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Notes and Descriptions of Some Mydaiidae and Syrphidae (Diptera)

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During the identification of material collected on recent Museum expeditions it became evident that there was considerable confusion about the identity of some of our common species of Syrphidae. Because of this it has been necessary to study several groups in detail, and the results of part of the investigations are presented here. The only changes of moment are those that necessitate the use of the name *Volucella nigra* Greene for the continental species that has been misidentified as *esuriens* Fabricius for more than 100 years, and of *Mallota bautias* Walker for the Nearctic species that has been generally known as *cimbiciformis* Fallén.

The types of the new species are in the American Museum of Natural History.

MYDAIDAE

Mydas boonei, new species

Black, wings with very strong steel-blue reflection. Length, 40 to 48 mm.

FEMALE: Head black, slightly shining, the frontal and facial orbits cinereous pollinose; sides of facial swelling and a band below the antennae less thickly cinereous pollinose. Hair black, moderately coarse. Antennae very long, the fourth segment four-fifths as long as the third.

Thorax black, the pleura opaque above, with slight ashy bloom on lower portion. Mesonotum covered with grayish bloom except on the lateral anterior third. The pale pollen is more dense along the median line and forms a geminate median vitta. Above the base of each wing is a

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conspicuous dull silvery spot. Hair all black. Squamae and halteres blackish.

Legs black, the hair wholly black; spur of posterior tibiae quite long and slightly curved.

Wings brown, with extremely strong steel-blue reflection.

Abdomen rather dull black, the sides of the tergites more or less shining and with slight blue tinge. Venter shining black. Hair black, sides of the first tergite with some long whitish hair.

TYPES: Holotype, female, 5 miles southwest of Patagonia, Santa Cruz County, Arizona, 3700 feet, August 25, 1950 (Cohn, Boone, and Cazier). Paratype, female, same data.

In nature this species bears an extremely strong resemblance to the large tarantula hawk, *Pepsis obliquerrugosa* Lucas, which occurs in the same region.

Mydas lividus, new species

Brown, the abdomen reddish, with black base and lateral margins; mesonotum with four pale vittae. Length, 22 to 25 mm.

MALE: Face and broad sides of the front with thick, pale brassy yellow pollen; occiput cinereous pollinose. Pile very pale brassy yellow, more whitish on the middle of the face. Antennae dull brown, the fourth segment about two-thirds as long as the third.

Thorax brown above, becoming brownish red below, the pleura rather thickly cinereous pollinose. Mesonotum with four cinereous vittae, the lateral ones wide, the dorsal pair wide in front, tapering and becoming a thin line at the posterior third, then strongly broadened just in front of the scutellum. The scutellum appears blackish, with the posterior border broadly cinereous; the dark portion is brownish pollinose from posterior view. Hair of the mesonotum black, that on the scutellum and pleura pale brassy yellow.

Legs light castaneous, the tarsi darker. Hair black except for some fine pale hairs on the coxae.

Wings tinged with yellowish brown, the veins brown and sometimes lightly bordered with brown. Squamae yellow, the halteres brown.

Abdomen rusty reddish, the tips of the segments very narrowly pale yellow, the lateral margins of the second to fifth segments more broadly so. First segment dark brown, the base and sides cinereous pollinose, the short hair on the dorsum black, the longer hair pale brassy yellow. A brown lateral stripe extends from the base to the apex of the fifth segment, being replaced on the apical segments by a sublateral stripe.

FEMALE: The brown abdominal vittae are broader and entire; the tips of the segments are not pale on the broad dorsum.

TYPES: Holotype, male, and allotype, female, Sabino Basin, Santa Catalina Mountains, Arizona, July 8–20, 1916. Paratypes, two males, same data; three males and one female, Florida, C. V. Riley collection; one male, Arizona, C. V. Riley collection; two females, Port Creek Canyon, Fort Grant, Arizona, July 17, 1917, and July 15–18, 1917.

