

A new species of *Plectromerus* Haldeman (Coleoptera: Cerambycidae) from Navassa Island, Greater Antilles

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Abstract

A new species, *Plectromerus navassae* (Coleoptera: Cerambycidae: Cerambycinae: Curiini), from Navassa Island, Greater Antilles, is described. Features distinguishing the new species from its congeners are presented.

Resumen

Una nueva especie, *Plectromerus navassae* (Coleoptera: Cerambycidae: Cerambycinae: Curiini), de la Isla Navassa, Antillas Mayores, se describe. Se incluyen características para diferenciar esta especie de otros miembros del género.

Key words: Cerambycinae, Curiini, Caribbean, West Indies, taxonomy, endemic

Introduction

Navassa Island is located approximately 160 km south of Guantanamo, Cuba and 56 km west of Haiti (Fig. 1). 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). A key to the species of this genus will be provided at a later time by the senior author in his ongoing revision and phylogenetic analysis of the tribe.

Material and methods

Specimens from the following collections were examined for a comparison of characters with the new species. The following acronyms are used throughout the paper:

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
EFGC	Edmund F. Giesbert Collection, Gainesville (at FSCA), FL, USA
ENPC	Eugenio Nearn Private Collection, Gainesville, FL, USA
EMEC	Essig Museum of Entomology, University of California, Berkeley, CA, USA
FDZC	Fernando de Zayas Collection, Havana, Cuba
FSCA	Florida State Collection of Arthropods, Gainesville, FL, USA
FVPC	Francesco Vitali Private Collection, Genova, Italy
FTHC	Frank T. Hovore Private Collection, Santa Clarita, CA, USA
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
 RFMC Roy F. Morris Private Collection, Lakeland, FL, USA
 RHTC Robert H. Turnbow, Jr. Private Collection, Ft. Rucker, AL, USA
 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, Washington, DC, USA
 WIBF West Indian Beetle Fauna Project, Michael A. Ivie, Bozeman, MT, USA

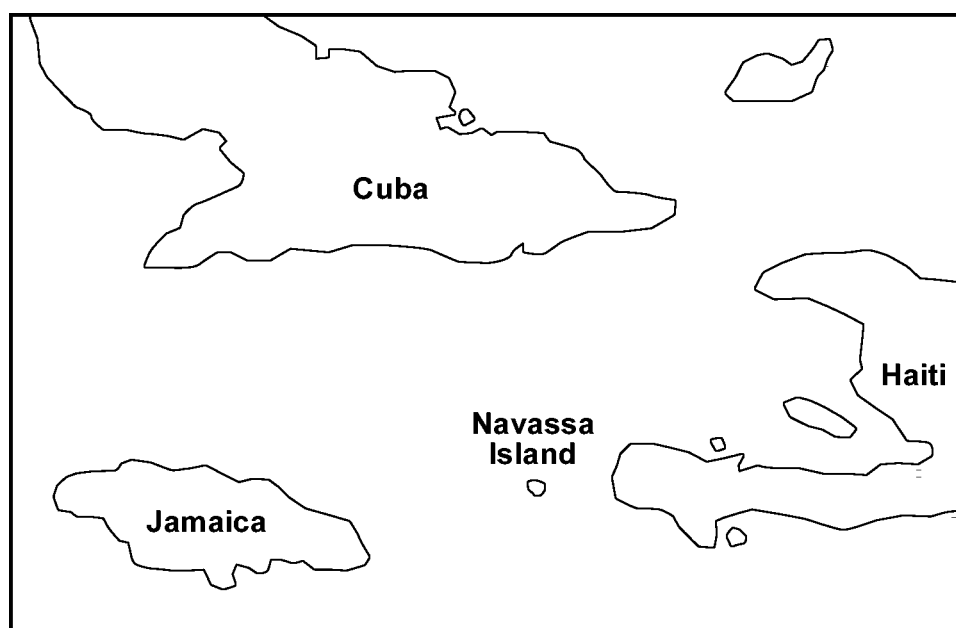


FIGURE 1. Navassa Island, Greater Antilles.

