

A NEW SPECIES OF *PITYOPHTHORUS* EICHHOFF
(COLEOPTERA: SCOLYTIDAE) FROM SOUTHERN FLORIDA
WITH A KEY TO THE FLORIDA SPECIES

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ABSTRACT

Pityophthorus pecki, a new species, is described from southern Florida. It is related to Neotropical species from Mexico and Central America in Bright's *juglandis* group. A key to the species of *Pityophthorus* in Florida is included.

Key Words: Bark beetle, taxonomy.

RESUMEN

Pityophthorus pecki, especie nueva, se describe del sur de Florida. Es emparentada a especies neotropicales de México y Centroamérica del grupo *juglandis* de Bright. Se incluye una clave a las especies de *Pityophthorus* en Florida.

While examining Scolytidae collected by Dr. Stewart Peck as part of an ongoing survey of the Coleoptera of southern Florida (Peck 1989), I discovered a previously undescribed species of *Pityophthorus*. This species is described here and an illustrated key is provided for the Florida *Pityophthorus*. Previous keys (Bright 1981, Wood 1982) are difficult to use for Florida because they include a very large number of species from extensive geographic areas. An additional species, *Pityophthorus pinavorus* Bright, was described since the publication of these keys (Bright 1985b).

This genus *Pityophthorus* Eichhoff contains nearly 400 described species, the bulk of which are known from North and Central America, with smaller numbers of species in the Caribbean, South America, Eurasia and Africa (Bright 1981, Wood & Bright 1993). Most species breed in conifers, but many neotropical species breed in broad-leaved trees, shrubs, and vines. Most species are phloeophagous (breed in phloem, or inner bark) and harem polygynous (gallery systems initiated by males which are later joined by several females), although there are an appreciable number with other breeding habits.

The following key includes the twelve species known from Florida. It is loosely based on the key by Bright (1981), but does not specifically indicate his species groups because of the small number of taxa included here.

Key to species of *Pityophthorus* of Florida

1. Asperities on anterior slope of pronotum arranged into 2 or more definite concentric rings (Fig. 1 A, D). Not in coniferous hosts 2
- Asperities on anterior slope of pronotum showing no indication of concentric rows (Fig. 3 C, 4 A). In coniferous hosts 7

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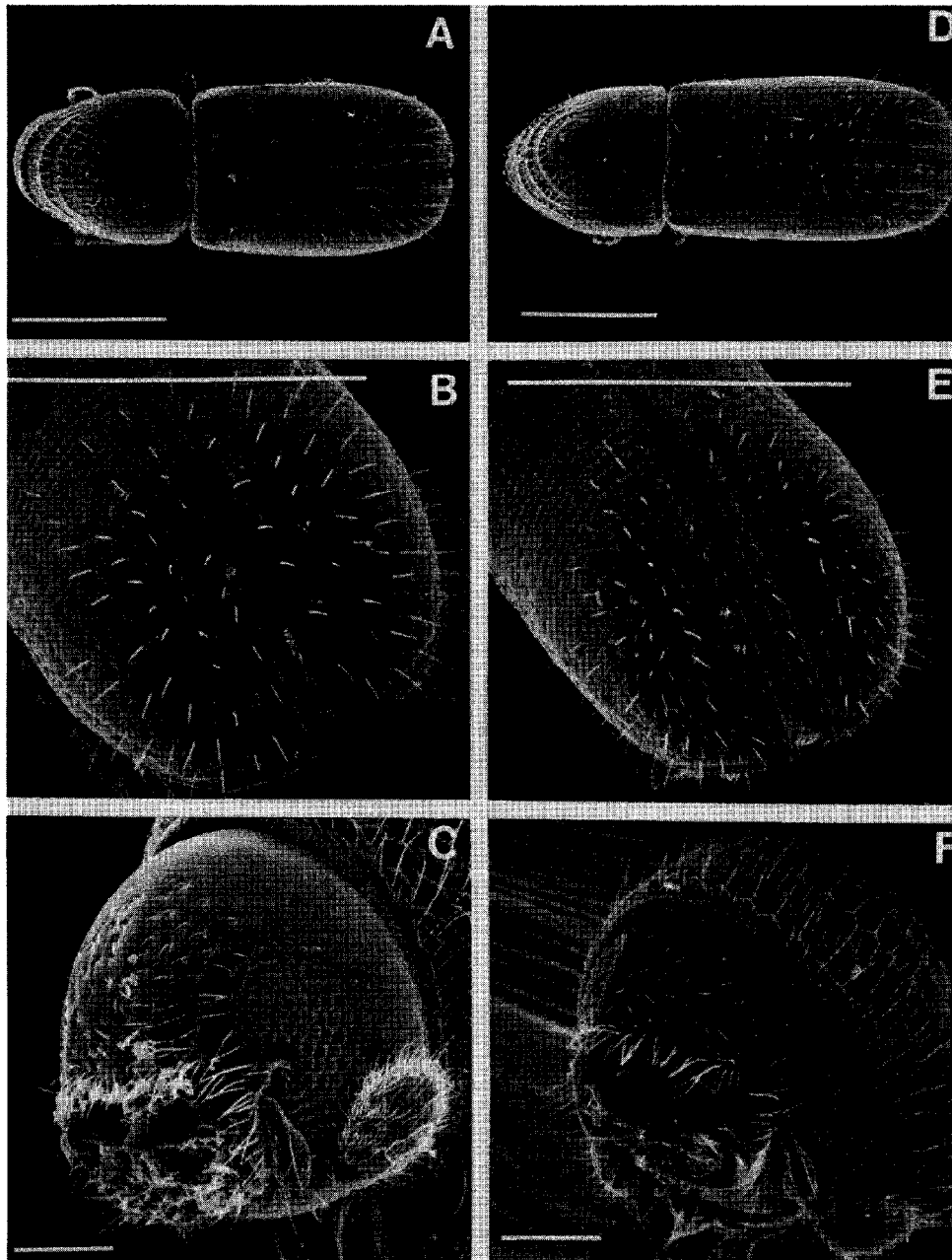