Differs from *militaris* Gerstaecker in having the mesonotum brownish in ground color, with narrower dorsal pale vittae and much less conspicuous pale segmental apices. The abdomen lacks the brilliant violaceous reflection, seen from certain angles, in *militaris*, although there is an indication of it in one male from Arizona, and the dark lateral abdominal spots in one female are bluish. One male and one female lack the dark, lateral stripe.

SYRPHIDAE

Volucella Geoffroy

Because of the confusion existing concerning the proper identity of some species belonging to two closely related groups in this genus, it seems pertinent to review these groups at this time. They are large, handsome insects, some of which are quite common in collections, while others are usually very poorly represented or absent. The *abdominalis* group is at present known only from Jamaica, Cuba, the Bahamas, and Haiti, while the *esuriens* group is widely distributed in the southern United States and tropical America. The only species in this group known to occur in the West Indies is *esuriens* Fabricius, which is known to occur only in Puerto Rico and possibly the Virgin Islands.

THE *abdominalis* GROUP

In this group of large, robust species the face is strongly produced downward into a sharp cone, gently concave above and with a rather weak, long tubercle on the median third. The third antennal segment is concave above and more or less kidney shaped. In all, the abdomen is steel-blue or violaceous. The group is, in general habitus and in the structure of the male genitalia, closely allied to the *esuriens* group but is readily distinguished by having the base of the wings yellowish in front on the basal half. The species are readily separated by the structure of the male genitalia.

TABLE OF SPECIES

1. Scutellum light yellow and wholly yellow pilose; wings with two or three blackish spots near the middle (Cuba) *abdominalis* Wiedemann
Scutellum darker, at most brownish yellow or dull reddish and partly or wholly black haired; wing marking variable 2
2. Wings with two or three small brown spots near the middle; scutellum almost concolorous with mesonotum (Bahamas, Florida)
. *eugenia* Williston
Wings with more or less quadrate brown spot, the scutellum generally much more reddish 3
3. Pleura wholly black haired (Jamaica) *exeugenia*, new species
Mesopleura with yellow hair above and anteriorly (Haiti) . *watsoni* Curran

Volucella exeugenia, new species

Brownish, face and front yellow, abdomen violaceous, wings with quadrate spot near the middle in front. Length, 13 to 15 mm.

MALE: Cheeks and occiput brown, the posterior orbits broadly cinereous pollinose; face and front yellow and with pale yellowish pollen. Hair yellow, somewhat golden on the middle of the face, more cinereous on the eyes; vertical triangle brownish red. Antennae reddish, the third segment deeply excavated above the middle, rather kidney shaped, arista black, with long brown rays.

Thorax brown, shining, the lateral margins of the mesonotum dull yellowish except posteriorly. Pile of the mesonotum pale brassy yellow, that on the pleura black; sides of the mesonotum with a row of long, fine bristles. Scutellum brownish yellow, with brassy pile on the basal third, the hair otherwise black; marginal bristles poorly differentiated.

Legs castaneous, the basal three-fourths of the tibiae reddish yellow. Hair black.

Wings hyaline; the veins brown, the costa and bases of the first to third veins yellow; a quadrate brownish spot on the anterior half near the middle. Squamae brownish, with brown fringe. Halteres brown, with pale yellow knob.

Abdomen darker than the thorax, with very strong violaceous reflections. Hair wholly black.

FEMALE: Front subtranslucent yellow, moderately pale yellow pollinose; a narrow, slightly darker median vitta; ocellar triangle brown. Front quite narrow at the vertex, gradually widening to a little more than twice the width at the antennae.

TYPES: Holotype, male, Constant Spring, St. Andrew, Jamaica, January 4-24, 1920 (F. E. Watson). Allotype, female, Newton, Jamaica, January, 1912 (C. T. Brues). Paratypes, female, Hope Gardens,

Jamaica, January 3, 1927 (C. C. Gowdey); male, Kingston, Jamaica; female, "Jamaica" (Klager). The last two specimens are in the United States National Museum.

