by Martins & Galileo (1999). Vitali (2004) described the first Curiini fossil, *Plectromerus tertarius*, from a partial specimen included in Dominican amber (Fig. 3-15b).

Micheli & Nearn (2005) recently reviewed the genus *Plectromerus* Haldeman (1847), a genus distributed throughout the Caribbean, southeastern USA, and southeastern Mexico (Micheli & Nearn, 2005; Monné, 2005; Monné & Hovore, 2003). *Plectromerus* is one of three genera currently recognized in the tribe Curiini and it is perhaps best characterized by metafemora armed with one or more large “teeth” (plectrum, Latin for spur; meros, Greek for femur). The paper herein describes a second *Plectromerus* species known from Dominican amber. In addition, a comparison is made between our new fossil species *P. grimaldii* and the fossil described by Vitali, *P. tertarius*. (Nearn & Branham, 2005: 17)

Original description:

Female. Length 7.1 mm, width 1.8 mm (measured across humeri). Habitus as in Figure 3-15a. General form small, narrow, subcylindrical. Elytra with two indistinctly defined and very faint, transverse ferruginous fasciae on each elytron, one at basal third and another just behind middle. *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. Much of head surface is obscured by an opaque film, exposed areas with surface opaque, alveolate-punctate. Eyes coarsely faceted, prominent, transverse, subreniform (Fig. 3-16b). Antennae eleven-segmented, slightly longer than body, impunctate; scape bowed, third antennomere subequal to scape, almost twice as long as fourth, fifth antennomere longest, about 2.6 times longer than fourth, antennomeres 6-11 becoming progressively shorter, sixth through eighth slightly longer than third, eleventh slightly longer than fourth, basal antennomeres subcylindrical, from fifth slightly flattened, apices of antennomeres 6-10 produced

externally, antennomeres 7-9 slightly bowed (Fig. 3-17b, 3-17d). Antennomeres 2-6 ciliate beneath with coarse, moderately long, suberect, hairs. *Pronotum* subcylindrical, about 1.5 times as long as wide, widest at middle, slightly broader at apex than base, sides broadly inflated, arcuately constricted at basal third, and a slight inflation just before apex; basal margin slightly arcuate; disk convex. Surface opaque, alveolate-punctate. *Scutellum* small, rounded, almost as long as broad, impunctate. *Elytra* about 2.7 times as long as width at humeri, about 2.5 times as long as pronotal length, about 1.3 times broader basally than pronotum at widest (at middle); sides nearly parallel, slightly sinuate around middle, evenly rounded to apex which is subtruncate; epipleural margin moderately sinuate. Elytral disk slightly concave medially, subsuturally, creating a faint costa on each elytron. Surface shining; punctation dense, coarse, punctures becoming finer towards apex and sides, almost obsolete on apical third; glabrous. *Underside* with prosternum shining; narrowest area of prosternal process between coxae about 0.25 times as wide as coxal cavity, and about 0.5 times the width of apex of process which is cordate (emarginated at middle of apex). Mesosternum surface shining, sparsely and finely punctate (Fig. 3-16b). Metasternum surface shining, sparsely and finely punctate, with a few suberect hairs; first visible abdominal ventrite longest, about 2.5 times longer than second, about as long as next three visible abdominal ventrites combined, fifth visible abdominal ventrite evenly, broadly rounded, slightly longer than fourth. *Legs* very finely punctate, with femora clavate, meso- and metafemora arcuate, underside of each femoral club with a small triangular tooth with posterior edge smooth; metafemora about 1.2 times longer than metatibiae; tibiae slightly flattened, expanded apically, base of tibiae slightly arcuate (Fig. 3-16c). (Nearn & Branham, 2005: 19)

Holotype: female (Figure 3-15a), in the collection of the AMNH, No. DR-16-535.

Included in a piece of Dominican amber from the Dominican Republic.

Material examined:

Holotype, female, in the collection of the AMNH, No. DR-16-535. Included in a piece of Dominican amber (Oligo-Miocene) from the Dominican Republic. Amber yellow-brownish, moderately clear; cut and polished to a flat, oval shape, measuring 18.5 X 15 X 8 mm. Specimen is in good condition except damage to left antenna: antennomere 7 is incomplete, antennomeres 8-11 are missing. (Nearn & Branham, 2005: 22)

Geographic distribution: Known only from Dominican amber, Dominican Republic (Greater Antilles).

Discussion:

Although gender cannot be determined conclusively, we believe the holotype of *P. grimaldii* to be female based on the evenly, broadly rounded fifth visible abdominal

ventrite and the lack of an irregular patch of coarse punctures in front of each prosternal coxa (a male characteristic seen in many extant species of *Plectromerus*).

From other congeners, *P. grimaldii* can be distinguished by the following combination of characters: the shape and punctation of pronotum (widest at middle, alveolate-punctate), the elytral punctation (dense, coarse), the glabrous pronotum and elytra, and the small, non-serrate metafemoral tooth (Fig. 3-16c). *Curius punctatus* (Fisher) and *P. exis* Zayas also have small metafemoral teeth which are not serrate, however these species can be distinguished by having the third antennomere longest (fifth longest in *P. grimaldii*) and different pronotal dimensions: in *C. punctatus* the pronotum is almost as wide as long, in *P. exis* the pronotum has a distinct tubercle in the center and the length is about 1.8 times the width (1.5 times as long as wide in *P. grimaldii*).

Plectromerus grimaldii superficially resembles *P. tertiarius* in pronotal shape and elytral punctation. They differ, however, with respect to elytral apices (subtruncate in *P. grimaldii*, evenly rounded in *P. tertiarius*) and visible abdominal ventrite relationships (first ventrite as long as next 3 visible abdominal ventrites combined in *P. grimaldii*, first ventrite slightly longer than next 2 visible abdominal ventrites combined in *P. tertiarius*). In addition, significant differences can be seen in antennomere morphology. These differences exceed the variation in antennal morphology seen in extant species and across gender in *Plectromerus*. In *P. grimaldii*, the fifth antennomere is about 1.9 times longer than the tenth (about 1.6 times longer in *P. tertiarius*), fifth antennomere about 1.5 times longer than seventh (about 1.1 times longer in *P. tertiarius*). In *P. tertiarius*, the seventh antennomere is slightly longer than the sixth (subequal in *P. grimaldii*) and the eleventh antennomere is slightly longer than the tenth (subequal in *P. grimaldii*). In addition, antennomeres 5-10 are distinctly produced externally in *P. tertiarius*, whereas in *P. grimaldii*, antennomeres 6-10 are only moderately produced externally (Fig. 3-17b-d). (Nearns & Branham, 2005: 22)

***Plectromerus lingafelteri* Micheli & Nearns, 2005: 25**

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 2003, Zayas 1975). 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. (Micheli & Nearns, 2005: 23)

Original 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. 3-19a) 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. 3-19b); 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. 3-20a.

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. 3-19c). Abdomen with terminal sternite evenly, broadly rounded. (Micheli & Nearn, 2005: 25)

Holotype: male (Figure 3-19a), DOMINICAN REPUBLIC, Pico Duarte Trail,

3300 ft., Los Tablones, beating, 19°08.222'N, 70°27.736'W, 29 June 2004, S. Lingafelter (USNM).

Material examined:

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 (RHTC); 1 male, Pedernales, 25.5 km. N Cabo Rojo, 21 May 1992, R. Turnbow (RHTC). (Micheli & Nearn, 2005: 29)

Geographic distribution: Known from Azua, Barahona, La Vega, and Pedernales provinces, Dominican Republic (Greater Antilles).

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. 3-18e) 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. 3-18f), but *P. lingafelteri* can be easily recognized by the shape and length of the pronotum, the length of the third antennomere, and the elytral punctuation. 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*). (Micheli & Nearn, 2005: 30)

***Plectromerus navassae* Nearn & Steiner, 2006: 63**

Introduction:

Navassa Island is located approximately 160 km south of Guantanamo, Cuba and 56 km west of Haiti. The uninhabited, beachless island rises abruptly from the sea with cliffs reaching heights of more than 20 m and covers a mere 5 km². An unincorporated territory of the U.S. since 1857, the tiny island is now home to the Navassa National Wildlife Refuge, established in 1999 by the U.S. Fish and Wildlife Service to preserve and protect the island's biodiversity. The island, estimated to be between 2 and 5 million years old, has never been connected to another larger land mass, and is composed of Eocene limestone with rugged karst surface characterized by red oolitic soil. A recent expedition organized by the Center for Marine Conservation (Washington, DC), which also included

entomologists from the National Park Service and Smithsonian Institution, documented a rich diversity of plants and animals, 30% of which may be endemic to the island. The island has significant forest cover, dominated by four species of tropical-subtropical trees: *Sideroxylon foetidissimum* Jacquin, *Ficus populnea* Willdenow var. *brevifolia* (Nuttall) Warb, *Coccoloba diversifolia* Jacquin, and *Metopium brownei* (Jacquin) (Burne et al., 1974; Grace et al., 2000; Powell, 1999; Steiner & Swearingen, 1998, 2000; Swearingen, 1999).

Of the 541 morphospecies of insects captured on the Navassa expedition mentioned above, 10 were Cerambycidae (Steiner & Swearingen, 2000), including the species described here. Micheli & Nearn (2005) recently reviewed the genus *Plectromerus* Haldeman (1847), a genus distributed throughout the Caribbean, southeastern USA, and southeastern Mexico (Micheli & Nearn, 2005; Monné, 2005; Monné & Hovore, 2005). *Plectromerus* is one of three genera currently recognized in the tribe Curiini and it is perhaps best characterized by metafemora armed with one or more large “teeth” (plectrum, Latin for spur; meros, Greek for femur). Additional works have come from Vitali & Rezbanyai-Reser (2003), Nearn & Turnbow (2005), and Nearn et al. (2005). Two species of fossil *Plectromerus* have also recently been described from Dominican amber: *Plectromerus tertarius* Vitali (2004) and *Plectromerus grimaldii* Nearn & Branham (2005). (Nearn & Steiner, 2006: 61)

Original description:

Male. Length 5.1-6.7 mm, width 1.2-1.6 mm (measured across humeri). Habitus as in Figure 3-21a. General form small, narrow, subcylindrical. Integument testaceous, with head, antennae, and basal fourth of elytra ferrugineous. Apical half of each elytron and visible abdominal segments distinctly darker, dark brown to black (Fig. 3-21a, 3-21d). *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. Eyes coarsely faceted, transverse, subreniform. Antennae eleven segmented, slightly longer than body; scape bowed, third antennomere subequal to scape, only slightly longer than fourth, fifth antennomere longest, almost 2 times longer than fourth, antennomeres 6-11 becoming progressively shorter, sixth through eleventh slightly longer than third, basal antennomeres subcylindrical, from fifth slightly flattened, apices of antennomeres 6-10 produced externally. Scape with few long, suberect, pale hairs; antennomeres 2-7 ciliate beneath with coarse, moderately long, suberect, pale hairs. *Pronotum* subcylindrical, about 1.5 times as long as wide, widest at middle, slightly broader at apex than base, sides broadly inflated, arcuately constricted at basal third, and a slight inflation just before apex; basal margin slightly arcuate; disk convex, with scattered, long, suberect, pale hairs; each side of pronotum with coarse, deep punctures laterally and one or two long, suberect setae anterolaterally. Surface opaque, alveolate-punctate. *Scutellum* small, rounded, almost as long as broad, impunctate. *Elytra* about 2.75 times as long as width at humeri, about 2.3 times as long as pronotal length, about 1.3 times broader basally than pronotum at widest point (at middle); sides nearly parallel, slightly sinuate around middle,

evenly rounded to apex which is very slightly subtruncate; epipleural margin moderately sinuate. Elytral disk slightly concave medially, subsuturally; base of each elytron slightly raised. Elytral surface shining; punctation moderately dense, coarse, and deep at basal third; punctures becoming finer towards apex and sides, almost obsolete at apical third; each puncture with a short, fine, pale hair; elytra with scattered, long, suberect, pale hairs. *Underside* with prosternum shining, one irregular patch of coarse, deep punctures in front of each coxa; narrowest area of prosternal process between coxae about 0.17 times as wide as coxal cavity, and about 0.5 times the width of apex of process which is subtriangular with rounded corners; coxal cavities open behind (Fig. 3-21e). Mesosternum surface shining, sparsely and finely punctate. Metasternum surface shining, sparsely and finely punctate, with moderately dense deeper punctures and suberect, pale hairs interspersed. Metepisternum sparsely clothed with short, recumbent, pale pubescence, which is denser posteriorly. Abdomen shining, dark brown to black in color; finely, shallowly punctate; abdomen with moderately dense long, suberect, pale hairs and punctures with a short, fine, pale hair; fifth sternite broadly subtruncate, slightly longer than preceding sternite. *Legs* with femora clavate, meso- and metafemora slightly arcuate, shining, clothed with sparsely to moderately densely, recumbent, short, pale pubescence and with scattered, suberect, pale hairs arising from shallow punctures; underside of each femoral club with a broad triangular tooth with posterior edge moderately serrate, with about 12 serration “peaks”; tibiae slightly arcuate, sinuate though not strongly; clothed with moderately dense, fine, recumbent, pale pubescence, becoming longer and coarser apically (Fig. 3-21g).

Female. Length 5.3-7.3 mm; width 1.3-1.7 mm (measured across humeri). Very similar to male except pronotal sides lacking coarse punctures and prosternum lacking irregular patch of punctures in front of each coxa (Fig. 3-21f). Abdomen with terminal sternite evenly, broadly rounded, about 1.5 times longer than preceding sternite. (Nearns & Steiner, 2006: 63)

Holotype: male (Figure 3-21a), NAVASSA ISLAND, near lighthouse, 80 m., 18°23.82'N, 75°00.74'W, 3 August 1998, Collrs. W. E. Steiner, J. M. Swearingen, et al., at black light in open weedy scrub near mixed forest (*Ficus*, *Metopium*, *Thrinax*) on limestone and red oolitic soil (USNM).

Material examined:

Holotype, male (Fig. 3-21a), NAVASSA ISLAND, near lighthouse, 80 m., 18°23.82'N, 75°00.74'W, 3 August 1998, Collrs. W. E. Steiner, J. M. Swearingen, et al., at black light in open weedy scrub near mixed forest (*Ficus*, *Metopium*, *Thrinax*) on limestone and red oolitic soil (USNM). Allotype, female, NAVASSA ISLAND, central forest area, 70 m., 18°24.08'N, 75°00.69'W, 28 July 1998, Collrs. W. E. Steiner, J. M. Swearingen, et al., at black light in gap of mixed forest (*Ficus*,

Metopium, Thrinax) on limestone (USNM). Paratypes, 15 (all from Navassa Island, collected by W. E. Steiner, J. M. Swearingen, et al. except as noted): 2 males, central forest area, 70 m., 18°23.99'N, 75°00.67'W, 26 July - 4 August 1998, Collrs. W. E. Steiner, J. M. Swearingen, et al., Malaise trap in gap of mixed forest (*Ficus, Metopium, Coccoloba, Sideroxylon, Thrinax*) on limestone (USNM); 1 male, central forest area, 70 m., 18°23.99'N, 75°00.67'W, 26 July - 4 August 1998, Collrs. W. E. Steiner, J. M. Swearingen, et al., Malaise trap in gap of mixed forest (*Ficus, Metopium, Coccoloba, Sideroxylon, Thrinax*) on limestone (UCRC); 1 female, same data as allotype (USNM); 1 male and 1 female, near lighthouse, 80 m., 18°23.82'N, 75°00.74'W, 24 July - 4 Aug. 1998, taken in Malaise trap, edge of open weedy scrub and mixed forest (*Ficus, Metopium, Thrinax*) on limestone (FSCA); 1 male (dissected), near lighthouse, 80 m., 18°23.82'N, 75°00.74'W, 26 July 1998, at black light in open weedy scrub near mixed forest (*Ficus, Metopium, Thrinax*) on limestone and red oolitic soil (ENPC); 1 female, near lighthouse, 80 m., 18°23.82'N, 75°00.74'W, 31 July 1998, at black light in open weedy scrub near mixed forest (*Ficus, Metopium, Thrinax*) on limestone and red oolitic soil (FTHC); 1 female, near lighthouse, 80 m., 18°23.82'N, 75°00.74'W, 2 August 1998, at black light in open weedy scrub near mixed forest (*Ficus, Metopium, Thrinax*) on limestone and red oolitic soil (CMNH); 1 male, E. end of east savanna, 65 m., 18°23.75'N, 75°00.52'W, 1 August 1998, at black light in open weedy scrub near mixed forest (*Ficus, Metopium, Thrinax*) on limestone and red oolitic soil (CMNH); 1 female, forest west of lighthouse, 75 m., 18°23.91'N, 75°00.81'W, 30 July - 4 Aug. 1998, Malaise trap in moist depression of mixed interior forest (*Ficus, Sideroxylon, Metopium, Coccoloba*) (EMEC); 2 females, forest west of lighthouse, 75 m., 18°23.91'N, 75°00.81'W, 30 July 1998, at black light in moist depression of mixed interior forest (*Ficus, Sideroxylon, Metopium, Coccoloba*) (AMNH, WIBF); 1 female, bluff of southwest rim, 65 m., 18°23.75'N, 75°00.94'W, 25-30 July 1998, Malaise trap in open mixed forest (*Ficus, Metopium, Coccoloba*) at rim of upper terrace on limestone and red oolitic soil (TAMU); 1 female, 7 May 1999, S. Navarro (USNM). (Nearn & Steiner, 2006: 66)

Geographic distribution: Known only from Navassa Island (Greater Antilles).

Discussion:

We believe *Plectromerus navassae* to be endemic to Navassa Island and the type series described herein represents the only known specimens. This species is very distinctive from the known congeners and can be distinguished by the combination of the following characters: the alveolate-punctate pronotum, the presence of long, suberect hairs on elytra, apical half of elytra and abdominal segments dark brown or black, and moderately serrate metafemoral teeth.

Three other known species, *Plectromerus distinctus* (Cameron, 1910) (Fig. 3-21b), *Plectromerus fasciatus* (Gahan, 1895) (Fig. 3-13a), and *Plectromerus wappesi* Giesbert, 1985 (Fig. 3-21c) also possess long, suberect elytral hairs and serrate metafemoral teeth. From *P. distinctus*, the new species can easily be recognized by the alveolate-punctate pronotum (granulose punctures in *P. distinctus*) and elytral

coloration (elytra with small, ferrugineous fasciae in *P. distinctus* and *P. fasciatus*). From *P. wappesi*, the new species can easily be recognized by elytral coloration (elytra with small, ferrugineous fasciae in *P. wappesi*). The clavate metafemora and slightly sinuate metatibiae in *P. navassae* (Fig. 3-21g) are somewhat similar to *P. distinctus* (Fig. 3-21h) but differ significantly from *P. wappesi* which possess pedunculate-clavate metafemora and more strongly sinuate metatibiae (Fig. 3-21i). (Nearn & Steiner, 2006: 67)

***Plectromerus ornatus* Fisher, 1947: 34**

Original description:

Slender; subcylindrical, pronotum subopaque, elytra moderately shining, pale brownish yellow, the pronotum and elytra ornamented with dark-brown markings.

Head with front transverse, flat between the antennal tubercles, which are widely separated and slightly elevated; surface sparsely, finely punctate, obsolete granulate, sparsely clothed with short, inconspicuous hairs, with a few long, erect hairs intermixed; eyes slightly emarginate, strongly convex, strongly granulated, and widely separated from each other on the top. Antenna about as long as the body, unarmed, slightly flattened, sparsely ciliate beneath with short, erect hairs; segments 7 to 10 obtusely angulate at apices on inner margins.

Pronotum distinctly longer than wide, cylindrical, subequal in width at base and apex, vaguely expanded at middle; sides nearly parallel; disk even, strongly convex; surface finely, sparsely, irregularly punctate, densely, finely granulate, clothed with very short, indistinct recumbent hairs, and ornamented with numerous small dark-brown spots. Scutellum transverse, broadly rounded at apex, the surface glabrous.

Elytra nearly three times as long as and distinctly wider than pronotum; sides nearly parallel from humeral angles to apical fifth, then arcuately converging to the tips, which are separately broadly rounded; disk slightly flattened; surface densely, coarsely punctate basally, more finely punctate toward apices, each puncture with a short, recumbent, yellowish hair, and each elytron ornamented with three broad, zigzag, dark-brown fasciae, one at basal third, one near middle, and the other at apical third.

Body beneath sparsely clothed with short recumbent and long erect, inconspicuous hairs; abdomen not punctate, last visible sternite broadly rounded at apex. Legs sparsely clothed with short, recumbent, inconspicuous pubescence; femora petiolate, strongly, abruptly clavate, each armed on inner side near apices with a short, obtuse tooth, which is not serrate on posterior margin; tibiae nearly straight.

Length 5.5mm., width 1.2mm. Type locality. Moa, Oriente, Cuba. Described from a single specimen (sex not determined) collected November 3-16, 1945, by J. Acuña. (Fisher, 1947: 34)

Holotype: male (Figure 3-22a), CUBA, Moa, Oriente, Nov. 3-16 / 45, J. Acuna, Col., Type. No. 58119 U.S.N.M. (USNM).

Material examined: Holotype, male (Figure 3-22a), CUBA, Moa, Oriente, Nov. 3-16 / 45, J. Acuna, Col., Type. No. 58119 U.S.N.M. (USNM). Specimens, 2 (all from CUBA): 2 females, Matanzas Prov., Cienaga Zapata, at Playa Larga, 11 & 12 Feb. 1981, P. Spangler, A. Vega, Collected in malaise trap (WIBF).

Geographic distribution: Known from Holguín and Matanzas provinces, Cuba (Greater Antilles).

Discussion: Fisher (1947) described this small species from a single male specimen and Lingafelter & Nearn (2005) provided a color habitus photograph of the holotype. This species is very rarely collected and only three specimens were available for study (including two females collected in Malaise traps). No specimens were found in the three largest collections in Cuba (FDZC, IESC, MNHN) and Zayas (1975) stated that he had never collected it.

From congeners, *P. ornatus* (Figure 3-22a-c) can be distinguished by the combination of the following characters: antennomeres 5-11 equal to or longer than third; pronotum microsculptured, with scattered, large, shallow punctures; pronotum with distinct, small dark maculae; metafemoral gradually clavate; metafemoral teeth very small, not serrate.

***Plectromerus pinicola* Zayas, 1975: 125**

Original description:

Alargado, paralelo, subcompreso, de color amarillo ocre, con la cabeza más oscura, tres manchitas poco conspicuas en el disco del pronoto, el borde apical de ésta, y en los élitros cuatro manchas más oscuras, y su cuarto apical, de color castaño.

Cabeza anchamente acanalada entre los tubérculos antenales, transversalmente compresada detrás de éstos, antenas finas, apenas más largas que el cuerpo, con sus segmentos como conviene al género en que se ubica. Pronoto como dos veces más largo que ancho, subcilíndrico, apenas abultado en el medio por los lados, y constreñido en la base, liso, con algunas punciones laterales; en algunos ejemplares las tres manchas señaladas pueden unirse formando una sola discal, o de otro modo estar casi borradas; escutelo diminuto, redondeado por detrás; élitros más anchos que el pronoto en la base, subparalelos, poco convexos, separadamente redondeadas y en corto declive en el ápice, fina, homogénea y esparcidamente punzadas. Cada élitro con dos manchas separadas de los bordes, y a veces encorvadas, y el ápice, de castaño oscuro; de éstas manchas, la primera situada delante del medio, y la segunda estrechamente separada del área apical oscurecida. Patas moderadas, con el diente usual de los fémures pequeño, y situado más bien hacia el ápice de los mismos. Mide 5-6 mm.

Descrita la especie de cuatro ejemplares comunicados por el Dr. R. Hochmut como emergidas de trozos de pinos recolectados en Malas Aguas, Pinar de Rio, en marzo 19, 1969. Tipo en mi colección. (Zayas, 1975: 125)

Redescription: Male (Figure 3-23a-c). Length 6.0-6.7 mm, width 1.5-1.6 mm (measured across humeri). Habitus as in Figure 3-23a. General form small, narrow, subcylindrical. Integument testaceous, with head, basal antennomeres, portions of pronotum ferrugineous; each elytron testaceous with three major macular regions as follows: (1) basal third with a ferrugineous, arcuate, broad, irregular macula beginning below humerus and not reaching elytral suture; (2) a ferrugineous, transverse, narrow macula not reaching elytral suture; and (3) apical third testaceous, almost entirely occupied by a large, ferrugineous, irregular macula. *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 slightly raised and separated by about the width of two antennal sockets; vertex weakly microsculptured, with scattered, deep punctures; vertex with short, recumbent, pale pubescence. Eyes coarsely faceted, transverse, subreniform, shallowly emarginate. Antennae eleven segmented, slightly longer than body; scape bowed, third antennomere about as long as scape, almost twice

as long as fourth, fifth antennomere longest, about 2.5 times longer than fourth, about 1.5 times longer than third, antennomeres 6-10 becoming progressively shorter, eleventh slightly longer than tenth, basal antennomeres subcylindrical, from third moderately flattened, apices of antennomeres 5-10 produced externally. Antennae with short, recumbent, pale pubescence; antennomeres 2-11 ciliate above and beneath with coarse, short, suberect, pale hairs. *Pronotum* subcylindrical, about 1.3 times as long as wide, widest at middle, slightly broader at apex than base, sides slightly inflated, arcuately constricted at basal third, and a slight inflation just before apex; basal margin slightly arcuate; disk convex; each side of pronotum with patch of coarse, deep punctures laterally. Basal third of disk with one long, pale, recumbent seta positioned submedially, arising from a deep puncture; one long, recumbent seta anterolaterally. Surface weakly microsculptured, sparsely, finely, shallowly punctate, strongly shining. *Scutellum* small, rounded, almost as long as broad, impunctate. *Elytra* about 2.7 times as long as width at humeri, about 2.7 times as long as pronotal length, about 1.3 times broader basally than pronotum at widest point (at middle); sides nearly parallel, evenly rounded to apex, elytral apices broadly rounded; epipleural margin moderately sinuate. Elytral disk slightly concave medially, subsuturally, creating a faint costa on each elytron; base of each elytron slightly raised. Elytral surface strongly shining; punctation moderately dense, coarse, and deep at basal third; punctures becoming finer towards apex and sides, almost obsolete at apical third; each puncture with a short, fine, pale hair. *Underside* with prosternum strongly shining, one irregular patch of coarse, deep punctures in front of each procoxa; narrowest area of prosternal process between procoxae about 0.2 times as wide as procoxal cavity, and about 0.5 times the width of apex of process which is

subtriangular with rounded corners; procoxal cavities open behind. Mesosternum surface strongly shining, sparsely and finely punctate. Metasternum surface strongly shining, sparsely and finely punctate, with few deeper punctures and suberect, pale hairs interspersed. Metepisternum sparsely clothed with short, recumbent, pale pubescence, which is denser posteriorly. Abdomen strongly shining; very finely, shallowly punctate; abdomen with sparse, long, suberect, pale hairs and punctures each with a short, fine, pale hair; fifth sternite broadly subtruncate, about as long as preceding sternite. *Legs* with femora gradually clavate, meso- and metafemora slightly arcuate, shining, clothed with sparsely to moderately densely, recumbent, short, pale pubescence; underside of each femoral club with a broad, acute triangular tooth with posterior edge nearly smooth, very weakly serrate, with irregular, indistinct “peaks”; meso- and metatibiae nearly straight; clothed with moderately dense, fine, recumbent, pale pubescence, becoming longer and coarser distally (Figure 3-23c).

Female. Very similar to male except pronotal sides lacking coarse punctures and prosternum lacking irregular patch of punctures in front of procoxae. Abdomen with terminal sternite evenly, broadly rounded, slightly longer than preceding sternite.

Lectotype: male, CUBA, Hochmut, Malas Aguas, P. Rio, det F. de Zayas, 3-1969 (FDZC).

Material examined: Lectotype, male, CUBA, Hochmut, Malas Aguas, P. Rio, det F. de Zayas, 3-1969 (FDZC). Specimens, 10 (all from CUBA): 1 male, 12 1/2 K., S. of Pinar Rio, Sept. 12-23 '13 (AMNH); 1 male, 12 1/2 K., S. of Pinar Rio, Sept. 12-23 '13 (USNM); 1 male, Bermejales, Pinar Galalon, Los Palacios, PR, *Pinus tropicalis*, 1980-1981, IV-III Marz (IESC); 1 female, Bermejales, Pinar Galalon, Los Palacios, PR, *Pinus*

tropicalis, (Morelet), 1980-1981, V-IV Apr. (IESC); 1 male, Bermejales, Pinar Galalon, Los Palacios, PR, *Pinus tropicalis*, (Morelet), 1980-1981, VII-II May. (IESC); 1 female, Bermejales, Pinar Galalon, Los Palacios, PR, *Pinus tropicalis*, 1980-1981, V-IV Apr. (IESC); 3 specimens, sex undetermined, same data as lectotype (FDZC); 1 specimen, sex undetermined, El Moncada- Viñales- Pinar del Río, 15 V 2003, col. Sergio Devesa (SDPC).

Geographic distribution: Known only from Pinar del Rio province, Cuba (Greater Antilles).

Discussion: *Plectromerus pinicola* is endemic to Cuba and known only from Pinar del Rio province in the western portion of the island. Zayas (1975) stated that this species was reared from cut pine branches and label data indicates that *Pinus tropicalis* is probable host. Nearn (2006) listed *P. pinicola* and Nearn et al. (2006) studied the four specimens in the syntype series at the FDZC, designated the lectotype, and provided a color habitus photograph of the lectotype.

From congeners, *P. pinicola* can be distinguished by the combination of the following characters: strongly shining integument; metafemora with teeth very weakly serrate, nearly smooth; metatibiae nearly straight (Figure 3-23c). This species is most similar to *P. pumilus* but can be easily distinguished by its larger size, lack of two dark pronotal maculae (present in *P. pumilus*), and prosterna in males with patch of coarse punctures in front of procoxae (prosterna in males without one distinct patch of coarse punctures in front of each procoxa in *P. pumilus*).

***Plectromerus pumilus* Cazier & Lacey, 1952: 33**

= *Pentomacrus fasciatus* Gahan (Zayas, 1975: 127)

= *Plectromerus fasciatus* (Gahan) (Nearn, 2006: 55)

Original description:

Small, narrow, head and pronotum rufous, elytra testaceous, with three rufous, transverse bands, legs testaceous, pronotum with two small, round, median, dark spots, one on either side; antennae slightly longer than body.

Male: Head with anterior portion of front slightly convex, shallowly, irregularly punctate, front between antennae shallowly concave, deeply, rugosely punctate, finely alutaceous, posterior portion transversely crenulate; anterior margin of epistoma truncate; antennae a little longer than body, first segment evenly rounded, a little longer than third, fourth segment two-thirds of length of third, fifth segment longer than third, following segments gradually decreasing in length, first segment sparsely, shallowly punctate and clothed with short, decumbent, yellowish pile, segments 2 to 11 moderately densely clothed with short, decumbent, yellowish pile, with few scattered, longer, suberect, yellowish hairs. Pronotum glabrous except for subapical, lateral hairs on either side, and hair laterally on either side of disc at base; distinctly longer than wide, widest just behind anterior margin which is slightly produced medially, lateral margins almost parallel to basal third, gradually sinuate to base, basal margin truncate, disc with slightly elevated median area, which has two rounded dark spots one on either side, surface sparsely, finely punctate, more deeply but sparsely punctate on anterior lateral two-thirds; scutellum evenly rounded apically, glabrous. Elytra glabrous, wider than pronotum, side margins subparallel, slightly sinuate before middle, evenly rounded to apex which is feebly truncate, surface slightly concave medially, basal half with large, sparsely placed punctures, punctures smaller and more sparsely placed apically, maculate, with transverse fuscous spot on basal third, not reaching suture or side margin, median transverse band extending from side margin to near suture, subapical lighter and wider spot extending from margin to suture. Under surface testaceous, with only a few scattered punctures and long erect hairs on the abdomen; legs sparsely clothed with short decumbent yellowish pile, petiolate, clavate portion with sharp postmedian ventral spine, posterior margin of spine on hind legs not serrate, tibiae nearly straight, apical abdominal segment evenly rounded.

Female: Similar to the male except that lateral margins of pronotum are nearly impunctate, only a few very fine scattered punctures are evident, and the apical abdominal segment is more broadly rounded.

Male, length, 3.5 mm.; width, 1.0 mm. Female, length, 4.0 mm.; width, 1.2 mm.

Type Material: Holotype, male, collected on South Bimini Island, Bahamas, June, 1951 (M. Cazier, C. and P. Vaurie); allotype, female, same locality, July, 1951 (C. and P. Vaurie). (Cazier & Lacey, 1952: 33)

Holotype: male (Figure 3-24a), BAHAMAS, South Bimini Isl., B.W.I., June 1951, M. Cazier, C. & P. Vaurie collectors (AMNH).

