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New species of *Trigona* and cleptobiotic *Lestrimelitta* from French Guiana (Hymenoptera: Apidae)

by

David W. Roubik*

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Abstract: The worker of a new species of cleptobiotic stingless bee, *Lestrimelitta guyanensis*, and the queen, worker and male of *Trigona (Tetragona) savannensis* are described from specimens collected in coastal forest and savanna of French Guiana. Type material was deposited in the Snow Entomological Museum, University of Kansas, Lawrence, Kansas, U.S.A.

The bee fauna of French Guiana, like that of British Guiana (Schwarz, 1938; 1940) and Surinam (F. Dingemanns-Bakels, personal communication to C. D. Michener, 1978), contains probably the largest number of stingless bee species (Meliponinae) in the world. There are 51 species known from British Guiana and 60 from Surinam. In French Guiana, Moure (1950) encountered 13 meliponine species near Cayenne, and during July 1976 to August 1977, I collected 51 species of stingless bees in the forest and savanna near Kourou (Roubik, 1979a). This paper describes two of several new species of meliponines found during this time, one of them a cleptobiotic bee that was seen robbing a nest of Africanized *Apis mellifera*, an introduced species now in most of South America (Taylor, 1977).

LESTRIMELITTA GUYANENSIS new sp.

Two species of *Lestrimelitta* have been described: *limão* and *ehrdardti*. The former occurs from Mexico to Argentina, while the second is known only from southern Brazil (Schwarz, 1948). This genus consists of cleptobiotic bees, which obtain their food from periodic raids of the nests of other meliponines, as well as introduced *Apis mellifera* (Michener, 1974). The species described here is sympatric with *L. limão*.

WORKER

Size: Length 5.9 mm; forewing length (including tegula) 5.9 mm; width of head 2.3 mm; width of thorax 2.8 mm; width of abdomen 2.0 mm.

* Smithsonian Tropical Research Institute, P. O. Box 2072, Balboa, Republic of Panama.

Color: General color black; malar area, labrum and border of clypeus ferruginous to ferrugino-testaceous; pronotal lobe, antennal scape, flagella, legs and mandibles castaneous or mahogony red.

Pubescence: Smooth and shining, small, sparse hairs on scutellum, somewhat more dense on thoracic notum; minute, whitish hairs distributed more or less evenly on head; stiff, black hairs on posterior edge of scutellum; similar but shorter hairs fringing the posterior tibia, all but the first metasomal sterna, and sparsely covering the median area of the metasomal sterna; median tibia and to a lesser degree, posterior femur, covered with stiff black hairs, slightly shorter than those on the dorsal margin of the hind tibia.

Punctation: Head and thoracic notum with fine, sparse, even punctation, somewhat denser on the propodeum.

Structure: Length of eye slightly greater than two times its width, its length and upper, middle and lower interorbital distances in the following proportions: 31:35:37.5:36.5*; length of malar area equal to width of flagellum IV (4); clypeus slightly longer than one-third its width (10:29); clypeocellar distance = 25; diameter of antennal socket = 3.5, less than interalveolar distance (5); alveolorbital distance = 13; alvelocellar distance = 23; interocellar distance = 8; proportions of ocellorbital, ocelloccipital, orbitoccipital distances and anterior ocellus diameter as follows: 10:9:15:4; posterior margin of head concave; length of scape = 20; length of pedicel = 5; proportional length of flagellar segments I-IV as follows: 5:2:2.5:3; diameter of scape = 3; width of scutellum almost three times its length (32.5;12.5); length and width of pterostigma 17 x 3.5, that of the marginal cell 37 x 9; number of hamuli on hind wing = 6; length of propodeal spiracle = 5; length of median tibia = 30, length of its basitarsus = 20; length and width of hind tibia 37.5 x 13; length and width of hind basitarsus 19 x 8; length of corbicular hairs = 5-7.

Variation: Two to four anterior metanotal hairs sometimes present.

Diagnostic characters: Larger than sympatric *L. limão,* which near Kourou lacks the ferruginous malar area and stiff, black hairs on the scutellum and margins of the metasomal terga; specimens of *limão* from São Paulo, Brasil, Kourou, French Guiana, and Barro Colorado Island, Panamá lacked the uniform covering of stiff, black hairs on the median tibia; *limão* also possesses five hamuli on the hind wing, rather than six; an identification of *L. guyanensis* was made in error by Roubik (1979b), based on a description provided by Schwarz (1948) of *L. limão,* which did not fit the specimens collected at a nest in French Guiana (see Roubik, 1979b); *Lestrimelitta* is reported to vary substantially and possibly contains several sibling species, or distinct subspecies of *limão* (J. Camargo, personal communication); a male paratype of *L. limão rufipes* Friese from São Paulo, Brasil, proved identical to *L. limão* collected from a nest in French Guiana and also to the illustrations given by Schwarz (1948) of *L. limão* from São Paulo, based on the structure of the genitalia.