This species has been identified by various students as *V. eugenia* Williston and C. W. Johnson, and I have recorded it as such in the literature. It differs in many respects from *eugenia*, notably in the much paler thorax and scutellum, in the much more distinctly quadrangular spot on the wings and the narrower, more pointed posterior claspers of the male genitalia. It approaches *watsoni* Curran more closely. In this the wing spot is larger and darker, the scutellum conspicuously darker, and the genital lamellae are more uniform in width and have an angular point at the upper apex.

Volucella eugenia Williston

Volucella eugenia WILLISTON, 1886, Bull. U. S. Natl. Mus., no. 31, p. 139.

Volucella ingenia CURRAN, 1930, Amer. Mus. Novitates, no. 416, p. 4.

There can be no doubt that these names refer to the same species. *V. eugenia* was described from two specimens, one from the Bahamas and one from Florida. The types cannot be located, but the Bahama specimen may be accepted as the type. The species has been taken in small numbers in the Bahamas and is apparently not uncommon, but it has not been taken in Florida since 1886. It is possible that the specimen mentioned by Williston was mislabeled and that the species does not occur on the mainland.

THE *esuriens* GROUP

This group is comprised of large, robust, dark-colored species, the only exception being *esuriens* Fabricius which has the abdomen light castaneous to brownish yellow. The abdomen is shining, and the hair is black except on the head. The wings are broadly black on the basal half in front, but the cells just before the middle of the wing may be more or less hyaline. Because of the rather slight differences, all the described species have generally been considered to belong to a single species. On the basis of the structure of the male genitalia it is evident that there are five distinct species, one of which is described here.

Another species, which does not belong to the group but which has similar coloration, is also described at this time. It is excluded from the group by the presence of much stronger scutellar bristles and the shape of the male genitalia.

TABLE OF SPECIES

1. Abdomen with purple or violaceous reflections or occurring south of Mexico 3
 Abdomen black, with metallic sheen, or light castaneous. 2
2. Abdomen light castaneous, appearing reddish under magnification; tibiae reddish, very much lighter than the femora (Puerto Rico)
 *esuriens* Fabricius
 Abdomen black, with metallic sheen, tibiae very dark reddish to brown, of about the same color as the femora (southern United States and Northern Mexico) *nigra* Greene
3. Scutellum with very weak marginal bristles 4
 Scutellum with moderately strong marginal bristles (Mexico)
 *pallisteri*, new species
4. Posterior forceps of the male broad basally, tapering on the apical half or more; front of female with broad, longitudinal convex ridge on upper half or more 5
 Posterior forceps narrow and only slightly tapering; front of female without longitudinal ridge (southern United States and Mexico)
 *mexicana* Macquart
5. Frontal ridge of female obsolete on anterior third; base of posterior forceps without broad depression extending from fork to near base (Ecuador)
 *sica*, new species
 Frontal ridge entire; base of posterior forceps with broad depression extending from the furcation almost to the base (southern Mexico to northern South America) *dispar* Macquart

Volucella nigra Greene

Volucella nigra GREENE, 1923, Proc. Ent. Soc. Washington, vol. 25, p. 165.

Volucella esuriens of authors, not Fabricius.

This species has been identified as *esuriens* Fabricius, and most of the records of *esuriens* refer to it. Its blackish, somewhat metallic coloration is characteristic, but immature specimens may be brownish, in which case they cannot be separated from teneral specimens of *mexicana* Macquart. The pile on the eyes varies from almost black through brown and tawny to almost white. In specimens from the southwest the pile is as pale as in *mexicana*, the dark-haired eyes being found only in specimens from the southeastern United States. The male is readily recognized by the strongly tapering posterior claspers.

Records from the southwest are not numerous, and some of these refer to *mexicana*. In a series of 24 specimens taken in Arizona on the same day, half were *esuriens*, the others *mexicana*. In a much larger series from another part of Arizona only one-fifth are *esuriens*. Most of our specimens are from Florida, but there are representatives from Texas, New Mexico, California, and Mexico. It is thus apparent that the species

occurs across the whole of the southern states and into northern Mexico.

The male genitalia are illustrated under the name *esuriens* in Curran (1924, Kansas Univ. Sci. Bull., vol. 15, pl. 10, fig. 144).

