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AFRICAN BEES OF THE GENUS COLLETES

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The bees now recorded are the hitherto unreported specimens from the Cockerell-Mackie-Ogilvie Expedition of 1931–1932, and some material received from Dr. J. Bequaert. The holotypes described will be found in the American Museum.

It is a singular fact that, whereas the *Hylaeus* of Central and South Africa constitute a peculiar group, different from those of other regions, the *Colletes* are in the strictest sense congeneric with those of the Holarctic Region, though the species are different.

The species now recorded may be separated as follows:

1.—Females
Males11.
2.—Hair of scutellum not evidently red
Hair of scutellum red6.
3.—Larger (about 12 mm. long); mesothorax and scutellum with much black hair.
antecessus Cockerell.
Smaller4.
4.—Scutellum covered with erect black hairsororcula, n. sp.
Scutellum without such hair; clypeus dull
5.—Larger; face very broad, mandibles dark
Smaller; orbits strongly converging below, mandibles red.
fusconotus Cockerell.
6.—Thorax above without black hair7.
Thorax above with some black or dark hair9.
7.—Clypeus with well-separated elongate punctures; mandibles red, black at
basemichaelis, n. sp.
Clypeus very densely punctured8.
8.—Second tergite shining, with fine punctures and lineolate sculpture.
marleyi Cockerell.
Second tergite dull, with excessively minute punctures, barely visible under a
lens
9.—Scutellum without dark hair mixed with the red; abdominal bands white or
grayish white (not at all ochreous); face narrower than in C. marleyi, with
orbits more converging belowogilviei, n. sp.
Scutellum with dark hair mixed with the red; abdominal bands ochreous10
10.—Larger; first tergite highly polishedsordescens Cockerell
Smaller; first tergite dull
11.—Thorax with much black or dark hair above12

Thorax without dark hair above
12.—Clypeus polished, sparsely punctured, with a deep median groove.
mackieae Cockerell.
Clypeus closely punctured
Scutellum with white hair (Graaff-Reinet) martini Cockerell, variety.
15.—Malar space very short; small species with hair of mesothorax grayish white or faintly yellowish
Abdominal bands grayish white (Graaff-Reinet)opaciventris Friese.
Friese (1925, Zool. Jahrb., XLIX, pp. 521–523) gives a table for the separation of African <i>Colletes</i> . The American Museum obtained from Friese a series of these bees, and I made the following table. The localities cited are those of the specimens examined.
1.—Hind tibiae and tarsi, and apical part of femora, clear red; mesothorax and scutellum with dark hairs intermixed; tegulae red; flagellum black (Cape Town)

5.—Very small, with pure white hair; flagellum red beneath; hind basitarsi not red basally (Fayûm)
Larger; hind basitarsi red at base; flagellum not red beneath6.
6.—Stigma clear light fulvous; second cubital cell very broad (Bushmanland).
opacigenalis Friese, male.
Stigma much smaller, and dark (Montagu, Cape Province).
breviceps Friese, male.
7.—Females8.
Males, all with dark flagellum
8.—Mandibles red in middle; tegulae clear red; stigma dusky red; abdominal bands broad and gray (Salisbury, Southern Rhodesia).
parafodiens Friese, 1925.
parafodiens Friese, 1925. Mandibles not or hardly red in middle
Hair of face yellowish
10.—Face very broad (Karibib)
Face narrower, orbits converging (Mfongosi, Zululand)zuluensis Friese.
11.—Hind tibiae and tarsi partly rufescent; hair of scutellum very bright red (Zeerust, alt. 3869 ft.)
Hind tibiae and tarsi dark; hair of scutellum fulvous (Mulango). *rufitarsis* Friese, variety.
, ,
12.—Wings suffused with reddish; nervures dark; face with long dull white hair (Salisbury, Southern Rhodesia)
Wings not distinctly reddish
13.—Stigma very small and dark; hair of face and front all fulvous (Mulango). *rufitarsis* Friese.
Stigma red or reddish14.
14.—Stigma clear fulvous without dark margin; second cubital cell parallel-sided, receiving recurrent nervure much before middle (Capland).
opaciventris Friese.
Stigma red, with dark margin15.
15.—Stigma longer (Mfongosi, Zululand)
The last two are very much alike.
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C. opacus Friese is described in the paper cited above, but omitted
from the table.
I also possess many of the Friese species, received from Friese.