Fig. 1. *Pityophthorus pecki*, male. A. Dorsal view. B. Declivity. C. Frons. *P. concentralis* D. Dorsal view. E. Declivity. F. Frons. White lines represent 0.5 mm in A, B, D, E, 0.05 mm in C, F.

- 2 (1). Interstriae 2 on declivity as wide as on disc, distinctly impressed and flat, punctures on striae 1 and 2 distinct on declivity, usually equal in size to those on disc (Fig. 1 D, E) 3
- Interstriae 2 on declivity narrower than discal width, not impressed, punctures on striae 1 and 2 indistinct on declivity, smaller than those on disc (Fig. 1 A, C). Southern Florida. 1.3-1.5 mm *pecki* Atkinson

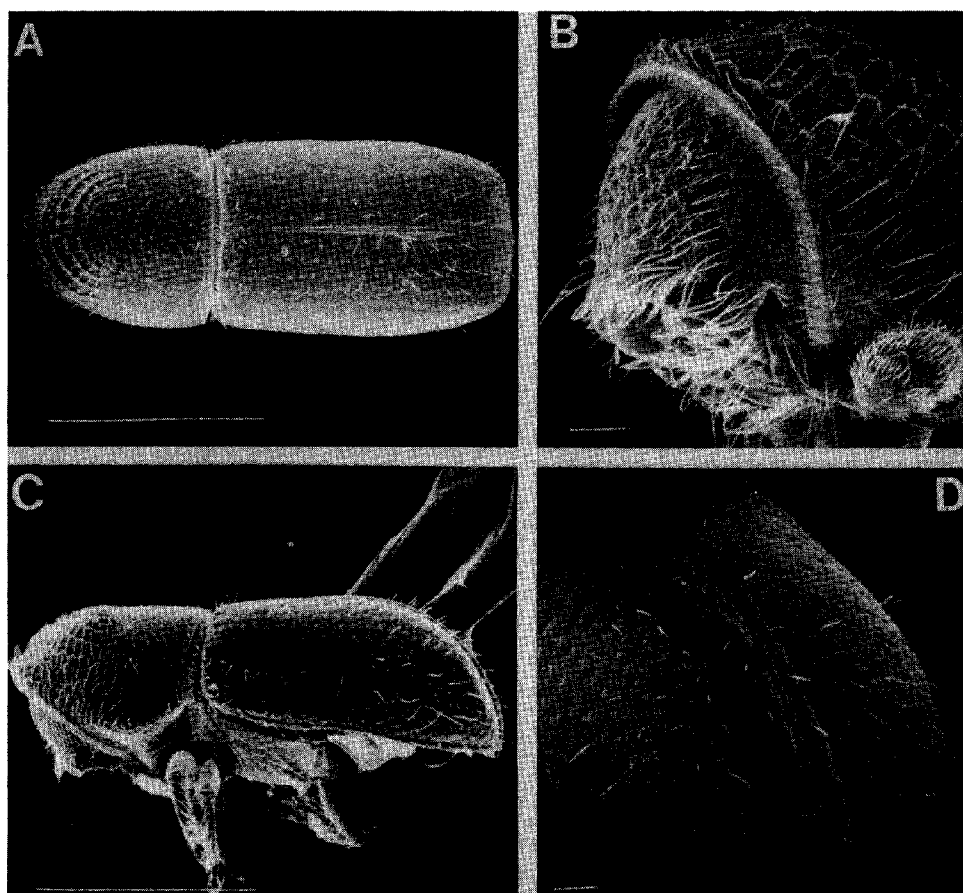


Fig. 2. *Pityophthorus lautus*. A. Dorsal view. B. Frons. C. Lateral view. D. Declivity. White lines represent 0.5 mm in A and C, 0.05 mm in B and D.

- 3 (2). Granules on interstriae 1 smaller than those on interstriae 3, setae on interstriae 3 shorter than width of interstriae, spaced within rows by a distance greater than their length (Fig. 1 E, D). Male and female frons similar, pubescence sparse 4
- Granules on both interstriae 1 and 3 large, similiar in size, setae on interstriae 3 longer than width of interstriae, spaced within row by a distance less than their length. Male and female frons sexually dimorphic, female frons pubescent, male frons with sparse pubescence 6
- 4 (4). Declivital interstriae 2 with row of setiferous punctures (Fig. 1 D, E). Southern Florida and Cuba. In *Metopium toxiferum* (poisonwood, Anacardiaceae). 1.2-1.5 mm *centralis* Eichhoff
- Declivital interstriae 2 impunctate, without setae (Fig. 2 A, D) 5