In one male from Florida there is a trace of the violaceous reflection. It is the only one of more than a hundred specimens examined that lacks the peculiar dulling bloom which is evident in certain lights.

The type of *nigra* is a male, with the pile on the eyes blackish. In the original description the species was compared with *anna* Williston, which also has black-haired eyes. There was no mention of the pale-haired form which was then known by the name *esuriens*, and as a result the identity of *nigra* remained a mystery until Howard B. Weems made a careful study of the type and compared it with numerous specimens of so-called *esuriens*.

Volucella mexicana Macquart

Volucella violacea SAY, 1829, Jour. Acad. Nat. Sci. Philadelphia, vol. 6, p. 166 (not St. Fargeau and Serville).

Volucella mexicana MACQUART, 1842, Diptera exotica, vol. 2, pt. 2, p. 25.

Volucella maximiliani JAENNICKE, 1867, Abhandl. Senckenbergischen Naturf. Gesellsch., vol. 6, p. 395.

Volucella metallifera WALKER, 1849, List of the dipterous insects in the British Museum, pt. 3, p. 636 (in part, Mexican specimen).

Many authors have placed this species as a synonym of *esuriens* Fabricius, and it appears as such in available catalogues. At times it has been considered as a subspecies of *esuriens*. It was first clearly shown to be a distinct species in 1924, when I discussed it under the name *violacea* (see reference under preceding species, p. 183, fig. 143). The very conspicuous difference in the shape of the arms of the posterior forceps has been found to be constant in several hundred specimens examined.

Except for genitalic differences, the presence of a metallic purple or violet-reflection in *mexicana* is the only apparent means of separating it from *nigra* Greene. In some specimens which are not fully mature the violet reflection is weak, or absent in specimens with yellowish brown abdomen. Teneral females cannot be distinguished from teneral females of *nigra*. I have seen no specimens with dark brown or blackish pile on the eyes.

Volucella mexicana apparently does not occur east of the Mississippi River but is abundant in the southwestern states and in northern Mexico. Our most southern record is Yucatan. It is possible that it may be found in association with *dispar* Macquart if the latter ranges into the south of

Mexico, as seems most likely. If it does, the wider, more flattened front will identify the female. The almost parallel-sided arms of the posterior forceps are distinctive in the male.

Volucella dispar Macquart

Volucella dispar MACQUART, 1846, Diptera exotica, suppl. 1, p. 123.

Volucella metallifera WALKER, 1849, List of the dipterous insects in the British Museum, pt. 3, p. 636 (specimen from Venezuela).

Volucella transatlantica RONDANI, 1863, Arch. per la Zool., vol. 3, p. 4.

This species is also generally placed as a synonym of *esuriens* Fabricius, but it is very distinct. The arms of the posterior forceps are much wider than in the other species (except *sica*, new species), and the front of the female has a median, broad, convex ridge extending from the ocelli to the antennal tubercle. The color is similar to that of *mexicana* Macquart, but there is a greater tendency for the abdomen to be light brownish and the violaceous reflections weak or absent, even in fully mature specimens. It seems possible that in some localities the violaceous color may be the exception rather than the rule, but the series before me from different areas are not large enough to decide this point. The pile on the eyes varies from tawny to yellow; apparently it is never almost white as is often the case in *mexicana*.

The range of the species is not known, but it undoubtedly extends considerably beyond that shown by our material. The 22 specimens in the collection are from Guatemala, Panama, Colombia, and Venezuela.

Volucella esuriens Fabricius

Syrphus esuriens FABRICIUS, 1794, Entomologia systematica, vol. 4, p. 281.

Volucella rica CURRAN, 1939, Amer. Mus. Novitates, no. 1027, p. 6.

This is the only species of the group so far recorded from the West Indies. The specimen on which the original description was based probably came from the Island of Saint Thomas, but it may have been from Puerto Rico. The only locality given by Fabricius was "West Indies." The only other recorded specimens are from Puerto Rico.

The manuscript describing *rica* was part of a paper covering additions to the Diptera of Puerto Rico, which has not been published. Inasmuch as the only description of *esuriens* is extremely short, a description of the female is presented here.