Material examined: Holotype, male (Figure 3-24a), BAHAMAS, South Bimini Isl., B.W.I., June 1951, M. Cazier, C. & P. Vaurie collectors (AMNH). Specimens, 35 (all from BAHAMAS): 2 females, Andros Is., Behring Point, 8 June 2001, R. Turnbow (RHTC); 1 male and 1 female, Andros Is., Behring Point, 5 June 2004, R. Turnbow (RHTC); 1 male, Andros Is., Bowen Sounds, 8 June 2001, R. Turnbow (JEWG); 1 male, Andros Is., Maidenhair Coppice, 4 June 2001, R. Turnbow (RHTC); 1 male, Andros Is., Money Point, 7 June 2004, R. Turnbow (RHTC); 1 male, Andros Is., Mastic Point, 9 June 2004, R. Turnbow (RHTC); 1 female, Andros Is., Forfar Field Station, 6 June 2004, R. Turnbow (RHTC); 1 male and 5 females, Eleuthera, Rainbow Bay, 1-VII-1987, D.B. & R.W. Wiley, malaise trap (FSCA); 1 male, Eleuthera, Rainbow Bay, 11-XI-19-XII-1986, D.B. & R.W. Wiley, malaise trap (FSCA); 1 male and 1 female, Eleuthera, Rainbow Bay, XI-1986, J.R. Wiley, malaise trap (FSCA); 2 females, Eleuthera, Rainbow Bay, 5-10-XI-1986, J.R. Wiley, malaise trap (FSCA); 1 female, Eleuthera, Rainbow Bay, 16-26-X-1985, J.R. Wiley (FSCA); 1 male, Eleuthera, Rainbow Bay, 21-X-1985, J.R. Wiley (FSCA); 1 female, Andros Is., Behring Point, 5 VI 2004, M.C. Thomas (FSCA); 1 female, Andros Is., Behring Point, 8 VI 2001, M.C. Thomas, beating (FSCA); 1 female, Andros Is., Maidenhair Coppice, 11 VI 2004, M.C. Thomas (FSCA); 1 male and 1 female, B.W.I., Exuma, VI-11-1968, Hummingbird Cay, W. of Georgetown, B.K. Dozier coll. (FSCA); 2 males and 1 female, B.W.I., South Bimini, June 14, 1967, B.K. Dozier coll. (FSCA, EMEC); 2 males and 1 female, B.W.I., South Bimini, June 15, 1967, B.K.

Dozier coll. (FSCA); 1 male, New Providence Is., 5mi. E. Clifton Pier IV-10-11-65, Bahama Is. B.W.I., B.D. Valentine & R.W. Hamilton Collectors (WIBF); 1 male, Ragged Is. Group, Buena Vista Cay, III-22-65, Bahama Is. B.W.I., B.D. Valentine & R.D. Hamilton Collectors (WIBF).

Specimens, 10 (all from CUBA): 1 specimen, sex undetermined, Col. F. de Zayas, Ciénaga de Zapata, Matanzas, 5-1962 (FDZC); 3 specimens, sex undetermined, Pen. Guanacahabibes [sic], Pinar del Rio, Jul. 1955, F. de Zayas (FDZC); 1 specimen, sex undetermined, no label data (FDZC); 1 specimen, sex undetermined, P. Mendoza, PR 5-53 (FDZC); 2 specimens, sex undetermined, Camping Peñas Blancas- Jibacoa- Santa Cruz del Norte- Provincia de La Habana. 07 IV 2003, a la luz (250 W vapor Hg), col. Sergio Devesa (SDPC); 1 specimen, sex undetermined, Boca de Canasí- Santa Cruz del Norte- Provincia de La Habana, 24 IX 2004, a la luz (250 W vapor Hg), col. Sergio Devesa (SDPC).

Geographic distribution: Known from Bahamas (Andros Island, Eleuthera, Exuma, New Providence, Ragged Island Group, and South Bimini) and Cuba, **new country record** (La Habana, Matanzas, Pinar del Rio provinces) (Greater Antilles).

Discussion: This species has been collected at lights, beating vegetation, and in Malaise traps. Vitali (2004) correctly noted that Zayas' (1975) listing of *P. fasciatus* from Cuba was instead *P. pumilus* (for example Figure 3-24b). Zayas (1975) stated that this species was not commonly collected in Cuba and did not list any host information.

Plectromerus pumilus (Figure 3-24a-c) is the smallest species in the genus, ranging in size from 3.5-5.2 mm in length. Male specimens examined measured: length 3.5-5.1 mm, width 0.9-1.2 mm (measured across humeri); female specimens examined measured:

length 3.8-5.2 mm; width 0.9-1.3 mm (measured across humeri). From congeners, *P. pumilus* can be separated by the combination of the following characters: pronotal disk with two distinct, small, round, dark, granulose maculae; strongly shining integument; males with lateral margins of pronotum with patch of coarse punctures, but prosternum without patch of coarse punctures in front of procoxae (Figure 3-24c); and metafemora with teeth nearly smooth, very weakly serrate (Figure 3-24d). This species is similar to *P. dentipes* but can be easily distinguished by the two dark pronotal maculae (absent in *P. dentipes*); metafemoral teeth with edge nearly smooth, very weakly serrate (metafemoral tooth very slightly serrate to moderately serrate in *P. dentipes*); prosterna in males lacking patch of coarse punctures in front of procoxae (prosterna in males with one distinct patch of coarse punctures in front of each procoxa in *P. dentipes*).

***Plectromerus ramosi* Micheli & Nearn, 2005: 30**

= *Plectromerus* n. sp. Chalumeau & Touroult, 2005b: 113

Original 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. 3-19e); 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. 3-20b.

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. 3-19f). 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. (Micheli & Nearn, 2005: 30)

Holotype: male (Figure 3-19d), PUERTO RICO, Maricao, Rd. 120, Km. 13.8, 26-IV-1980, J. & N. Micheli, coll., beating foliage (USNM).

Material examined:

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, Nearns & 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, Lameshure 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). (Micheli & Nearn, 2005: 32)

Geographic distribution: Known from Puerto Rico, St. John, US Virgin Islands, Guana Island, and British Virgin Islands (West Indies).

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. 3-19d). 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. 3-19g). 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. 3-20b). 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. 3-19i) is distinctly pronounced externally at apex whereas in *P. ramosi* (Fig. 3-19h) 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 granulose 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. (Micheli & Nearn, 2005: 33)

***Plectromerus serratus* (Cameron, 1910: 185)**

= *Pentomacrus serratus* Cameron, 1910: 185

Original description:

Reddish-testaceous, head and thorax dull, very obsolete and diffusely punctured, the latter much longer than broad, slightly rounded at the sides. Elytra rather shining, coarsely and thickly punctured, less so at apex. Anterior femora armed with a tooth, middle and posterior femora armed with a strong tooth, the posterior edge of the tooth on the hinder femora being finely but distinctly serrated for its whole length. Anterior and middle tibiae slightly, posterior distinctly, sinuated. Legs and antennae reddish-testaceous. (Cameron, 1910: 135)

Redescription: Male (holotype) (Figure 3-18b, 3-18d, 3-19i, 3-25a-c). Length 5.4 mm, width 1.2 mm (measured across humeri). Habitus as in Figure 3-25a. General form small, narrow, subcylindrical. Integument testaceous. *Head* with front nearly flat, transverse, with a median, shallow line from between eyes to just beyond vertex, nearly flat between antennal tubercles, which are very slightly raised and separated by about the width of two antennal sockets; vertex microsculptured, with a few sparse, fine, shallow punctures; vertex with sparse, short, recumbent, pale pubescence. Eyes coarsely faceted, transverse, subreniform, very shallowly emarginate. Antennae eleven segmented, about as long as body; scape bowed, third antennomere slightly longer than scape, almost twice as long as fourth, fifth antennomere longest, about twice as long as fourth, slightly longer than third, basal antennomeres subcylindrical, from fifth slightly flattened, apices of antennomeres 5-10 produced externally. Scape with short, pale, recumbent pubescence; antennomeres 2-7 ciliate beneath with coarse, moderately long, suberect, pale hairs. *Pronotum* subcylindrical, about 1.3 times as long as wide, widest at middle, slightly broader at apex than base, sides broadly inflated, arcuately constricted at basal third, and a slight inflation just before apex; basal margin slightly arcuate; basal third of disk with two long, pale, recumbent setae positioned submedially, arising from deep punctures

(left seta is broken); lateral margins of pronotum with patch of coarse, deep punctures, with one long, suberect seta anterolaterally. Surface, microsculptured, weakly shining, very sparsely, faintly, and shallowly punctate, with a slightly raised median callus, and two slightly raised, submedial calli slightly anterior to center (Figure 3-25b); surface with very sparse, short, recumbent, pale pubescence. *Scutellum* small, rounded, almost as long as broad, impunctate. *Elytra* about 2.6 times as long as width at humeri, about 3.5 times as long as pronotal length, about 1.3 times broader basally than pronotum at widest point (at middle); sides nearly parallel, evenly rounded to apex, elytral apices individually, narrowly rounded; epipleural margin strongly sinuate. Elytral disk shallowly concave medially, subsuturally, creating a faint costa on each elytron; base of each elytron slightly raised. Elytral surface strongly shining; punctation moderately dense, coarse, and deep at basal third; punctures becoming finer towards apex and sides, almost obsolete at apical third; each puncture with a short, fine, pale hair. *Underside* with prosternum strongly shining, area in front of procoxae with patch of coarse punctures; narrowest area of prosternal process between procoxae not visible (specimen glued to board); procoxal cavities open behind. Meso- and metasternum surface strongly shining, sparsely and finely punctate, with sparse, short, recumbent, pale pubescence. Metepisternum sparsely clothed with short, recumbent, pale pubescence, which is denser posteriorly. Abdomen moderately shining, finely, shallowly punctate; abdomen with sparse, long, suberect, pale hairs and punctures each with a short, fine, pale hair; fifth sternite broadly rounded, slightly longer than preceding sternite. *Legs* with femora pedunculate-clavate, basal portion of metafemoral about as long as metafemoral club, meso- and metafemora moderately arcuate, shining, clothed with sparsely to moderately densely, recumbent,

short, pale pubescence; underside of each femoral club with a broad triangular tooth; metafemoral teeth with posterior edge strongly serrate, with about 12 serration “peaks”, each serration peak with a short, pale, curved hair; metatibiae strongly sinuate, slightly flattened, about half as long as metafemora, gradually expanded distally; clothed with moderately dense, fine, recumbent, pale pubescence, becoming longer and coarser distally (Figure 3-25c).

Female. Length 6.5 mm; width 1.5 mm (measured across humeri). Very similar to male except pronotal sides lacking coarse punctures and prosternum lacking irregular patch of punctures in front of each procoxa. Narrowest area of prosternal process between procoxae about 0.2 times as wide as procoxal cavity, and about 0.5 times the width of apex of process which is subtriangular with rounded corners; procoxal cavities open behind. Abdomen with terminal sternite evenly, broadly rounded, slightly longer than preceding sternite. Metafemoral teeth with posterior edge strongly serrate, with about 18 serration “peaks.”

Holotype: male (Figure 3-25a), HAITI (BMNH).

Material examined: Holotype, male (Figure 3-25a), HAITI (BMNH). 1 female, DOMINICAN REPUBLIC, 2000', 9 km NE Jarabacoa, May 8-12, 1985, E. Giesbert, Coll. (EFGC).

Geographic distribution: Known from Port au Prince, Haiti; and La Vega province, Dominican Republic (Greater Antilles).

Discussion: Cameron (1910) stated that the holotype was collected “sweeping near Port au Prince, Haiti, in February, 1908” but the holotype specimen does not bear this information. This species is rarely collected and nothing is known about its biology.

Plectromerus serratus can be distinguished from congeners by the combination of the following characters: head with vertex microsculptured, very sparsely, finely punctate; pronotal disk microsculptured; elytra testaceous, without ferruginous maculae; and metafemoral teeth strongly, deeply serrate. This species is most similar to *Plectromerus* new species 2 but can be distinguished by the pronotal surface with very sparse, short, recumbent, pale pubescence (pronotal surface with moderately dense short, recumbent, pale pubescence in *Plectromerus* new species 2), elytra with faint costae (elytra with distinct costae in *Plectromerus* new species 2), and the metafemoral teeth with 12-18 serrations peaks (metafemoral teeth with 20-24 serrations peaks in *Plectromerus* new species 2).

***Plectromerus tertarius* Vitali, 2004: 453**

Original description:

Male. Length 8,8 mm. Elongated; pitch-brown, except for the elytra, reddish brown without pattern apparently, and for reddish testaceous palpi. Head transverse, broader than the prothorax; antennal tubercles widely separated, scarcely elevated; eyes big, prominent, approached at the basis of the mandibles, coarsely faceted; palpi short, least joint apically widened, as long as the second least. Antennae 11-segmented, scarcely longer than the body (10th joint reaches the apex of the elytra), joints 1-4 with few semi-erect setae at inner side, 5-10 outer dentate, 6-11 slightly bowed. Scape bowed, its outer apex prominent; pedicel scarcely longer than broad; 3rd joint scarcely shorter than the scape, nearly twice as long as the fourth; 6th joint one-third longer than the third; 7th joint one-half longer than the third; 8th and 9th joint one-fourth longer than the third; 10th joint as long as the scape; 11th joint one-third longer than the third. Prothorax very elongate, 1 ½ times longer than broad, sub-cordate, bowed in front part of sides, constricted at about one-third of their length from the basis. Elytra elongate, 2 ¾ times longer than broad at basis, almost parallel-sides, slightly constricted at the middle of their length, then sparsely and finely punctured from the basis until the middle of their length, then sparsely and finely punctured toward the tips. Hind wings hyaline, their veins reddish testaceous; two cubital veins developed, first cubital vein with two branches (cu_{1a}, cu_{1b}); cubital cross-veins cu_{1a}-cu_{1b} delimiting a cell, cross-vein cu₂, a₁ delimiting a cell; stigma very small, hyaline. Underside surface covered by fine, erect, black pubescence. Metasternum longitudinally grooved. First abdominal sternite three times longer than other visible sternites; pygidium evenly rounded. Legs long, slender; femora club-shaped, armed by one sharp, smooth,

well developed tooth at the middle of hind side; tibiae straight, linear, only at the basis suddenly bowed, provided by fine, little tooth at the apex; tarsi short, sparsely pubescent. Hind legs lacking.

Holotype. male, Dominican Republic, Lower Miocene (25-20.000.000 BP), ex. coll. Y. R. Goldman (author's coll.). (Vitali, 2004: 453)

Holotype: male (Figure 3-15b), DOMINICAN REPUBLIC, Lower Miocene (25-20.000.000 BP), ex. coll. Y. R. Goldman (FVPC).

Material examined: Holotype, male (Figure 3-15b), DOMINICAN REPUBLIC, Lower Miocene (25-20.000.000 BP), ex. coll. Y. R. Goldman (FVPC).

Geographic distribution: Known only from Dominican amber (Lower Miocene), Dominican Republic (Greater Antilles).

Discussion:

Notes on *Plectromerus tertiarius* Vitali holotype: ventral habitus as in Fig. 3-15b (dorsal habitus completely obscured), length approximately 7 mm (exact measurement not possible since abdomen is bent up through open elytra), included in a piece of Dominican amber (Lower Miocene) from the Dominican Republic. Amber yellow-brownish, partially obscured by numerous, small bubbles; cut and polished in a near-oval shape, measuring 42 X 22 X 15 mm. Specimen is damaged as follows: metathoracic legs are missing except coxae and trochanters; left antenna is damaged, missing part of antennomere 8, completely missing antennomeres 9-11. One important character in particular, the prosternal process between coxae, is not visible due to position of pro- and mesothoracic legs. Elytral punctation can be inferred from ventral view due to open elytra which are semi-translucent. Vitali (2004) states that the holotype is a male, however, we see nothing to support this. In our opinion, the broadly rounded fifth abdominal segment is more indicative of a female *Plectromerus* (irregular patches of coarse punctures in front of each prosternal coxa are also not visible but the view is partially obscured). Vitali (2004) also states that the first abdominal ventrite is 3 times longer than other visible ventrites, however, our measurements show it to be about 2 times longer. (Nearn & Branham, 2005: 23)

***Plectromerus unidentatus* Fisher, 1942: 17**

Original description:

Slender, subcylindrical, rather strongly shining, dark brownish yellow, the head and pronotum more reddish brown, and the elytra ornamented with dark reddish-brown markings.

Head with the front transverse, feebly concave between the antennal tubercles, which are widely separated and slightly elevated; surface glabrous, coarsely, densely, uniformly punctate; eyes vaguely emarginate, and very strongly convex. Antenna about as long as the body, unarmed, ciliate beneath with a few moderately long, erect hairs; basal segments, subcylindrical, feebly expanded at apices; apical segments slightly flattened, feebly, obtusely angulated on inner margins at apices.

Pronotum distinctly longer than wide, cylindrical, subequal in width at base and apex; sides sinuate and parallel, feebly, broadly constricted in front of and behind the middle; disk slightly uneven, strongly convex; surface glabrous, coarsely, rather densely, shallowly, uniformly punctate, the intervals finely, densely granulate. Scutellum transverse, broadly rounded at apex, with the surface glabrous.

Elytra nearly three times as long and distinctly wider than pronotum; sides nearly parallel from humeral angles to apical fifth, then arcuately converging to the tips, which are conjointly broadly rounded; disk moderately convex; surface glabrous, coarsely, densely, uniformly punctate, the punctures very deep and elongate basally, becoming finer near apices, and each elytron ornamented with dark reddish-brown markings as follows: A transverse spot at basal fourth along lateral margin, but not extending to sutural margin, and a transverse, narrow, irregular fascia at the apical fourth.

Body beneath glabrous, strongly shining; abdomen impunctate, the last visible sternite broadly rounded at apex; prosternum smooth anteriorly, sparsely, coarsely punctate posteriorly. Legs sparsely clothed with short, inconspicuous pubescence; femora strongly petiolate, strongly, abruptly clavate, and each armed with a large, triangular tooth, which is not serrate on posterior margin; tibiae sinuate.

Length 5.5-7 mm., width 1.25-1.5 mm. Type locality. Mandeville, Jamaica. Type and paratypes. In the Museum of Comparative Zoology, Cambridge, Mass., No. 53734. Described from five specimens (one type, sex not determined) collected at the type locality by A. E. Wight. (Fisher, 1942: 17)

Holotype: sex undetermined, JAMAICA, Mandeville (MCZ).

Material examined: Specimens, 6 (all from JAMAICA): 1 female, Balaclava, 24.27.III.1937, M. Savariau Collr. (USNM); 1 female, paratype, Mandeville., A.E.Wight, Museum of Comparative Zoology, Paratype 53734 (USNM); 2 males, 4000' Hardwar Gap, VII-21-1966, A. T. Howden (WIBF); 1 male, Kingston, 16 Jun 1958, M. W. Sanderson, at light (WIBF); 1 male and 1 female, St. Cath. Par., Mt. Diablo, Hollymount,

2754ft. 21-24 April '73, Don & Mignon Davis (WIBF on loan from USNM); 1 male, Try., Barbecue Bottom, VIII 10 1966, A. T. Howden (WIBF).

Geographic distribution: Known from the Parishes of Kingston, Manchester, Saint Catherine, Saint-Elizabeth, and Trelawny, Jamaica (Greater Antilles).

Discussion: This species (Figure 3-26a-c) is endemic to Jamaica and has been collected at lights. Nothing else is known about its biology. The holotype measures: length 7.0 mm, width 1.6 mm (measured across humeri). Males specimens measured: length 5.4-7.4 mm, width 1.3-1.5 mm (measured across humeri), female specimens measured at: length 6.3-7.4 mm, width 1.4-1.7 mm (measured across humeri).

Plectromerus unidentatus is most similar to *P. wappesi* but can be distinguished by the very weakly, irregularly serrate metafemoral teeth (Figure 3-26b) (moderately, evenly serrate metafemoral teeth in *P. wappesi*), elytral punctures somewhat elongate and evenly spaced (elytral punctures rounded, not evenly spaced in *P. wappesi*), and scape, pronotal disk, and metafemora without long, suberect setae (scape, pronotal disk, and metafemora with long, suberect setae in *P. wappesi*).

***Plectromerus wappesi* Giesbert, 1985: 81**

Original description:

Male. Form small, subcylindrical; integument testaceous, with head, antennae, base and apex of pronotum, bases of tibiae, and tarsi slightly more ferruginous; eyes and tips of mandibles black; elytra with 2 wide, usually indistinctly defined, common, transverse ferruginous fasciae, one behind base, the other at apical $\frac{1}{3}$; long erect hairs sparsely scattered on entire body. *Head* rather small, front nearly flat, with median line shallowly impressed, slightly concave between antennal tubercles; surface closely, subrugosely punctate, with punctures nearly contiguous and subalveolate on vertex; eyes prominent, transverse, subreniform; antennae slightly longer than body, scape finely punctate, 3rd segment slightly shorter than scape, $\frac{1}{4}$ longer than 4th, 5th segment $1\frac{1}{2}$ times as long as 4th, segments 6 to 11 subequal with apical segments slightly shorter, basal segments cylindrical, segments from 5th slightly flattened, with segments 5 to 10 somewhat produced externally at apices, segments 2 to 5 sparsely fringed beneath with pale hairs.

Pronotum subcylindrical, with sides slightly sinuate, narrowed in front of base and at apex, hind margin emarginate; disk convex; surface opaque, alveolate-punctate, with a few scattered pale flying hairs. *Scutellum* small, rounded, shining, impunctate. *Elytra* 2 ½ times as long as broad, sides very slightly sinuate medially, apices rounded to suture (rarely subtruncate); surface shining, deeply, moderately densely punctate, with punctures becoming smaller and sparser at apical 2/5, apical ¼ nearly impunctate, glabrous with exception of scattered long flying hairs. *Underside* with prosternum glabrous, moderately finely punctate on basal ⅔, with an indistinct patch of coarser punctures superimposed in front of each coxa; prosternal process narrow; metasternum with apical half medially impressed and moderately sparsely punctate with scattered, erect, pale hairs; abdomen sparsely punctate with erect, pale hairs, terminal sternite rounded at apex, about as long as penultimate sternite, terminal tergite subtruncate. *Legs* with femora pedunculate-clavate, shining, sparsely clothed with short, extremely fine, recumbent, golden pubescence and scattered long flying hairs; underside of each femoral club armed with a broad triangular tooth, metafemora with hind edges of teeth finely crenulate; tibiae curved, metatibiae sinuate. *Length* 5.0-6.5 mm, width 1.0-1.5 mm.

Female. Very similar to male. Prosternum simply punctate, lacking patches of coarser punctures; antennae as long as body; abdomen with terminal sternite visibly longer than penultimate sternite. Length 5.0-8.0 mm, width 1.0-1.75 mm.

Types. Holotype male and allotype female (both in California Academy of Sciences) and 4 male paratypes from 10 km N Puerto Morelos, Quintana Roo, MEXICO, 15-16-VI-1983 (E. Giesbert). Additional paratypes: 4 ♂♂, 7 ♀♀ from 15-18 km N Tulum, Quintana Roo, 11-12-X-1982 (J. Wappes); 2 ♀♀ from Isla Mujeres, Quintana Roo, 29-III-1960 (J.F.G. Clarke); 1 ♀ from 2 mi NE San Miguel, Cozumel Island, Quintana Roo, 3-IV-1960. Paratypes are deposited in the USNM and the collections of James E. Wappes and the author. (Giesbert, 1985: 81)

Holotype: male, MEXICO, Quintana Roo, 10 km N Puerto Morelos, 15-16-VI-1983 (EMEC).

Material examined: 12 paratype specimens (all from MEXICO): 4 males and 4 females, Quin. Roo., 15-18 km N Tulum, X-11,12-1982, JE Wappes (EFGC, FSCA, JEW, USNM, RFTC); 4 males, Quintana Roo, 10 km N Puerto Morelos, June 15-16, 1983, E. Giesbert, Coll. (EFGC); 4 specimens (all from MEXICO): 1 male, Q. Roo, 15 km W Pto. Morelos, June 12-18, 1993, E. Giesbert, coll. (EFGC); 1 male, Q.R., 14mi. NE. Tulum, Aug. 8, 1974, C.W. & L. O'Brien & Marshall (TAMU); 1 male and 1

female, Quintana Roo, Cancun, Moon Palace, em. 25/V/02, R. Morris, ex. Buttonwood girdles (ENPC).

Specimens, 5 (all from JAMAICA): 1 male, Clar. Par., Portland Ridge, nr. Jackson Bay Cave, 40ft., 4 May 1973, Don & Mignon Davis (WIBF, on loan from USNM); 1 female, Try., Duncans, VIII-9-1966, A.T. Howden, collected at light (WIBF); 1 female, W.I., C.M.Acc.2522, Rae Town, VII-16-99 (CMNH); 2 males, Kingston, Tip Top Hotel, Ruthven Rd., R.E. Woodruff, 7-V-69, blacklight trap (WIBF, on loan from FSCA).

One female, HONDURAS, intercepted under bark of unidentified wood at Mobile, Alabama, from Honduras, 12-19-1939, Mobile 6682 (USNM).

Geographic distribution: Known from Quintana Roo, Mexico; Honduras, **new country record** (Central America); and Jamaica, **new country record** (Greater Antilles).

Discussion: Giesbert (1983) stated that this species was collected beating dead branches. It has also been collected at lights and reared from buttonwood girdles (R.F. Morris, pers. comm.).

Giesbert (1985) commented on the variability of the elytral markings, stating that “. . . in a number of specimens the two dark fasciae are reduced to four indistinct ferruginous spots” and that “. . . in the Cozumel specimen, the markings are darker and more distinct” (Giesbert, 1985: 81). This species (Figs. 3-21c, 3-21i, 3-27a-c) is very similar to *Plectromerus* new species 6 in several characters including antennal segment proportions, pronotal disk punctation, shape of elytral apices, and metafemoral and metatibial shape. However, *P. wappesi* can be distinguished from *Plectromerus* new species 6 by the moderately, evenly serrate metafemoral teeth (very weakly, irregularly serrate metafemoral teeth in *Plectromerus* new species 6), and scape, pronotal disk, and

metafemora with long, suberect setae (scape, pronotal disk, and metafemora without long, suberect setae in *Plectromerus* new species 6).

Key to the Species of *Plectromerus*

Keys to the species of *Plectromerus* (= *Pentomacrus*) have been provided by several workers (Cameron, 1910; Cazier and Lacey, 1952; Vitali, 2004; Vitali & Rezbanyai-Reser, 2003).

- | | | |
|-------|---|-----------------------------------|
| 1 | Eyes finely faceted; antennae 10-segmented (Dominican Republic) | |
| | <i>dominicanus</i> (Figure 3-10, 3-11) | |
| 1' | Eyes coarsely faceted; antennae 11-segmented. | 2 |
| 2 | Outer angles of elytra form acute spine (Figure 4-25e). | 3 |
| 2' | Outer angles of elytra not as above. | 4 |
| 3(2) | Metafemora with two distinct teeth (Dominican Republic). | |
| | <i>bidentatus</i> (Figure 3-7) | |
| -- | Metafemora with one tooth (Cuba). | <i>acunai</i> (Figure 3-6) |
| 4(2') | Elytra with long, pale, erect or suberect setae. | 5 |
| 4' | Elytra without scattered, long, pale, erect or suberect setae. | 10 |
| 5(4) | Head, elytral apices, and abdominal segments distinctly black or dark brown (Navassa Island). | <i>navassae</i> (Figure 3-21) |
| 5' | Head, elytral apices, and abdominal segments not as above. | 6 |
| 6(5') | Metafemoral tooth weakly serrate; metatibiae nearly straight; elytral apices subtruncate (Lesser Antilles). | <i>fasciatus</i> (Figure 3-13) |
| 6' | Metafemoral tooth moderately to strongly serrate; metatibiae slightly to strongly bowed. | 7 |
| 7(6') | Scape, pronotal disk, elytra, and metafemora with long, suberect setae; pronotal disk with dense, round, shallow punctures; metafemoral club longer than basal portion; metatibiae strongly bowed (SE Mexico, Jamaica, Honduras). | <i>wappesi</i> (Figure 3-27) |
| 7' | Not with above combination of characters. | 8 |
| 8(7') | Metatibiae strongly bowed; metafemoral club shorter than basal portion; metafemoral teeth with posterior edge strongly, deeply serrate, with about 14-17 serration "peaks" (Panama). | new species 7 (Figure 2-8) |
| 8' | Not with above combination of characters. | 9 |

- 9(8') Pronotum microsculptured; metafemoral teeth with posterior edge weakly, very shallowly serrate; metatibiae slightly sinuate (Cayman Islands). **new species 6 (Figure 2-7)**
- Pronotal disk granulate; metafemoral teeth moderately to strongly, deeply serrate; metatibiae strongly sinuate (Dominican Republic). ***distinctus* (Figure 3-11)**
- 10(4') Pronotal disk with two distinct, small, round, dark, granulate maculae; metafemoral teeth with edge nearly smooth, very weakly serrate; prosterna in males lacking patch of coarse punctures in front of procoxae (Bahamas, Cuba). ***pumilus* (Figure 3-24)**
- 10' Not with above combination of characters. 11
- 11(10') Large species (17 mm); antennae about twice the body length in males; scape with deep excavation on dorsal surface (Figure 3-14b); fifth antennomere distinctly longer than pronotum; pronotum globose, sides strongly, evenly rounded; metafemoral club gradually clavate, distinctly elongate (Jamaica). ***femoratus* (Figure 3-14)**
- 11' Not with above combination of characters. 12
- 12(11') Pronotal disk with distinctly elevated tubercle (Figure 3-12b) (Cuba, Dominican Republic, Jamaica). ***exis* (Figure 3-12)**
- 12' Pronotal disk without distinctly elevated tubercle. 13
- 13(12') Scape with shallow to moderately deep excavation dorsally; pronotal disk with slightly to moderately raised calli; metafemora gradually clavate; metafemoral teeth very weakly serrate (Dominican Republic). **new species 8 (Figure 2-9)**
- 13' Not with above combination of characters. 14
- 14(13') Third antennomere only slightly longer than fourth; pronotal disk with dark reddish-brown to black maculae and with strongly raised calli; metafemoral club small, with tooth very weakly serrate (Haiti). **new species 5 (Figure 2-6)**
- 14' Not with above combination of characters. 15
- 15(14') Scape with shallow excavation dorsally; pronotal disk with moderately raised calli; metafemoral teeth very weakly serrate, almost smooth (Dominican Republic). **new species 4 (Figure 2-5)**
- 15' Not with above combination of characters. 16
- 16(15') Head with vertex microsculptured, very sparsely, finely punctate; pronotal disk microsculptured; elytra testaceous, without ferruginous maculae; metafemoral teeth strongly, deeply serrate (Dominican Republic). ***serratus* (Figure 3-25)**
- 16' Not with above combination of characters. 17
- 17(16') Pronotum strongly shining, sparsely, finely, shallowly punctate; metafemoral teeth with posterior edge very weakly serrate, nearly smooth (Cuba). ***pinicola* (Figure 3-23)**

- 17' Not with above combination of characters. 18
- 18(17') Elytral punctures somewhat elongate and evenly spaced; metafemoral teeth very weakly, irregularly serrate (Jamaica). *unidentatus* (Figure 3-26)
- 18' Not with above combination of characters. 19
- 19(18') Pronotum opaque, microsculptured, finely punctate; metafemoral teeth smooth, not serrate; elytral maculation forming distinct X pattern (Dominican Republic). *lingafelteri* (Figure 3-19a-c)
- 19' Not with above combination of characters. 20
- 20(19') Pronotal surface with moderately dense, short pubescence; each elytron with two distinct oblique maculae and one arcuate-transverse macula; and metafemora strongly pedunculate-clavate with moderately serrate teeth (Guatemala). **new species 2** (Figure 2-3)
- 20' Not with above combination of characters. 21
- 21(20') Elytra with intricate pattern; pronotal disk with moderately raised calli; fifth antennomere almost 4 times longer than fourth and about 1.5 times longer than third; metafemoral teeth strongly, deeply serrate (Nicaragua). **new species 1** (Figure 2-2)
- 21' Not with above combination of characters. 22
- 22(21') Elytral apices subtruncate to strongly truncate; metafemoral teeth very slightly serrate to moderately serrate; prosterna in males with one distinct patch of coarse punctures in front of each procoxa (Bahamas, Cuba, SE USA). *dentipes* (Figure 3-10)
- 22' Not with above combination of characters. 23
- 23(22') Pronotum moderately shining, somewhat flattened, with shallow, moderately coarse punctures; metafemoral teeth strongly serrate; metatibiae slightly to strongly sinuate (Puerto Rico, Virgin Islands). *ramosi* (Figure 3-19d-h)
- 23' Not with above combination of characters. 24
- 24(23') Pronotal surface opaque, microsculptured; each elytron with one distinct oblique macula and one arcuate-transverse band; metafemora strongly pedunculate-clavate with strongly, deeply serrate teeth (Costa Rica, Honduras). **new species 3** (Figure 2-4a-c)
- 24' Not with above combination of characters. 25
- 25(24') Antennomeres 5-11 equal to or longer than third; pronotum microsculptured, with scattered, large, shallow punctures; pronotum with distinct, small dark maculae; metafemoral gradually clavate; metafemoral teeth very small, not serrate (Cuba). *ornatus* (Figure 3-22)
- 25' Not with above combination of characters. 26

- 26(25') Fossil in Dominican amber; pronotum with shallow, moderately coarse punctures; metafemoral teeth small, not serrate (Dominican Republic).
..... *grimaldii* (**Figure 3-15a, 3-16**)
- Fossil in Dominican amber, dorsal habitus not visible but illustrated by Vitali (2004) (Dominican Republic). *tertiarius* (**Figure 3-15b**)

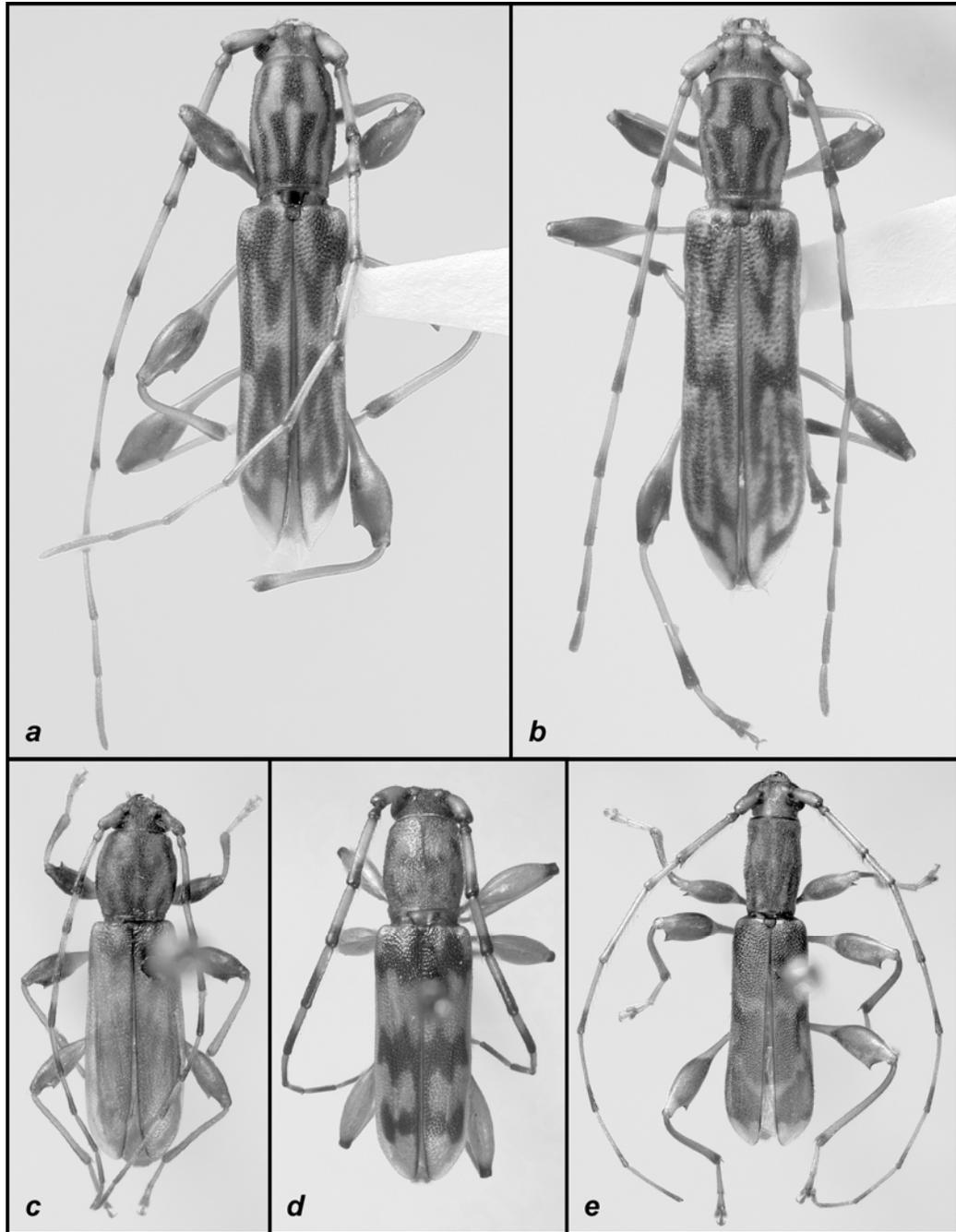


Figure 3-1. Four species of *Curius*. A) *Curius chemsaki* Nearn & Ray, holotype, male, dorsal habitus. B) *Curius chemsaki* Nearn & Ray, allotype, female, dorsal habitus. C) *Curius dentatus* Newman, male, dorsal habitus. D) *Curius punctatus* (Fisher), holotype, male, dorsal habitus; e, *Curius panamensis* Bates, male, dorsal habitus.

