Three new *Habralictellus* bee species from the Caribbean (Hymenoptera: Halictidae)

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ABSTRACT. Three new species of the endemic West Indian bee lineage *Habralictellus* are described. *Habralictellus rufopanticis* sp. nov. occurs on Puerto Rico, Mona Island and the British Virgin Islands while *H. eickwortellus* sp. nov. is known only from Puerto Rico. *Habralictellus eleutherensis* sp. nov. is described from the Bahamas and Cuba. Available floral records for *H. rufopanticis* are provided.

Key words: Bees, Halictidae, *Habralictellus*, new species, Puerto Rico, Mona Island, British Virgin Islands, Bahamas, Cuba..

INTRODUCTION

The endemic West Indian bee genus *Habralictellus* consists of two uncommonly encountered species (Moure and Hurd, 1982). Although originally proposed and tentatively retained herein as a distinct genus, *Habralictellus* is certainly a monophyletic derivative of the more widely distributed genus *Dialictus*. Once the relationships among subgroups of *Dialictus* have been resolved *Habralictellus* should be considered as a subgenus of the former (or even recognized as merely a species-group within *Dialictus*, if this group is placed within an expanded *Lasioglossum*: as has been done by Michener, 2000).

Herein I provide descriptions for three closely related species of *Habralictellus*. The species are described here to make their names available for use by other authors studying the Caribbean bee fauna. The format for the descriptions roughly follows that used by Engel *et al*., (1997) and Engel (2000). Measurements were made using an ocular micrometer on a WILD-M5a microscope. Those values presented in the descriptions are for the holotype with ranges of variation given in parentheses. Sternum and tergum are abbreviated as "S" and "T" respectively.

SYSTEMATICS

Habralictellus rufopanticis, sp. nov.
(Fig. 1)

Diagnosis. Face brilliant metallic copper. Mesoscutum strongly shining, faintly imbricate, well-defined punctures scattered over central disc, punctures smaller and more tightly packed outside parapsidal lines. Two submarginal cells. Basal area of propodeum imbricate, without rugae. Female T2 without transverse medial band of brown, brown pigmentation restricted to lateral margins, metasoma rarely entirely brown.

Description. Female: Total body length 5.62 mm (5.10-5.94; n=5); forewing length 3.56 mm (3.36-3.56; n=5). Head broader than long, length 1.26 mm (1.22-1.30; n=5), width 1.44

mm (1.40-1.50; n=5). Mandible with weak subapical tooth. Lower half of clypeus extending below lower tangent of compound eyes. Epistomal sulcus obtuse. Ocelli above upper tangent of compound eyes. Eyes weakly emarginate above level of antennae; weakly convergent below. Mesoscutal anterior border broadly rounded. Intertegular distance 1.06 mm (0.98-1.20; n=5). Basal area of propodeum approximately as long as scutellum; metanotum approximately half length of scutellum. Basitibial plate with all borders well-defined; inner hind tibial spur pectinate. Two submarginal cells; distal wing venation weakened; distal hamuli arranged 2-1-2.

Labiomaxillary complex dark brown except palpi amber. Labrum reddish brown. Mandible black at base, apex reddish-brown, remainder amber. Clypeus dark brown on apical half, remainder brilliant metallic copper with strong metallic green highlights on lateral margins. Antennae brown except amber on basal third of scape, inner surface of scape, and inner surface of flagellomeres 3-10. Remainder of face brilliant metallic copper with metallic green highlights, blending to completely metallic green on vertex. Gena brilliant metallic green. Postgena mostly metallic copper. Mesosoma brilliant metallic green except pronotal lobe amber and integument near lobe dark brown. Tegula amber. Legs dark brown except amber on protibia, protarsus, and inner surface of mesotarsus; procoxa with some metallic green highlights. Wings hyaline; veins brown except pterostigma and Sc+R dark brown. Metasoma reddish-orange except on the following areas: dark brown on anterior surface of T1 excluding the basal margin, reddish brown on laterally on T2, reddish brown transverse band medially on T3, T4-6 dark brown; dark brown areas with strong metallic blue-green highlights. Sterna amber except brown on basal two-thirds of S5 and apical third of S6.