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* Measurements given in ocular units; 23 = 1 mm.

Type material: Holotype and paratypes collected 17 km southwest of Kourou, French Guiana. The bees were taken while robbing a managed colony of Africanized *Apis mellifera,* captured by the author near Kourou.

TRIGONA (TETRAGONA) SAVANNENSIS new sp.

The subgenus *Tetragona* includes bees with mandibles edentate on the outer portion of the mandible, but often possessing two strongly developed inner teeth; the hind tibia is claviform, rounded apically, and is fringed with plumose or branched hairs (Moure, 1951; Schwarz, 1938). Moure (1961, 1963) divides the *Tetragona* into groups and elevates these to subgenera of the genus *Trigona.* Following the suggestion of Ihering, Moure (1963) places those *Tetragona* which arrange brood cells in clusters, rather than in combs, in a separate subgenus, *Frieseomelitta.* The species described here is a member of this group and has the morphological and bionomic characteristics of these bees (Moure, 1963). However, in this paper I prefer to use a broad classification which maintains *Frieseomelitta* within the *Tetragona* (see Wille and Michener, 1973). Moreover, the nest of the species described here is very similar to other, sympatric species of the subgenus *Tetragona* (Roubik, 1979b), as is the general appearance of the bee.

WORKER

Size: Length 5.5 mm; forewing length 5.2 mm; width of head 2.0 mm; width of thorax 2.0 mm; width of abdomen 1.5 mm.

Color: General body color black to brown; the following testaceous to ferrugino-testaceous: the tegula, the first and last two metasomal tergites and the posterior margin of metasomal tergites II-V, the prosternal lobe, the pedicel and scape, tarsus, and the basal two-thirds of the femur and tibia; legs otherwise brown to black; facial maculations yellow.

Pubescence: Short, often plumose testaceous or fulvous hairs on face, becoming longer and more dense on thorax and scutellum; episternal hairs longer and relatively sparse; abdomen smooth and shining.

Punctation: Sparse or lacking, largely obscured by dense pubescence.

Structure: Length of eye nearly four times its width, its length and upper, middle and lower interorbital distances in the following proportions: 30:28:30:24; malar area shorter than width of flagellum IV (1:3); clypeus slightly longer than one-half its width (12:21); clypeocellar distance equal to width of clypeus; clypeus protruding almost one-third the width of the eye; diameter of antennal socket = 4, equal to the interalveolar distance; alveolorbital distance = 9; alveocellar distance = 15; interocellar distance = 7; proportions of ocellorbital, ocelloccipital, orbitoccipital distances and diameter of anterior ocellus as follows: 8:4:4:4; posterior margin of head broadly concave, approaching a quarter-circle; length of scape = 20; length of pedicel = 2.5; proportional length of flagellar segments I-IV as follows: 2:5:4.5:4; diameter of scape = 3; width of scutellum twice its length (20:10); length and width of pterostigma 20 x 3; length and width of marginal cell 32 x 3; number of hamuli on hind wing = 6; length of propodeal spiracle three times its

width (6:2); length of median tibia and its basitarsus 34 and 20, respectively; length and width of hind tibia 54 x 19; length and width of hind basitarsus 24 x 8.5; length of corbicular hairs 7-8.

Variation: Coloration of the hind tibia completely dark to testaceous near base; transverse abdominal bands sometimes scarcely discernable.

Diagnostic characters: Differentiated from closely related *T. (Tetragona) flavicornis* (Fab.) = *T. (Tetragona) nigra pura* Schwarz = *Frieseomelitta doederlini* Moure by the reduced and more defined facial maculations of *savannensis* (Fig. 1) and the larger head and total size of the former species. Also distinct from *T. (Tetragona) angustula* Friese, which is generally lighter in color; its legs are testaceous, and its clypeal maculations are wider and more diffuse.

