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The Sphecodine Bees of the Philippine Islands

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THE SPHECODINE BEES OF THE PHILIPPINE ISLANDS

By T. D. A. COCKERELL
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THE SPHECODINE BEES OF THE PHILIPPINE ISLANDS

By T. D. A. COCKERELL

(University of Colorado, Boulder)

The genus *Sphecodes* Latreille consists of small or medium-sized bees, usually with red abdomen, widely distributed over both hemispheres. The venation, with three submarginal cells, well-developed stigma, and arched basal nervure, is much like that of *Halictus*, but the end of the female abdomen is quite without the characteristic rima of that genus. The second submarginal cell is narrow, higher than broad. Sixteen species are known from India, three from Japan, one from Formosa, and three from Java. There are also a species in Celebes, one in New Guinea, and one in Australia. Up to the present time only one Philippine species has been known, but four others may now be added. They may be separated by the following table:

Females	1
Males (joints of flagellum swollen or knotlike).....	3
1. Mesothorax rough and extremely densely punctured..... bakeri Cockerell.	
Mesothorax smooth and shining between the well-separated punctures	2
2. Larger; head subcircular.....	rotundiceps sp. nov.
Smaller; head transversely oval.....	transversus sp. nov.
3. Larger; head very broad; middle of abdomen red.....	latifrons sp. nov.
Smaller; head not very broad; abdomen dark.....	tristellus sp. nov.

Sphecodes bakeri Cockerell.

Sphecodes bakeri COCKERELL, Ann. & Mag. Nat. Hist. VIII 16 (1915) 489.

MINDANAO, Dapitan (type locality) and Davao. Both from C. F. Baker.

Sphecodes rotundiceps sp. nov.

Female.—Length, about 9 millimeters; anterior wing, 8; black; with the first three segments of abdomen dark red, the others black; tarsi ferruginous at apex; head and thorax with white hair, conspicuous on sides of face, tubercles, a band extending from tubercles down pleura and sides of metathorax; head subcircular; mandibles dark reddish apically and with a small inner tooth; clypeus short and convex, shining, with large

irregular punctures; front very coarsely and closely punctured, but with a bow-shaped transverse smooth band; top of head elevated, very convex, all the ocelli above the level of top of eyes; mesothorax shining, with very strong irregular punctures, more or less in rows; scutellum similarly sculptured; base of metathorax shining, very coarsely cancellate; tegulae piceous with a rufous spot; wings strongly brownish; stigma piceous; abdomen shining, the first two segments with scattered but very distinct punctures; a strong constriction between first and second dorsal segments.

LUZON, Laguna Province, Los Baños (*Baker*). Nearest to *S. fumipennis* Smith, but smaller, with darker abdomen.

Sphecodes transversus sp. nov.

Female.—Length, a little over 7 millimeters; anterior wing, a little over 6 millimeters; black, with the abdomen castaneous red, black beyond the extreme base of fourth segment; mandibles obscurely red apically, and with an inner tooth; head very broad, transversely oval, face with rather thin white hair; clypeus roughened, depressed in middle; region behind the summits of eyes smooth and polished; mesothorax and scutellum polished, with scattered distinct punctures; base of metathorax with a series of large inclosed spaces; pleura conspicuously hairy; tegulae piceous, the outer margin partly pallid; wings brownish, stigma dark reddish; legs very dark reddish, with white hair; abdomen shining, without distinct punctures; constriction between first and second segments moderate.

LUZON, Mount Maquiling (*Baker*). By the broad head this recalls the smaller *S. biroi* Friese, from New Guinea.

Sphecodes latifrons sp. nov.

Male.—Length, about 6.5 millimeters; anterior wing, 5.5 millimeters; black, the abdomen red as far as the middle of the third segment, but the basal segment dorsally reddish black; head very broad; face and front densely covered with white hair; mandibles red in middle; occiput strongly elevated; mesothorax and scutellum shining, with large and strong, rather close punctures; base of metathorax very coarsely, irregularly cancellate; small joints of tarsi pale ferruginous; tegulae piceous basally, the outer side broadly hyaline; wings dilute fuliginous, stigma dark reddish; abdomen shining, the first two segments with fine but distinct punctures.

LUZON, Baguio, Benguet (*Baker*). Closely allied to *S. transversus*, but surely not its male, on account of the punctured ab-

domen, the closer and larger punctures of mesothorax, and the irregularly sculptured base of metathorax. The scanty hair on apical half of abdomen is white in *S. latifrons*, yellowish in *S. transversus*.

Sphecodes tristellus sp. nov.

Male.—Length, about 5.5 millimeters; black, with the tarsi pale ferruginous apically; apical margin of first abdominal segment and extreme base of second narrowly chestnut red, and sides of first two segments broadly suffused with red; head subcircular; clypeus shining, but strongly and quite closely punctured, not at all hidden by hair; scape short; third antennal joint about one-third as long as fourth; surface of flagellar joints microscopically reticulate; front and sides of face with much white hair, not however hiding the surface; mesothorax with very large, rather dense punctures, partly confluent in rows; tegulae rufotestaceous, with the margin pallid; wings hyaline, the apical field dilute brown; stigma ferruginous; base of metathorax very coarsely cancellate; abdomen delicately and sparsely but distinctly punctured. The type has the second submarginal cell extraordinarily narrow on one side, while on the other the second transversocubital nervure is lacking. There is a distinct dorsal constriction between the first and second abdominal segments.

LEYTE, Tacloban (*Baker*). Resembles *S. javanicus* Friese, from Buitenzorg, Java, but is considerably smaller, with less red on abdomen.

ADDITIONAL NOTE ON CERATINA

Ceratina humilior (Cockerell).

Ceratina philippinensis nigrolateralis humilior COCKERELL, Philip. Journ. Sci. § D 11 (1916) 305.

A second specimen from the original locality agrees, and I now believe that this is a quite distinct species. The first abdominal segment is reddish orange, with a black spot on each side.

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