Colletes antecessus Cockerell

Kirstenbosch, near Cape Town, November 18, 1933 (J. Ogilvie).

Colletes bukavanus, new species

MALE.—Length about 10.5 mm., anterior wing 7.9; black, rather robust, labrum black, with a large pit; mandibles black, with a red zone in middle; tegulae fulvous; flagellum very obscurely reddish beneath; legs black, the tarsi dusky rufous; hair of head and thorax long and abundant, dull white on cheeks and lower part of thorax, clear white on lower part of face, but on upper part, and on vertex, tinged with red; thorax above, and region of tubercles, with pale red hair, not brighter on scutellum, sparingly mixed with brown on disc of mesothorax and on scutellum; face broad, eyes not much converging below; malar space as long as broad; clypeus shining, with well-separated punctures, but largely hidden by the long hair; mesothorax shining, with well-separated punctures, median groove distinct; scutellum rough and dull; area of metathorax with strong plicae and a transverse keel; wings reddish hyaline; stigma and nervures dusky reddish; second cubital cell rather strongly contracted above, receiving recurrent nervure a little beyond the middle; felt-like hair on hind tibiae posteriorly very light, so that when the tibiae are seen from the outer side, the hind margin is marked by a white stripe; abdomen with six moderately broad, dull whitish hair-bands, on more or less testaceous margins; first tergite densely and minutely punctured, a little shining, and covered with long, slightly fulvescent hair; some short black hair on discs of third and following tergites; the abdomen in general is rather conspicuously shining; venter with well-developed pale bands.

Belgian Congo: Bukavu, August 10, 1931 (Alice Mackie). To be compared with *C. sordescens* Cockerell, which differs by the much narrower and whiter abdominal bands. In Friese's table it runs to *C. opacigenalis* Friese, which has quite different wings and pubescence.

Colletes callaspis, new species

FEMALE (type).—Length about 10 mm., anterior wing 7; robust, black, including legs, except that last joint of tarsi is red; mandibles with apical half obscurely reddish, inner tooth feeble; malar space extremely short; clypeus very coarsely and densely punctured; face broad; flagellum very obscurely brownish beneath; ocelli widely separated; face, cheeks, and sides of thorax with rather dull white hair, but snow-white at sides of face; mesothorax dull, except disc posteriorly, which is broadly exposed, impunctate and brilliantly polished; scutellum shining in front; descending (apical) part of area of metathorax shining, crossed by widely spaced, gently arched, raised lines; upper part with plicae, largely hidden by the abundant hair; no dark hair on thorax above; mesothorax with short, faintly fulvescent hair, scutellum with clear light ferruginous; tegulae rufous; wings hyaline, faintly dusky but slightly milky; stigma red with a dark margin, nervures dark brown; second cubital cell receiving recurrent nervure in middle; legs with whitish hair, reddish on inner side of tarsi; middle femora with a strong dentiform angle beneath; abdomen moderately shining, not polished; first tergite with strong close punctures, second with very much smaller punctures; first four tergites with white hair-bands, that on first overlapping base of second; margins of sternites shining, with very weak hairbands.

MALE.—Length about 8 mm.; antennae black; malar space slightly longer than in female, but very short; wings distinctly milky; venter of abdomen with much white hair; abdomen with five light bands.

Southern Rhodesia: Matopo Hills, April 17–30, 1932 (L. Ogilvie). The female is extremely like *C. cinctellus* Friese, from Salisbury, Southern Rhodesia (D. Dodds), received from Friese. It differs from this *C.*

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cinctellus by the contrasting colors of mesothorax and scutellum (well shown in both sexes) and more distinctly punctured first tergite. However, C. cinctellus was described from Zululand, and said to have reddish legs and dusky wings; I doubt whether the Salisbury insect is the same species.