- 5 (4). Frons flattened or weakly, transversely concave to upper level of eyes, divided by weak longitudinal carina. Widespread in eastern North America (probably a species complex). Many hosts (principal host in peninsular Florida: *Toxicodendron radicans*, poison ivy, Anacardiaceae). 1.3-1.6 mm *lautus* Eichhoff
- Frons convex, rugose, with small elongate callus at upper level of eyes. Southern Florida. In *Borrchia* spp. (Compositae). 1.0-1.3 mm *borrichiae* Wood

- 6 (3). First 2 segments of antennal club occupy more than half of club length, club 1.4 or less times as long as wide; lower half of female frons distinctly punctured. Color reddish brown. Southeastern U.S. In *Liquidambar styraciflua* (sweet gum, Hamamelidaceae). 1.3-1.5 mm *liquidambarus* Blackman
- First 2 segments of antennal club about 1/3 of club length, club 1.5 times as long as wide; lower half of female frons smooth, shining. Color black. Southeastern U.S. In *Toxicodendron radicans* (poison ivy, Anacardiaceae). 1.3-1.6 mm *crinalis* Blackman
- 7 (1). Elytral apex rounded (Fig. 3 C) 8
- Elytral apex acuminate (Fig. 4 A, 6 A-D) 9
- 8 (7). Pronotum evenly arched in profile without strongly elevated summit (Fig. 3 A), striae and interstriae punctures on disc confused (Fig. 3 C). Southeastern U.S., Caribbean. In pines. 1.3-2.0 mm *publicarius* (Zimmermann)
- Pronotum with distinctly elevated summit; striae distinct on disc, interstriae punctures uniseriate. Peninsular Florida, Caribbean. 1.2-1.4 mm *pinavorus* Bright
- 9 (7). Pronotum with distinct groove on posterolateral margin (Fig. 4 B, D, 5 D) . 10
- Pronotum without groove on posterolateral margin (Fig. 5 A-C) 11
- 10 (9). Female frons deeply concave over very broad area, central area deeply punctured, long, incurved setae on periphery not obscuring central area (Fig.