FEMALE: Length, 14 to 15 mm. Head brownish red, the occiput, a broad stripe on the cheeks, and the oral margin blackish; upper part of the face and an area adjacent to the tubercle with yellowish pollen, the posterior orbits whitish pollinose. Face produced considerably down-

ward, concave on the upper third, the tubercle moderately strong. Front narrow, gradually widening towards the front, the lateral depression well marked and rather narrow. Hair black, pale yellow on the occiput. Antennae brownish.

Thorax black; sides of the mesonotum, a large rectangular transverse spot in front of the scutellum, and sometimes the sutures and a broad vitta extending back from the inner ends dark reddish; pleura sometimes almost all dark reddish. Pile wholly black. Scutellum dark reddish, usually appearing brownish, the apex inclined to be acutely rounded in the middle. No prescutellar or scutellar bristles.

Legs brown or blackish brown, the tibiae reddish, with the apices broadly dark. Anterior four tarsi with the basal segment more or less reddish.

Wings hyaline, the basal half brown on the anterior half as far as the middle, the stigmal cell yellowish. Squamae brown. Halteres reddish yellow.

Abdomen shining brownish red, the apex of the fourth segment and the whole of the fifth blackish; lateral margins appearing narrowly black because of the rather dense, short hair. Hair short and sparse, mostly appressed, wholly black.

Female, Ensenada, December 28, 1930 (A. G. Harley); female, Maricao, December, 1939 (Brunet); female, San German, November, 1933 (L. E. Gregory).

The species is easily recognized by the castaneous color and the pale tibiae and tarsi.

Volucella sica, new species

This species is so similar to *mexicana* Macquart and *dispar* Macquart that a detailed description is unnecessary. As in *dispar*, there is an apparent tendency towards a reddish brown abdomen, and the violaceous color is present in only one of the three specimens. The only means of separating the species are contained in the key; the depression of the posterior forceps is limited to less than the apical half of the basal section.

TYPES: Holotype, male, Banos, Ecuador, February, 1937 (F. M. Brown). Allotype, female, Tarqui, Azuay, Ecuador, July, 1947 (Z. Muller). Paratype, male, same data as holotype.

Volucella pallisteri, new species

Black, the abdomen reddish, with very strong violaceous reflections; scutellum with marginal bristles. Length, 12 to 13 mm.

MALE: Head black, face reddish, the front brownish red; pollen

cinereous, rather thin on the face; hair black, pale yellow on the eyes. Face gently concave above, almost perpendicular, with a large tubercle on the median fourth. Antennae mostly dull reddish, the third segment brown above; arista reddish, with black rays.

Thorax black, the broad sides of the mesonotum and a broad, transverse spot immediately in front of the scutellum dark reddish. Pleura with obscure brownish pollen. Hair black, the anterior fourth of the mesonotum with some fine pale yellowish hair that gives the impression of obscure pale vittae when viewed from certain angles. Scutellum dark reddish, with six pairs of rather fine but moderately long bristles, the hair mostly short and subappressed.

Legs blackish and with black hair.

Wings broadly brown on the basal half in front; allula brown. Squamae blackish and with long black fringe. Knob of the halteres creamy white.

Abdomen brownish red or orange-red, the strong violaceous reflection obscuring the ground color; first segment and the narrow lateral margins of the others black, the apical segment usually with a narrow black posterior margin and sometimes with a large blackish spot on each side. Hair wholly black. Genitalia black; arms of the posterior forceps long, deeply excised before the apex.

FEMALE: Front brownish red, thinly cinereous yellow pollinose. Abdominal segments narrowly margined with black posteriorly.

TYPES: Holotype, male, allotype, female, and three male and four female paratypes, Tlalpam, Distrito Federal, Mexico, May 25, 1946 (J. and D. Pallister).