Clypeus and supraclypeal area with scattered weak punctures, integument between granular; punctures of supraclypeal are smaller than those on clypeus. Scape weakly punctured. Face more strongly granular with scattered faint punctures separated by 1-2 times puncture width. Granular integument becoming weaker towards ocelli, eventually blending to imbricate by vertex. Gena with small, well-defined punctures separated by puncture width, integument between smooth. Postgena imbricate. Pronotal dorsal surface smooth with minute punctures separated by more than 3 times puncture width except along border with mesoscutum punctures separated by less than puncture width, integument between smooth; lateral surface faintly imbricate and impunctate. Mesoscutum faintly imbricate with small, well-defined punctures separated by 2-4 times puncture width over central disc, punctures separated by 1-2 times puncture width outside parapsidal lines and somewhat smaller. Scutellum as on mesoscutum except punctures separated by 3-5 times puncture width over central disc, separated by 1-3 times puncture width on borders. Metanotum imbricate with small punctures separated by 1-3 times puncture width. Preëpisternum imbricate with punctures separated by 1-3 times puncture width. Mesepisternum imbricate with punctures separated by 2-4 times puncture width except hypoepimeron faintly imbricate and punctures along border with metepisternum punctures smaller and separated by 1-2 times puncture width. Metepisternum with transverse striae on upper half, lower half with faint punctures separated by less than puncture width. Basal area of propodeum imbricate; lateral and posterior surfaces imbricate, posterior surface slightly more faintly than lateral surface. Metasoma faintly imbricate.

Pubescence generally white to yellow. Face with scattered hairs, those at and below level of antennae with many minute branches, those above with relatively fewer minute branches and seeming less numerous. Gena with hairs like those of lower half of face. Postgena with widely scattered, long mostly simple hairs. Pronotal dorsal surface with appressed, short, branched hairs except along a transverse, medial band hairs absent. Mesoscutum with scattered hairs similar to those of vertex; hairs becoming nearly twice as long on scutellum

and metanotum. Pleura with hairs like scutellum and metanotum except metepisternum lacking long hairs instead with a few minute hairs. Propodeal lateral surface with hairs like metanotum on upper border, remainder of hairs simple but of same length; posterior surface with hairs like those of metanotum. Terga with scattered simple hairs, a few with minute branches; hairs becoming progressively more numerous and longer on more distal terga. Sternal hairs long and branched, confined to apical half to third of sterna.

Male: As for the female except as follows: Total body length 4.78 mm; forewing length 3.24 mm. Head length 1.18 mm, width 1.34 mm. Mandible simple. Intertegular distance 0.90 mm. Inner hind tibial spur serrate. Genital capsule as in Fig. 1.

Amber on inner surface of flagellum running from first flagellomere to distal flagellomere. Pronotal lobe dark brown. Legs dark brown except amber on protibia, tarsi, and inner apical half of mesotibia. Metasoma dark brown.

Aside from usual sex differences (e.g., absence of a scopa) pubescence as in the female except sternal hairs much shorter.

Types. Holotype, BRITISH VIRGIN ISLANDS: female, Guana Island, hotel area, 26-27.x.1992, R.R. Snelling, on flowers of *Schaefferia fructescens* [sic] (Celastraceae). Deposited in the Natural History Museum of Los Angeles County (NHMLAC). **Allotype,** PUERTO RICO: male, Mona Island, road above Uvero, 11.xi.1992, R. R. Snelling and J. A. Torres (NHMLAC). **Paratypes.** BRITISH VIRGIN ISLANDS: 14 females, same data as holotype. 4 females, same data as holotype except 7.x.1992 and collected on flowers of *Capparis cynophallophora* (Capparidaceae [sic]). 1 female, same data as previous specimens except 13-14.x.1992. 2 females, Guana Island, White Beach, 18°28.7'N 64°34.5'W, 2.vii.1993, R. R. Snelling, on flowers of *Casine xylocarpum* [sic]. 1 female, same data as previous specimen except 29.vi.1993. 1 female, same data as previous specimen except 30.vi.1993. PUERTO RICO: 3 females, Guanica, #120, 27.iv.1991, J.A. Torres. 1 female, Guanica Forest, Guanica, 27.x.1991, R. R. Snelling and J. A. Torres. All deposited in the NHMLAC.