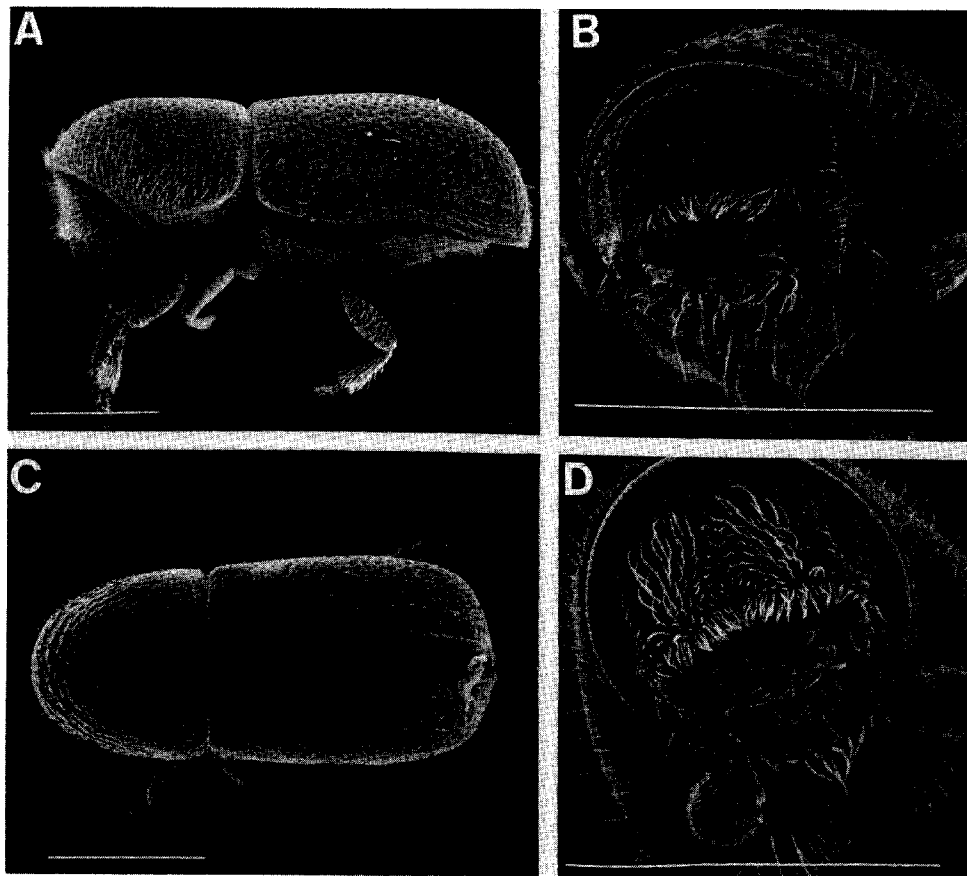


Fig. 3. *Pityophthorus publicarius*. A. Lateral view, female. B. Frons, male. C. Dorsal view, male. D. Frons, female. White lines represent 0.5 mm.