More than 600 specimens from 18 described species of *Plectromerus* were compared. Observations of the specimens were made using a Nikon SMZ800 stereomicroscope with 20X eyepieces equipped with a drawing tube. Photographs were taken with the Microptics Digital Lab XLT photography system.

***Plectromerus navassae* Nearns & Steiner, new species**

Figs. 2a, d–g.

Description

MALE. Length 5.1–6.7 mm, width 1.2–1.6 mm (measured across humeri). Habitus as in Figure 2a. General form small, narrow, subcylindrical. Integument testaceous, with head, antennae, and basal fourth of elytra ferruginous. Apical half of each elytron and

visible abdominal segments distinctly darker, dark brown to black (Fig. 2a, d). *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; punctuation 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. 2e). 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. 2g).

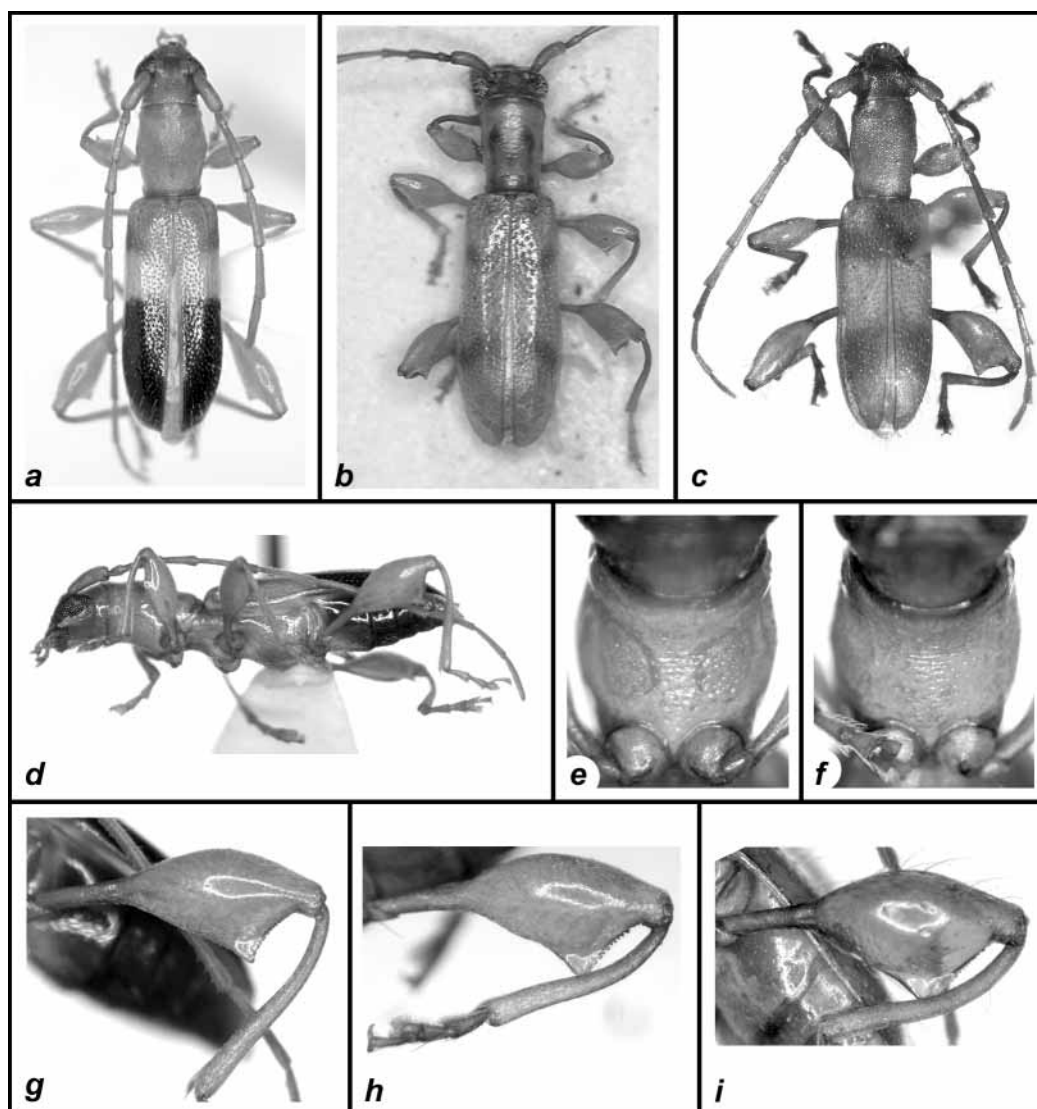


FIGURE 2. a, *Plectromerus navassae* Nearn & Steiner, new species, holotype, male, dorsal habitus; b, *Plectromerus distinctus* (Cameron), holotype, female, dorsal habitus; c, *Plectromerus wappesi* Giesbert, paratype, male, dorsal habitus; d–g, *Plectromerus navassae* Nearn & Steiner, new species: d, 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.

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. 2f). Abdomen with terminal sternite evenly, broadly rounded, about 1.5 times longer than preceding sternite.

Etymology

The Latin-like feminine proper name Navassa, combined with the genitive singular possessive ending “-ae” forms the specific name *navassae*, “of Navassa,” in reference to the type-locality and known distribution.

Types

Holotype, male (Fig. 2a), 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 (E NPC); 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).

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. 2b), *Plectromerus fasciatus* (Gahan, 1895), and *Plectromerus wappesi* Giesbert, 1985 (Fig. 2c) 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. 2g) are somewhat similar to *P. distinctus* (Fig. 2h) but differ significantly from *P. wappesi* which possess pedunculate-clavate metafemora and more strongly sinuate metatibiae (Fig. 2i).