Etymology. The specific epithet is derived from the Latin words *rufus* (meaning "reddish") and *pantex* (meaning "abdomen"), and is a reference to the mostly reddish-orange metasoma of this species.

Floral associations. CAPPARACEAE: *Capparis cynophallophora* L. CELASTRACEAE: *Schaefferia frutescens* Jacq. and *Cassine xylocarpa* Vent. (probably variety *caribea* Urban). Two females are covered in pollen, but most specimens lack pollen.

Variation. The degree of coloration on the metasomal terga is variable. The darkness of the dark spots or bands on the reddish-orange terga can range from reddish-brown to dark brown. The size of these area also vary. In one female the terga are mostly brown.

Habralictellus eickwortellus, sp. nov.

Diagnosis. Head and mesosoma brilliant metallic blue. Mesoscutum granular with well-defined punctures closely packed. Pleura granular. Three submarginal cells. Basal area of propodeum with short rugae along anterior margin, remainder of basal area imbricate. Female T2 without transverse brown band.

Description. As for *Habralictellus rufopanticis* sp. nov. except as indicated. Female: Total body length 5.64 mm; forewing length 4.56 mm. Head length 1.32 mm, width 1.38 mm. Intertegular distance 1.10 mm. Three submarginal cells.

Labrum black. Mandible black with reddish-brown apex. Clypeus black on apical half, remainder brilliant metallic blue with a few weak copper highlights medially. Remainder of face brilliant metallic blue with a few faint purple highlights a metallic copper highlight surrounding frontal line. Antennae brown. Gena and postgena brilliant metallic blue-green with a few metallic copper highlights. Mesosoma brilliant metallic blue with a few metallic

purple highlights except dark brown on pronotal lobe. Tegula brown. Legs black except amber on distal tarsomeres. Wings hyaline; veins black. Metasoma dark brown except reddish-orange on T1-2, S1-2, and brown on S3-6; lacking metallic highlights.

Clypeus, supraclypeal area, and face granular with a few small punctures above level of antennae, separated by a puncture width; granular integument becoming weaker by vertex. Scape not punctured. Gena imbricate. Pronotal dorsal surface smooth with small punctures separated by a puncture width or less; lateral surface granular. Mesoscutum granular with small punctures separated by less than a puncture width. Scutellum granular. Metanotum minutely roughened. Pleura granular. Basal area of propodeum strongly imbricate with short rugae along anterior margin extending only one-third of basal area length; lateral and posterior surfaces strongly imbricate.

Face with scattered hairs some with a few minute branches, hairs most numerous along inner margins of compound eyes and bordering epistomal sulcus. Fuscous hairs on outer surfaces of mesotibia, metatibia, metabasitarsus, and metatarsomere 2. Propodeal posterior surface with minute hairs surrounding pit, with scattered long branched hairs.

Male unknown.

Holotype. PUERTO RICO: female, Toro Negro Division, Caribbean National Forest, Cerro de Punta, 6.v.1985, coll., G. C. Eickwort. Deposited in the Cornell University Insect Collection, New York.

Etymology. The specific epithet honors my late mentor and friend, Dr. George C. Eickwort who collected the only known specimen.