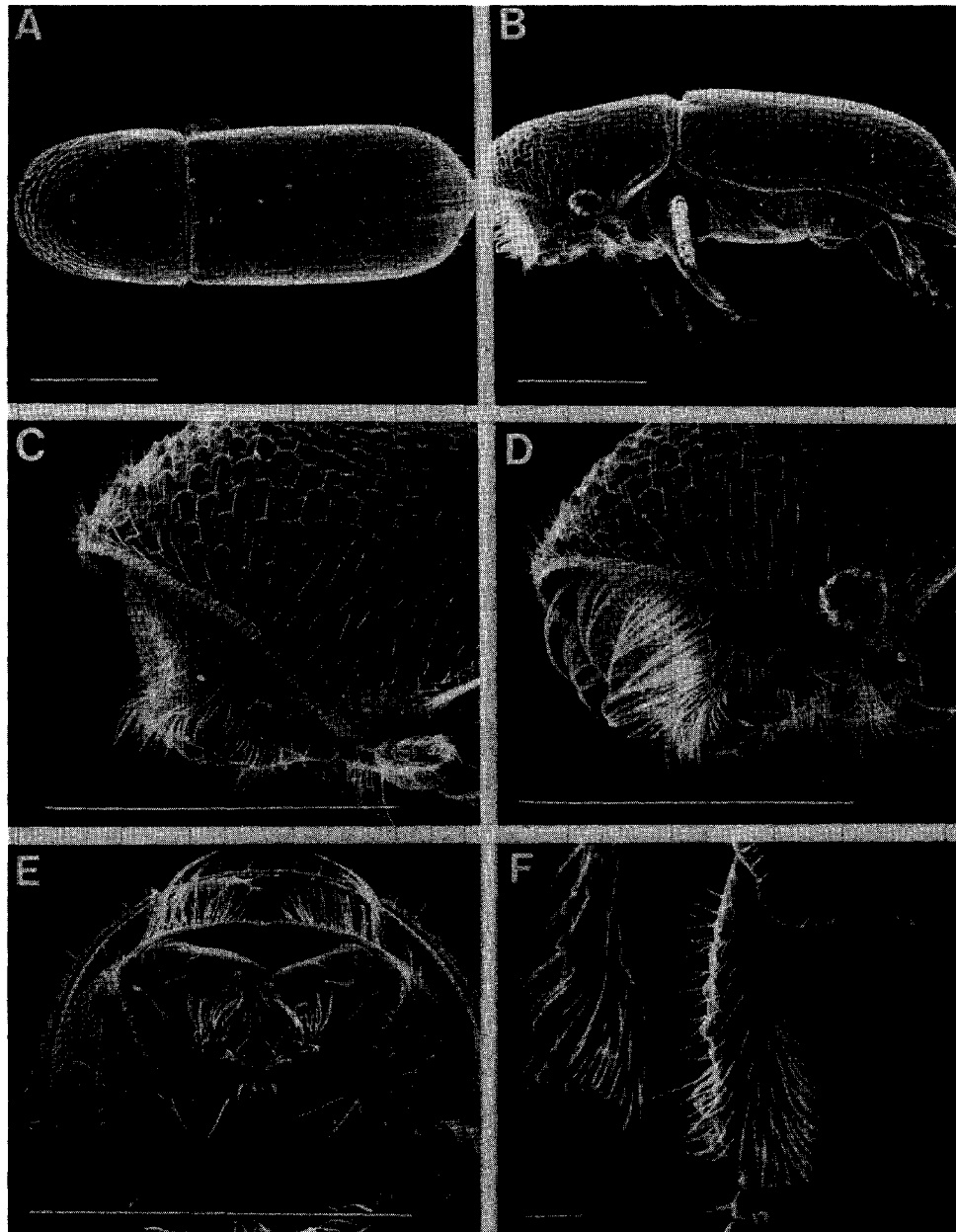


Fig. 4. *Pityophthorus confusus*. A. Dorsal view, female. B. Lateral view, female. C. Lateral view of head and prothorax, male. D. Lateral view of head and prothorax, female. E. Ventral view of head, female. F. Protibia. Posterior view, left; anterior view, right. White lines represent 0.5 mm in A-E, 0.05 mm in F.

4 D); male frons shallowly concave, setae sparse (Fig. 4 C). Southeastern U.S. to Central America. In pines. 2.0-2.9 mm *confusus bellus* Blackman
 - Female frons weakly concave or flat; long incurved setae on periphery dense, obscuring central area (Fig. 5 D); male frons transversely impressed. Southeastern U.S. to Central America. In pines. 1.4-1.7 mm .. *annectens* LeConte
 11 (9). Interstriae on disc impunctate and without setae; uniseriate rows of erect

interstitial setae in interstriae 1, 3, 5, 7 on declivity (Fig. 6 B). Central Canada, eastern North America south to Alabama and Florida. In pines.