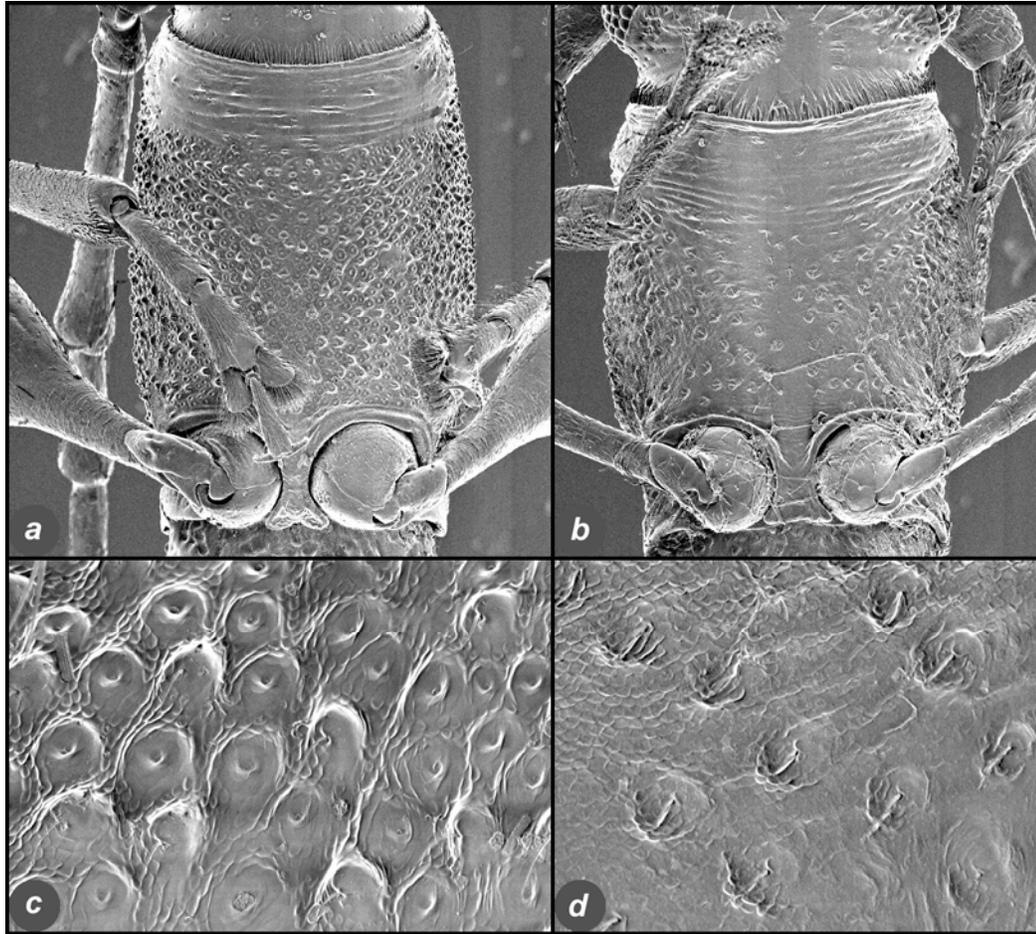


Figure 3-2. *Curius chemsaki* Nearn & Ray. A) Holotype, male, closeup of prosternum. B) Allotype, female, closeup of prosternum. C) Holotype, male, prosternal gland pores (430 \times magnification). D) Allotype, female, prosternal punctation (400 \times magnification).

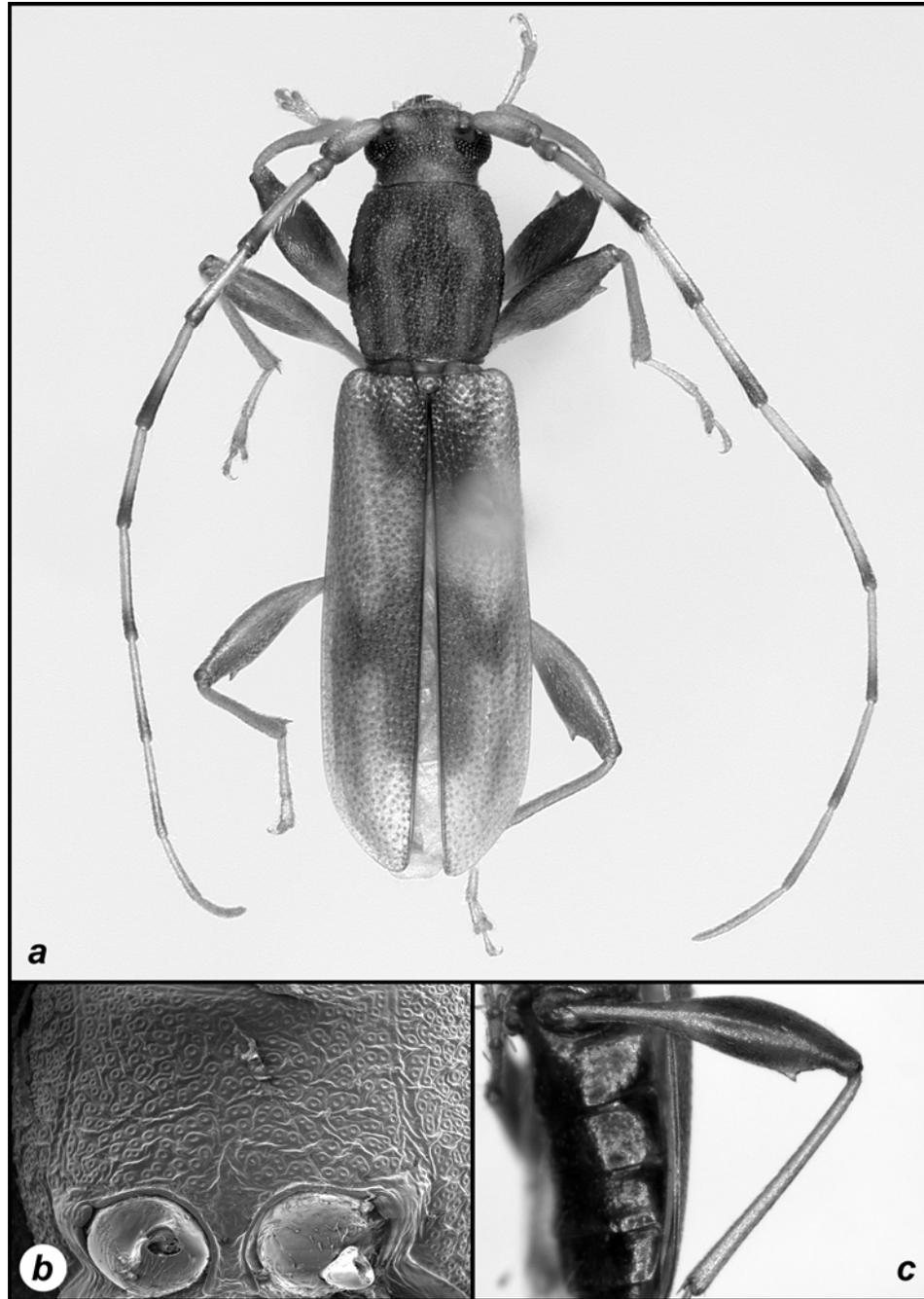


Figure 3-3. *Curius dentatus* Newman, male. A) Dorsal habitus. B) Closeup of prosternum (125 \times magnification). C) Closeup of metafemur and metatibia, ventral view.

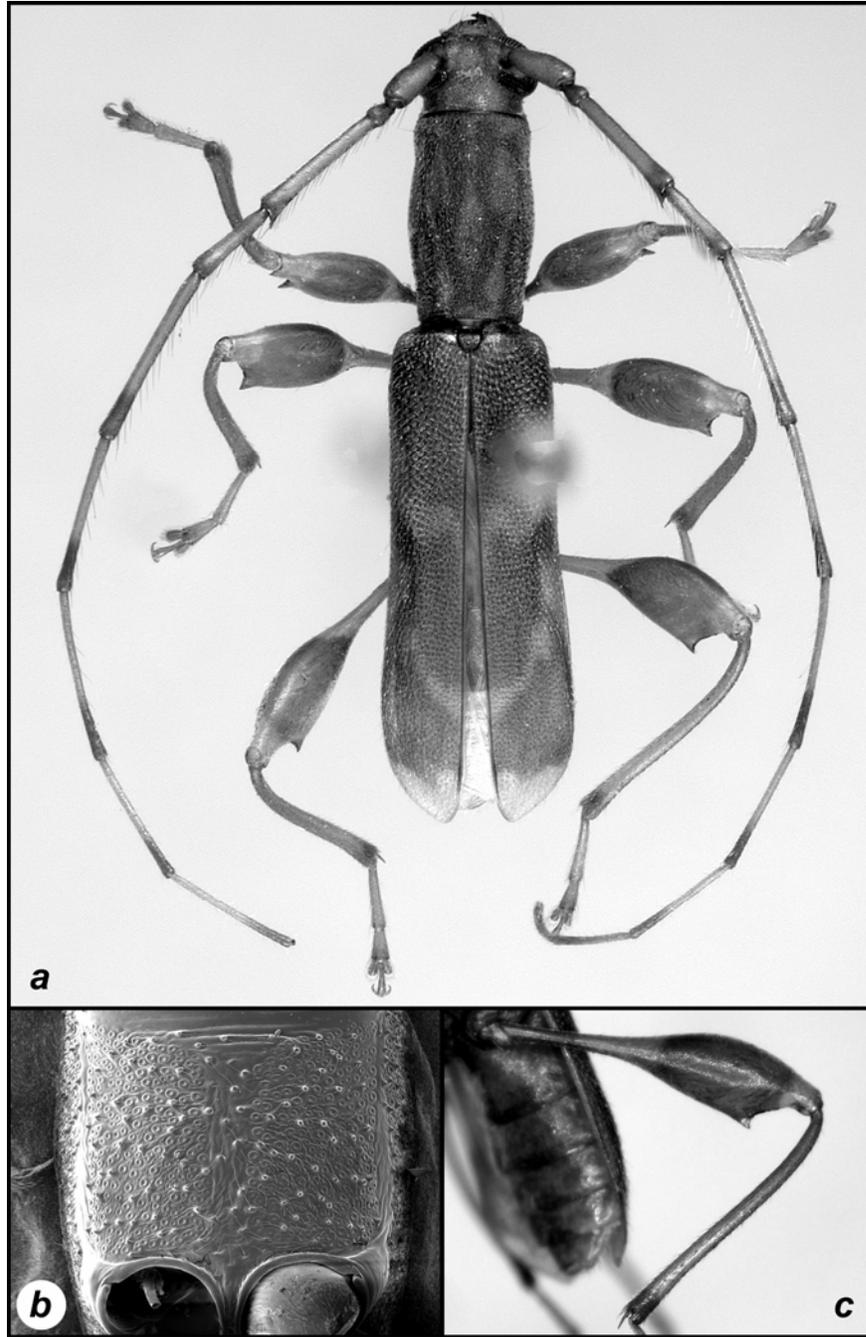


Figure 3-4. *Curius panamensis* Bates, male. A) Dorsal habitus. B) Closeup of prosternum (84× magnification). C) Closeup of metafemur and metatibia, ventral view.

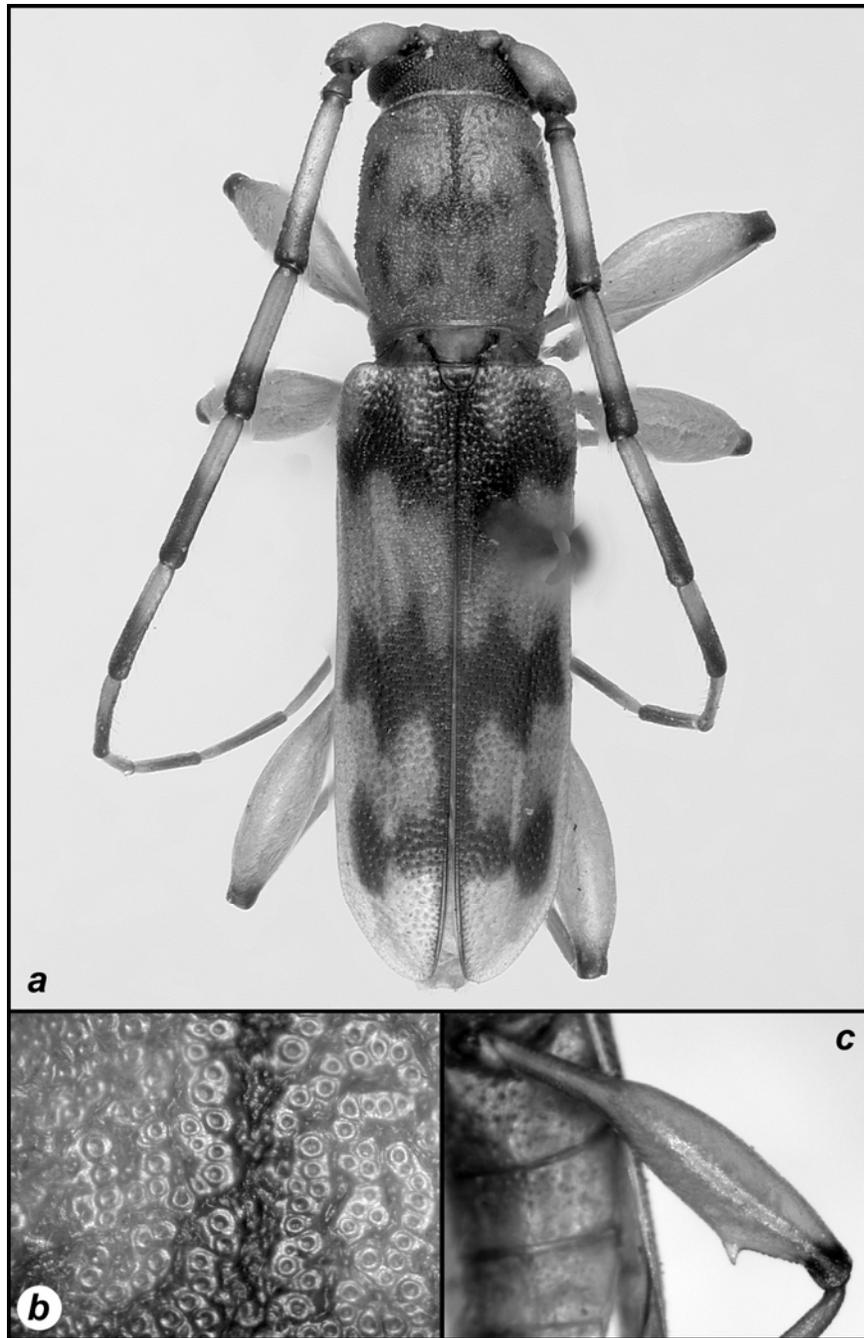


Figure 3-5. *Curius punctatus* (Fisher). A) Holotype, male, dorsal habitus. B) Holotype, male, closeup of pronotum. C) Male, closeup of metafemur, ventral view.

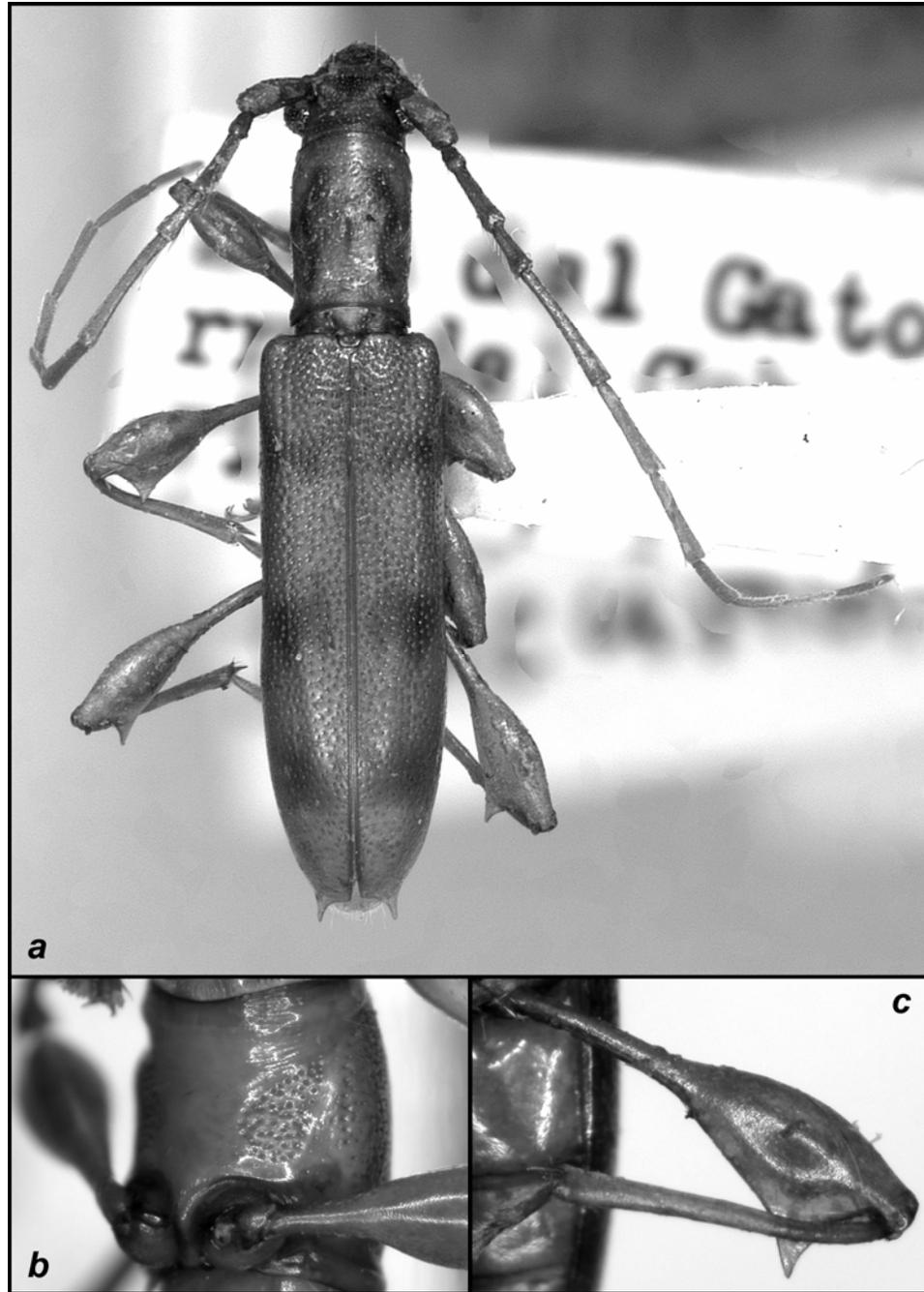


Figure 3-6. *Plectromerus acunai* (Fisher). A) Holotype, female, dorsal habitus. B) Male, closeup of prosternum. C) Holotype, female, closeup of metafemur and metatibia, ventral view.

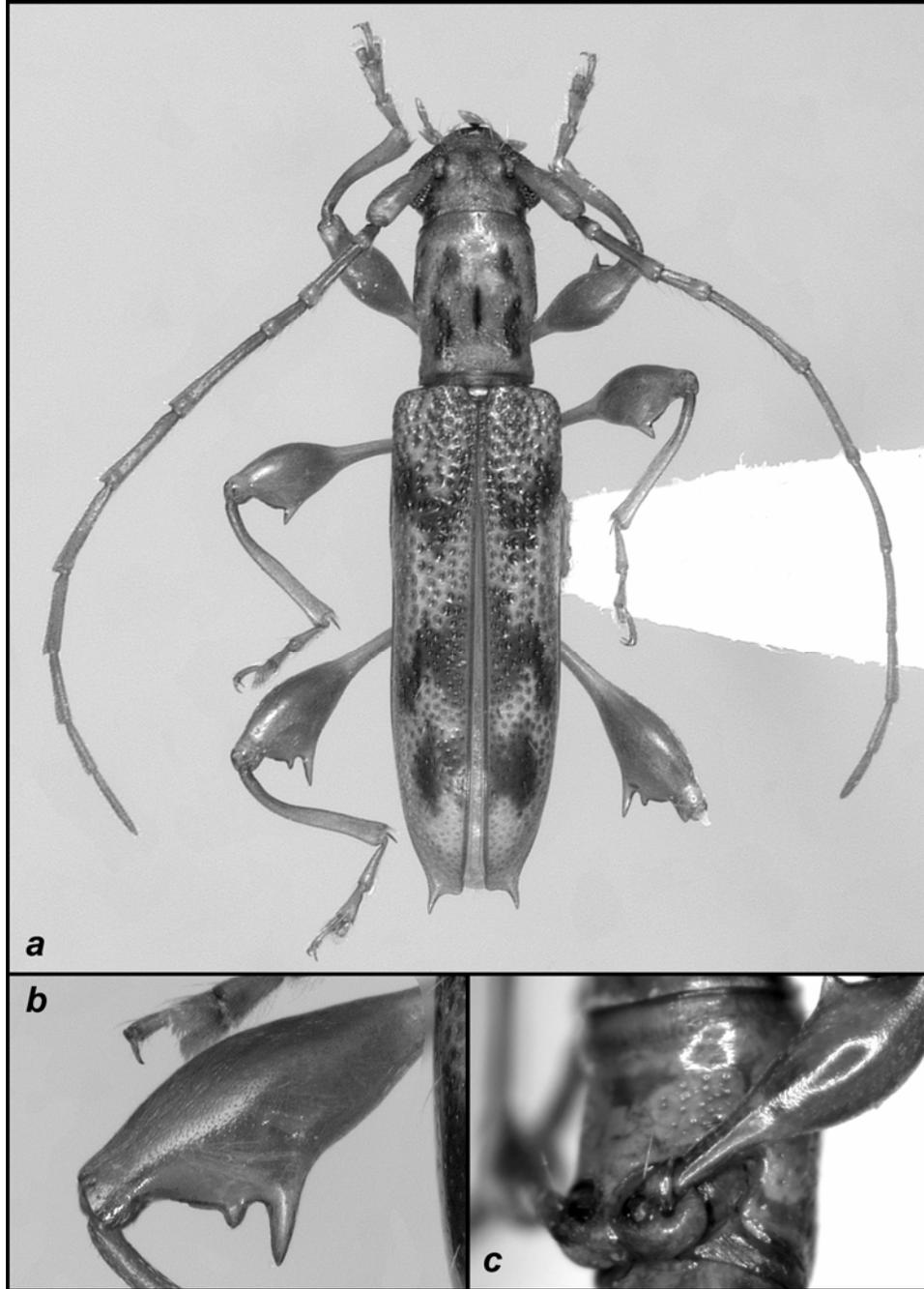


Figure 3-7. *Plectromerus bidentatus* Fisher, male. A) Dorsal habitus. B) Closeup of metafemur, ventral view. C) Closeup of prosternal.

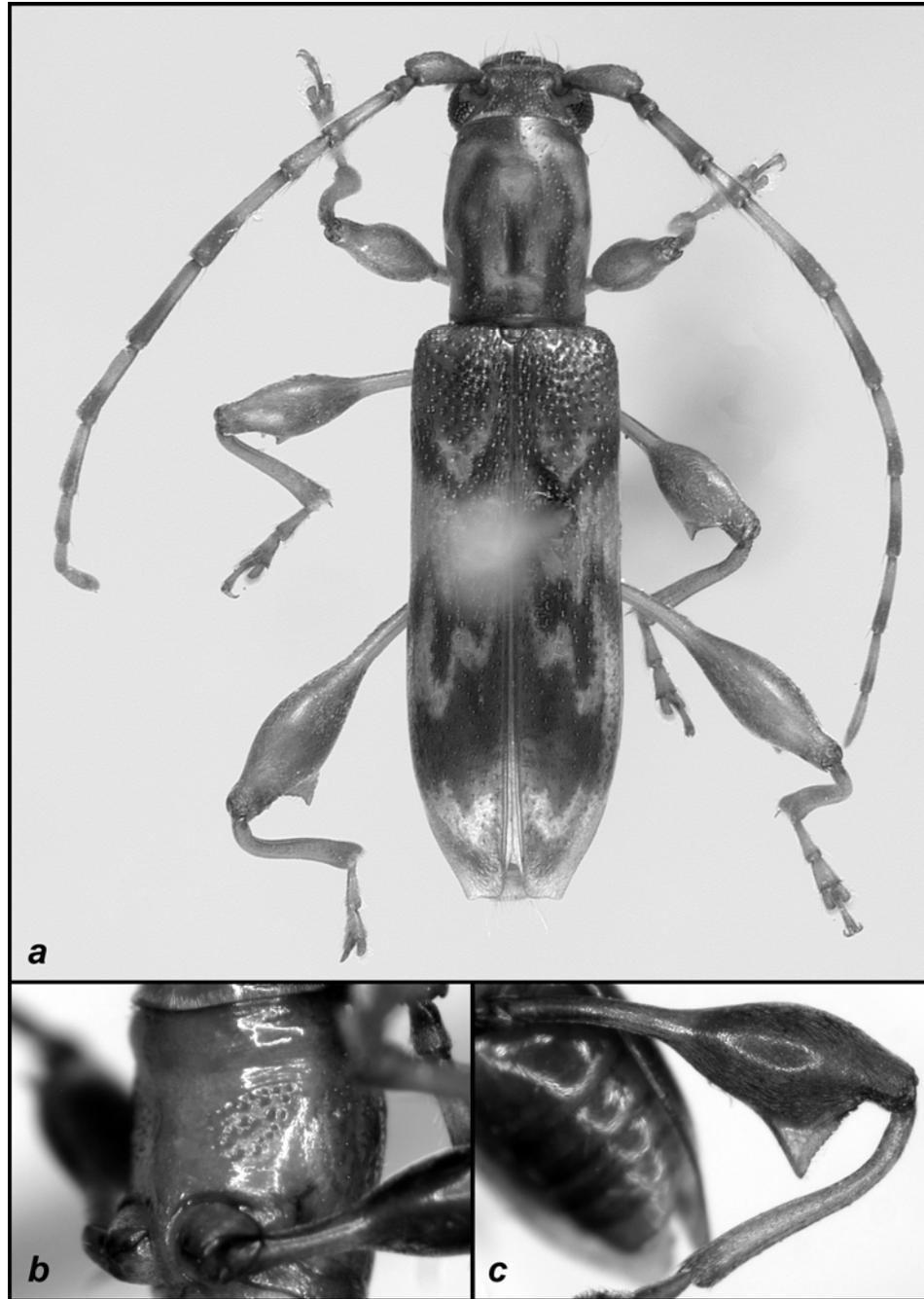


Figure 3-8. *Plectromerus dentipes* (Olivier), male. A) Dorsal habitus. B) Closeup of prosternum. C) Closeup of metafemur and metatibia, ventral view.

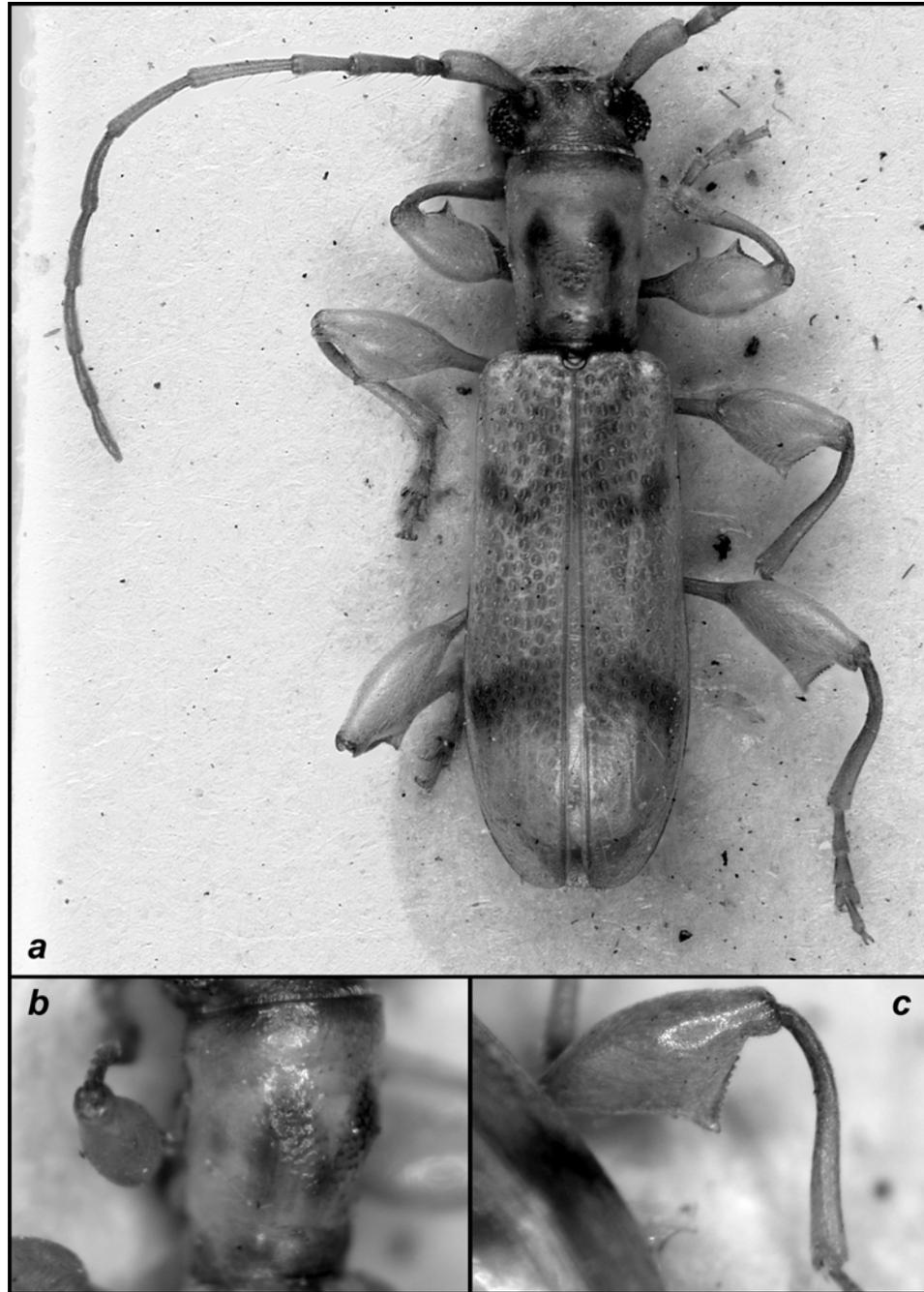


Figure 3-9. *Plectromerus distinctus* (Cameron), holotype, female. A) Dorsal habitus. B) Closeup of pronotum. C) Closeup of metafemur and metatibia, dorsal view.