Habralictellus eleutherensis, sp. nov.
(Fig. 2)

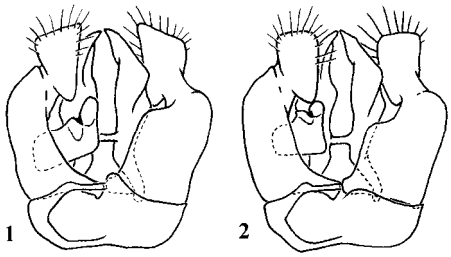
Diagnosis. Face brilliant metallic green. Mesocutum strongly imbricate, faint punctures scattered over central disc, punctures not smaller nor tightly packed outside parapsidal lines. Two submarginal cells. Basal area of propodeum imbricate, without rugae. Female T2 with transverse medial band of brown; metasoma strongly banded.

Description. As for *H. rufopanticis* sp. n. except as indicated. Female: Total body length 4.96 mm (4.54-4.96; n=7); forewing length 3.40 mm (3.20-3.40; n=7). Head length 1.16 mm (1.14-1.24; n=7), width 1.28 mm (1.20-1.32; n=7). Intertegular distance 0.96 mm (0.92-1.02; n=7).

Clypeus dark brown on apical half, remainder brilliant metallic green. Remainder of head brilliant metallic green. Legs dark brown except amber on protibia, protarsus, and inner surface of distal mesotarsomeres. Basal area of propodeum metallic blue. T1-4 reddish-orange with transverse, medial dark brown bands, bands with metallic blue highlights; T5-6 dark brown with metallic blue highlights. Sterna amber except apical margin of S6 dark brown.

Clypeus weakly imbricate. Integument of pronotal dorsal surface faintly imbricate. Mesoscutum strongly imbricate with faint punctures separated by 3-5 times puncture width, not closely packed outside parapsidal lines. Scutellum imbricate with punctures separated by 2-5 times puncture width, punctures primarily restricted to posterior half. Preëpisternum strongly imbricate with faint punctures separated by 1-3 times puncture width. Mesepisternum strongly imbricate.

Male: As for the female except as follows: Total body length 4.62 mm; forewing length 3.04 mm. Head length 1.06 mm, width 1.12 mm. Mandible simple. Intertegular distance 0.90 mm. Inner hind tibial spur serrate. Genital capsule as in Fig. 2.



Figs. 1-2. Male genitalia of *Habralictellus* species. 1. *Habralictellus rufopanticis* sp. n. 2. *H. eleutherensis* sp. n. Left half of images is the ventral view; right half is the dorsal view.

Types. Holotype, BAHAMAS: female, Eleuthera, Rainbow Bay, 1 July 1987, D. B. and R.W. Wiley, Malaise trap. Deposited in the Florida State Collection of Arthropods (FSCA). **Allotype.** BAHAMAS: male, same data as holotype (FSCA). **Paratypes,** BAHAMAS: 7 females, same data as holotype (FSCA). CUBA: 2 females, cayo Guillermo, Archipiélago Sabana-Camagüey, iv.1995, I. Fernández [No. 18.1695, Museo Nacional de Historia Natural de Cuba (MNHNCu)]; cayo Paredón, Archipiélago Sabana-Camagüey, v.1995, R. Rodríguez (No. 18.1696, MNHNCu).

Etymology. The specific epithet is derived from the type locality, Eleuthera Island, Bahamas.

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REFERENCES

Engel, M. S. 2000. Classification of the bee tribe Augochlorini (Hymenoptera: Halictidae). Bull. American Mus. Nat. Hist., 250: 1-90.

Engel, M. S.; R. W. Brooks, and D. Yanega. 1997. New genera and subgenera of augochlorine bees (Hymenoptera: Halictidae). Sci. Papers, Nat. Hist. Mus., Univ. Kansas 5: 1-21.

Michener, C. D. 2000. The bees of the world. Johns Hopkins Univ. Press; Baltimore, Maryland. 913 p.

Moure, J. S. and P. D. Hurd, Jr. 1982. On two new groups of neotropical halictine bees. Dusenia 13: 46.