1.5-2.0 mm *consimilis* LeConte

- Some interstriae on disc with setae; uniseriate rows of interstitial setae on all declivital interstriae (Fig. 6 A). Southeastern U.S. from Massachusetts to Florida. In pines. 2.2-2.6 mm *pullus* (Zimmermann)

PITYOPHTHORUS PECKI ATKINSON, NEW SPECIES

(Fig. 1 a-c)

DIAGNOSTIC CHARACTERS. This species belongs to Bright's *juglandis* group (Bright 1981) and is the only species from that group known from the southeastern United States. Members of this species group are characterized by having the pronotal asperities arranged in concentric rings, a rounded declivital apex, obsolete or reduced punctures on declivital striae 2, and declivital interstriae 2 which are not impressed. All other species known from the region with the pronotal asperities arranged in concentric rings and having rounded declivital apices belong to Bright's *lautus* group in which the punctures on striae 2 on the declivity are not reduced in size and the second declivital interstriae are flattened and impressed with respect to interstriae 1 and 3.

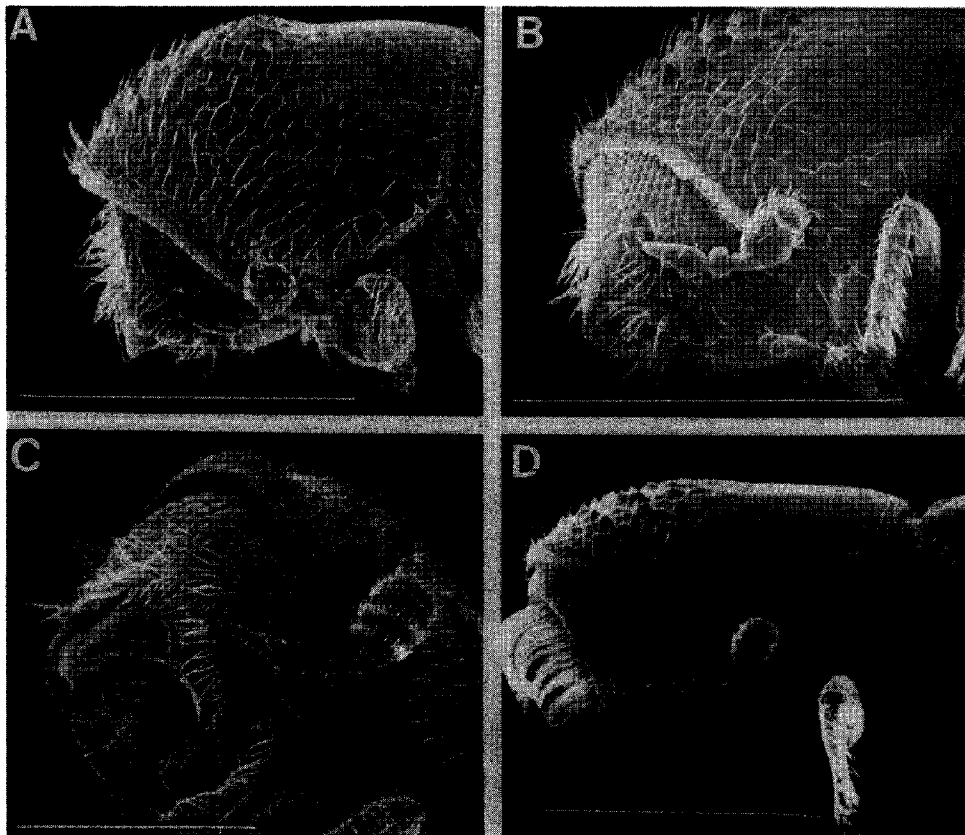


Fig. 5. Head and prothorax of *Pityophthorus* spp. A. *P. consimilis*, female. B. *P. consimilis*, male. C. *P. pullus*, male. D. *P. annectens*, female. White lines represent 0.5 mm.

This species would key to *P. strictus* Wood in published keys (couplet 6 in Bright 1981, couplet 7 in Bright 1985a). *Pityophthorus strictus* is known from Costa Rica and breeds in *Rheedia* sp. (Guttiferae), a host which does not occur in Florida. *P. strictus* has minute granules on declivital interstriae 3 which are absent in *P. pecki*. Interstriae 2 of *P. strictus* are equally wide on the disc and declivity, while they are clearly narrower on the declivity than on the disc in *P. pecki*.