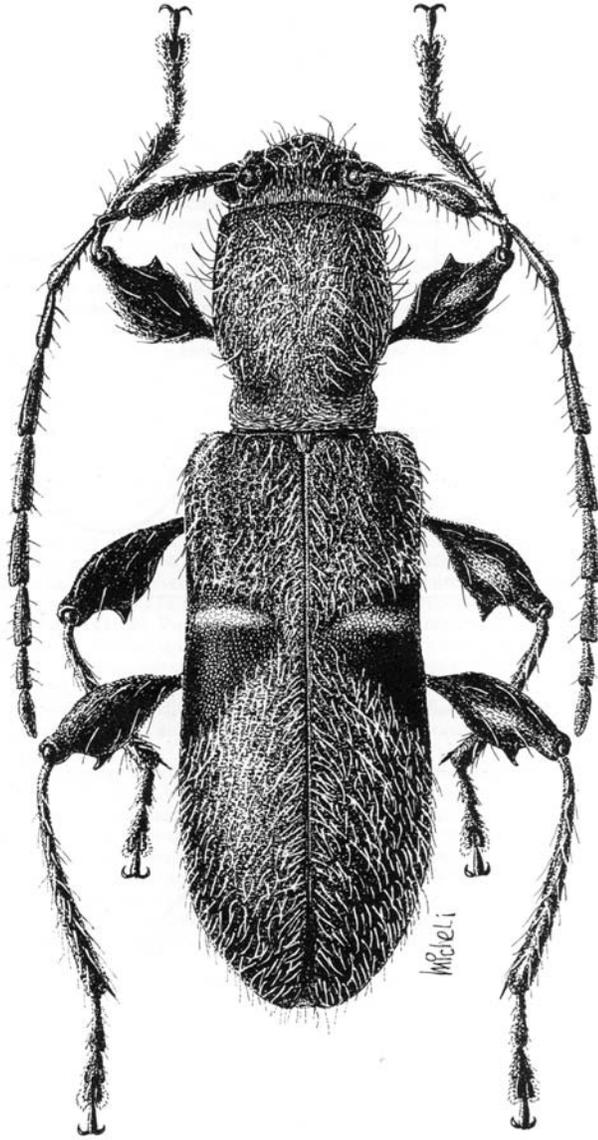


Figure 3-10. *Plectromerus dominicanus* (Micheli) (= *Curiosa dominicana*), dorsal habitus, illustration by Julio Micheli (1983).

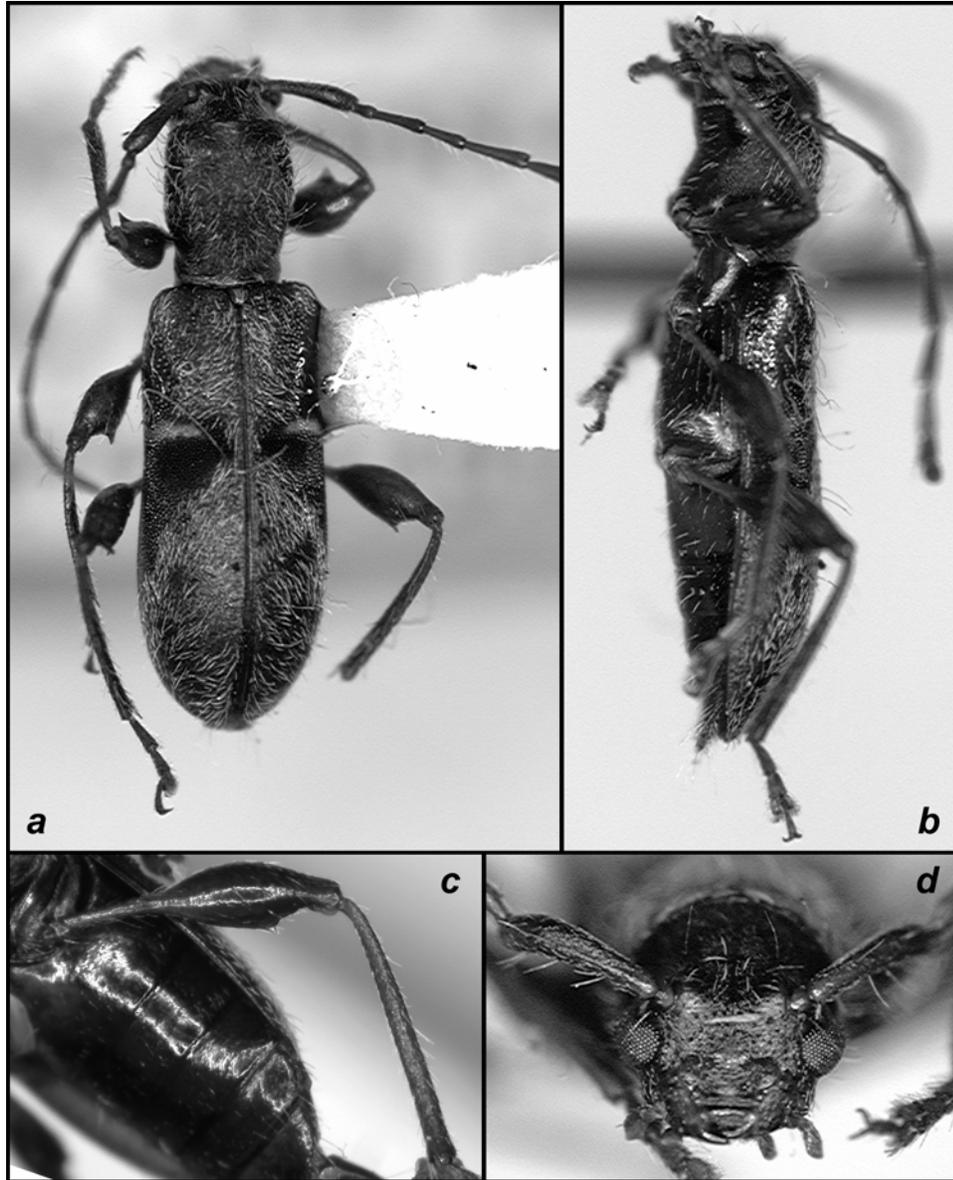


Figure 3-11. *Plectromerus dominicanus* (Micheli) (= *Curiosa dominicana*). A) Holotype, female, dorsal habitus. B) Holotype, female, lateral habitus. C) Female, closeup of metafemur and metatibia, ventral view. D) Holotype, female, closeup of head.

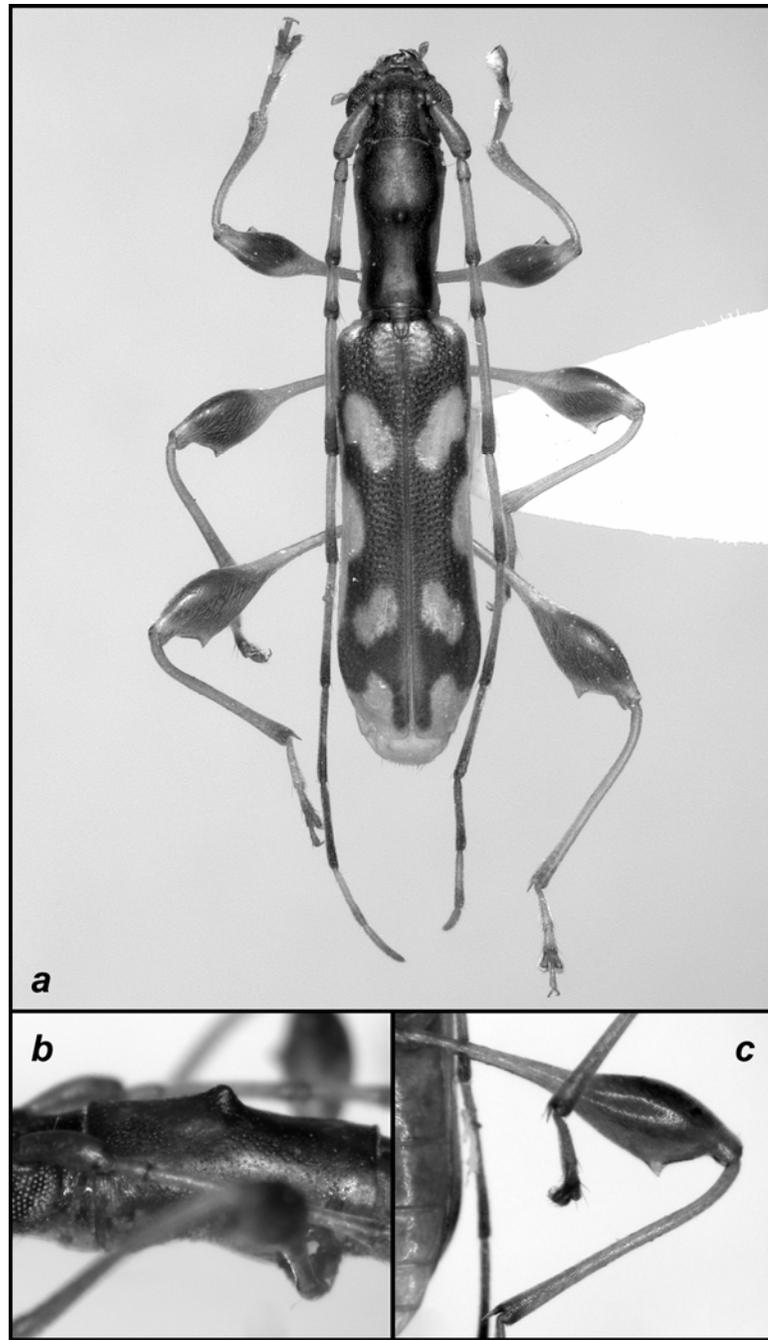


Figure 3-12. *Plectromerus exis* Zayas, male. A) Dorsal habitus. B) Closeup of pronotum, lateral view. C) Closeup of metafemur and metatibia, ventral view.

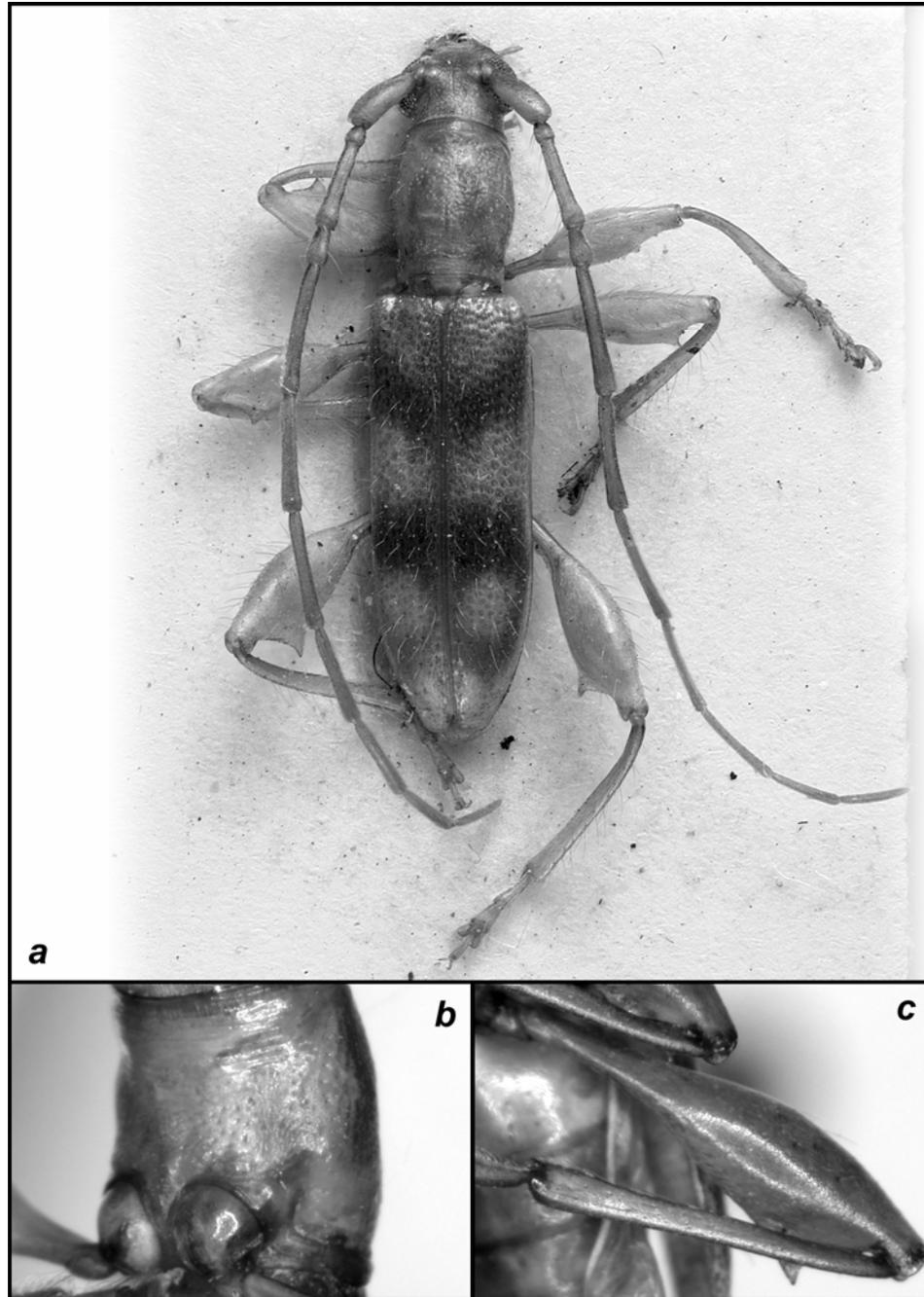


Figure 3-13. *Plectromerus fasciatus* (Gahan). A) Holotype, male, dorsal habitus. B) Male, closeup of pronotum. C) Male, closeup of metafemur and metatibia, ventral view.

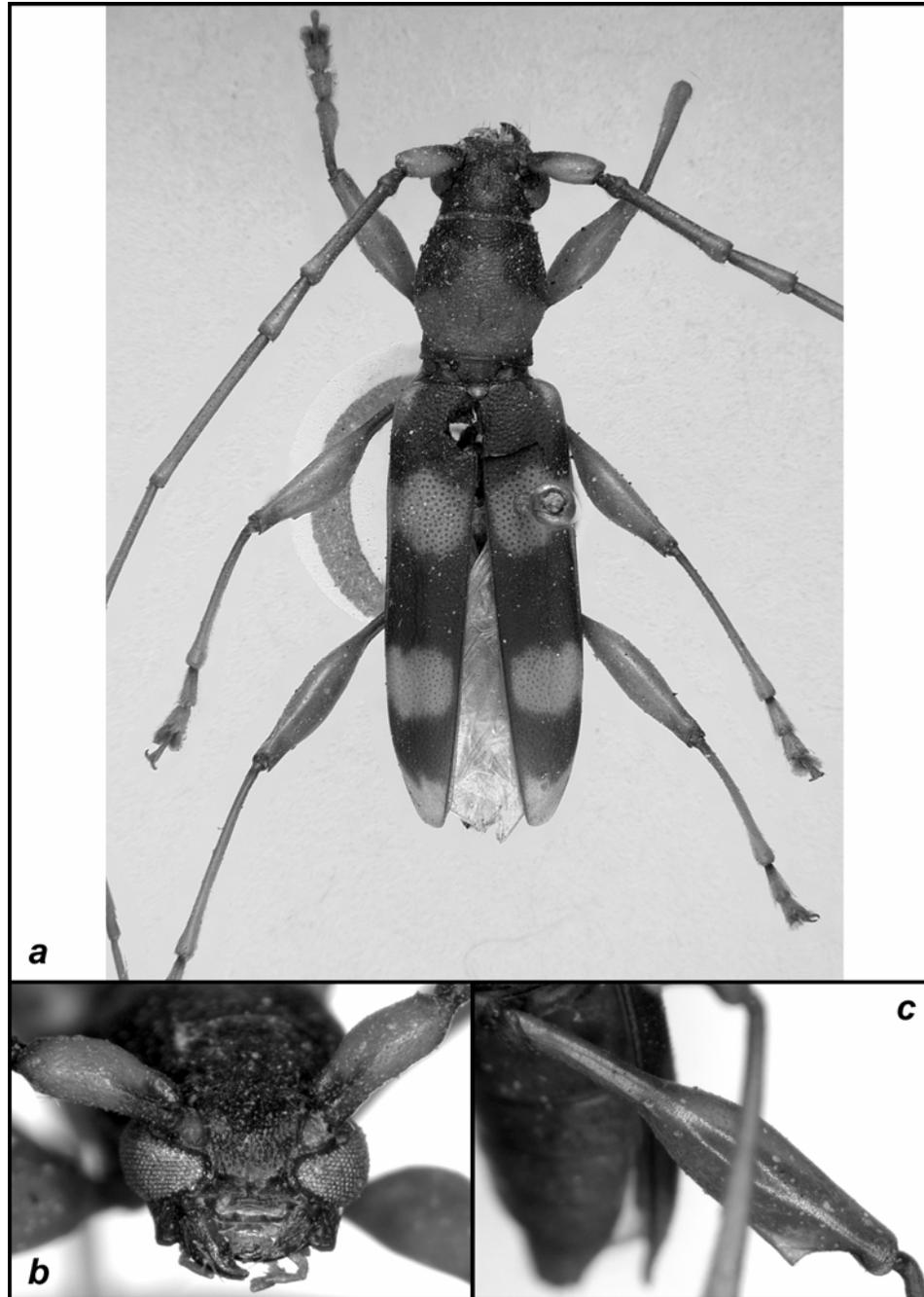


Figure 3-14. *Plectromerus femoratus* (Fabricius), holotype, male. A) Dorsal habitus. B) Closeup of scape with dorsal excavation. C) Closeup of metafemur and metatibia, ventral view.

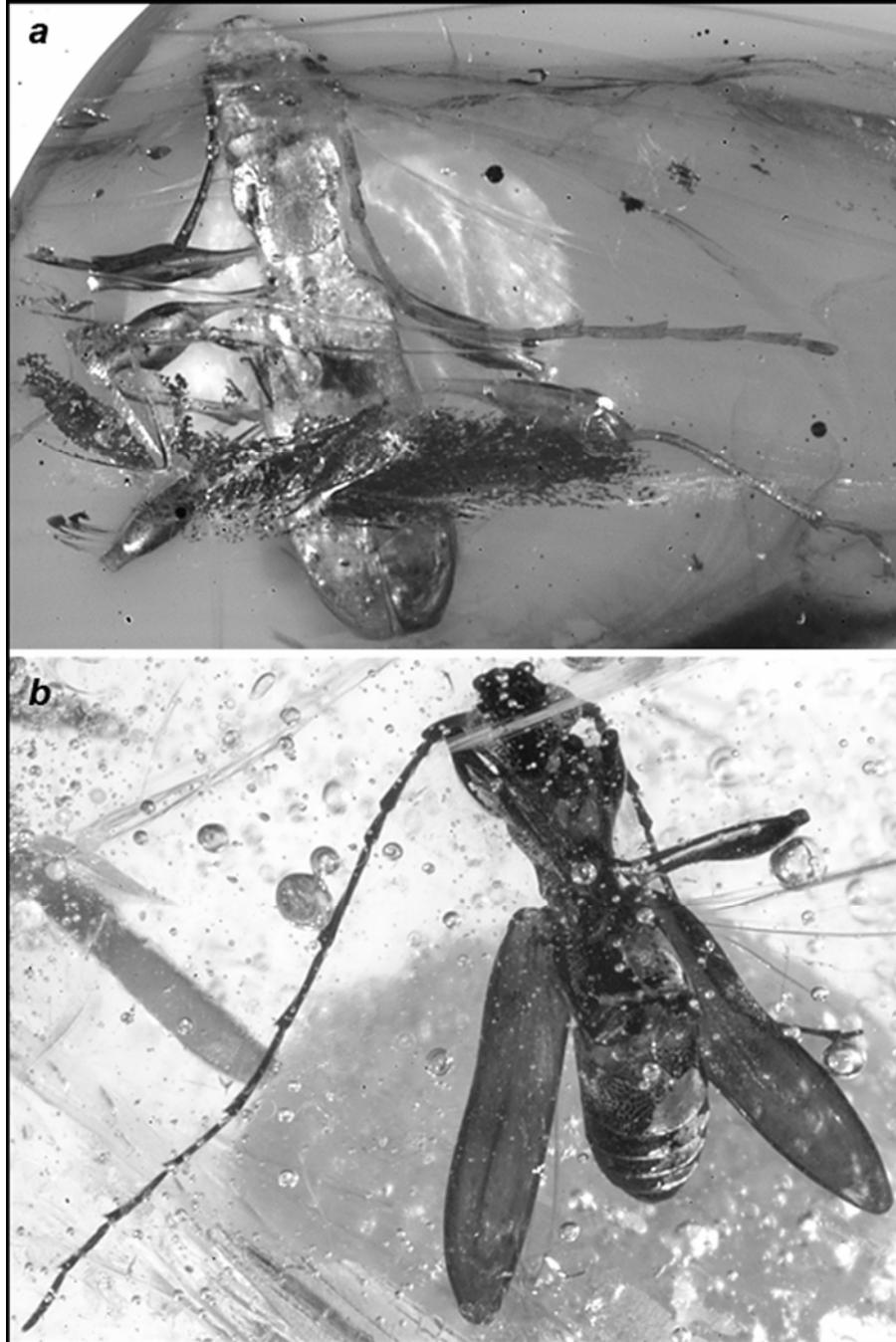


Figure 3-15. Two *Plectromerus* species in Dominican amber. A) *Plectromerus grimaldii* Nears & Branham, holotype dorsal habitus. B) *Plectromerus tertarius* Vitali, holotype ventral habitus.

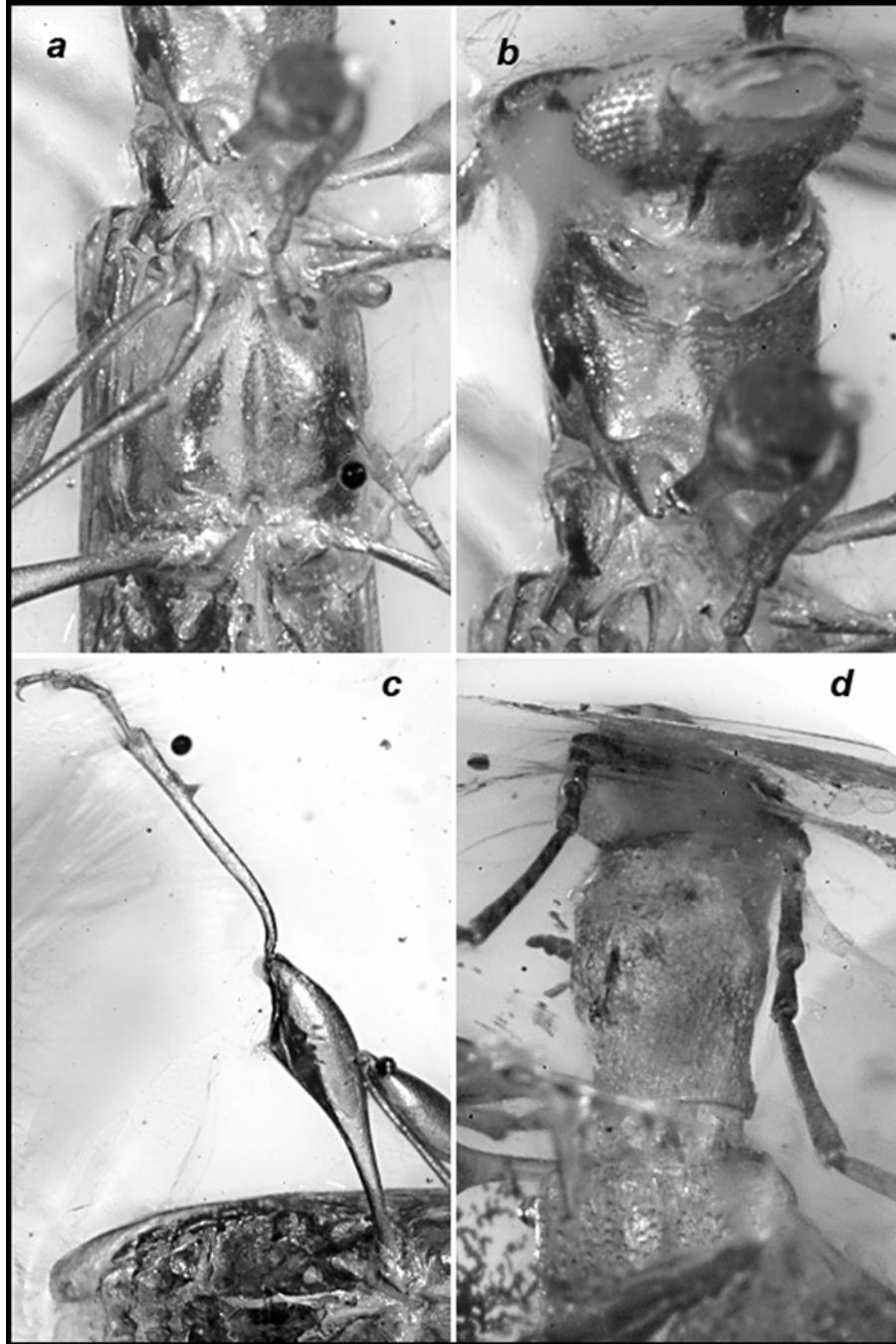


Figure 3-16. *Plectromerus grimaldii* Nears & Branham, holotype. A) Closeup of mesosternum. B) Closeup of prosternum. C) Closeup of right metafemur and metatibia, ventral view. D) Closeup of pronotum and elytral punctation.

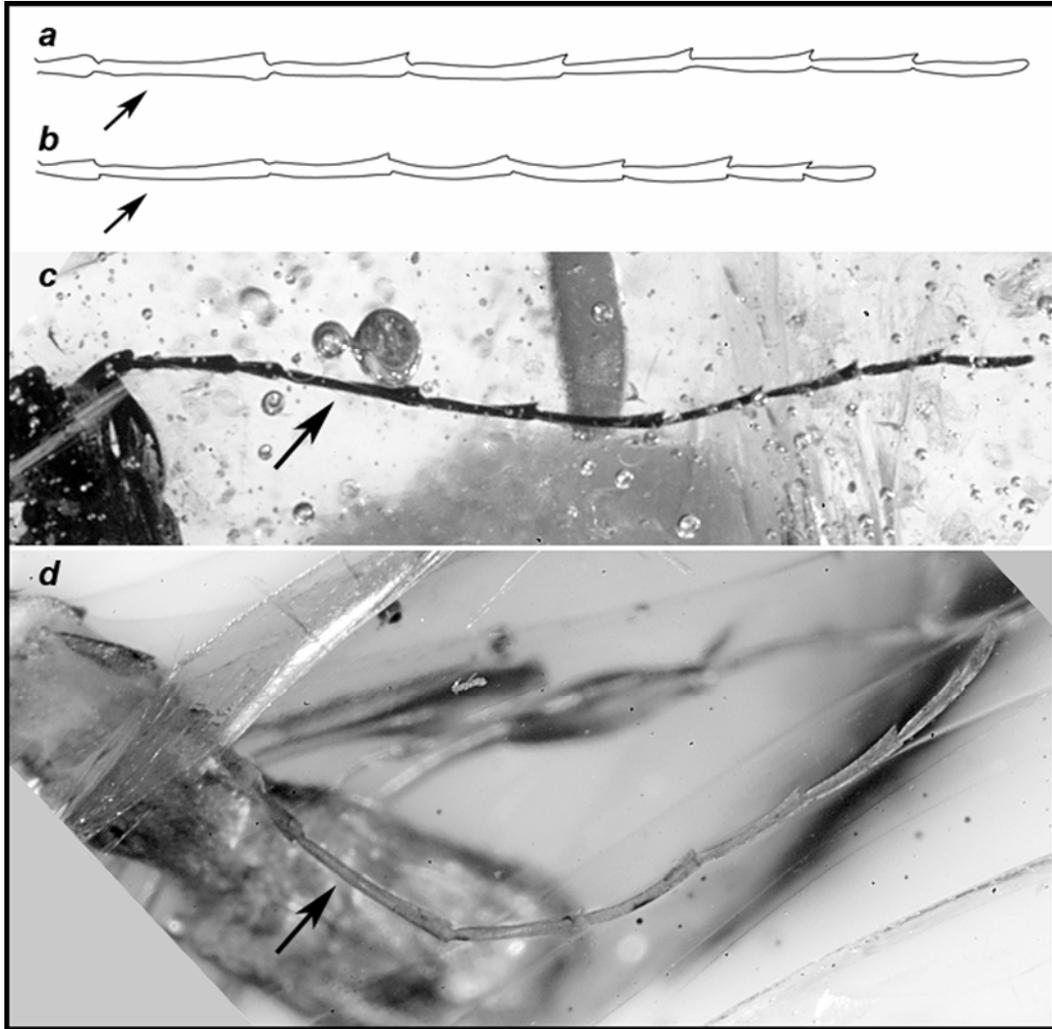


Figure 3-17. Comparison of antennal morphology. A) *Plectromerus tertarius* Vitali, illustration of antennomeres 4-11, arrow points to fifth antennomere. B) *Plectromerus grimaldii* Nears & Branham, illustration of antennomeres 4-11, arrow points to fifth antennomere. C) *Plectromerus tertarius* Vitali, holotype, right antenna, ventral view, arrow points to fifth antennomere. D) *Plectromerus grimaldii* Nears & Branham, holotype, right antenna, dorsal view, arrow points to fifth antennomere.

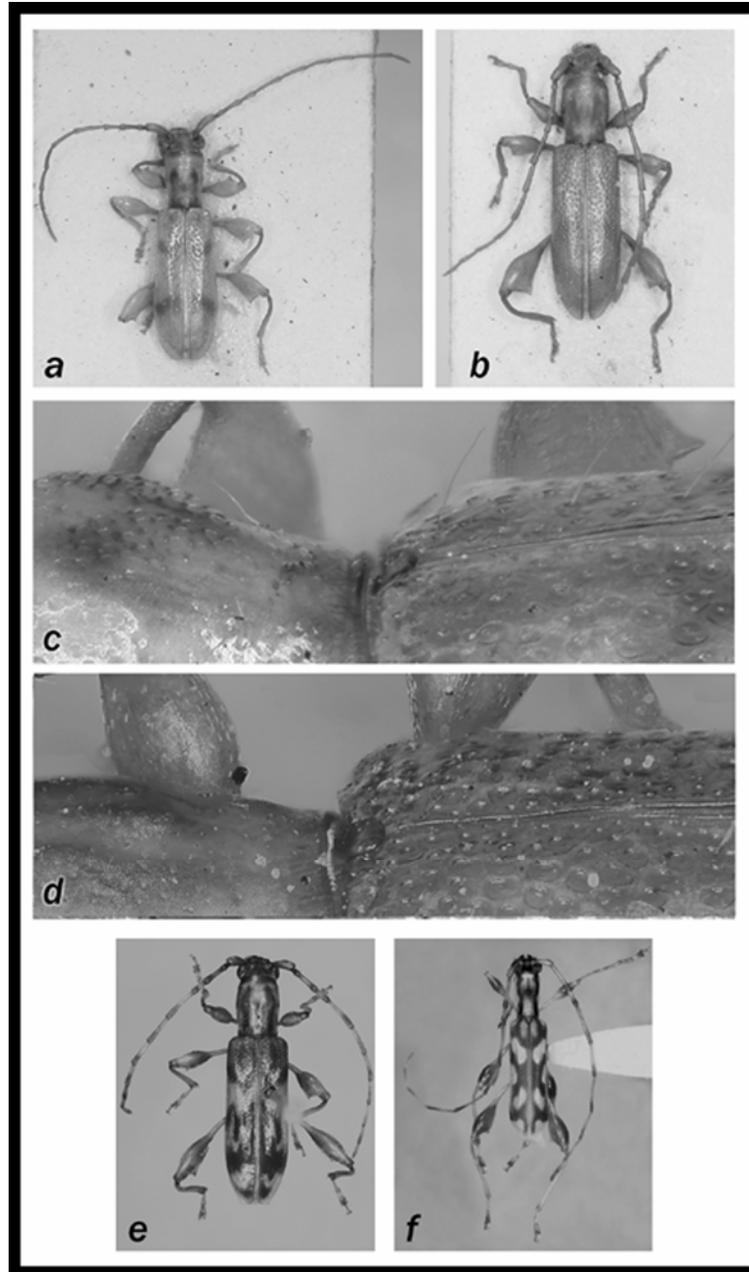


Figure 3-18. Four species of *Plectromerus*. A) *Plectromerus distinctus* (Cameron), holotype. B) *Plectromerus serratus* (Cameron), holotype. C) *Plectromerus distinctus* (Cameron), view of pronotum and base of elytron. D) *Plectromerus serratus* (Cameron), view of pronotum and base of elytron. E) *Plectromerus dentipes* (Olivier). F) *Plectromerus exis* Zayas.