Colletes fusconotus Cockerell

Natal: Merebank, October 16, 1931, two females (Cockerell, J. Ogilvie).

Colletes hirtibasis, new species

MALE.—Length about 8.5 mm., anterior wing 6; rather slender, black, including antennae and legs, except that the tarsi are red at apex; head broad and short; malar space about twice as broad as long; tubercles at base of mandibles very prominent; mandibles red at end; clypeus and mesothorax shining, but well punctured; scutellum shining between punctures; base of metathorax, above the transverse keel, finely pitted and wrinkled, without distinct parallel plicae; head and thorax densely covered with long hair, dull white on cheeks and under side of thorax, creamy white on face, pale vellowish on thorax above, the scutellum not contrasting with mesothorax; tegulae rufous; wings hyaline; stigma light red, the border darker; nervures pale red, the marginal cell bounded by a dark nervure; second cubital cell only moderately broad, receiving recurrent nervure at middle; legs with white hair, pale vellowish on inner side of tarsi; first tergite dull, very densely and finely punctured, but the punctures visible under a lens; following tergites finely punctured, somewhat glistening; six broad shaggy yellowish hair-bands; first tergite with very long pale hair all over, second with long pale hair in middle; no black hair before the bands; venter with pale hair-bands; third and fourth sternites each with a large triangular whitish area.

Cape Province: Ceres, February 12–18, 1932 (Alice Mackie). This is much smaller than *C. opaciventris* Friese, and differs by the long light hair on second tergite. By this character it resembles *C. volkmanni* Friese, but differs from that by the dark tarsi and pale hair of scutellum.

Colletes latibasis, new species

Male.—Length about 10 mm., anterior wing 7.2; black, rather robust, apical half of mandibles obscurely reddish, antennae entirely black, tegulae light rufotestaceous, legs black, the tarsi rufescent apically, the hind basitarsi obscurely reddish; hair of thorax above long, bright fox-red, with no admixture of dark hairs; hair of head and thorax otherwise pale fulvous, a little brown about ocelli, whitish (but not white) on cheeks and lower part of face; malar space large, but not as long as broad; face broad; clypeus shining between the strong punctures; mesothorax entirely dull, with a minutely granular surface; scutellum narrowly shining along anterior edge; area of metathorax triangular, the base with fine close plicae, the middle crossed by a transverse ridge [C. malma (Cameron) has a triangular area, which is dull, with a small shining triangle, with a median plica, at basal middle]; wings dusky, with small red dark-margined stigma, and dark brown nervures;

second cubital cell very broad, receiving recurrent nervure at middle; legs with pale fulvescent hair; abdomen broad, the first tergite unusually short and broad, glistening in middle, but extremely finely densely punctured; the other tergites also glistening, with extremely minute close punctures, the dark parts with long black hairs; five broad even fulvous marginal bands, that on first tergite like the others; venter with broad bands.

Cape Province: Cape Town (type locality), April 4, 1920 (Michael Bequaert). Orange Free State: Ficksburg, February–March, 1932 (J. Ogilvie). Related to *C. mitescens* Cockerell, but quite distinct by the broader abdomen; shorter, relatively broader, first tergite; broader hair-band on first tergite; plicae at base of metathorax much more numerous; and larger and broader head. It is near to *C. opaciventris* Friese, but larger, with darker wings and venation, dark-margined stigma, details of venation, etc.

Colletes malleatus Cockerell

Southern Rhodesia: Vumba, Umtali, May 23–26, eight females (J. Ogilvie, L. Ogilvie, A. Mackie).