This species does not belong in the *esuriens* group, because of the distinct scutellar bristles and the shape of the posterior forceps. I have included it in the key and am describing it here because of its great similarity in color. The abdomen is generally rather square when viewed from above, being almost or quite as wide as long, but in some specimens the apex is narrowed as in most specimens of the *esuriens* group. Actually the shape of the abdomen is similar to that of *esuriens* Fabricius.

Mallota Meigen

While identifying some material of this genus and comparing the genitalia of closely related forms, I thought it necessary to compare the European species in order to determine whether or not more than one genus was included under *Mallota*. The genus *Zetterstedtia* was erected by Rondani in 1844 to include the species with bare eyes. The American species in the collection all obviously belonged together, regardless of the presence or absence of hair on the eyes. The genitalia

of all were found to be of the same general form although showing excellent specific differences. Obviously our species were all congeneric, but it was by no means certain that they belonged in *Mallota* in the strict sense.

Thanks to the kindness of Mr. E. Rivenhall Goffe, to whom I appealed for European examples of *fuciformis* Fabricius and *cimbiciformis* Fallén, a male of the former was received from the Paris museum and a pair of the latter from the British Museum (Natural History). Study of these specimens shows that only a single genus should be recognized for the Palearctic and American species. Some of the Oriental and African species now included in the genus are not congeneric, but too few species are at hand to determine which ones should be excluded.

Mallota bautias Walker

Merodon bautias WALKER, 1849, List of the dipterous insects in the British Museum, pt. 3, p. 600.

Mallota dentipes WILLISTON, 1883, in Lintner, First New York Report State Entomologist, p. 21.

Mallota cimbiciformis of authors (all American records).

A comparison of specimens of the European *cimbiciformis* Fallén with American specimens that have been identified as *cimbiciformis* shows them to be very different. In *cimbiciformis* the abdomen of the male is considerably less tapering and relatively longer; in both sexes it is covered with short, very pale yellowish pile. The pile of the thorax is reddish yellow, darker than in any American specimens. A brown, irregular line extends over the median cross veins, and beyond this the wing is tinged with brown. In *bautias* the abdomen is shining black, the pile on the second and third segments is always black, and the wing spot is much less conspicuous. Superficially, the species are very different in appearance, and it is difficult to believe that they should have been confused.

Merodon bautias is a very common species east of the Rocky Mountains, and east of the Mississippi it shows little variation. In the western part of its range the fourth abdominal segment is sometimes wholly yellow pilose, but the pale pile may be reduced to only a few hairs. In a large series taken at Lawrence, Kansas, the great majority have the fourth segment wholly black haired, while others have various amounts of yellow hair. In eastern specimens the presence of yellow hair on the fourth segment is very rare, and even when present it is not so conspicuous as in western examples. The western form was named *facialis* by W. D. Hunter, and this name may be used for the far western race.

The name *cimbiciformis* must now be dropped from the American fauna. All references to American specimens refer to *bautias*.

Cynorhina Williston

A new species related to *armillata* Osten Sacken has been isolated in the collection for several years, and a description is presented, in addition to notes on the related species. In the males of this group the fifth sternite is variously modified and presents a ready means of separating the species.