Acknowledgments

We appreciate specimen loans from Michael Thomas and Paul Skelley (FSCA), Robert Davidson and Bob Androw (CMNH), John Chemsak and Cheryl Barr (EMEC), Sharon Shute (BMNH), Lee Herman & David Grimaldi (AMNH), Ed Riley (TAMU), Victoria Bayless (LSAM), James Wappes (JEWG), Roy Morris (RFMC), Robert Turnbow (RHTC), Frank Hovore (FTHC), Steven Lingafelter (USNM), Charyn and Julio Micheli (JAMC), Doug Yanega (UCRC), Michael Ivie (WIBF), and Angel Solis (INBio). Frank Hovore, Steve Lingafelter and Julio Micheli provided helpful comments. We also thank Nayla García Rodríguez and Ileana Fernández García of the IESC and the Zayas family in Cuba for permitting the senior author access to their collections. The U.S. Coast Guard provided logistical support and transportation for the junior author and his wife, Jil M. Swearingen, who assisted in fieldwork.

Literature cited

- Burne, R.V., Horsfield, W.T. & Robinson, E. (1974) The geology of Navassa Island. *Caribbean Journal of Science*, 14, 109–114.
- 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.
- Micheli, C.J. & Nearn, E.H. (2005) Two new species of *Plectromerus* Haldeman (Coleoptera: Cerambycidae) from the West Indies. *Zootaxa*, 1028, 23–36.

- 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. (2005) Electronic Checklist of the Cerambycidae (Coleoptera) of the Western Hemisphere. Available from: <http://www.hovore.com> (Accessed February 19, 2006).
- 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., Rodriguez, N.G. & Garcia, I.F. (2005) *Curius punctatus* (Fisher), new combination (Coleoptera: Cerambycidae). *Insecta Mundi*, 19, 172.
- Nearns, E.H. & Turnbow, R.H. (2005) First record of *Plectromerus exis* Zayas in the Dominican Republic (Coleoptera: Cerambycidae). *Insecta Mundi*, 19, 158.
- Powell, R. (1999) Herpetology of Navassa Island, West Indies. *Caribbean Journal of Science*, 35(1–2), 1–13.
- 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.
- Swearingen, J.M. (1999) Natural history on a little-known island: Cracking Navassa's oyster. *Park Science*, 19, 5–7.
- 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 (Karibik) 5. Bockkäfer – II. *Les cahiers Magellanes*, 27, 1–27.