MALE. Length: 1.3-1.5 mm, 2.4 times longer than wide. Color dark brown.

Frons concave, rising to highest point slightly above upper level of eyes, with impunctate line (not elevated) from this summit to vertex, slight transverse impression above epistoma. Surface reticulate between deep punctures, distance separating punctures approximately equal to their diameters. Fine, short setae arising from punctures. Antennal club oval, approximately twice as long as wide, with 3 slightly procurved sutures.

Pronotum parallel-sided, broadly rounded in front, 1.1 times wider than long. Asperities on anterior portion arranged in 3-5 concentric rings. Clearly marked summit visible in lateral view. Postero-lateral areas glossy, strongly punctured, punctures sepa-

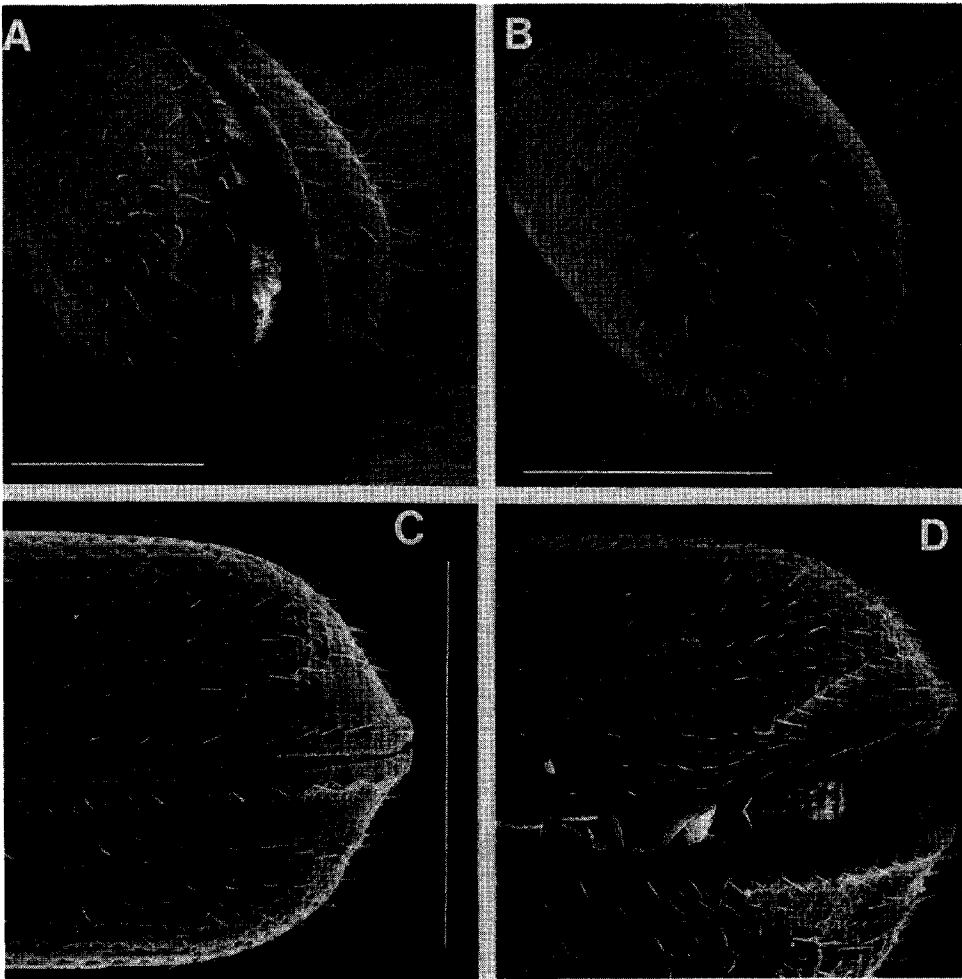


Fig. 6. Declivities of *Pityophthorus* spp. A. *P. pullus*, male. B. *P. consimilis*, male. C. *P. confusus*, female. D. *P. confusus*, male. White lines represent 0.5 mm.

rated by distance approximately equal to diameters. Midline impunctate from base to summit.