TABLE OF SPECIES

1. Face entirely yellow, the cheeks may be black	2
Face with a medium black stripe or wholly black	17
2. Scutellum partly or wholly yellow	3
Scutellum entirely dark	6
3. Abdomen entirely black, scutellum wholly yellow	<i>johnsoni</i> Coquillett
Abdomen in part yellow	4
4. Sides of mesonotum not yellow behind the suture, the apex of the scutellum narrowly yellow	<i>humeralis</i> Williston
Sides of mesonotum yellow behind the suture, at least in large part, scutellum broadly yellow	5
5. Dorsum of thorax yellow laterally behind the suture; the yellow continued as an even scutellar margin	<i>pictipes</i> Bigot
Dorsum of thorax yellow laterally only behind the wing base, the apical half of the scutellum yellow	<i>notata</i> Wiedemann
6. Hind femora yellow on the basal half	<i>humeralis</i> Williston
Hind femora with the basal half or more black	7
7. Legs wholly black, at most the joints slightly reddish	<i>nigripes</i> Curran
Legs with the broad basis of one or more pairs of tibiae or two or three tarsal joints reddish or yellow	8
8. Abdomen entirely black	9
Abdomen in part reddish or yellow	15
9. Front wholly black	14
Frontal triangle and anterior third of front of female reddish	10
10. Mesonotum mostly black pilose	<i>flukei</i> , new species
Mesonotum pale pilose	11
11. Cheeks wholly reddish yellow	<i>flukei</i> , new species
Cheeks mostly black	12
12. Mesopleura black pilose	<i>armillata</i> Osten Sacken
Mesopleura wholly or in part conspicuously pale pilose	13
13. Fourth abdominal segment wholly pale pilose	<i>armillata hunteri</i> Curran
Fourth abdominal segment pale pilose laterally and black pilose dorsally, rarely all black pilose	<i>garretti</i> Curran
14. Abdomen wholly short yellow pilose	22
Abdomen black pilose except on basal corners	<i>robusta</i> Curran
15. Humeri and posterior of the mesopleura yellow	<i>scitula</i> Williston
Humeri black, although they may be dusted with pale pollen	16
16. Front of male with a black middle line; of the female, wholly black (Europe)	<i>fallax</i> Linné

- Frontal triangle of male wholly reddish; front of female before the ocelli reddish *analis* Macquart
17. Wholly black, including the face and legs *bigelowi* Curran
Face, abdomen, or legs partly pale 18
18. Abdomen wholly black 14
Abdomen with pale markings 19
19. Scutellum partly yellow *metcalfi* Curran
Scutellum wholly black 20
20. Face wholly black in ground color, the sides densely pale pollinose
. *umbratilus* Williston
Face yellow, the middle line black 21
21. Hind femora broadly yellow at base *badia* Walker
Hind femora black at base *confusa* Johnson
22. Face luteous *nigra* Williston
Face black in ground color *banksi* Hull

Cynorhina flukei, new species

Shining blue-black, the thorax chiefly, and the abdomen, black pilose; fifth sternite of male with a pair of widely separated mammiform processes apically. Length, 11 to 13 mm.

MALE: Head reddish yellow, the ocellar triangle and upper three-fourths of the occiput black. Frontal and facial orbits pale yellow pollinose, the latter with short, fine black and yellow hair. Vertical triangle shining black and with long black hair. Occiput cinereous pollinose and with brassy yellow hair; upper orbital ciliae black. Cheeks with trace of small brown spot close to the oral margin. Antennae orange, the arista pale brown.

Thorax shining blue-black, with a patch of gray pollen inside the humeri; pleura thinly brownish yellow pollinose. Thorax black pilose, usually with a narrow band of yellowish pile in front and sometimes with scattered yellowish or tawny hair on the disc of the mesonotum.

Legs black, the knees reddish yellow; apices of the tibiae and the basal three tarsal segments yellow and with yellow hair; black of the tibiae sometimes reduced to a broad band covering the median third. Pile black.

Wings cinereous hyaline; anterior veins reddish yellow, the base of the wing pale orange.

Abdomen shining blue-black and wholly black pilose except for a very small patch of yellowish hairs at the base of the second tergite towards the sides, and the genitalia may be partly or wholly pale pilose. The fifth sternite is produced in the middle and terminates in a pair of large, mammiform processes.

FEMALE: A female from Salmon Arm, British Columbia, differs from the male as follows: the pile of the head and mesonotum is wholly brassy yellow; the anterior femora are mostly brassy yellow pilose, and

the pile on the posterior surface of the middle femora is of the same color. The sides of the second tergite bear a large triangle of brassy yellow pile, and there is a very small patch on the anterior angles of the fourth tergite. The tibiae have narrow blackish bands as in the holotype. The other females have the pile quite variable. In one it is about as in the male but others show tawny or brassy yellowish pile on the anterior half or more of the mesonotum.