From this locality come numerous females, all at first sight appearing the same. First of all, it is possible to separate C. marleyi, on account of the conspicuously punctured first tergite. The residue gave me some trouble. At one extreme stood specimens with polished first tergite, and some dark hairs mixed with the light on thorax above. sordescens Cockerell, 1933. But they appeared to grade into a series with dull first tergite, through examples in which the second tergite was dull but the first distinctly shining. I found, however, that the outer intercubitus in both sexes of C. sordescens had a double curve, but in C. malleatus Cockerell, based on the male from Vumba, this was not distinctly the case. All the females, except those already assigned as above, had the malleatus venation, and I refer them to that species with some confidence. In the table of males in Entomologist, September, 1933, p. 207, these females run exactly to malleatus, having the reddish wings and black hair before the abdominal bands. Against the reference to C. malleatus are two characters, the malar space is much shorter, and the first tergite is not so finely roughened. But comparison of the sexes of C. succinctus shows that these are presumably sexual characters.

Colletes marleyi Cockerell

Southern Rhodesia: Vumba and Christmas Pass, Umtali, May, females (J. Ogilvie). The well-punctured first tergite resembles that of the European C. succinctus (Linnaeus). C. malma (Cameron) has the

sagittae of the male genitalia formed much as in *C. marleyi*, broadly obliquely truncate at end. It was described as an *Andrena*.

Colletes martini Cockerell

In 1932 I recorded this from Calvinia and Graaff-Reinet. The rest of the series having been mounted, I note that 16 males from Calvinia have the scutellum with yellowish hair (thus resembling the type), but 13 from Graaff-Reinet have this hair white. I thought it possible that there might be two species, but the genitalia and seventh ventral plate do not differ. The genitalia are about as in C. bracatus Pérez. The dark inner sagittal rod runs to the end, and the broad wing is subtruncate at end, but with the outer apical corner rounded, gradually sloping away to the side. The seventh ventral plate is not at all as in C. bracatus. but is more like that of C. montanus Morawitz, with a strong dentiform projection on outer side near base. There is, however, a very good distinguishing character in a large rounded lateral lobe, bearing a regular fringe of long hair. The genitalia are quite distinct from those of C. fascicularis Cockerell, found at Nieuwoudtville. In that species the sagittal rods are very broad, broadly rounded and shining at end, while the broad dark wing has a rounded apical emargination, rather in the style of C. abeillei Pérez and C. fodiens Kirby.

Colletes michaelis, new species

MALE (type).—Length about 11 mm.; wings short, about 7 mm.; abdomen long and narrow, width about 2.7 mm., conspicuously narrower than thorax; black, with the mandibles red, black at base; flagellum long, black; tegulae light rufofulvous; legs very dark brown, nearly black, including basitarsi, but the tarsi light reddish at end; middle and hind tibiae red at extreme end; malar space about twice as broad as long; face rather broad; head and thorax with abundant long hair. orange-ferruginous on head and thorax above, without dark hairs intermixed, pale fulvous on face, white on cheeks, pale fulvescent on sides of thorax; mesothorax dull, very densely and finely punctured, a little shining on disc posteriorly; scutellum shining in front; area of metathorax with the usual plicae, and a strong transverse keel; wings dusky hyaline; stigma red with a dark margin; nervures brown; second cubital cell much contracted above, receiving recurrent nervure about the middle; abdomen moderately shining, finely punctured, the punctures on first tergite distinct but dense; five entire hair-bands, which are pale grayish, slightly fulvescent, not very broad, the margins of tergites beneath them pallid; venter with narrow bands. The genitalia resemble those of C. bracatus Pérez, but the hyaline wings of the sagittae are very large and broad, broadly and obtusely rounded at end (not truncate as in C. marleyi Cockerell), extending somewhat beyond the ends of the inner dark rods; the stipites have a broad flattened base, with an apical process like the last joint of a finger, bearing long hairs; the volsella is large and round. C. volsellata Metz, from Mexico, is another species with similar genitalia.

Female.—Length about 10 mm.; mandibles red with black base; clypeus with coarse elongate punctures, and a narrow median groove; flagellum red beneath except at base; hind tarsi red; abdomen very finely punctured, the bands of tomentum gray. The wings are quite strongly reddish.