Elytra 1.6 times as long as wide, apex broadly rounded. Striae clearly marked on disc by rows of fine punctures, not impressed. Strial punctures shallow, separated within rows by distance equal to twice the diameters, without associated setae on disc. Discal interstriae flat, impunctate, about twice as wide as striae, surface glossy.

Declivity convex, occupying posterior third of elytra, evenly curved to base. Striae 1 impressed, punctures scarcely distinguishable. Sutural interstriae slightly elevated, finely, uniseriately granulate to apex. Interstriae 2 not impressed, narrower than on disc, impunctate. Punctures of striae 2 reduced. Uniseriate setae on all declivital interstriae except 1, setae hairlike, length approximately 2.5 times width of interstriae.

FEMALE. Not present or not distinguishable in material at hand. Two specimens, both males, were sexed by dissection.

TYPE MATERIAL. This description is based on 18 specimens. The holotype male bears the following labels: "Florida: Monroe Co.: Big Pine Key, 4-VI-86, S. & J. Peck, beating vegetation" and "HOLOTYPE: *Pityophthorus pecki* Atkinson 1993" and is deposited in the U.S. National Museum of Natural History, Washington, D.C. Paratypes, listed below, bear yellow labels and are deposited in the Florida State Collections of Arthropods, Gainesville, Canadian National Collection, Canadian Museum of Nature, Ottawa, Ontario, and in my personal collection. **Florida: Dade Co.:** S. Miami, Deering Estate park, 21-II-86 to 1-VI-86, S. & J. Peck, malaise trap (CMNC, 1); **Monroe Co.:** Big Pine Key, 2-VI-86, S. & J. Peck, beating vegetation, (CMNC, 3); 4-VI-86, same data (THAC, 6); Big Pine Key, 7-VI-86, J. Browne (CNCC, 3); Big Pine Key, Watson's Hammock, 3-VI-86 to 27-VIII-86, S. & J. Peck, malaise-flight intercept trap (FSCA, 2); Watson's Hammock, 14-XII-86, Klimaszewski & Peck, hammock litter (FSCA, 1); Watson's Hammock, 20-V-90, R. S. Anderson (CMNC, 1); No Name Key, 5-VI-86, M. Kaulburs, night beating (USNM, 2). (Collection abbreviations from Arnett & Samuelson 1986).

DISTRIBUTION. Known only from Monroe and Dade Counties in southern Florida.

HOSTS. Unknown. All specimens seen were collected in flight traps. Hosts of species in the *juglandis* group of Bright (1981, 1985a) are from a variety of plant families including the Guttiferae, Burseraceae, Apocynaceae, Anacardiaceae, Compositae, and Juglandaceae. The most likely host of *P. pecki* is *Bursera simaruba* (gumbo limbo). This speculation is based on the known distribution of *P. pecki*, the potential host plants in southern Florida from those families with similar distributions (Long & Lakela 1971), and the observation that most of the species most closely related to it breed in species of *Bursera*.

ETYMOLOGY. This species is named in honor of Stewart Peck, the collector of most of the known specimens, for his contributions to the knowledge of the beetle fauna and biogeography of southern Florida.


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ARTHROPODS ASSOCIATED WITH
BROMELIA HEMISPHERICA
(BROMELIALES: BROMELIACEAE)
IN MORELOS, MEXICO

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ABSTRACT

A survey was conducted of the arthropod fauna associated with *Bromelia hemisphaerica* Lamarck (Bromeliaceae) at Yautepec, Morelos, Mexico. In this survey, conducted from January to September 1989, 40.3 percent of the species represented in the collections were predatory, belonging to the orders Araneae, Acarina (Parasitiformes and Acariformes), Hemiptera, Coleoptera and Hymenoptera. Herbivorous species accounted for 16.4 percent of the total species collected. Among these were *Ferrisia virgata* (Cockerell) and *Dysmicoccus brevipes* (Cockerell), which might become pests when these plants are cultivated in monoculture.

Key Words: Bromeliads, ecological niche, feeding habits, monoculture.

RESUMEN

Se hicieron colectas de artrópodos que se alimentan o habitan de la planta *Bromelia hemisphaerica* Lamarck (Bromeliaceae) en Yautepec, Morelos, México. Los muestreos fueron conducidos de Enero a Septiembre de 1989. Los resultados mostraron que el 40.3