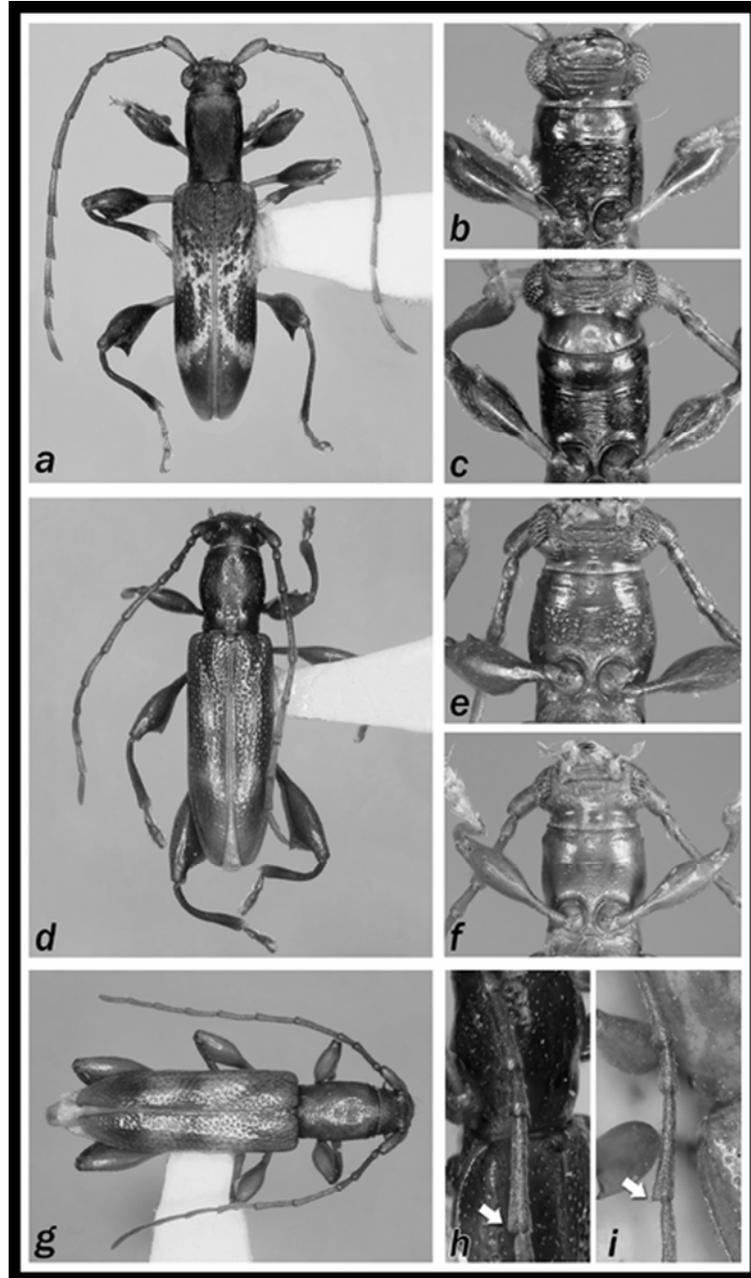


Figure 3-19. Two species of *Plectromerus*. A-C) *Plectromerus lingafelteri* Micheli & Nearn. A) Holotype. B) Closeup of prosternum, male. C) Closeup of prosternum, female. D-H) *Plectromerus ramosi* Micheli & Nearn. D) Holotype. E) Closeup of prosternum, male. F) Closeup of prosternum, female. G) Lighter phenotype. H) Closeup of fifth antennomere. I) *Plectromerus serratus* (Cameron), closeup of fifth antennomere of holotype.

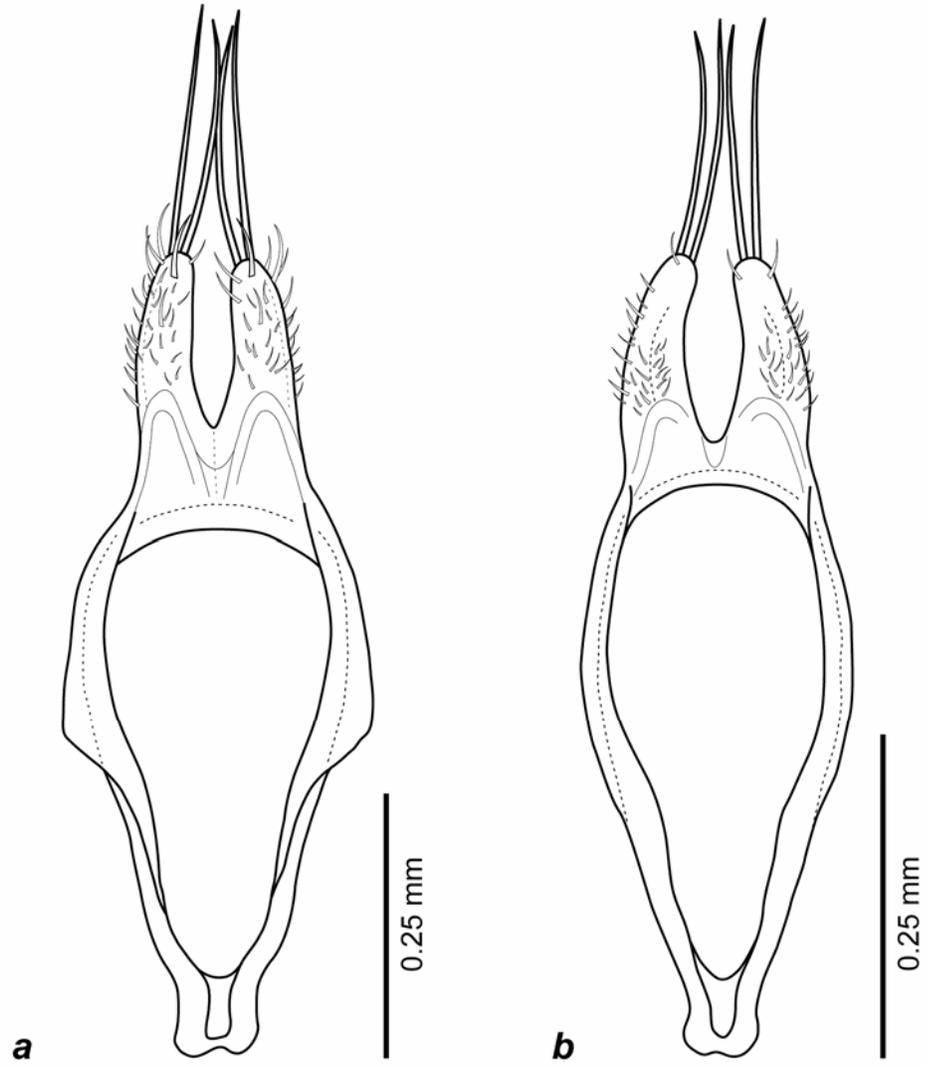


Figure 3-20. Tegmen and parameres, ventral view. A) *Plectromerus lingafelteri* Micheli & Nearn. B) *Plectromerus ramosi* Micheli & Nearn.

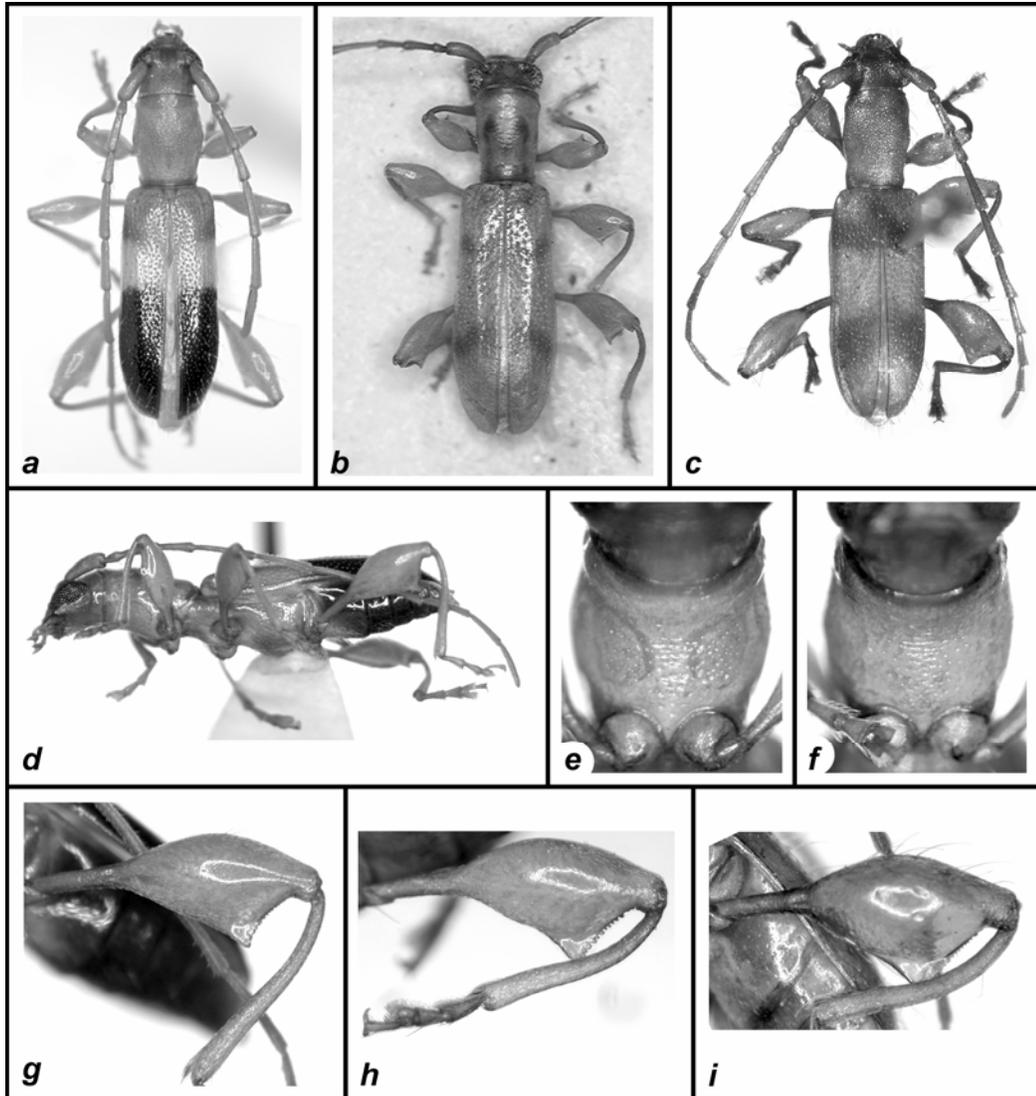


Figure 3-21. Three species of *Plectromerus*. A) *Plectromerus navassae* Nears & Steiner, holotype, male, dorsal habitus. B) *Plectromerus distinctus* (Cameron), holotype, female, dorsal habitus. C) *Plectromerus wappesi* Giesbert, paratype, male, dorsal habitus. D-G) *Plectromerus navassae* Nears & Steiner. D) Holotype, male, lateral view. E) Holotype, male, closeup of prosternum. F) Allotype, female, closeup of prosternum. G) Holotype, male, metafemur and metatibia, ventral view. H) *Plectromerus distinctus* (Cameron), holotype, female, metafemur and metatibia, ventral view. I) *Plectromerus wappesi* Giesbert, paratype, male, metafemur and metatibia, ventral view.

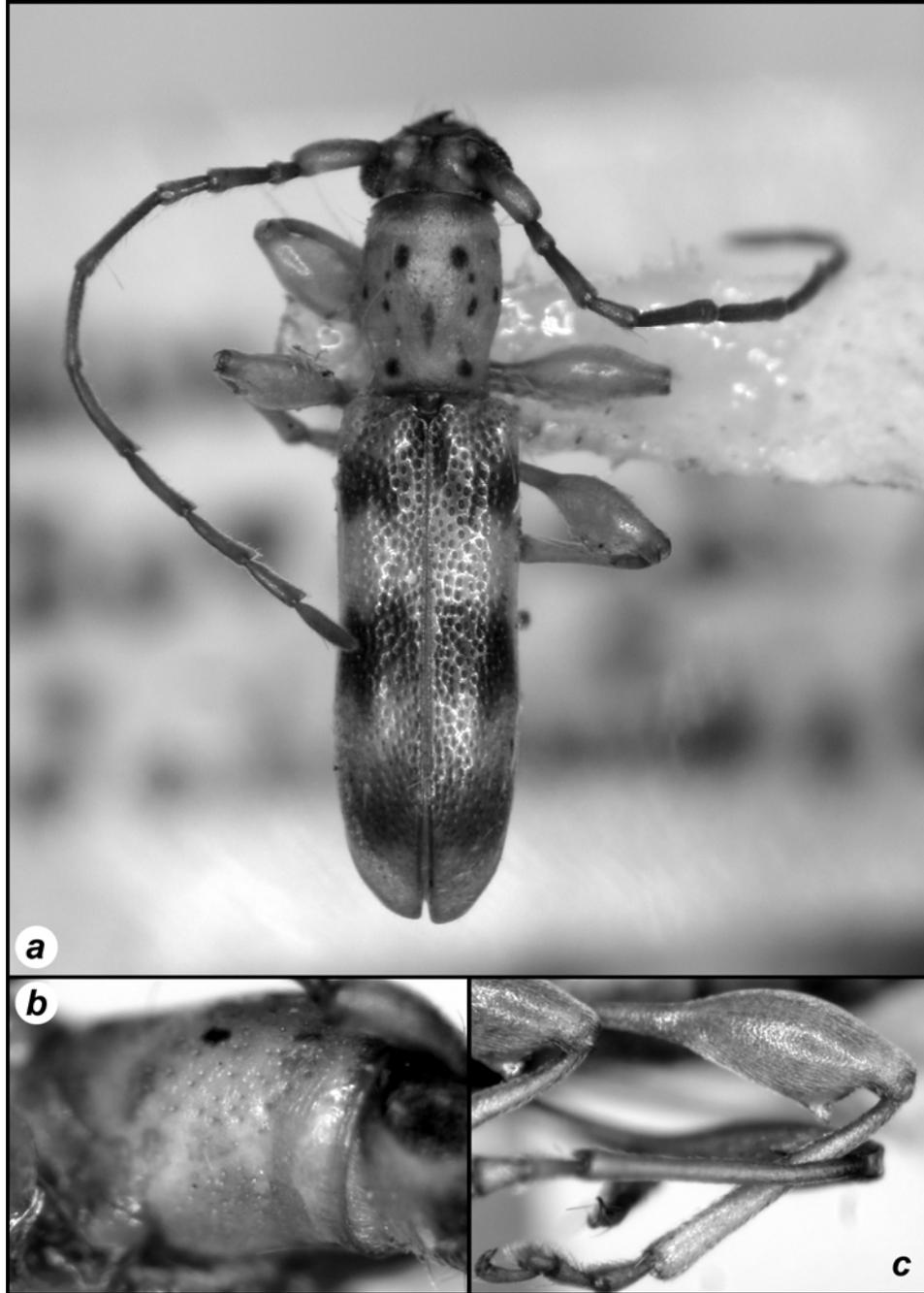


Figure 3-22. *Plectromerus ornatus* Fisher. A) Holotype, male, dorsal habitus. B) Holotype, male, closeup of pronotum, lateral view. C) Female, closeup of metafemur and metatibia, dorsal view.

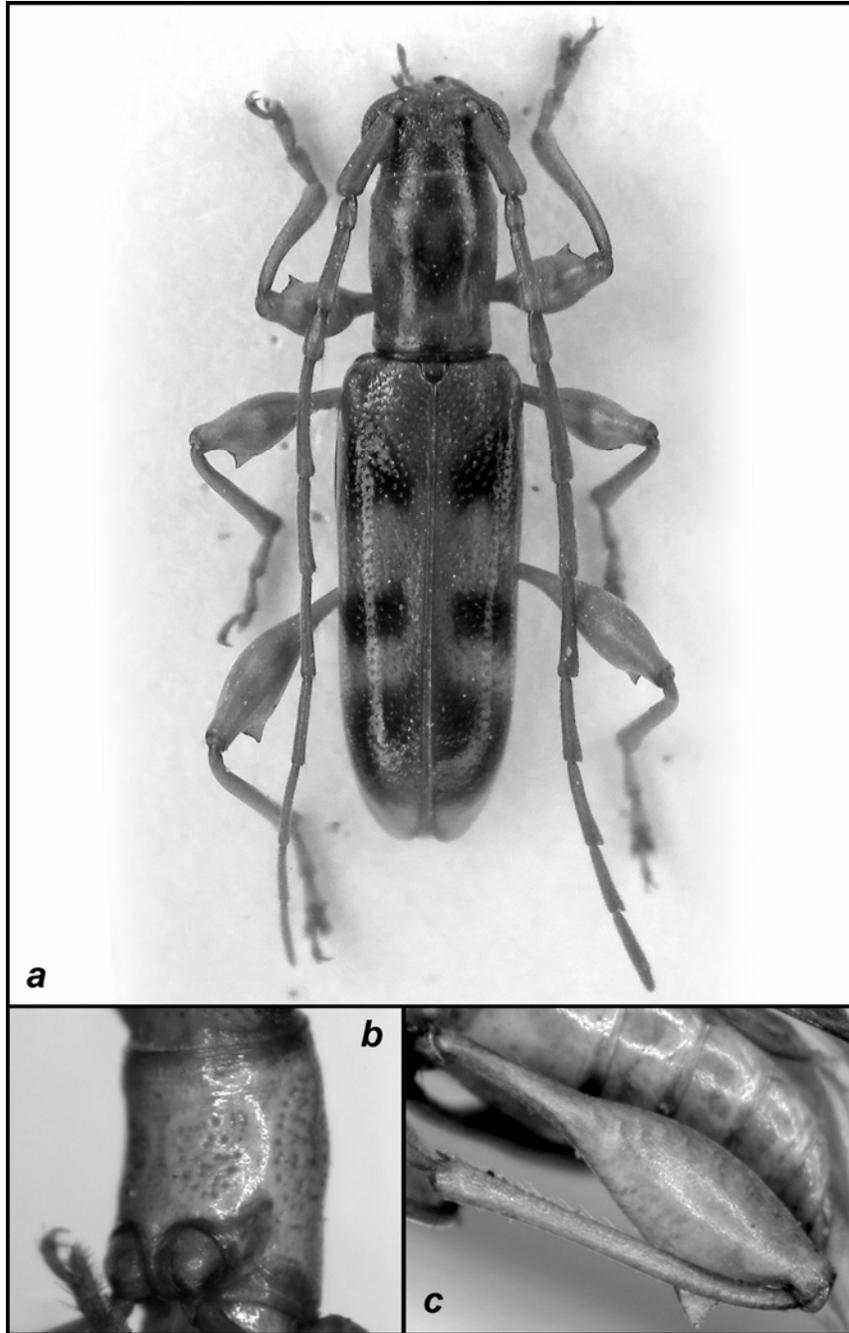


Figure 3-23. *Plectromerus pinicola* Zayas, male. A) Dorsal habitus. B) Closeup of prosternum. C) Closeup of metafemur and metatibia, ventral view.

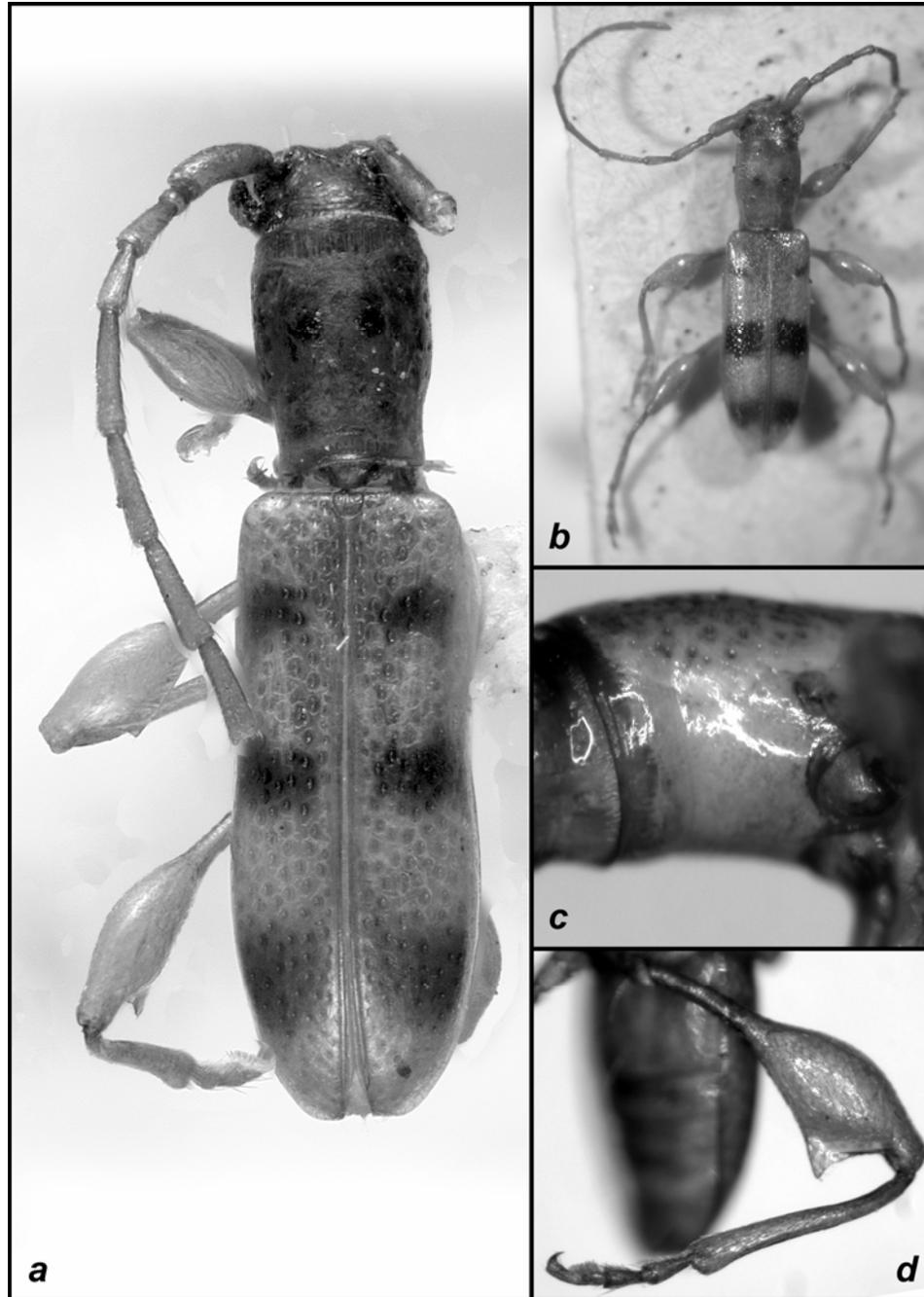


Figure 3-24. *Plectromerus pumilus* Cazier & Lacey. A) Holotype, male, dorsal habitus. B) Specimen from FDZC, dorsal habitus. C) Male, closeup of prosthernum. D) Male, closeup of metafemur and metatibia, ventral view.



Figure 3-25. *Plectromerus serratus* (Cameron), holotype, male. A) Dorsal habitus. B) Closeup of pronotum, lateral view. C) Closeup of metafemur and metatibia, dorsal view.

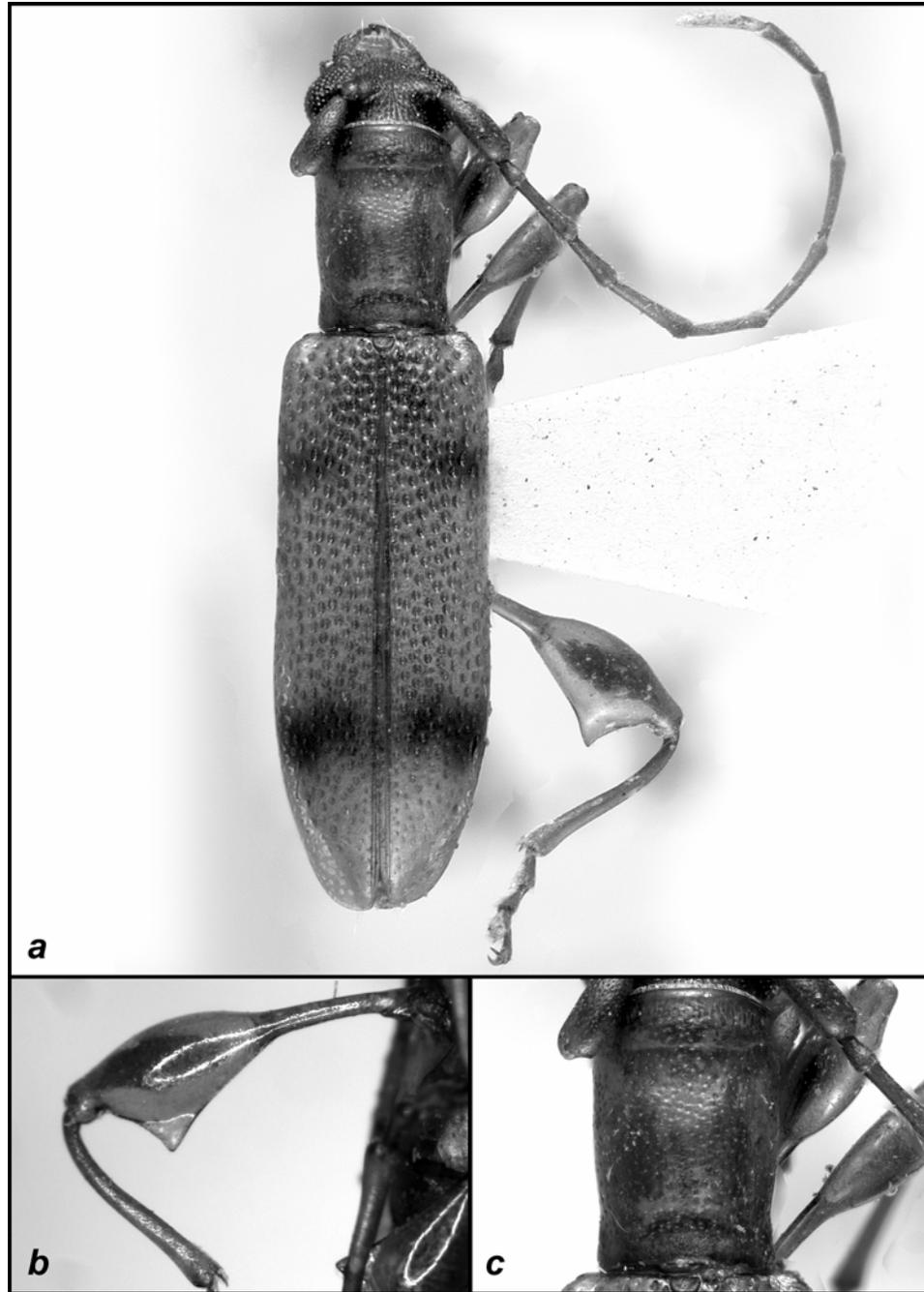


Figure 3-26. *Plectromerus unidentatus* Fisher, paratype, female. A) Dorsal habitus. B) Closeup of metafemur and metatibia, ventral view. C) Closeup of pronotum.

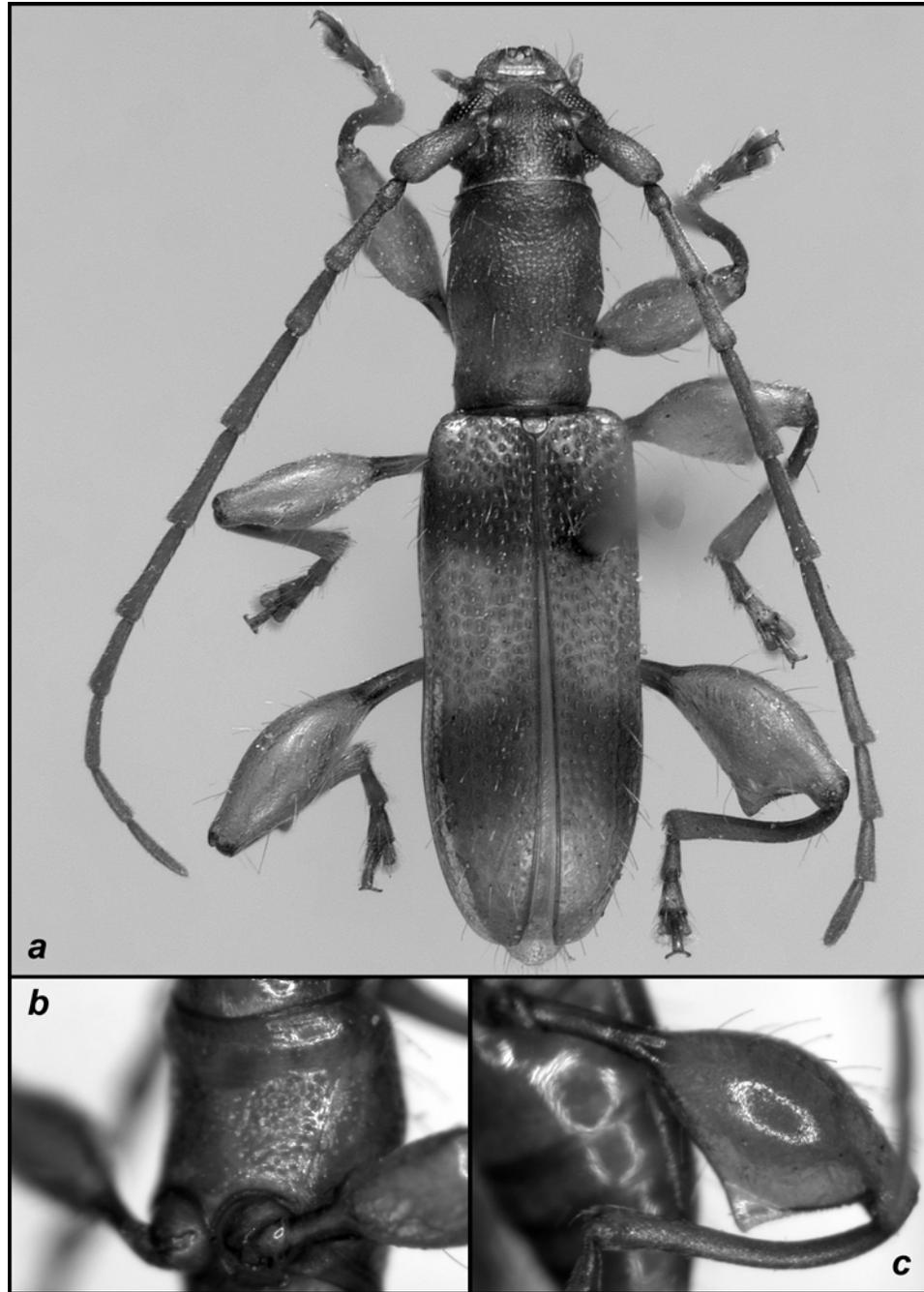


Figure 3-27. *Plectromerus wappesi* Giesbert, paratype, male. A) Dorsal habitus. B) Closeup of prosternum. C) Closeup of metafemur and metatibia, ventral view.

CHAPTER 4 PHYLOGENETIC ANALYSIS

Introduction

Phylogenetic analysis is a technique used to reconstruct the evolutionary history of organisms. The benefit over similar methods (such as phenetic approaches) is that a phylogenetic (cladistic) analysis groups taxa not only on similarity, but on shared derived traits (synapomorphies). Other methods define groups based on overall similarity (which may or may not be shared) and produce groupings which therefore might be artificial or not representative of common ancestry. One of the greatest strengths of phylogenetic reconstructions is that this type of analysis generates a pattern of similarity (hypothesized relatedness) by a simultaneous analysis of all characters included in the analysis. The most parsimonious solution is generated given all of the data rather than a select few characters that might be preferred by the investigator.

Although the family Cerambycidae (Coleoptera) has received significant taxonomic attention over the last century, very few phylogenetic analyses of have been conducted to date. Napp (1994) employed adult and larval morphological characters to test the phylogenetic relationships among subfamilies. The Oxypeltinae and Disteniidae were found to be distinct from Cerambycidae and two monophyletic subgroups were found within the Cerambycidae (Napp, 1994). Lingafelter (1998) conducted a generic-level phylogenetic analysis of the tribe Elaphidionini (Cerambycidae: Cerambycinae) employing morphological characters and implied weighting parsimony. The monophyly of the tribe Elaphidionini was weakly supported by three characters (Lingafelter, 1998).

Monné (2005) conducted a phylogenetic analysis on the genus *Coccoderus* (Cerambycidae: Cerambycinae: Torneutini) based on 31 morphological characters and 12 taxa and found that the monophyly of the genus was supported by five characters.