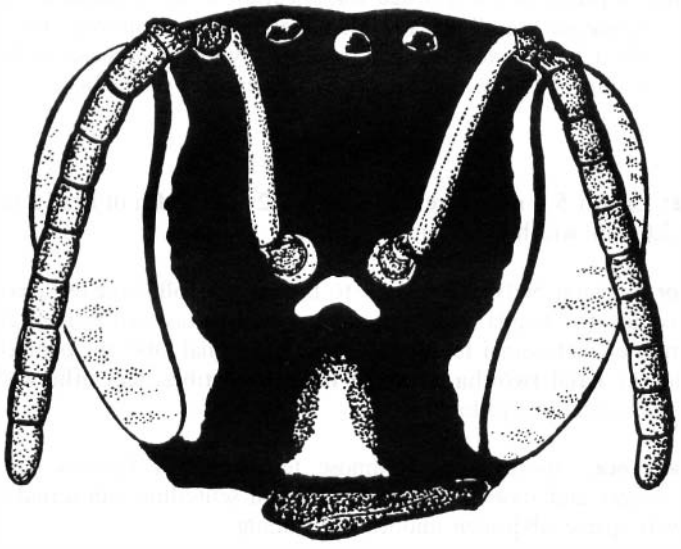

Fig. 1. The face of a worker *T. savannensis*.

QUEEN

Size: Length of gravid queen 10.5 mm; forewing length 5.1 mm; width of head 2.0 mm; width of thorax 2.5 mm; width of abdomen 4.5 mm.

Color: general color dark brown; antennae, legs and abdominal tergites fulvo-testaceous.

Pubescence: Plumose or branched hairs lacking; short to medium-length hairs on head and thorax, becoming shorter and sparse on first metasomal tergite and progressively more dense caudally.

Punctation: Uniformly smooth and shining.

Structure: Length of eye slightly less than three times its width, its length and proportional dimensions of upper, middle and lower interorbital distances as follows: 26:34:36:32; length of malar area greater than width of flagellum IV (5:4); length of clypeus one-half its width (12.5:25); clypeocellar distance = 23; diameter of antennal socket = 5, greater than interalveolar distance (4); alveolorbital distance = 10; alveocellar distance = 14; interocellar distance = 8; proportions of ocellorbital, ocelloccipital, orbitoccipital distances and diameter of anterior ocellus as follows: 16:4:6:4; posterior margin of head concave; length of scape = 21; length of pedicel = 4; proportional length of flagellar segments I-IV as follows: 3:4.5:4:5; diameter of scape = 4; width of scutellum more than twice its length (28:11); length and width of pterostigma 19 x 3; length and width of marginal cell 34 x 8; length of propodeal spiracle less than three times its width (6:2.5); length of median tibia = 35; length of median basitarsus = 25; length and width of hind tibia 54 x 13; length and width of hind basitarsus 25 x 6; length of corbicular hairs 6-9.

MALE

Size: Length 5.2 mm; length of forewing 5.4 mm; width of head 2.2 mm; width of thorax 2.0 mm; width of abdomen 1.7 mm.

Color: Head and thorax black to dark brown; scutellum, metasomal segments and basal half of legs testaceous; facial maculations yellow.

Pubescence: Similar to worker.

Structure: Width of eye slightly greater than one-third its length (12:31); upper, middle and lower interorbital distances as follows: (32:35:26); length of malar area shorter than width of flagellum IV (2:3); width of clypeus more than twice its length (26:10); clypeocellar distance = 23; diameter of antennal socket = 5; greater than interalveolar distance (3); alveolorbital distance = 10; alveocellar distance = 15; interocellar distance = 6.5; proportions of ocellorbital, ocelloccipital, orbitoccipital distances and diameter of anterior ocellus as follows: 7.5:4.5:6:4; posterior margin of head concave; length of scape = 19; length of pedicel = 3; proportional width of scutellum more than twice its length (25:11); length and width of pterostigma 33 x 8; length and width of marginal cell 20 x 3; number of hamuli on hind wing = 6; length of propodeal spiracle twice its width (6:3); length of median tibia = 30; length of median basitarsus = 22; length and width of hind tibia 56 x 18; length and width of hind basitarsus 20 x 10; length of corbicular hairs 5-6.

Type Material: Holotype of worker and queen from a nest, 30 km northwest of Kourou, French Guiana; male holotype from a nest 8 km northwest of Kourou; paratypes of workers were collected at forest-savanna edges near coastal French Guiana, between Sinnamary and Kourou; extensive collections made within the forest toward the interior did not include this species. An observation colony of this species was maintained for seven months 7.5 km southwest of Kourou, and the nest is described elsewhere (Roubik, 1979b). Type material has been placed in the Snow Entomological Museum, University of Kansas, Lawrence, Kansas, U.S.A.

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RESUMEN

Se describen la obrera de una nueva especie de abeja melipónida cleptobiótica, *Lestrimelitta guyanensis*, y también la obrera, reina y macho de otra especie nueva, *Trigona (Tetragona) savannensis* de una región de bosque y sabana costeña en Guyana Francesa. Los holotipos y tipos fueron depositados en Snow Entomological Museum, University of Kansas, Lawrence, Kansas, U.S.A.

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