TYPES: Holotype, male, Mt. Rainier, Washington, August 27, 1932 (J. Wilcox). Allotype, female, Salmon Arm, British Columbia, May 13, 1933 (Hugh Leach). Paratypes: two males, Mary's Peak, Oregon, June 6, 1915, and one male from uncertain locality in Oregon, May 5, 1928 (F. Bock); male and female, Inverness, British Columbia, July, 1910 (J. H. Keen); female, Fox Point, Alaska, July 28, 1899 (T. Kineald), male, Rainier National Park, Washington, July; male, Lebanon, Oregon (A. L. Lovett); male, Crater Lake, Oregon, August; female, Bear Mountain, British Columbia, May 6, 1920; female, Lillooet, British Columbia (A. Phair); male, Metakatla, British Columbia, August, 1911 (J. H. Keen).

This is the species that has been recorded from Oregon by Lovett, and from Alaska by Coquillett, under the name *armillata*. The male is readily distinguished by the mostly black pilose thorax and the shape of the fifth sternite.

Cynorhina armillata Osten Sacken

Criorhina armillata OSTEN SACKEN, 1876, Bull. Buffalo Soc. Nat. Sci., vol. 3, p. 68.

This species has been reported from numerous places in Canada, Alaska, the Pacific coast, and northern states. Apparently, however, the typical form occurs only on the eastern half of the continent. In the west, east of the rockies, it is replaced by the subspecies *hunteri* Curran, which shows only very slight differences in the genitalia. Records from the Pacific coast area and Alaska refer to one or the other of the species discussed here. *C. armillata*, *sensu stricto*, is apparently not well represented in collections although it has been collected in Quebec, Ontario, Maine, and New Hampshire. I know of only nine specimens, including the type (three in the Museum of Comparative Zoölogy, four in the Canadian National Collection, and two in the American Museum).

Cynorhina armillata pacifica, new subspecies

This subspecies is very similar to typical *armillata*, but it differs in being generally larger and more robust and in having longer and more

conspicuous pile on the thorax. The male genitalia also show slight differences.

TYPES: Holotype, male, and allotype, female, Pullman, Washington, May 24, 1923 (V. Argo). Paratypes, five males, same locality, May 6, 17, and 24 (V. Argo); two females, Asotin, Washington, May 20, 1923 (V. Argo); two males, Lake Wala, Idaho, June 18 (J. M. Aldrich); male, Moscow, Idaho; male, mountains, Moscow, Idaho, June 1, 1910 (R. C. Shannon); male labeled "Cooke, Ag. Mon." (R. P. Currie); male, Oliver, British Columbia, May 22, 1924 (P. N. Vroom); female, Robson, British Columbia, May 24, 1950 (H. H. Foxlee). Types in the United States National Museum.

Cynorhina armillata hunteri Curran

Cynorhina armillata hunteri CURRAN, 1924, Kansas Univ. Sci. Bull., vol. 25, p. 136.

Originally described from a single specimen from Manitoba. I have before me a male from Wilson, Wyoming, and two males, Mill Creek Canyon, Salt Lake, Utah. These agree with the description, but it should be added that the abdominal pile may be wholly yellowish.

Cynorhina garretti Curran

Cynorhina garretti CURRAN, 1924, Canadian Ent., vol. 56, p. 194.

This species was originally described from two females from British Columbia and Alberta, and the male has remained unknown. In general the male agrees with the female, but there may be more or less pale pile on the sides of the abdomen than indicated in the original description. The fifth sternite is produced as in *armillata*, but is not at all angulate, and the middle of the apex is broadly depressed.

I have before me a series of nine males from Squaw Peak, Montana, and one male from Skalkaho Pass, Montana, donated to the American Museum by Fluke.

Cynorhina robusta Curran

Cynorhina robusta CURRAN, 1922, Canadian Ent., vol. 54, p. 14.

This species was originally described from a single female from British Columbia in the Canadian National Collection. I have before me a male from Robson, British Columbia, collected on June 11 by R. H. Foxlee and another male from Tampico, Washington, May 23, 1926, collected by M. C. Lane. Despite the mostly blackish face the species is to be included in the *armillata* group because of the shape of the fifth sternite. This is produced as in *armillata* Osten Sacken, but there is no lateral angulation apically, and the apex is gently concave.

