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The Philippine Bees of the Family Nomadidæ

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THE PHILIPPINE BEES OF THE FAMILY NOMADIDÆ

By T. D. A. COCKERELL
(*University of Colorado*)

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Nomada pervasor sp. nov.

Male (type).—Length, about 6 millimeters; black, with the following chrome-yellow markings: Basal part of mandibles (which have no inner tooth), labrum, lower margin of clypeus, small triangular areas at lower corners of face, claviform streak above eyes, scape in front except at base (but suffused with reddish), tubercles, tegulae (except a dark spot), scutellum (which is bilobed), apical part of femora (especially in front), tibiae (except a dusky mark, and on hind tibiae the middle half dark, except a stripe behind), anterior tarsi and middle basitarsi, large spots on each side of second and third abdominal segments, smaller (paler) marks on fourth, a briefly interrupted band on fifth, and a broad complete band on sixth. Middle of face and a transverse mark on pleura reddish; apical plate of abdomen pale ferruginous, very deeply notched; flagellum long, black; third antennal joint a little longer than fourth; mesothorax very densely and coarsely punctured; wings with only two submarginal cells, the second transverse-cubital nervure lacking; apical part of wings strongly infuscated; basal nervure going far basad of transverse median; abdomen polished and shining, first segment entirely black.

Female.—Similar to the male in most respects; a large, quadrate, subapical yellow patch (more or less emarginate anteriorly) on abdomen.

LUZON, Benguet, Baguio (*Baker*), 1 male, 3 females.

Nomada attrita sp. nov.

Female.—Length, a little over 4 millimeters; differing from *N. makilingensis* thus: Smaller; front black, with a red band along each orbit; mesothorax with middle third or rather more black, lateral parts dusky red; abdomen beyond first segment suffusedly blackened.

MINDANAO, Butuan (*Baker* collection).

Nomada makilingensis Cockerell.

Nomada makilingensis COCKERELL, Ann. & Mag. Nat. Hist. (1915), VIII, 15, 263.

LUZON, Laguna, Mount Maquiling (*Baker*).

Nomada palavanica sp. nov.

Nomada mindanaonis, variety, COCKERELL, Ann. & Mag. Nat. Hist. (1915), VIII, 15, 4.

Female.—Length, about 5.5 millimeters; differing from *N. makilingensis* by the absence of yellow spots on second abdominal segment, the black flagellum, and the dusky hind legs.

PALAWAN, Puerto Princesa (*Baker* collection). I was evidently in error in regarding this as a variety of *N. mindanaonis*; the first recurrent nervure joins the second submarginal cell much nearer the base than in that species.

Nomada banahaonis Cockerell.

Nomada banahaonis COCKERELL, Ann. & Mag. Nat. Hist. (1915), VIII, 15, 264.

LUZON, Mount Banahao (*Baker*). The male varies in size; length, 4.5 to 6 millimeters.

Nomada mindanaonis Cockerell.

Nomada mindanaonis COCKERELL, Ann. & Mag. Nat. Hist. (1915), VIII, 15, 265.

MINDANAO, Dapitan (type locality); Davao. PALAWAN, Puerto Princesa. All from Baker. The tegulæ of the male vary to red. The females vary, Davao specimens showing more or less dusky shades on the abdomen. It becomes difficult to separate females of this species from *N. lusca*, but I have no male of *lusca* from Luzon. It is quite possible that *N. mindanaonis* is only a local race of *lusca*, differing in average rather than absolute characters. The type is a male.

Nomada exheredans sp. nov.

Female.—Length, about 5.5 millimeters; red with blackish markings, the second abdominal segment with a large round yellow spot on each side; mandibles simple; front, occiput, and cheeks black, but a red band along orbits; scape long, red, with a dusky spot at apex behind; flagellum very long, reddish black, the basal half red beneath; third antennal joint about as long as fourth; mesothorax dusky red, with a broad median black stripe and obscure sublateral ones; white hair patches on mesothorax dense and bright; tegulæ clear red; wings dusky at apex; basal nervure going a short distance basad of transverse median; second submarginal cell large; legs clear ferruginous, only the hind tarsi dusky; abdomen with broad dusky bands; venter clear red.

LEYTE, Tacloban (*Baker* collection).

Nomada concessa sp. nov.

Female.—Length, about 6 millimeters; black, marked with yellow and red; closely related to *N. bakeri*, but differing thus: Mesothorax very distinctly shining between the punctures, its lateral margins reddish; first abdominal segment broader, and with a broad band; hind tibiæ red.

MINDANAO, Dapitan (*Baker* collection).

Nomada bakeri Cockerell.

Nomada bakeri COCKERELL, Ann. & Mag. Nat. Hist. (1915), VIII, 15, 263.

LUZON, Mount Maquiling (*Baker*).

Nomada lusca Smith.

Nomada lusca SMITH, Cat. Hymenop. Insects British Museum, pt. 2 (1854), 243; BINGHAM, Fauna British India, Hymenoptera (1897), 1, 465; COCKERELL, Trans. Amer. Ent. Soc. (1905), 31, 313; COCKERELL, Ann. & Mag. Nat. Hist. (1915), VIII, 15, 263.

LUZON, Los Baños; Benguet, Baguio (*Baker*). This species was briefly described by F. Smith from the Philippine Islands, the particular island not stated. I have examined Smith's type in the British Museum. Bingham recorded the species from "Sikhim; Tenasserim; Ceylon; Philippines;" remarking however that the variety he described appeared to be intermediate between the Philippine *N. lusca* and the Indian *N. adusta*. I have little doubt that true *N. lusca* is confined to the Philippines, the Indian specimens belonging to one or more distinct species. Bingham was inclined to lump species in *Nomada*; thus he placed *N. subpetiolata* Smith as a synonym of *N. adusta* Smith, but Meade-Waldo later reestablished it as a valid species.

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