Belgian Congo (Katanga): Lubumbashi (Michael Bequaert). Male, January 10; female, January 12, 1921. The abdomen (especially the first tergite) resembles that of *C. marleyi*, but it differs from that (male) by the longer flagellum, and narrower face with fulvescent hair. *C. parafodiens* Friese, female, from Southern Rhodesia, is smaller (9 mm.). malar space almost linear, tarsi fulvous, and abdominal bands yellow.

Colletes missionum Cockerell

Transvaal: Wonderboom, near Pretoria, October 4, 1931, male (J. Ogilvie). Described from the Katanga Mission, Belgian Congo. It closely resembles *C. opacigenalis* Friese, at first sight, but differs by the following characters: stigma larger and dark margined; nervures stronger and much darker; malar space much shorter; labrum clear red; head narrower; eyes brown; hair of mesothorax faintly yellowish; second tergite shining. The *C. opacigenalis* compared is one of the original lot, from Henkries, Bushmanland (Lightfoot). *C. missionum* is easily known from *C. fascicularis* Cockerell by the broader, shining, first tergite and red labrum.

Colletes ogilviei, new species

Female.—Length about 10.5 mm., anterior wing 8; robust, black, the mandibles with the apical half very obscurely reddened; antennae black, the flagellum short; tegulae rufofulyous; legs black, with the tarsi red at end, the hind tarsi entirely obscurely reddish, and a little, hardly noticeable reddish suffusion at each end of hind tibiae; malar space very short but not linear; face broad, but orbits strongly converging below; clypeus dull and rough; hair of face, cheeks, and sides of thorax rather dull white; vertex with faintly reddish hair; mesothorax and tubercles with pale fulvescent hair, the disc of mesothorax with much black hair; scutellum with bright ferruginous hair, not mixed with black; mesothorax dull and rough, not polished anywhere; scutellum in front a little shining but closely punctured; base of metathorax with strong close plicae, crossed by an irregular band, and bounded below by a strong transverse keel; below the keel the surface is shining, with widely spaced plicae: wings hyaline, very faintly reddish, stigma red with a dark border, nervures dark brown; second cubital cell broad, but with strongly sloping sides, receiving recurrent nervure in middle; legs with mainly white hair, light red on inner side of tarsi; middle femora produced to a strong angle beneath; abdomen broad, moderately shining, the first tergite dorsally dull, with very fine and dense but distinct punctures; second tergite finely punctured but shining; tergites 2 to 5 with broad cinereous bands, first tergite with a narrow band, rather broad at sides, but very weak in middle; venter polished, the bands feebly developed.

Natal: National Park, March 3–15, 1932 (J. Ogilvie). It differs from C. mitescens by the much more distinctly punctured first tergite, narrower face, and mesothorax with conspicuous dark hair. The dull, closely punctured first tergite at once separates it from C. sordescens. It is very like the male of C. opaciventris Friese, but can hardly be its female, on account of the dark hair on mesothorax.

Colletes rugibasis, new species

Male.—Length about 8.3 mm., anterior wing 6: black, with abundant white hair, having a faintly creamy tint on head and thorax above, and with no admixture of dark hairs; mandibles with the apical half red; malar space excessively short; face broad; antennae black, the flagellum thick; tegulae fulvous; mesothorax dull and minutely punctured, shining on disc posteriorly; scutellum with a smooth and polished space in middle; base of metathorax with close-set strong plicae; wings hyaline, somewhat milky, stigma red with a dark margin; second cubital cell very broad, receiving recurrent nervure about middle; legs black with red tarsi, and the hind tibiae partly red, the posterior face with about the apical and basal thirds red; abdomen broad at base; first tergite dull, densely and roughly punctured, with erect long white hair, and a rather broad apical white hair-band; tergites 2 to 5 with broad, even, pure white hair-bands; second tergite distinctly punctured and slightly glistening; some black hair before the bands on third and following tergites; sixth tergite appearing black, seventh covered with white tomentum; venter with well-developed white hair-bands.

Natal: Amanzimtoti, October 16, 1931 (J. Ogilvie). Very like *C. bevisi* Cockerell, but distinguished by the dull first tergite and shorter malar space. It is also very like *C. opacigenalis* Friese, differing by the dark nervures, dull and rough first tergite, and color of hair on thorax above. The nervures are practically black.