Monné & Napp (2005) conducted a generic-level cladistic analysis of the tribe Torneutini (Cerambycidae: Cerambycinae) based on 72 morphological characters and 31 ingroup taxa and found the tribe to be paraphyletic. The monophyly of the Curiini has not previously been tested.

Materials and Methods

Taxon Sampling

Approximately 800 specimens from various entomological collections were studied (Table 2-1). Observations of the specimens were made using a Nikon SMZ800 stereomicroscope with 20× eyepieces equipped with a drawing tube.

Ingroup Taxa

The ingroup consisted of 31 described species of Curiini, including two fossil species from Dominican amber (Lower Miocene), *P. tertiarius* Vitali and *P. grimaldii* Nearn & Branham (Table 4-1).

Outgroup Taxa

A total of five outgroup taxa were selected from tribes traditionally near Curiini in the subfamily Cerambycinae (Nixon & Carpenter, 1993): *Obrium maculatum* (Olivier) in the tribe Obriini was chosen as the root taxon; two species in the tribe Callidiopini, *Coscinedes gracilis* Bates and *Parommidion extricatum* Martins, and two species in the tribe Graciliini, *Hypexilis pallida* Horn, and *Perigracilia delicata* Knull (Table 4-1).

Specimen Preparation

Specimens were prepared for dissection by relaxing them in hot water for one hour. The aedeagus was extracted using a technique described by McDermott & Buck (1959). A #0 insect pin was modified to have a bent tip forming a tiny hook. The bent-tip pin was inserted into the abdominal opening and carefully retracted so that the hook caught the aedeagus, which is gently pulled from the abdomen. Using this technique, the aedeagus was extracted without damaging the exoskeleton. The extracted aedeagus was then prepared using a technique described by Lingafelter (1998) wherein it was placed in 10% KOH solution and heated for 30 minutes. This procedure removed tissues that would otherwise obscure the structures. It was observed that leaving the aedeagus in KOH solution longer than 30 minutes caused excessive clearing of the structures and distorted the setae at the tips of the parameres. The cleared aedeagus was placed in a watch glass containing 95% ethyl alcohol and the tegmen was separated from the median lobe using forceps and a camelhair brush under a Nikon SMZ800 stereo dissection microscope. A temporary slide was prepared to view the tegmen under a compound microscope. The tegmen was placed on a glass well-slide with the well filled with 95% ethyl alcohol and covered with a cover slip and positioned by carefully sliding the cover slip over the well, rotating the tegmen into the correct alignment. The temporary slide was viewed under a Nikon Eclipse E600 compound microscope with 2× Plan Apo bright field, 10× DIC Plan Apo, and 20× DIC Plan Apo compound objective's fitted with a drawing tube.

Character Sampling

A total of 41 morphological characters were coded (16 binary, 25 multi-state). Twelve characters (32 states) were coded from the head, including eyes and antennae; 10 characters (38 states) were coded from the prothorax; five characters (21 states) were coded from the elytra and scutellum; nine characters (25 states) were coded from the metafemora and metatibiae; four characters (11 states) was coded from the mesosternum; and one character (four states) was coded from male genitalic structures. All characters were run as non-additive and unweighted.

Characters Used in Analyses

The following is a description of the morphological characters used in the phylogenetic analysis. Morphological characters were coded from both males and females (as little sexual dimorphism is present) unless indicated otherwise. Character and character state numbers refer to data coded in the data matrix for each taxon (Table 4-1). Characters were coded using WinClada version 1.00.08 (Nixon, 1999) and saved in a .NEX file. Inapplicable data was coded as missing data (Strong & Lipscomb, 1999).

Character 1: Head with two or more long, suberect setae posterior to antennae: (0) absent, (1) present (Figure 4-2a). This character is present in all ingroup and outgroup taxa except the two fossil species (*P. grimaldii* and *P. tertarius*), in which the character could not be observed due to the position or condition of the specimen.

Character 2: Eye shape: (0) ovate (Figure 4-1a), (1) ovate-emarginate (Figure 4-1b), (2) subreniform (Figure 4-1c). State 2 is the general condition in *Plectromerus*.

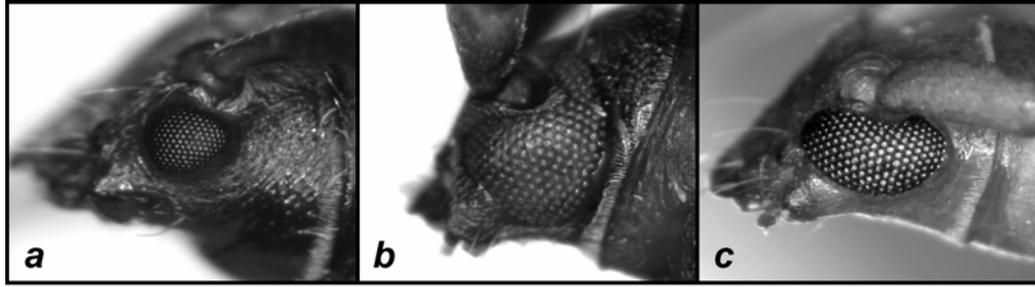


Figure 4-1. Character 2: eye shape. A) Ovate (*Plectromerus dominicanus* (= *Curiosa dominicana*)). B) Ovate-emarginate (*Coscinedes gracilis*). C) Subreniform (*Plectromerus fasciatus*).

Character 3: Number of antennomeres: (0) 10, (1) 11, (2) 12. Within Cerambycidae, the ancestral state for number of antennomeres is thought to be 11. With the exception of *P. dominicanus* (= *Curiosa dominicana*), which has 10 antennomeres, all presently known curiine species have 11 antennomeres.

Character 4: Longest antennomere(s): (0) scape, (1) third, (2) fifth, (3) eleventh, (4) third and fifth longest. *Plectromerus dominicanus* (= *Curiosa dominicana*) is unique among curiines for having the scape as the longest antennomere. In all other known species of *Plectromerus*, the fifth antennomere is the longest. In *Curius*, the third is longest (*C. dentatus*, *C. panamensis*, *C. punctatus*) or third is equal to fifth (*C. chemsaki*). This character has been used historically to separate *Curius* and *Plectromerus*.

Character 5: Scape with long, suberect or erect setae on dorsal surface: (0) absent, (1) present (Figure 4-2b).

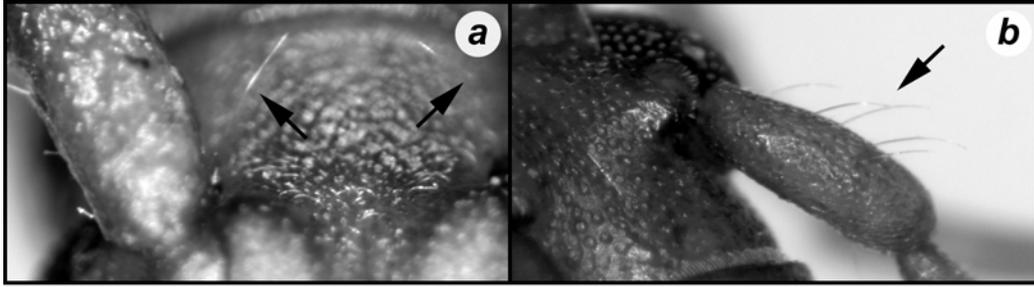


Figure 4-2. Characters 1 and 5 (arrows point to setae). A) character 1: head with two or more long, suberect setae posterior to antennae. B) Character 5: scape with long, suberect or erect setae on dorsal surface.

Character 6: Scape with excavation on dorsal surface: (0) absent (Figure 4-3a), (1) shallow (Figure 4-3b), (2) deep (Figure 4-3c). This character is present in only three species: *P. femoratus*, *Plectromerus* new species 4, and *Plectromerus* new species 8, all from the Greater Antilles.

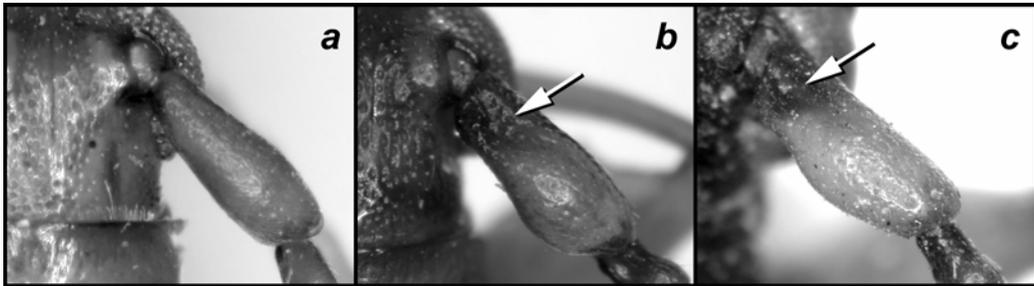


Figure 4-3. Character 6: scape with excavation on dorsal surface (arrow points to excavation). A) Absent (*Plectromerus acunai*). B) Shallow (*Plectromerus* new species 8). C) Deep (*Plectromerus femoratus*).

Character 7: Length of third antennomere compared to fourth: (0) about 1.3 times longer or less (Figure 4-4a), (1) about 1.5 times longer (Figure 4-4b), (2) about 1.7 times longer or more (Figure 4-4c).

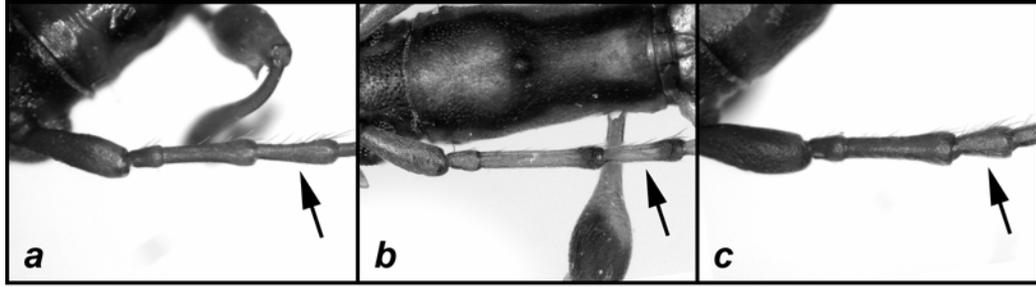


Figure 4-4. Character 7: length of third antennomere compared to fourth (arrow points to fourth antennomere). A) About 1.3 times longer or less (*Plectromerus* new species 5). B) About 1.5 times longer (*Plectromerus exis*). C) About 1.7 times longer or more (*Plectromerus* new species 1)

Character 8: Length of fifth antennomere compared to fourth: (0) about 1.3 times longer or less (Figure 4-5a), (1) about 1.5 times longer (Figure 4-5b), (2) about 1.7 times longer or more (Figure 4-5c). *Curius dentatus* and *C. punctatus* have the fifth antennomere equal to or only slightly longer than fourth. The fifth antennomere is about twice as long as fourth in *C. chemsaki* and *C. panamensis* and is a good character for separating those species from the other two species in the genus.

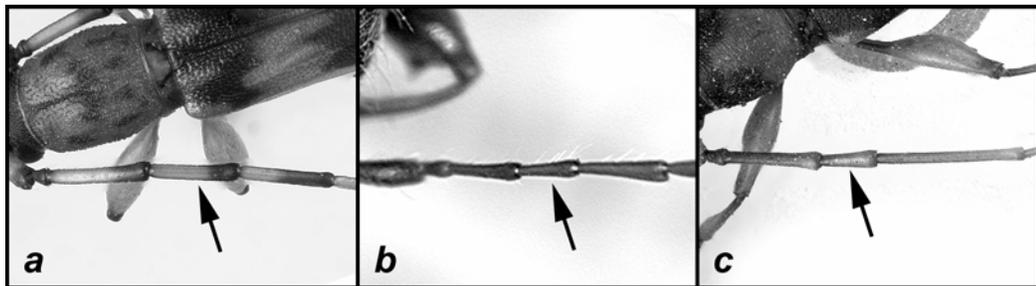


Figure 4-5. Character 8: length of fifth antennomere compared to fourth (arrow points to fourth antennomere). A) About 1.3 times longer or less (*Curius punctatus*). B) About 1.5 times longer (*Plectromerus dominicanus* (= *Curiosa dominicana*)). C) About 1.7 times longer or more (*Plectromerus femoratus*).

Character 9: Antennae annulate: (0) absent (Figure 4-6a), (1) present (Figure 4-6b). State 1 is the general condition in all *Curius* species but is also present in two *Plectromerus* species (*P. dentipes* and *P. exis*).

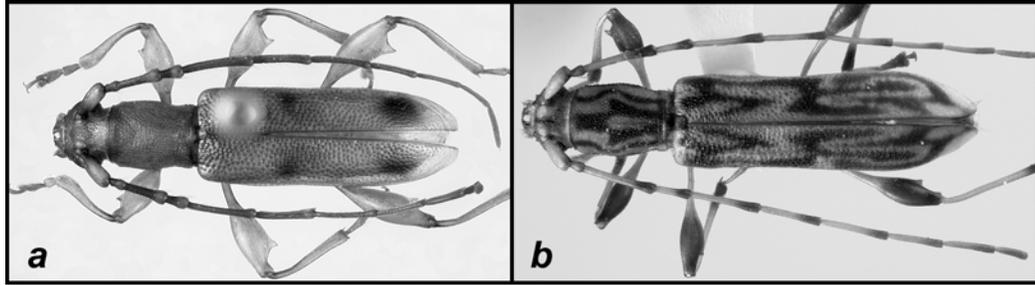


Figure 4-6. Character 9: antennae annulate. A) Absent (*Plectromerus* new species 8). B) Present (*Curius chemsaki*).

Character 10: Antennomeres 6-10 flattened: (0) absent, (1) present. State 0 is the general condition in *Curius*; state 1 is the general condition in *Plectromerus*.

Character 11: Antennomeres 6-10 produced externally at apices on outer margins: (0) absent (Figure 4-7a), (1) present (Figure 4-7b). State 0 is the general condition in *Curius*; state 1 is the general condition in *Plectromerus*.

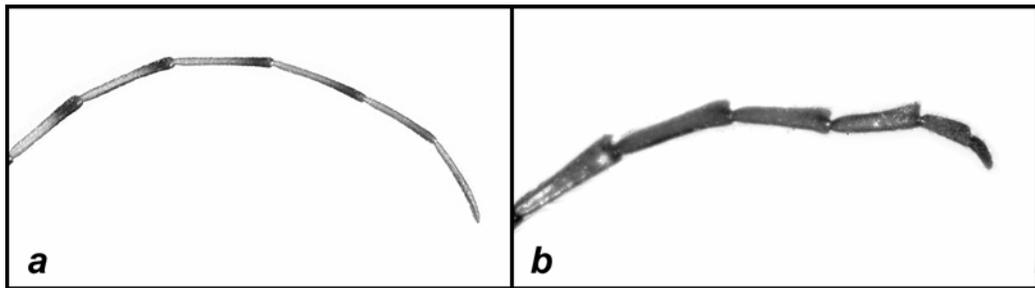


Figure 4-7. Character 11: antennomeres 6-10 produced externally at apices on outer margins. A) Absent (*Curius dentatus*). B) Present (*Plectromerus* new species 1).

Character 12: Antennae about 1.3 times longer than body or more: (0) absent, (1) present.

Character 13: Pronotum with long, suberect setae anterolaterally: (0) absent, (1) present (Figure 4-8a). State 1 is the general condition in all curiines.

Character 14: Pronotum, sub-medial, basal third of disk with 1-4 long, suberect setae arising from deep puncture: (0) absent, (1) present (Figure 4-8b). State 1 is the general condition in *Plectromerus*.

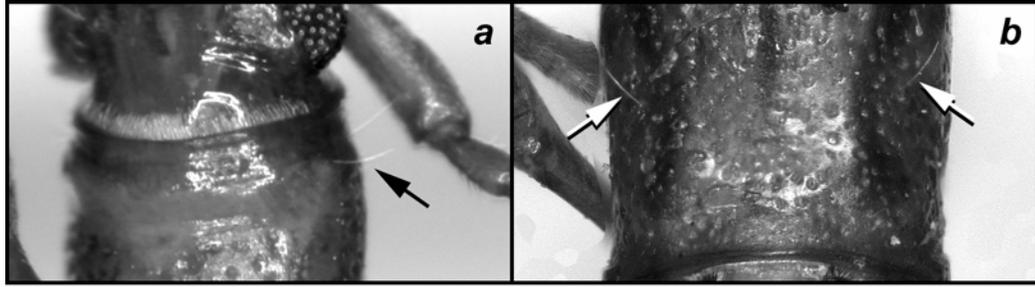


Figure 4-8. Characters 13 and 14 (arrows point to setae). A) Pronotum with long, suberect setae anterolaterally (*Plectromerus* new species 3). B) Pronotum, sub-medial, basal third of disk with 1-4 long, suberect setae arising from deep puncture (*Plectromerus acunai*).

Character 15: Pronotum, anterior portion of disk strongly shining (glossy): (0) absent, (1) present.

Character 16: Pronotum, dorsal surface: (0) microsculptured with very sparse, shallow punctation (Figure 4-9a), (1) granulose (Figure 4-9b), (2) punctate with glabrous areas (Figure 4-9c), (3) microsculptured with punctures interspersed (Figure 4-9d), (4) heavily, evenly punctate (Figure 4-9e). State 1 is the general condition in *Curius*.

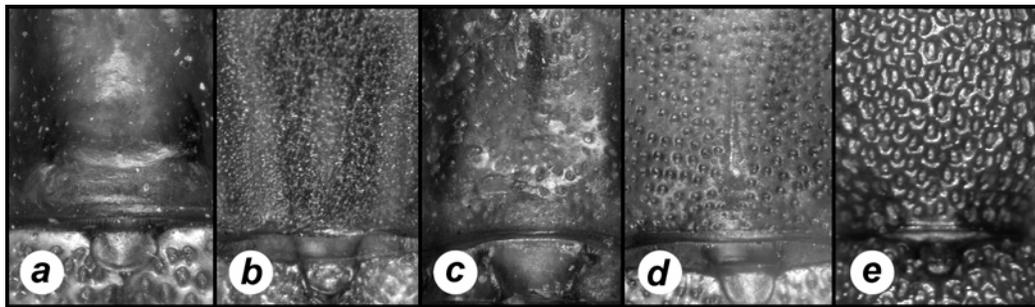


Figure 4-9. Character 16: pronotum, dorsal surface. A) Microsculptured with very sparse, shallow punctation (*Plectromerus* new species 5). B) Granulose (*Curius dentatus*). C) Punctate with glabrous areas (*Plectromerus acunai*). D) Microsculptured with punctures interspersed (*Plectromerus* new species 8). E) Heavily, evenly punctate (*Coscinedes gracilis*).

Character 17: Pronotum, dorsal surface setae: (0) very short, recumbent setae (no long, suberect setae), (1) very short, recumbent setae with few long, suberect setae, (2) very short, recumbent setae with dense long, suberect setae, (3) short, recumbent setae (no long, suberect setae), (4) short, recumbent setae with sparse long, suberect setae, (5)

short, recumbent setae mixed with dense, long, suberect setae, (6) dense, long suberect setae.

Character 18: Pronotum ornamented with distinct “inverted Y” marking: (0) absent (Figure 4-10a), (1) present (Figure 4-10b). The presence of this character is a synapomorphy of *Curius* and is not present in any known *Plectromerus* species.

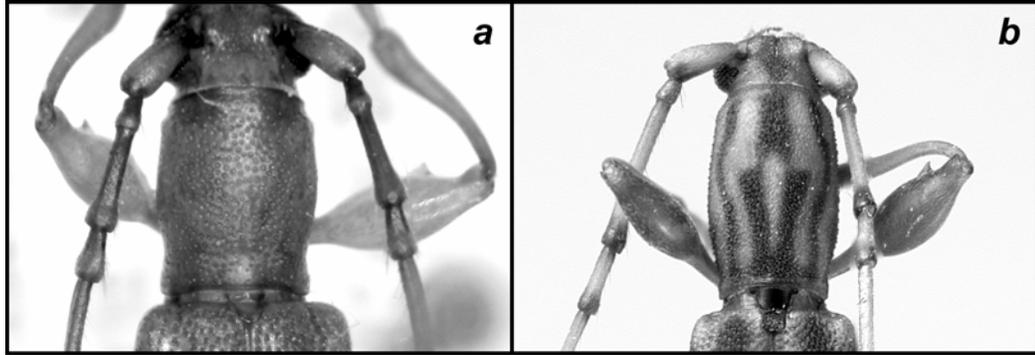


Figure 4-10. Character 18: pronotum ornamented with distinct “inverted Y” marking. A) Absent (*Plectromerus* new species 8). B) Present (*Curius chemsaki*).

Character 19: Pronotal sides: (0) nearly parallel, slightly inflated (widest) at middle (Figure 4-11a), (1) widest area distinctly behind middle (Figure 4-11b), (2) evenly rounded, nearly cylindrical (Figure 4-11c), (3) sides tuberculate or protuberate (Figure 4-11d), (4) globose, sides broadly rounded (Figure 4-11e). State 2 is the general condition in *Curius*; state 0 is the general condition in *Plectromerus*.

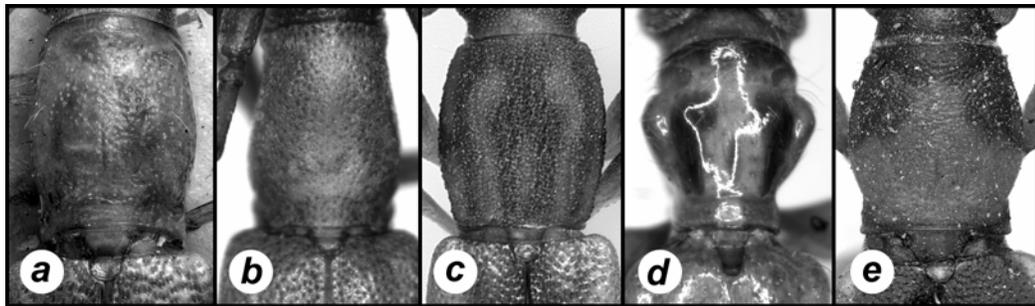


Figure 4-11. Character 19: pronotal sides. A) Nearly parallel, slightly inflated (widest) at middle (*Plectromerus fasciatus*). B) Widest area distinctly behind middle (*Hypexilis pallida*). C) Evenly rounded, nearly cylindrical (*Curius dentatus*). D) Sides tuberculate or protuberate (*Obrium maculatum*). E) Globose, sides broadly rounded (*Plectromerus femoratus*).

Character 20: Pronotal constriction: (0) somewhat evenly constricted at apex and base (Figure 4-12a), (1) slightly more constricted at base than apex (Figure 4-12b), (2) slightly more constricted at apex than base (Figure 4-12c), (3) very strongly constricted at base (Figure 4-12d). State 0 is the general condition in *Curius*; state 1 is the general condition in *Plectromerus*.

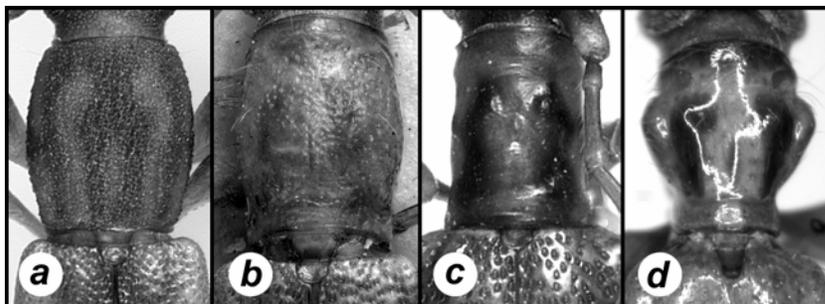


Figure 4-12. Character 20: pronotal constriction. A) Somewhat evenly constricted at apex and base (*Curius dentatus*). B) Slightly more constricted at base than apex (*Plectromerus fasciatus*). C) Slightly more constricted at apex than base (*Plectromerus* new species 5). D) Very strongly constricted at base (*Obrium maculatum*).

Character 21: Pronotal disk with callus: (0) absent (Figure 4-13a), (1) median callus, slightly raised or absent calli, two anterior and two posterior (Figure 4-13b), (2) five moderately raised calli, one in center, two anterior and two posterior (Figure 4-13c). State 0 is the general condition in *Curius*.



Figure 4-13. Character 21: pronotal disk with scar or callus. A) Absent (*Curius panamensis*). B) Median scar, slightly raised or absent calli, two anterior and two posterior (*Plectromerus serratus*). C) Five moderately raised calli, one in center, two anterior and two posterior (*Plectromerus* new species 4).

Character 22: Males with sexually dimorphic prothoracic punctation: (0) absent (Figure 4-14a), (1) one large patch of coarse punctures in front of procoxae; one patch of coarse punctures on each pronotal lateral margin (Figure 4-14b), (2) two distinct patches of coarse punctures in front of procoxae; one patch of coarse punctures on each pronotal lateral margin (Figure 4-14c), (3) pronotum and prosternum with rounded, elevated tubercles with circular median impressions (Figure 4-14d) (4) two distinct patches of coarse punctures in front of procoxae; lateral margins of pronotum without patch of coarse punctures (Figure 4-14e), (5) prosternum without patches of coarse punctures in front of procoxae; lateral margins of pronotum with patch of coarse punctures (Figure 4-14f). The presence of sexually dimorphic, prothoracic punctation in male cerambycines has been noted by several workers. State 3 is the general condition for *Curius*.

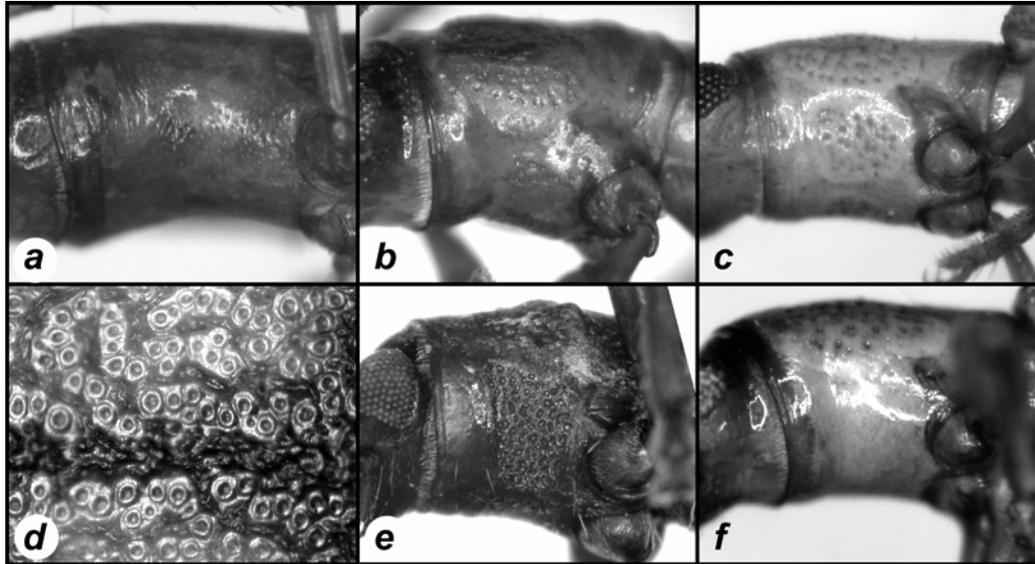


Figure 4-14. Character 22: males with sexually dimorphic prothoracic punctation. A) Absent (*Plectromerus exis*). B) One large patch of coarse punctures in front of procoxae; one patch of coarse punctures on each pronotal lateral margin (*Plectromerus* new species 1). C) Two distinct patches of coarse punctures in front of procoxae; one patch of coarse punctures on each pronotal lateral margin (*Plectromerus pinicola*). D) Pronotum and prosternum with donut-shaped punctures (*Curius punctatus*). E) Two distinct patches of coarse punctures in front of procoxae; lateral margins of pronotum without patch of coarse punctures (*Parommidion extricatum*). F) Lateral margins of pronotum with patch of coarse punctures; prosternum without patches of coarse punctures (*Plectromerus pumilus*).

Character 23: Scutellum surface granulose: (0) absent, (1) present. This character is present in two species of *Curius* (*C. chemsaki* and *C. panamensis*).

Character 24: Scutellum with dense setae: (0) absent, (1) present.

Character 25: Elytral disk concave medially, subsuturally: (0) absent, (1) very shallow, no costae present, (2) shallow to moderately deep, costae present.

Character 26: Elytral apices: (0) broadly rounded (Figure 4-15a), (1) narrowly rounded (very slightly constricted or pointed) (Figure 4-15b), (2) subtruncate / rounded (Figure 4-15c), (3) strongly truncate, straight across (Figure 4-15d), (4) strongly truncate, concave across (Figure 4-15e), (4) outer margins with large, acute spine (Figure 4-15f), (5) inner margins forming a blunt, curved point (Figure 4-15g).

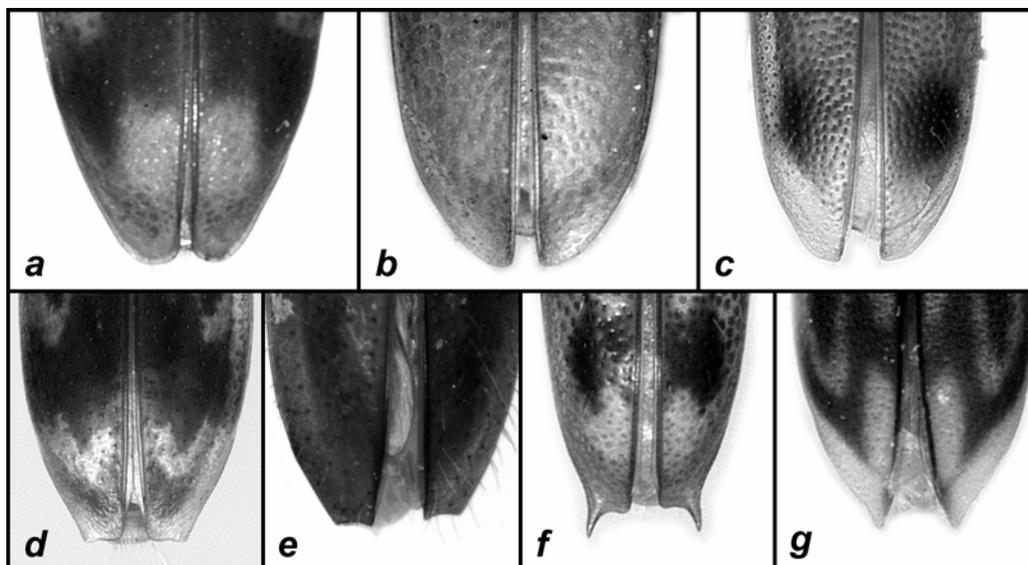


Figure 4-15. Character 26: elytral apices. A) Broadly rounded (*Plectromerus* new species 1). B) Narrowly rounded (very slightly constricted or pointed) (*Plectromerus serratus*). C) Subtruncate / rounded (*Plectromerus* new species 8). D) Strongly truncate, straight across (*Plectromerus dentipes*). E) Strongly truncate, concave across (*Parommidion extricatum*). F) Outer margins with large, acute spine (*Plectromerus bidentatus*). G) Inner margins forming a blunt, curved point (*Curius chemsaki*).

Character 27: Elytral setae: (0) very short, recumbent setae arising from punctures, (1) very short, recumbent setae arising from punctures with very sparse, long, suberect setae only at apical third, (2) very short, recumbent setae arising from punctures with sparse, long, suberect setae, (3) very short, recumbent setae arising from punctures with dense, long, suberect setae, (4) dense, short, recumbent setae arising from punctures, (5) dense, med. length suberect setae mixed with dense long setae, (6) dense, long suberect setae.

Character 28: Prosternal process between procoxae: (0) very thin, about 0.1 times width of procoxal cavity (Figure 4-16a), (1) medium, about 0.2 times width of procoxal cavity (Figure 4-16b), (2) wide, about 0.3 times width of procoxal cavity (Figure 4-16c).



Figure 4-16. Character 28: prosternal process between procoxae. A) (0) very thin, about 0.1 times width of procoxal cavity (*Obrium maculatum*). B) Medium, about 0.2 times width of procoxal cavity (*Plectromerus fasciatus*). C) Wide, about 0.3 times width of procoxal cavity (*Curius punctatus*).

Character 29: Procoxal cavities open behind: (0) absent (Figure 4-17a), (1) narrowly open, nearly closed (Figure 4-17b), (2) widely open (Figure 4-17c). State 2 is the general condition in the curiines.

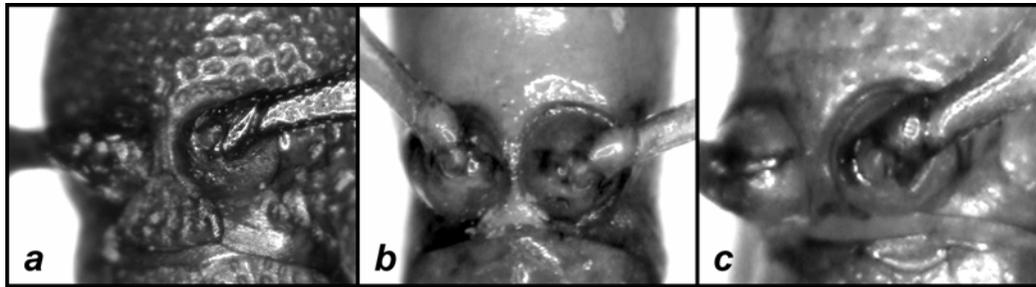


Figure 4-17. Character 29: procoxal cavities open behind. A) Absent (*Coscinedes gracilis*). B) Narrowly open, nearly closed (*Plectromerus* new species 7). C) Widely open (*Plectromerus* new species 8).

Character 30: Prosternal process between procoxae: (0) nearly flat, not declivous (Figure 4-18a), (1) gradually declivous (Figure 4-18b), (2) abruptly declivous (Figure 4-18c). State 0 is the general condition in *Curius*; state 1 is the general condition in *Plectromerus*.

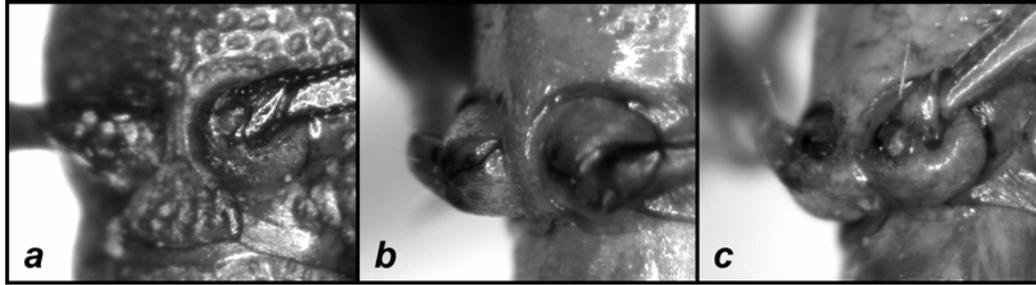


Figure 4-18. Character 30: prosternal process between procoxae. A) Nearly flat, not declivous (*Coscinedes gracilis*). B) Gradually declivous (*Plectromerus dentipes*). C) Abruptly declivous (*Plectromerus bidentatus*).

Character 31: Mesosternal process shape as in Figure 4-19: (0) absent, (1) present (Figure 4-19). The presence of this character is a synapomorphy for the tribe.

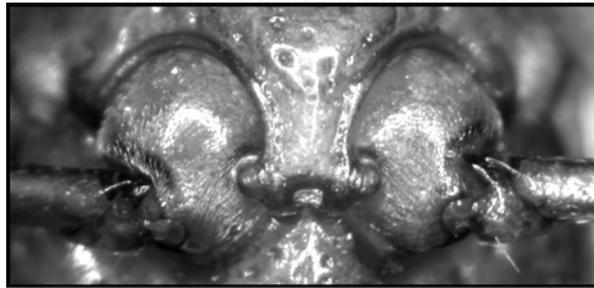


Figure 4-19. Character 31: mesosternal process shape (*Plectromerus* new species 8).

Character 32: Metafemoral armature: (0) no tooth present (Figure 4-20a), (1) with one sharp tooth (Figure 4-20b), (2) with two sharp teeth (Figure 4-20c). State 1 is the general condition for the tribe.



Figure 4-20. Character 32: metafemoral armature. A) No tooth present (*Parommidion extricatum*). B) With one sharp tooth (*Plectromerus dentipes*). C) With two sharp teeth (*Plectromerus bidentatus*).

Character 33: If metafemora armed with one sharp tooth, then tooth with serrations on posterior margin: (0) absent (no serration peaks) (Figure 4-21a), (1) feebly

serrate (very small, indistinct peaks) (Figure 4-21b), (2) moderately serrate (moderate sized) (Figure 4-21c), (3) strongly serrate (deep, distinct peaks) (Figure 4-21d).

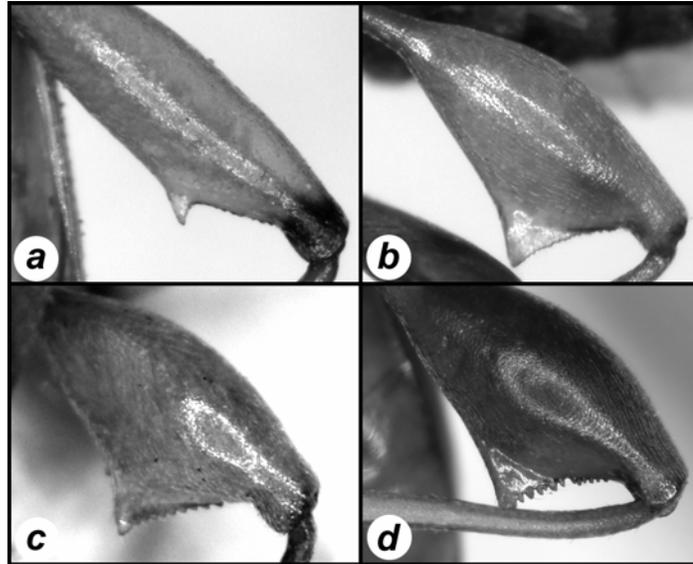


Figure 4-21. Character 33: if metafemora armed with one sharp tooth, then tooth with serrations on posterior margin. A) Absent (no peaks, edge is smooth) (*Curius punctatus*). B) Feebly serrate (very small, indistinct peaks) (*Plectromerus* new species 6). C) Moderately serrate (moderate sized) (*Plectromerus distinctus*). D) Strongly serrate (deep, distinct peaks) (*Plectromerus* new species 1).

Character 34: Metafemora with long, erect setae: (0) absent, (1) present (Figure 4-22a).

Character 35: Metafemora: distal portion distinctly darker than basal: (0) absent, (1) present (Figure 4-22b). State 1 is the general condition in *Curius*.

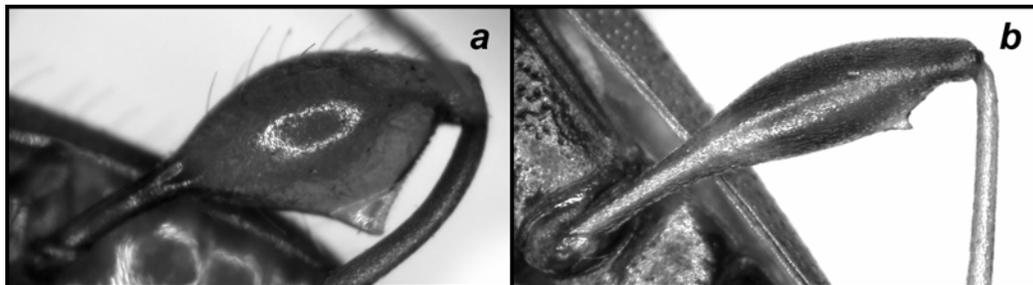


Figure 4-22. Characters 34 and 35. A) Metafemora with long, erect setae (*Plectromerus wappesi*). B) Metafemora: distal portion distinctly darker than basal (*Curius dentatus*).

Character 36: Basal (non-clavate) portion of metafemora compared to metafemoral club: (0) distinctly longer (Figure 4-23a), (1) about equal (Figure 4-23b), (2) distinctly shorter (Figure 4-23c). State 1 is the general condition in *Plectromerus*.

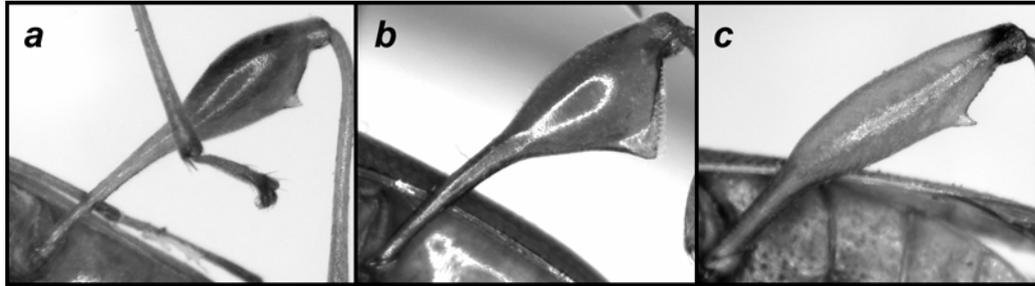


Figure 4-23. Character 36: basal (non-clavate) portion of metafemora compared to metafemoral club. A) Distinctly longer (*Plectromerus exis*). B) About equal (*Plectromerus serratus*). C) Distinctly shorter (*Plectromerus femoratus*).

Character 37: Metafemoral shape: (0) gradually enlarged from base, not pedunculate-clavate (Figure 4-24a), (1) pedunculate clavate (Figure 4-24b). State 0 is the general condition in *Curius*.

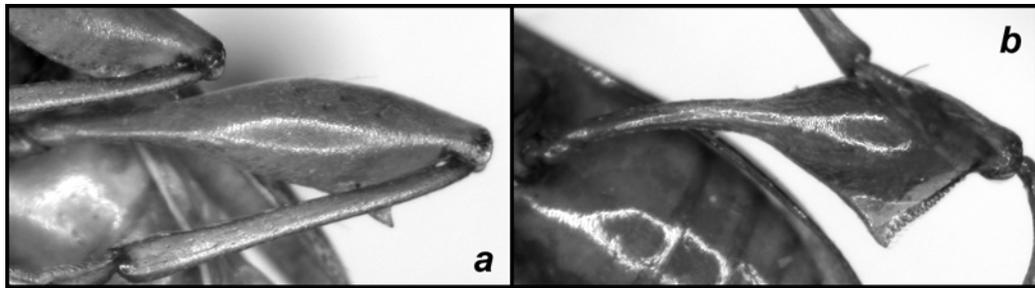


Figure 4-24. Character 37: metafemoral shape. A) Gradually enlarged from base (*Plectromerus fasciatus*). B) Pedunculate clavate (*Plectromerus* new species 7).

Character 38: Metatibial shape: (0) nearly straight (Figure 4-25a), (1) moderately sinuate (Figure 4-25b), (2) strongly sinuate (Figure 4-25c), (3) squared, nearly straight. State 3 is present only in outgroup taxa.

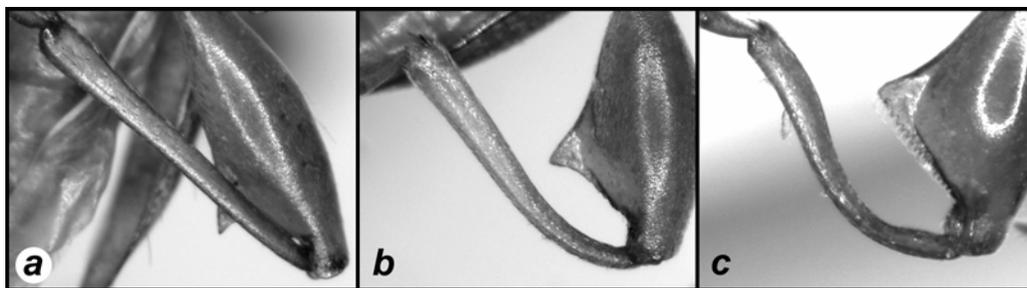


Figure 4-25. Character 38: metatibial shape. A) Nearly straight (*Plectromerus pinicola*). B) Moderately sinuate (*Plectromerus* new species 4). C) Strongly sinuate (*Plectromerus* new species 7).

Character 39: Length of metatibia in relation to metafemur: (0) about equal length (Figure 4-26a), (1) slightly shorter, about 0.7 times length (Figure 4-26b), (2) distinctly shorter, about 0.5 times length (Figure 4-26c).



Figure 4-26. Character 39: length of metatibia in relation to metafemur. A) About equal length (*Plectromerus dominicanus* (= *Curiosa dominicana*)). B) Slightly shorter, about 0.7 times length (*Plectromerus* new species 5). C) Distinctly shorter, about 0.5 times length (*Plectromerus* new species 4).

Character 40: Metatarsi with first tarsomere about twice as long as second: (0) absent (Figure 4-27a), (1) present (Figure 4-27b). The presence of this character is a synapomorphy of *Curius*.



Figure 4-27. Character 40: metalegs with first tarsomere at least twice as long as second. A) Absent (*Plectromerus dentatus*). B) Present (*Curius panamensis*).

Character 41: Male genitalia: (0) parameres with more than three short setae projecting from tips of lateral lobes (Figure 4-28a), (1) parameres with two long setae projecting from tips of lateral lobes (Figure 4-28b), (2) parameres with more than three long setae projecting from tips of lateral lobes, (3) parameres with three short setae projecting from tips of lateral lobes. Several authors have employed characters of the parameres (Entwistle, 1963; Fragoso, 1978; Franceschini, 2002; Komiya & Nylander, 2005; Lingafelter, 1998; Marques & Napp, 2003; Mermudes & Napp, 2004; Micheli & Nearn, 2005; Monné, 2005; Monné & Napp, 2005; Veiga-Ferreira, 1964). The morphological characters present in the parameres of male Curiini were not found to be useful for species identification however, the number and length of setae at the tips of the parameres were useful as a generic-level character. No male specimens were available for dissection for *P. acunai*, *P. dominicanus* (= *Curiosa dominicana*), *P. femoratus*, *Plectromerus* new species 2, *P. grimaldii*, *Plectromerus* new species 3, *Plectromerus* new species 4, *Plectromerus* new species 5, *Plectromerus* new species 6, *P. serratus*, *P. tertarius*, *P. unidentatus*.

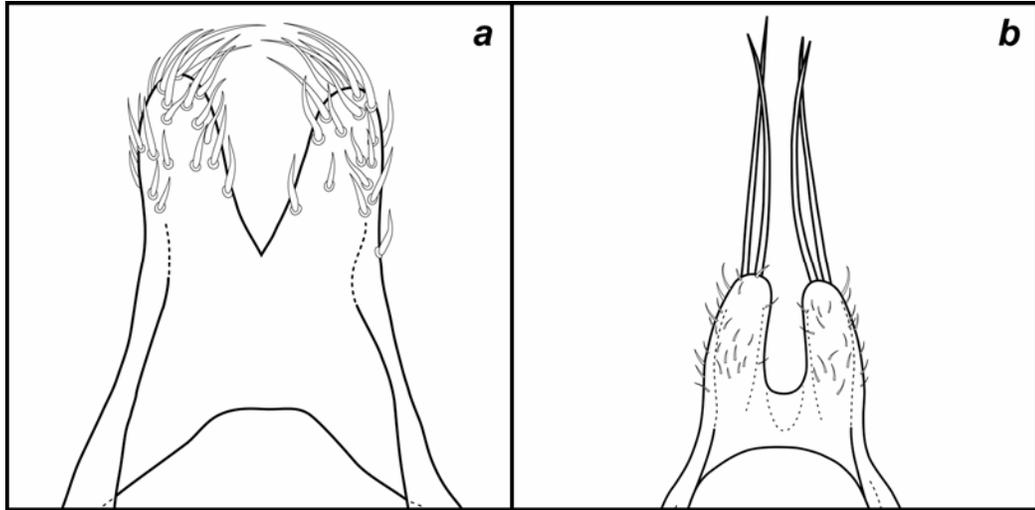


Figure 4-28. Character 41: male genitalia. A) Parameres with several short setae projecting from tips of lateral lobes (*Curius dentatus*). B) Parameres with two long setae projecting from tips of lateral lobes (*Plectromerus dentatus*).

Phylogenetic Methods

Phylogenetic analyses were performed using parsimony as the optimality criterion implemented in TNT 1.0 (Goloboff, Farris & Nixon, 2003) using “New Technology Tree Search” (rather than heuristic search) with the following options selected: Sectorial Search, Ratchet, Drift, and Tree Fusing (Goloboff, 2002). Consistency Index (CI) and Retention Index (RI) were computed in WinClada. Analyses were run on a Dell Latitude D810, Intel Pentium M processor 1.73GHz with 512 MB RAM, running Windows XP Professional operating system. Bremer support and bootstrap values were computed in PAUP* 4.0b10 (Swofford, 2001) via batch files created using TreeRot.v2c (Sorenson, 1999) on a 700MHz G4 iMac running Mac OS X with 1 GB RAM. Bremer support values were computed based on the strict consensus tree of four most parsimonious trees, using five random additions, 20 replicates, and 1,000 trees held per replicate. Bootstrap support values were computed by resampling all characters, with 1,000 replicates and 1,000 maximum trees per replicate.

Results

Phylogenetic analyses of 36 taxa and 41 morphological characters produced four most parsimonious trees of length 205. Of 41 morphological characters, 39 were parsimony informative. The strict consensus of the four most parsimonious trees ($L = 207$ steps, $CI = 43$, $RI = 61$) suggests that the genus *Curius* is a monophyletic group and is defined by seven synapomorphies (Figure 4-29). The genus *Plectromerus* is supported by six synapomorphies and is paraphyletic with the monotypic genus *Curiosa* falling out within the *Plectromerus* clade. The tribe Curiini is paraphyletic due to four outgroup taxa (*Coscinedes gracilis*, *Hypexilis pallida*, *Parommidion extricatum*, and *Perigracilia delicata*) being placed between the *Curius* and *Plectromerus* clades (Figure 4-29). Bremer support values of branch support ranged from 0 to 5, and four nodes were supported by bootstrap values of greater than 70% (Figure 4-30).

Discussion

Phylogenetic analyses produced a well resolved strict consensus tree (Figure 4-29). A strict consensus tree was computed from these four trees as it contains all the nodes present in all four most parsimonious trees. This method is superior to simply selecting one of the most parsimonious trees and ignoring the rest. CI and RI are both low (43 and 61, respectively), indicating high levels of homoplasy among the characters coded. Bootstrap support values greater than 70% were reported for the *Curius* clade, the node containing *C. chemsaki* and *C. panamensis* (within the *Curius* clade), the node containing the two outgroup taxa from the tribe Graciliini (*Hypexilis pallida* and *Perigracilia delicata*), and the *Plectromerus* clade (Figure 4-30). The *Plectromerus* clade also has a Bremer support value of 4, which indicates this clade is strongly supported by the characters included in this analysis.

Results suggest that the tribe Curiini is not a monophyletic group. Four outgroup taxa in the closely related tribes Callidiopini and Graciliini are placed within Curiini, between *Curius* and *Plectromerus* (Figure 4-29). However, traditional ideas of generic designations for *Curius* and *Plectromerus* were supported (see the discussion section on the genus *Plectromerus* in Chapter 3). The synonymy of the genus *Pentomacrus* with *Plectromerus* is also supported. Interestingly, the monotypic genus *Curiosa* appears to be a highly derived *Plectromerus* species (Figure 4-29). While no known males of this species have been collected and only three specimens are known, it is felt that synonymizing *Curiosa* with *Plectromerus* is justified based on the amount of data that places it within *Plectromerus*. It is curious that *Curiosa* has been traditionally treated as a monotypic species, when in fact this analysis, which is the first empirical study of this group, suggests it is a highly derived *Plectromerus* on a comparatively long branch of 10 characters. This long branch is evidence that this species underwent significant evolution in comparison to other *Plectromerus* species. This may be due to the hypothesis that this species has shifted from a nocturnal habit (a condition of all other *Curius* and *Plectromerus* species) to a diurnal habit (see discussion of this species in Chapter 3).

The two fossil taxa included in this analysis both fall out within the *Plectromerus* clade, however, *P. tertiarius* (along with *P. femoratus*) appears as the most basal taxon and *P. grimaldii* as a more derived species. These findings should be viewed in light of the fact that many important characters for *P. tertiarius* could not be scored due to the condition of the fossil and the missing or inapplicable data which may have had an effect on the placement of this taxon (Strong & Lipscomb, 1999).

Table 4-1. Data matrix of 36 taxa and 41 morphological characters.

Taxa	Characters				
	1	10	20	30	40
<i>Obrium maculatum</i>	111210001	0001112603	3000010600	000-112030	10
<i>Coscinedes gracilis</i>	111300000	1100004004	10?0013020	000-002131	03
<i>Hypexilis pallida</i>	111300010	1010003301	20?0001412	100-002030	10
<i>Perigracilia delicata</i>	112300010	0010001001	2000011002	100-002030	02
<i>Paromm. extricatum</i>	111300000	1101103103	0040114212	110-101030	12
<i>Curiosa dominicana</i>	100010110	1101103500	10?0100521	1110111100	0?
<i>Curius chemsaki</i>	121100221	1011001012	0031016012	0111010211	10
<i>Curius dentatus</i>	111100101	1001001012	0030010012	0111012000	10
<i>Curius panamensis</i>	111500221	1011001312	0031011412	0111011001	10
<i>Curius punctatus</i>	111100101	1001001012	0030021012	0110012002	10
<i>Plect. acunai</i>	121200220	1101112100	1120025012	1111011001	0?
<i>Plect. bidentatus</i>	121200220	1101112400	1120025212	212?011012	01
<i>Plect. dentipes</i>	121200221	1101112100	1120023012	1112011112	01
<i>Plect. distinctus</i>	121200120	1101113100	1120021312	1112001122	01
<i>Plect. exis</i>	111200121	1111003000	1100022012	1111010102	01
<i>Plect. fasciatus</i>	121210220	1101103200	1120013312	1111101000	01
<i>Plect. femoratus</i>	121202220	1011103004	1150010012	1111002100	0?
<i>Plect. grimaldii</i>	?21200220	11011?2?00	1??0012?12	1110001000	0?
<i>Plect. lingafelteri</i>	121200220	1101103400	1110020012	1111011111	01
<i>Plect. navassae</i>	121210120	1101103100	1120011212	1112102111	01
<i>Plect. ornatus</i>	121200120	1101103100	1120020012	1111002101	01
<i>Plect. pinicola</i>	121200120	1101112100	1120020012	1111002001	01
<i>Plect. pumilus</i>	121200120	1101112100	1150020012	1111001110	01
<i>Plect. ramosi</i>	121200220	1101102100	1120021012	1113001012	01
<i>Plect. serratus</i>	121200220	1101103100	1120021012	1113001122	0?
<i>Plect. tertiarius</i>	??12??220	110??????0	1?????0???	??1???????	??
<i>Plect. unidentatus</i>	121200120	1101113100	1120000012	1111001112	0?
<i>Plect. wappesi</i>	121210120	1101103200	1120022312	1112102122	01
<i>Plect. new species 1</i>	121200220	1101100100	1210020012	1113011121	01
<i>Plect. new species 2</i>	121200120	1101100400	11?0020012	1113001122	0?
<i>Plect. new species 3</i>	121200220	1101103400	1120020012	1113001122	0?
<i>Plect. new species 4</i>	121201220	1101103400	1210021012	1111011112	0?
<i>Plect. new species 5</i>	121200020	1101110100	22?0010012	1110011101	0?
<i>Plect. new species 6</i>	121200120	1101103100	11?0011312	1111001112	0?
<i>Plect. new species 7</i>	101210120	1101113200	1120020311	1113111122	01
<i>Plect. new species 8</i>	121201220	1101113100	1120012112	1111002000	01

Missing data is indicated by ?, inapplicable data indicated by -

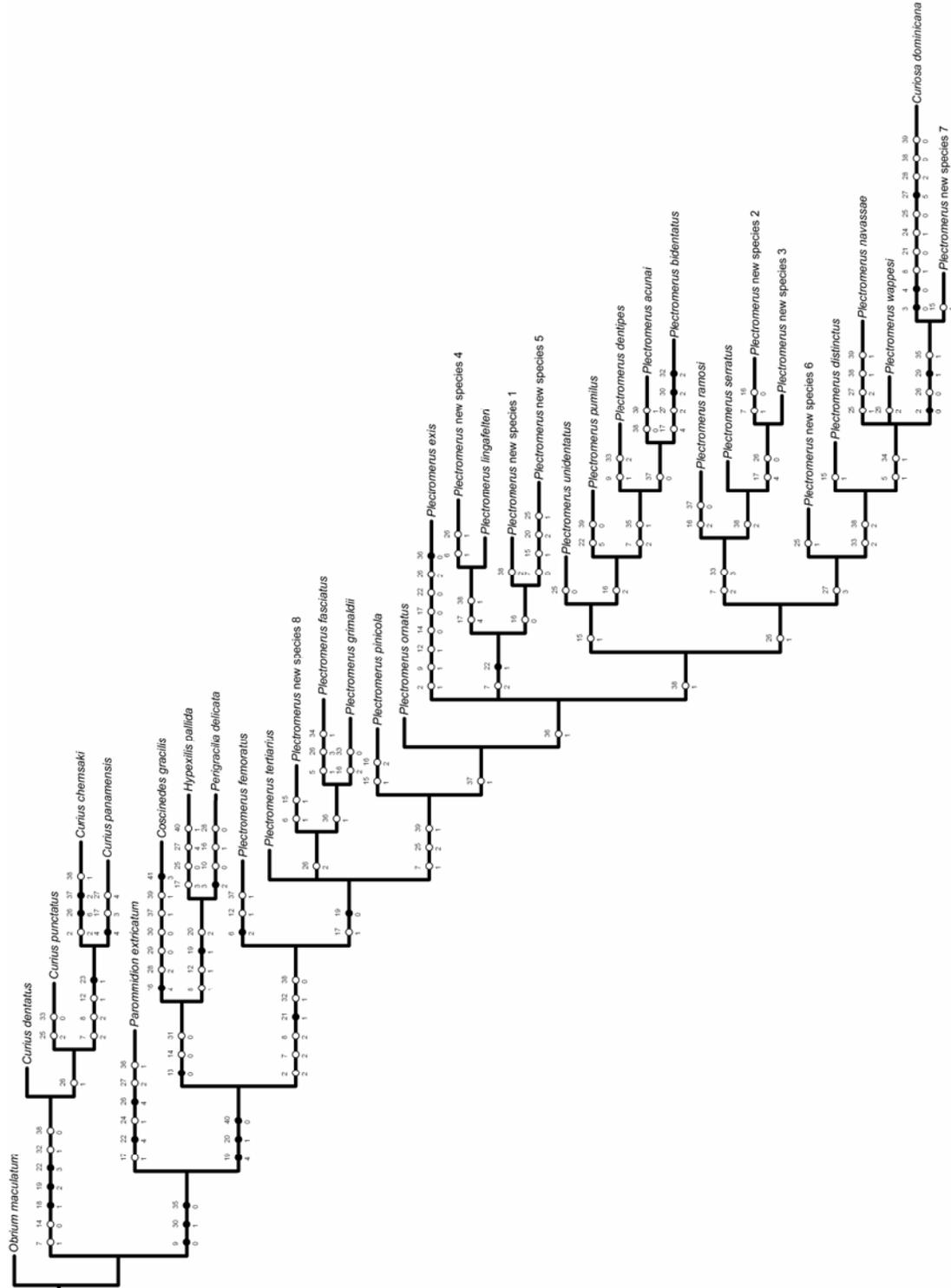


Figure 4-29. Strict consensus (L = 207 steps, CI = 43, RI = 61) of four most parsimonious trees with characters states mapped. Closed circles represent non-homoplasious character changes, open circles represent homoplasious character changes. Numbers above circles are character numbers, numbers below circles are character states.

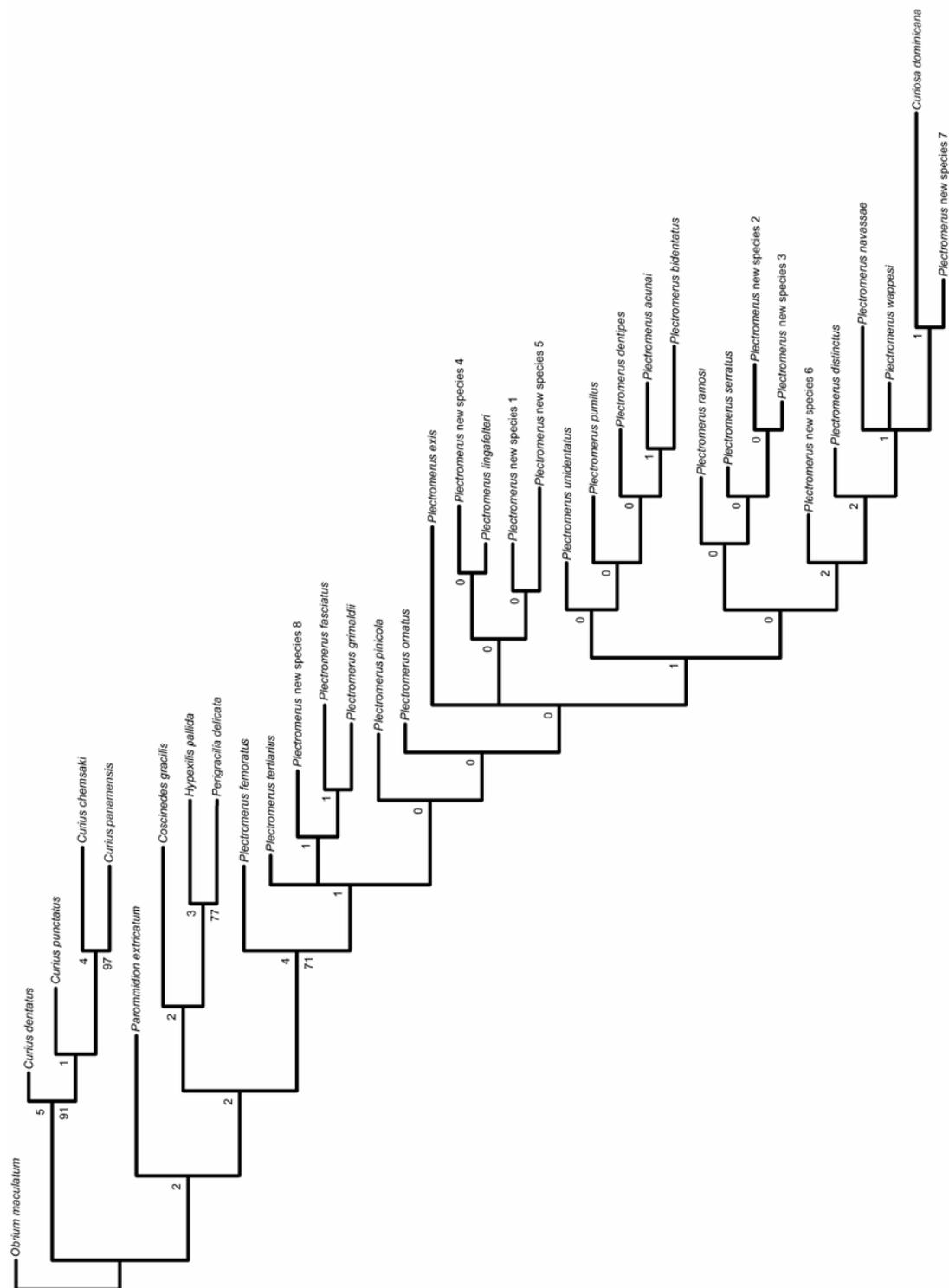


Figure 4-30. Strict consensus (L = 207 steps, CI = 43, RI = 61) of four most parsimonious trees. Bremer support values are reported above the branches, bootstrap support values (> 70%) are reported below the branches.

CHAPTER 5 BIOGEOGRAPHICAL ANALYSIS

Introduction

Historical biogeography is the study of the distribution of organisms resulting from long-term historical factors (Schuh, 2000). The geographic distribution of organisms is altered over space and time by three different processes: extinction, dispersal, and vicariance (allopatric speciation) (Crisci, 2001). From observed geographic distributions, hypotheses can be proposed to explain how the patterns were formed (Liebherr, 1988). Several different approaches to biogeography have been developed to explain patterns of distribution, including center of origin and dispersal, panbiogeography, and cladistic biogeography. The concept that organisms arise from a single point and disperse from a “center of origin” is no longer deemed valid as the center of origin cannot be accurately identified (Crisci, 2001; Schuh, 2000). Croizat’s panbiogeography attempted to develop a method of identifying geographic homologies through “track” analysis, however this method is no longer considered a rigorous method of biogeographic analysis (Humphries & Parenti, 1999). Hennig’s (1966) development of phylogenetic systematics (cladistics) provided workers with a rigorous method for determining relationships among taxa as well as geographic regions. In cladistic biogeography, phylogenetic relationships have the potential to elucidate historical distributions as well as the historical relationships among geographic areas occupied (Crisci et al., 2003; Humphries & Parenti, 1999; Liebherr, 1988).

The Caribbean has a long and exciting history of biogeographic study (Allen, 1911; Darlington, 1938; Hedges, 1996a; Hedges, 1996b; Hedges et al., 1992; Iturralde-Vinent & MacPhee, 1999; Rosen, 1975) with a focus on the large, mountainous islands of the Greater Antilles (Cuba, Hispaniola, Jamaica, and Puerto Rico). Work in the area has often reflected popular “notions” of the time. Early workers proposed land bridges to explain distributions of the Caribbean mammal fauna (Allen, 1911). Subsequent workers supported a passive dispersal model of Caribbean biogeography (Darlington, 1938; Hedges, 1996a; Hedges, 1996b). Recently, however, Iturralde-Vinent & MacPhee (1999) discussed two main models of faunal formation in the Greater Antilles: strict dispersal, strict continent-island vicariance, and proposed one that combines dispersal and vicariance in a two-phase process.

Rosen (1975) argued for a vicariance model of Caribbean biogeography which incorporated a geophysical model based on Malfait and Dinkelman’s plate-tectonic model of Caribbean evolution, in which the Caribbean was formed from an original East Pacific Plate intrusion into the western Atlantic. Rosen’s model predicts that the biota of the Greater Antilles is relatively older than that of the Costa Rican-Panamanian region (Rosen, 1975: 455). It also predicts that lower Central American taxa will be more closely related to mainland (North and South American) taxa than to those of the Antilles (Rosen, 1975: 455).