Colletes ruwenzoricus, new species

FEMALE.—Length about 11 mm., anterior wing 8; black, robust, with very broad face, black or nearly black eyes, mandibles with the apical half obscurely rufous; flagellum very obscurely brown beneath; tegulae ferruginous; legs mainly black, but hind tibiae dull reddish with a large black mark, tarsi red, the front and middle basitarsi largely blackened; hair of head long and abundant, white, slightly creamy on face and vertex; under side of thorax with white hair, but above, including the region about tubercles, it is fulvous, becoming very bright red on scutellum, but strongly mixed with black on posterior disc of mesothorax, and anterior middle of scutellum; legs with white hair, pale reddish on inner side of basitarsi; abdomen with five bands of appressed felt-like hair, which is dull fulvous, the band on first tergite rather narrow, on the others broad and even; first tergite with erect white hair at base and sides, the other tergites with some erect hair at extreme sides. Labrum shining, with a median groove; malar space short, more than twice as broad as long, but not linear; clypeus dull, with large punctures running in rows, a shining elevation, with a semicircular margin, just above the apex; mesothorax dull and densely punctured, but with a shining, sparsely punctured discalarea; area of metathorax with the usual plicae, and crossed by a strong keel; wings hyaline, faintly yellowish; nervures reddish, the outer ones darkened; stigma small, light red with a darker margin; second cubital cell very broad, receiving recurrent nervure a short distance beyond middle; middle femora with a strong angular process near base beneath; first tergite dull, extremely finely and densely punctured; second even more minutely punctured; third moderately shining; venter with narrow hair-bands.

Belgian Congo: Mt. Ruwenzori, 0° 30′ N., 29° 50′ E., altitude 1400 m., June 5, 1914 (J. Bequaert). Apparently related to C. ruficollis Friese, but that has the labrum red, the flagellum red beneath, the abdomen shining.

Colletes sordescens Cockerell

Southern Rhodesia: Vumba, Umtali, May 23–26, two females (J. Ogilvie).

Colletes sororcula, new species

FEMALE.—Length slightly over 10 mm., anterior wing 7.3; black, robust, the stout mandibles with an obscure reddish zone in middle, flagellum obscurely reddish beneath except at base; clypeus coarsely punctured, on the apical part shining between the punctures; malar space extremely short; face, cheeks, and sides of thorax with white hair, vertex with pale brown; thorax above with gravish-white hair, mixed with black on mesothorax, and more abundantly on scutellum; mesothorax dull and densely punctured, except the disc posteriorly, where it is shining, with a small impunctate space: scutellum shining in front; area of metathorax with a short basal zone having strong, rather close plicae; tubercles with dense, slightly fulvescent hair; tegulae rufofulvous; wings dusky, the stigma small and dark, nervures very dark brown; second cubital cell broad, receiving recurrent nervure at middle; legs black, with a good deal of dark or black hair, but front femora with long white hair behind, and hind femora with long bright orange-ferruginous hair beneath; abdomen shining, very minutely punctured, the punctures on first tergite numerous and easily visible with a lens, but still minute; hind margins of tergites not at all reddened; five grayish-white bands, even and rather broad, except the first, which is narrower and shaggy; white hair at extreme base of second tergite; tergites 3 to 5 with long black hairs before the bands; apical sternite rufescent.

Cape Province: Ceres, February 12–18, 1932 (Alice Mackie). Extremely similar in most respects to *C. glaucescens* Cockerell, but easily distinguished by the very short malar space. The abdomen is also different and has the bands better developed and the first tergite more punctured. There is some resemblance to *C. mackieae* Cockerell, but that is larger, with a quite different clypeus. The red hair on hind legs is as in *C. glaucescens*, and certainly the relationship to this species is very close. Although the size of the malar space is used in tables of *Colletes* to separate groups of species, it is a character which is liable to differ in the sexes of the same species, and in the same sex of closely related species.