Hedges (1996a, 1996b) and Hedges et al. (1992) were critical of Rosen’s (1975) vicariance model and argued for a passive dispersal model (i.e., rafting) of Caribbean biogeography. In this model, water currents in the Caribbean generally move in a west, north-west direction, moving water and flotsam from the Amazon and Orinoco basins to

the Greater Antilles. Hedges predicts that it should be very difficult to colonize islands against the prevailing water currents (from Cuba to Puerto Rico, for example), but very easy to go with the current, for example from Hispaniola to Cuba.

Iturralde-Vinent & MacPhee (1999) were critical of Hedge's hypothesis of mostly over-water dispersal and proposed the GAARlandia (Greater Antilles + Aves Ridge) hypothesis which combines elements of both vicariance and dispersal (Iturralde-Vinent & MacPhee, 1999; MacPhee & Iturralde-Vinent, 1995). The GAARlandia hypothesis proposes that the developing northern Greater Antilles and northwestern South America were briefly connected by a "landspan." The uplift event that created these connections was completed by 32 MYO which ended the GAARlandia landspan phase. Subsequently, tectonic activity in the Caribbean has resulted in the subdivision of existing land areas (Iturralde-Vinent & MacPhee, 1999).

Materials and Methods

A phylogenetic analysis of *Curiini* was conducted (for a more detailed explanation of the phylogenetic analysis, see Chapter 4). The strict consensus tree of four most parsimonious trees (Figure 4-29) was used to create a taxon-area cladogram by mapping geographic areas of distribution for each ingroup taxon in the analysis (Figure 5-2).

Results

Results suggest that the more basal taxa within the *Curius* clade are distributed in North America (SE USA) and the Greater Antilles (Cuba) while the more derived taxa are endemic to Central America (Panama) and South America (Venezuela) (Figure 5-2). Within the *Plectromerus* clade, a similar pattern is observed in which the more basal species exhibit an Antillean distribution (Greater and Lesser Antilles) while the more derived taxa occur in North America (SE USA, SE Mexico), Central America (Costa

Rica, Guatemala, Honduras, Nicaragua, and Panama), as well as the Greater and Lesser Antilles (Figure 5-2).

Discussion

The Caribbean (Figure 5-1) is a complex geographic region and home to a diverse flora and fauna with a high rate of endemism among insects (Genaro & Tejuca, 2001; Liebherr, 1988; Monné & Hovore, 2005; Peck, 2005). For example, Swearingen (1999) estimated that as much as 30% of the invertebrate fauna on Navassa Island (Greater Antilles) is endemic, and Liebherr (1988) reports that as much as 40% of Antillean ant species are single-island endemics.

Like many vertebrate and invertebrate taxa in the Caribbean, the Curiini exhibit high levels of endemism (Table 5-1). The majority of curiines are found in the Greater Antilles, with 17 of 31 species (55%) occurring on the islands of Cuba and Hispaniola (Dominican Republic and Haiti). The highest level of diversity is on Hispaniola, with 11 *Plectromerus* species, 10 of which are endemic to the island. From the two described *Plectromerus* fossils in Dominican amber, dated from mid-Miocene, a minimum date of approximately 17-20 MYO is known for the presence of *Plectromerus* on Hispaniola. Cuba ranks second with seven species of curiines, including four endemic species. Two endemic species of *Plectromerus* occur on Jamaica. Navassa Island, situated between Jamaica and Haiti, has one endemic species as do the Cayman Islands. Only two species are presently known from the Lesser Antilles (Table 5-1).

Four curiine species are widely distributed: *C. dentatus* is known from SE USA and *P. dentipes* occurs in SE USA, Bahamas, and Cuba. *Plectromerus exis* is fairly widespread in the Greater Antilles (Cuba, Jamaica, and Hispaniola). *Plectromerus*

wappesi, originally described from SE Mexico, is the only species known to occur in both the Greater Antilles (Jamaica), and Central America (Honduras).

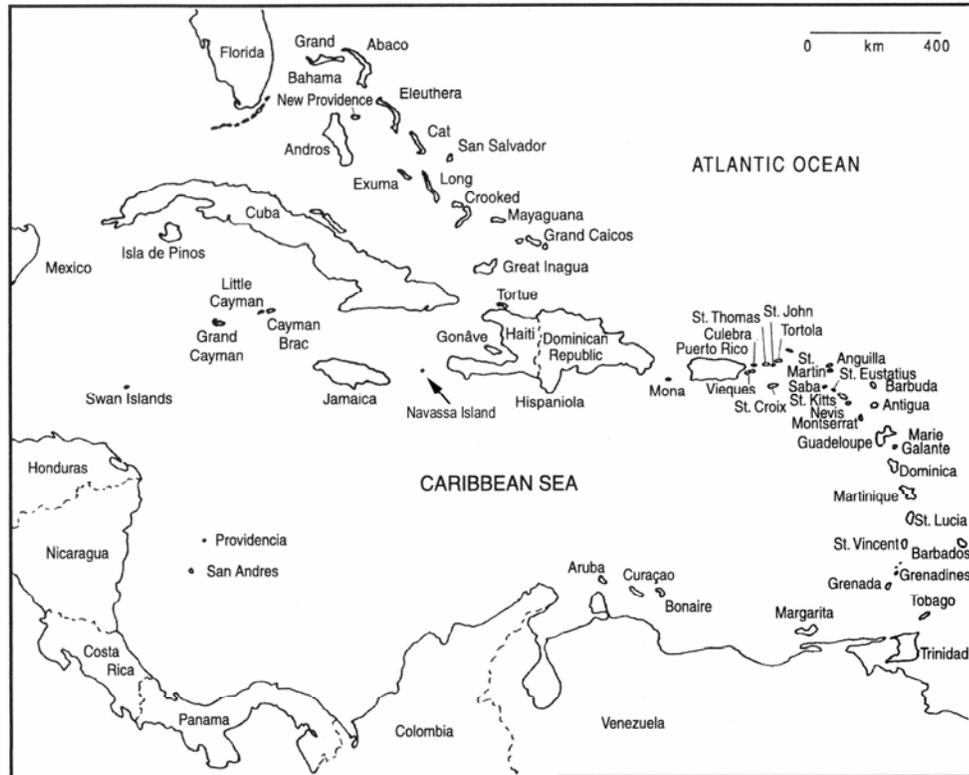


Figure 5-1. Map of the Caribbean.

Rosen's (1975) vicariance model of Caribbean biogeography predicts that the biota of the Greater Antilles is relatively older than that of the Costa Rican-Panamanian region and that the lower Central American taxa will be more closely related to mainland (North and South America) taxa than to those of the Antilles (Rosen, 1975: 455). Rosen's (1975) model adequately explains the results of a biogeographical analysis of *Curiini* which suggests that the more basal taxa within the *Plectromerus* clade exhibit an Antillean distribution while the more derived taxa occur in North America, Central America, as well as the Antilles (Figure 5-2).

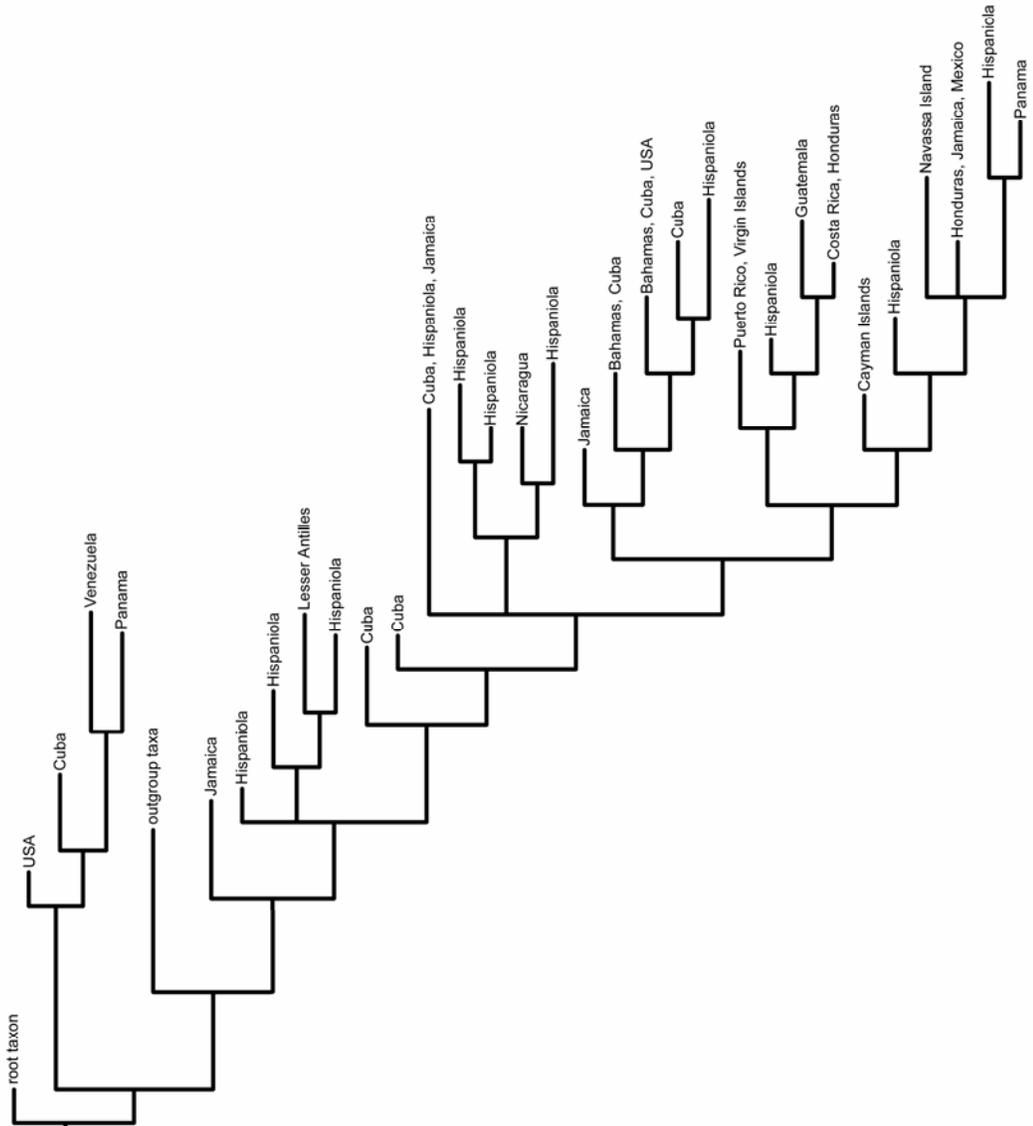


Figure 5-2. Area cladogram based on the strict consensus tree of four most parsimonious trees found in a phylogenetic analysis of *Curiini*.

Table 5-1. Biogeographic distribution of *Curiini*.

Taxon	Biogeographic Region																			
	SE USA	Bahamas	Mexico	Greater Antilles					Lesser Ant.			Cent. America								
				Cuba	Hispaniola	Jamaica	Navassa Island	Cayman Islands	Puerto Rico	Virgin Islands.	Montserrat	St. Vincent	Grenada	Guatemala	Honduras	Nicaragua	Costa Rica	Panama	Venezuela	
<i>C. dominicana</i>					+															
<i>C. chemsaki</i>																				+
<i>C. dentatus</i>	+																			
<i>C. punctatus</i>				+																
<i>C. panamensis</i>																		+		
<i>P. acunai</i>				+																
<i>P. bidentatus</i>					+															
<i>P. dentipes</i>	+	+		+																
<i>P. distinctus</i>					+															
<i>P. exis</i>				+	+	+														
<i>P. fasciatus</i>											+	+	+							
<i>P. femoratus</i>						+														
<i>P. grimaldii</i>					+															
<i>P. ornatus</i>				+																
<i>P. pinicola</i>				+																
<i>P. lingafelteri</i>					+															
<i>P. navassae</i>							+													
<i>P. pumilus</i>		+		+																
<i>P. ramosi</i>									+	+										
<i>P. serratus</i>					+															
<i>P. tertiarius</i>					+															
<i>P. unidentatus</i>						+														
<i>P. wappesi</i>			+			+									+					
<i>P. new species 1</i>																+				
<i>P. new species 2</i>														+						
<i>P. new species 3</i>															+		+			
<i>P. new species 4</i>					+															
<i>P. new species 5</i>					+															
<i>P. new species 6</i>								+												
<i>P. new species 7</i>																		+		
<i>P. new species 8</i>					+															
	2	2	1	7	11	4	1	1	1	1	1	1	1	1	2	1	1	2	1	

LIST OF REFERENCES

- Allen, G. (1911) Mammals of the West Indies. *Bulletin of the Museum of Comparative Zoology*, 54, 175-263.
- Arnett, R.H. (1973) The Beetles of the United States (A Manual for Identification). American Entomological Institute, Ann Arbor, MI. 1,112 pp.
- Arnett, R.H., Thomas, M.C., Skelley, P.E., & Frank, J.H. (editors). (2002) American Beetles. Polyphaga: Scarabaeoidea through Curculionoidea. Volume 2. CRC Press, New York. 880 pp.
- Aurivillius, C. (1912) Cerambycidae: Cerambycinae. In *Coleopterorum Catalogus*, Vol. XXII. Cerambycidae I. (Ed. S. Schenkling). Junk, Berlin. 574 pp.
- Bates, H.W. (1885) *Biologia Centrali-Americana*, Insecta; Coleoptera, suppl. to *Longicornia*, London, 5, 249-436, pls. 17-24.
- Blackwelder, R.E. (1944) Checklist of the Coleopterous Insects of Mexico, Central America, The West Indies, and South America. Part 1. Smithsonian Institution, USNM Bulletin 185, p. 572.
- Burne, R.V., Horsfield, W.T. & Robinson, E. (1974) The geology of Navassa Island. *Caribbean Journal of Science*, 14, 109-114.
- Cameron, M. (1910) Description of two new species of the longicorn genus *Pentomacrus*. *Entomologist's Monthly Magazine*, 46, 135-136.
- Casey, T.L. (1912) Studies in the Longicornia of North America. In: *Memoirs on the Coleoptera*, vol. 3. The New Era Printing Company, Lancaster, PA. 215-376 pp.
- Cazier, M.A. (1952) New West Indian Scarabaeidae and Cerambycidae (Coleoptera). *American Museum Novitates*, 566, 1-3.
- Cazier, M.A. & Lacey, L. (1952) The Cerambycidae of the Bahama Islands, British West Indies. *American Museum Novitates*, 1588, 1-55.
- Chalumeau, F. & Touroult, J. (2005a). Nouveaux longicornes de la Dominique et de la Martinique (Petites Antilles) et notes diverses (Coleoptera, Cerambycidae). *Lambillionia*, 105, 155-159.

- Chalumeau, F. & Touroult, J. (2005b) Les Longicornes des Petites Antilles (Coleoptera, Cerambycidae) Taxonomie, Ethologie, Biogeographie. Pensoft Publishers, Sofia, Bulgaria. 241 pp.
- Craighead, F.C. (1923) North American Cerambycid Larvae: A Classification and the Biology of North American Cerambycid Larvae. *Canada Department Agricultural Technical Bulletin*, no. 27.
- Crisci, J.V. (2001) The voice of historical biogeography. *Journal of Biogeography*, 28, 157-168.
- Crisci, J.V., Katinas, L., & Posadas, P. (2003) Historical Biogeography: An Introduction. Harvard University Press, Cambridge. 250 pp.
- Darlington, P.J. (1938) The origin of the fauna of the Greater Antilles, with discussion of dispersal of animals over water and through the air. *Quarterly Review of Biology*, 13, 274-300.
- Downie, N.M. & Arnett, R.H., Jr. (1996) The Beetles of Northeastern North America. The Sandhill Crane Press, Gainesville, Florida. 1,721 pp.
- Dusham, E.H. (1921) The painted hickory borer. *Cornell University Agricultural Experiment Station Bulletin*, 407, 173-203.
- Entwistle, P.F. (1963) The identity, variation and distribution of some members of the genus *Tragocephala* Castelnau (Coleoptera: Lamiidae) in West Africa, with descriptions of five new subspecies. *The Transactions of the Royal Entomological Society of London*, 115, 63-98.
- Evans, A.V. & Bellamy, C.L. (1996) An Inordinate Fondness for Beetles. Henry Holt and Company, Inc., New York. 208 pp.
- Fabricius, J.C. (1792) Entomologia systematica emendata et aucta. Tom. I. Christ. Gottl. Proft, Hafniae. 333 pp.
- Fisher, W.S. (1932) New West Indian Cerambycid Beetles. *Proceedings of the National Museum*, 80(22), 1-93.
- Fisher, W.S. (1936) New cerambycid and buprestid beetles from Cuba. *Memorias de la Sociedad Cubana de Historia Natural "Felipe Poey"*, 10(5), 344-345.
- 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.

- Fragoso, S.A. (1978) Male and female terminalia as a basis for tribal classification of the subfamily Cerambycinae of America North of Mexico (Cerambycidae, Coleoptera). PhD Thesis, Florida University, 92 pp.
- Franceschini, A.F. (2002) Revision of the genus *Appula* (Coleoptera, Cerambycidae, Cerambycinae, Elaphidiini). *Iheringia, Série Zoologia, Porto Alegre*, 92, 5-40.
- Gahan, C.J. (1895) On the longicorn Coleoptera of the West Indian Islands. *Transactions of the Entomological Society of London*, 79-140.
- Genaro, J.A. & Tejuca, A.E. (2001) Patterns of endemism and biogeography of Cuban insects. In: *Biogeography of the West Indies: Patterns and Perspectives*, Second Edition. CRC Press, Boca Raton. 77-83.
- Giesbert, E.F. (1985) Two new species of Cerambycinae from Quintana Roo, Mexico. *The Coleopterists Bulletin*, 39(1), 80-85.
- Goloboff, P.A. (2002) Techniques for analyzing large data sets. In: *Techniques in molecular systematics and evolution*, ed. R. Desalle, G. Giribet, W. Wheeler. Birkhauser Verlag, Boston, 70-79.
- Goloboff, P.A., Farris, J.S., & Nixon, K.C. (2005) T.N.T.: Tree analysis using new technology. Available from: <http://www.cladistics.com> (Accessed on August 1, 2006).
- Grace, M., Bahnick, M. & Jones, L. (2000) A Preliminary Study of the Marine Biota at Navassa Island, Caribbean Sea. *Marine Fisheries Review*, 62, 43-48.
- Grimaldi, D.A. (1996) *Amber: Window into the Past*. American Museum of Natural History, New York, 216 pp.
- Grimaldi, D. & Engel, M.S. (2005) *Evolution of the Insects*. Cambridge University Press, New York, 755 pp.
- Haldeman, S.S. (1847) Material towards a history of the Coleoptera Longicornia of the United States. *Transactions of the American Philosophical Society*, 10, 27-66.
- Hedges, S.B. (1996a) Historical biogeography of West Indian vertebrates. *Annual Review of Ecology and Systematics*, 27, 163-196.
- Hedges, S.B. (1996b). The origin of West Indian amphibians and reptiles. In: *Contributions to West Indian herpetology: a tribute to Albert Schwartz*, ed. R. Powell, RW Henderson. Society for the study of amphibians and reptiles, Ithaca. 95-128 pp.
- Hedges, S.B., Hass, C.A., & Maxson, L.R. (1992) Caribbean biogeography: molecular evidence for dispersal in West Indian terrestrial vertebrates. *Proceedings of the National Academy of Sciences of the United States of America*, 89, 1909-1913.

- Hennig, W. (1966) *Phylogenetic Systematics*. University of Illinois Press, Urbana. 263 pp.
- Humphries, C.J. & Parenti, L.R. (1999). *Cladistic Biogeography: Interpreting Patterns of Plant and Animal Distributions, Second Edition*. Oxford University Press, New York. 187pp.
- International Code of Zoological Nomenclature. (2000) International Trust for Zoological Nomenclature. The Natural History Museum, London, and University of California Press, Berkeley, 338 pp.
- Iturralde-Vinent, M.A. & MacPhee, R.D.E. (1999) Paleogeography of the Caribbean region: implications for Cenozoic biogeography. *Bulletin American Museum of Natural History*, 238, 1-95.
- Iwabuchi, K. (1986) Mating behavior of *Xylotrechus pyrrhoderus* Bates (Coleoptera: Cerambycidae) III: Pheromone secretion by male. *Applied Entomology and Zoology*, 21, 606-612.
- Komiya, Z. & Nylander, U. (2005) A taxonomic revision of the genus *Gnathonyx* Gahan (Coleoptera, Cerambycidae, Prioninae). *Lambillionea*, 105, 3-15.
- Lacey, E.S., Ginzel, M.D., Millar, J.G., & Hanks, L.M. (2004) Male-produced aggregation pheromone of the cerambycid beetle *Neoclytus acuminatus acuminatus*. *Journal of Chemical Ecology*, 30, 1493-1507.
- Lacordaire, T. (1869) *Histoire Naturelle des Insectes. Genera des Coléoptères. Tome 8*. Librairie Encyclopédique de Roret, Paris. 552 pp.
- LeConte, J.E. (1824) Description of some new species of North American insects. *Ann. Lyc. Nat. Hist.*, 1, 169-173.
- LeConte, J.L. (1873) New species of North American Coleoptera, prepared for the Smithsonian Institution. *Smithsonian Miscellaneous Collections*, 11(264), 169-238; (265), 279-348.
- LeConte, J.L. & Horn, G.H. (1883) Classification of the Coleoptera of North America. *Smithsonian Miscellaneous Collection*, 26(507), 1-567.
- LeConte, L. (1850) *Journal of the Academy of Natural Sciences of Philadelphia*, (ser. 2) 1, 311-340.
- Leng, C.W. (1885) Synopses of Cerambycidae. *Entomologica Americana*, 7, 130-136.
- Leng C.W. (1920) *Catalogue of the Coleoptera of America, North of Mexico*. John D. Sherman, Jr., Mount Vernon, NY. 470 pp.

- Liebherr, J.K. (editor). (1988) Zoogeography of Caribbean Insects. Cornell University Press, Ithaca, NY. 285pp.
- Lingafelter, S.W. (1998) The Genera of Elaphidiini Thomson 1864 (Coleoptera: Cerambycidae). *Memoirs of the Entomological Society of Washington*, No. 20, 1-118.
- 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.
- Lingafelter, S.W. & Nearn, E.H. (2005) Cerambycidae holotypes of the Smithsonian Institution. Available from: <http://www.elaphidion.com> (Accessed on August 1, 2006).
- Linsley, E.G. (1961) The Cerambycidae of North America. Part I. Introduction. *University of California Publications in Entomology*, 135 pp.
- 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. & Chemsak, J.A. (1997) The Cerambycidae of North America. Part VIII: bibliography, index, and host plant index. *University of California Publications in Entomology*, 117, 1-534 pp.
- Macphee, R.D.E. & Iturralde-Vinent, M.A. (1995) Origin of the Greater Antillean land mammal fauna. 1, New Tertiary fossils from Cuba and Puerto Rico. *American Museum Novitates*, 3141, 1-30.
- Marques, M.I. & Napp, D.S. (2003) Análise cladística da tribo Rhoplophorini Blanchard, 1845 (Coleoptera, Cerambycidae). *Revista Brasileira de Entomologia*, 47:491-545.
- Martins, U.R. & Galileo, M.H.M. (1999) *Paleohemilophus* a new genus of fossil Cerambycidae from Hispaniola Island (Coleoptera). *Revista Brasileira de Entomologia*, 43(3/4), 309-313.
- MCZWeb (2006) Caribbean Plants & Insects Database, Museum of Comparative Zoology, Harvard University, Cambridge, MA. Available from: <http://insects.oeb.harvard.edu/Caribbean/search.htm> (Accessed on August 1, 2006).
- Melsheimer, F.E. (1853) Catalogue of the Described Coleoptera of the United States. Smithsonian Institution, Washington. 174 pp.
- Mermudes, J.R.M. & Napp, D.S. (2000) Review of the genus *Haenkea* Tippmann (Coleoptera, Cerambycidae, Cerambycinae, Cleomenini). *The Coleopterists Bulletin*, 54, 511-519.

- Mermudes, J.R.M. & Napp, D.S. (2004) Comparative morphological study of the Neotropical Cleomenini genera and their tranferences to the tribes Rhopalophorini Blanchard and Rhinotragini Thomson (Coleoptera, Cerambycidae, Cerambycinae). *Revista Brasileira de Entomologia*, 48, 251-272.
- Meyer, H.W. (2003) *The Fossils of Florissant*. Smithsonian Institution Press, Washington, D.C. 58 pp.
- McDermott, F.A. & Buck, J.B. (1959) *Transactions of the American Entomological Society*. 85, 1-112.
- Micheli, C.J. & Nearn, E.H. (2005) Two new species of *Plectromerus* Haldeman (Coleoptera: Cerambycidae) from the West Indies. *Zootaxa*, 1028, 23-36.
- Micheli, J. (1983) *Curiosa dominicana*, a new genus and species of Curiini from Dominican Republic. *The Coleopterists Bulletin*, 37(3), 261-266.
- Micheli, J.A. (2003) New longhorn beetles from Puerto Rico (West Indies) (Coleoptera: Cerambycidae). *The Coleopterists Bulletin*, 57(2), 191-204.
- Monné, M.A. (2005) Catalogue of the Cerambycidae (Coleoptera) of the Neotropical Region. Part I. Subfamily Cerambycinae. *Zootaxa*, 946, 1-765.
- Monné, M.A. & Hovore, F.T. (2003) Checklist of the Cerambycidae (Coleoptera), of the Western Hemisphere. 385 pp.
- Monné, M.A. & Hovore, F.T. (2005) Checklist of the Cerambycidae, or longhorned wood-boring beetles (Coleoptera), of the Western Hemisphere. BioQuip Products, Rancho Dominguez, CA. 392 pp.
- Monné, M.L. 2005. Revisao, analise cladistica e biogeografia de *Coccoderus* Buquet (Coleoptera, Cerambycidae). *Revista Brasileira de Entomologia*, 49, 369-391.
- Monné, M.L. & Napp, D.S. (2005) Cladistic analysis of the tribe Torneutini Thomson (Coleoptera: Cerambycidae: Cerambycinae: Trachyderoinia). *Zootaxa*, 1062, 1-56.
- Nakamura, K., Sato, H., & Nakashima, T. (1994) Behavioral and morphological evidence for a male-produced sex pheromone in the cryptomeria twig borer, *Anaglyptus subfasciatus* Pic (Coleoptera: Cerambycidae). *Japanese Journal of Entomology*, 62, 371-376.
- Napp, D.S. (1994) Phylogenetic relationships among the subfamilies of Cerambycidae (Coleoptera - Chrysomeloidea). *Revista Brasileira de Entomologia*, 38, 265-419.
- Nearn, E.H. (2006) A checklist of the Cerambycidae (Coleoptera) holdings of the Fernando de Zayas Collection, Havana, Cuba. *The Coleopterists Bulletin*, 60(1), 53-57.

- Nearns, E.H. & Branham, M.A. (2005) A new species of *Plectromerus* Haldeman (Coleoptera: Cerambycidae) from Dominican amber with notes on the fossil *Plectromerus tertarius* Vitali. *Zootaxa*, 1088, 17-24.
- Nearns, E.H., Branham, M.A., & Bybee, S.M. (2006) Cerambycidae (Coleoptera) types of the Fernando de Zayas Collection, Havana, Cuba. *Zootaxa*, 1270, 1-17.
- Nearns, E.H., Branham, M.A., Rodriguez, N.G., & Garcia, I.F. (2005) *Curius punctatus* (Fisher), new combination (Coleoptera: Cerambycidae). *Insecta Mundi*, 19, 172.
- Nearns, E.H. & Ray, A.M. (2006) A new species of *Curius* Newman (Coleoptera: Cerambycidae) from Venezuela with notes on sexual punctation. *Zootaxa*, 1256, 49-57.
- Nearns, E.H. & Steiner, W.E., Jr. (2006) A new species of *Plectromerus* Haldeman (Coleoptera: Cerambycidae) from Navassa Island, Greater Antilles. *Zootaxa*, 1163, 61-68.
- Nearns, E.H. & Turnbow, R.H. (2005) First record of *Plectromerus exis* Zayas in the Dominican Republic (Coleoptera: Cerambycidae). *Insecta Mundi*, 19, 158.
- Newman, E. (1840) Entomological notes. *The Entomologist*, 2, 17-19.
- Nixon, K.C. (1999) The Parsimony Ratchet, a New Method for Rapid Parsimony Analysis. *Cladistics*, 15, 407-414.
- Nixon, K.C. & Carpenter, J.M. (1993) On Outgroups. *Cladistics*, 9, 413-426.
- Nixon, K.C. & Wheeler, Q.D. (1990) An amplification of the phylogenetic species concept. *Cladistics*, 6, 211-223.
- Noldt, U., Fetzko, R., & Dettner, K. (1995) Structure of the sex pheromone-producing prothoracic glands of the male old house borer, *Hylotrupes bajulus* (L.) (Coleoptera: Cerambycidae). *International Journal of Insect Morphology and Embryology*, 24, 223-234.
- Olivier, A.G. (1790) Encyclopedie methodique. Historie naturelle. Insectes. Vol. 5. Panckoucke, Paris. 793 pp.
- Peck, S.B. (2005) A Checklist of the Beetles of Cuba with Data on Distributions and Bionomics (Insecta: Coleoptera). Arthropods of Florida and Neighboring Land. Vol. 18. Florida Department of Agriculture and Consumer Services, Gainesville, FL. 241 pp.
- Piña, A.L., Garcia, I.F., & Anaya, M.T. (2004) Lista a preliminar de los Coleópteros (Insecta, Coleoptera) de Topes de Collantes, Trinida, Sancti Spiritus, Cuba. *Boletín de la Sociedad Entomológica Aragonesa* 34, 101-106.

- Powell, R. (1999) Herpetology of Navassa Island, West Indies. *Caribbean Journal of Science*, 35(1-2), 1-13.
- Ray, A.M., Lacey, E.S., & Hanks, L.M. (2006) Predicted taxonomic patterns in pheromone production by longhorned beetles. *Naturwissenschaften*, [in press]
- Ree, B. (2003) A partial list of damaging insects attacking pecan in the United States. Available from: http://pecankernel.tamu.edu/insect_list/PecanInsectList.pdf (last accessed August 1, 2006).
- Rosen, D.E. (1975) A vicariance model of Caribbean biogeography. *Systematic Zoology*, 24, 431-464.
- Schuh, R.T. (2000) Biological systematics: principles and applications. Cornell University Press, Ithaca. 236 pp.
- Sorenson, M.D. (1999) TreeRot, ver. 2. Boston University, Boston, MA.
- Steiner, W.E., Jr. & Swearingen, J.M. (1998) Entomology on Navassa Island. The Ent. News. Department of Entomology Newsletter, Museum of Natural History, Smithsonian Institution, 12(9), 3-4.
- Steiner, W.E., Jr. & Swearingen, J.M. (2000) An entomological survey of Navassa Island, with notes on species richness and endemism. Abstracts, 27th Annual Natural Areas Conference. Managing the Mosaic: Connecting People and Natural Diversity. Natural Areas Association (2000), 39.
- Strong, E.E. & Lipscomb, D. (1999) Character coding and inapplicable data. *Cladistics*, 15, 363-371.
- Swearingen, J.M. (1999) Natural history on a little-known island: Cracking Navassa's oyster. *Park Science*, 19, 5-7.
- Swofford, D.L. (2001) PAUP*: Phylogenetic Analysis using Parsimony (*and other Methods), ver. 4.0. Sinauer Associates, Sunderland, MA.
- Veiga-Ferreira, G.D. (1964) Longicornios de Mocambique. I. *Revista de Entomologia de Mocambique*, 4, 451-838.
- Vitali, F. (2004) *Plectromerus tertarius* new fossil species from Hispaniola (Coleoptera, Cerambycidae, Curiini). *Lambillionea*, 104(3), 453-458.
- Vitali, F. & Rezbanyai-Reser, L. (2003) Beiträge zur Insektenfauna von Jamaika, Westindien (Karabik) 5. Bockkäfer - I & II. *Les cahiers Magellanes*, No. 26, 1-16; No. 27, 1-27.
- White, A. (1855) Catalogue of the coleopterous insects in the collection of the British Museum: Longicornia 2. London 8, 175-412.

- Woodruff, R.E., Beck, B.M., Skelley, P.E., Schotman, C.Y.L., & Thomas, M.C. (1998) Checklist and bibliography of the insects of Grenada and the Grenadines. Center for Systematic Entomology, Memoir No. 2, Gainesville, Florida, USA. 286 pp.
- Zayas, F. de. (1975) Revisión de la familia Cerambycidae (Coleoptera, Phytophagoidea). Academia de Ciencias de Cuba, Instituto de Zoología, La Habana, Cuba. 443 pp.

BIOGRAPHICAL SKETCH

Eugenio (Gino) Nearn was born in 1968 in Buenos Aires, Argentina. He grew up abroad (Liberia, Costa Rica, Greece, and the Philippines) before graduating from Marathon High School in the Florida Keys, in 1986. After graduation, Gino attended the University of Florida, where he met his wife, Jodi. Two years later he enlisted in the U.S. Navy, where he served aboard the aircraft carrier USS Forrestal (CV-59) and worked in a variety of areas including navigation, public relations, and engineering. In 1993, Gino returned to the University of Florida, and 3 years later graduated with a Bachelor of Fine Arts degree in electronic media. Gino worked as a 3D animator, graphic designer, and website programmer for several years in Gainesville, FL, before returning to school in 2004 to pursue his master's degree in entomology.