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## NEW AMERICAN DIPTERA

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Descriptions of twenty-one new species of American flies are given in the following pages, together with keys for the separation of the species belonging to some genera. With the exception of *Villa handfordi*, the types are deposited in The American Museum of Natural History.

### BOMBYLIIDAE

Among a considerable number of specimens of *Villa* collected and reared by Mr. R. H. Handford at Aweme, Manitoba, there is a fair series of an undescribed form showing a distinct relationship to *alternata* Say and *molitor* Loew. In most of the specimens there is a tuft of black hairs on each side of the third abdominal segment as in *alternata*, but the mesonotum and scutellum are clothed with golden brownish or ferruginous tomentum and the tomentum of the abdomen is very largely of this color while the pale pile is more yellowish than in typical *alternata*. The pupae of the two species show well-marked differences, the upper caudal hooks having no median spur in the new form but having a strong sub-basal spur in *alternata*.

#### *Villa handfordi*, new species

Wings hyaline, the subcostal cell and narrow base of the wing reddish brown; abdomen fasciate with black, ferruginous and whitish tomentum. Length, 12 to 13.5 mm.

FEMALE.—Head wholly black in ground color; front moderately wide above (three times as wide as the ocellar triangle), widening anteriorly; hair black, the scales golden reddish or yellowish. Occiput clothed with rather golden scales. Face with black hair, dense in the middle especially immediately above the oral margin, rarely mostly pale tawny, the scales golden to pale golden yellow. Proboscis projecting but little beyond the anterior oral margin. Antennae black, black-haired, the basal segment with white hair below on the inner side; second segment wider than long, the third basally a little larger than the second, sharply tapering to the stylelike portion.

Thorax black in ground color, thickly yellowish pilose, the disc of the mesonotum

with thin pale yellowish pile and clothed with rusty reddish or golden brown scalelike tomentum that conceals the ground color, sometimes with a pair of obscure, broadly separated, incomplete black vittae. Scutellum with rusty brownish red scales and thin pale pile, a few black scales intermixed basally, rarely forming a narrow short, black basal band.

Legs black in ground color. Coxae with yellowish scales and pale yellow pile. Femora with rusty reddish scales, black apically at least above; front tibiae black with rusty scaling posteriorly; middle tibiae with black scales only below, the posterior tibiae subciliate, the scales mostly black in front, mostly tawny behind; tarsi black, the first segment with some tawny scales. Front tibiae with moderately short black spicules; anterior claws short.

Wings hyaline, the subcostal cell and the base of the wing reddish brown; epaulet clothed with mostly black scales or almost wholly with reddish ones, the tawny scales sometimes extending to beyond the middle of the broadened costal region. Squamae brown with orange fringe. Halteres reddish yellow.

Abdominal pile yellowish or cinereous yellow, long on the sides, black on the sides of the third, fifth, and sixth segments, on the third segment sometimes with only a few black hairs. First segment with tawny tomentum, usually with black scales intermixed on the disc and with some white tomentum on the apex toward each side. Second segment with the basal two-fifths white tomentose, the apex tawny tomentose, a median, incomplete fascia partly or wholly black-scaled. Third segment fasciate like the second but the basal white band is narrow, the black fascia wide and usually entire, rarely greatly reduced and inconspicuous. Fourth segment with white scales and a narrow, incomplete fascia of black or tawny scales. Fifth and sixth segments with the base clothed with black scales, the broad apices with white scales; seventh segment with black scales on the disc, white on the sides, and tawny on the apex. The scales toward the sides of the abdomen are longer and less tomentum-like than those on the disc and may encroach, to some extent, upon the lateral hair-tufts. Scales of the venter mostly white but there may be black basal fasciae on the fifth and sixth sternites and the seventh sternite may be mostly black. The sides of the second abdominal segment may be reddish in ground color.

MALE.—Front little wider than the ocellar tubercle on the upper sixth; antennae sometimes without pale hair; pile on the disc of the mesonotum more abundant, the tomentum less scalelike; upper surface of the scutellum mostly black tomentose, the tawny scales limited to the broad free border, the sides sometimes with some pale yellowish scales. Legs usually mostly clothed with black scales, rarely as in the female. Abdomen never as in the female, the disc sometimes mostly black tomentose, with the apices of the fourth to sixth segments white, or mostly white tomentose with incomplete and irregular fasciae of tawny and black, or with the black and tawny scales intermixed with the white on the basal half of the segments, but the third segment always darker than the preceding or following segment. Fifth segment always with white or tawny scales at the apex.

TYPES.—Holotype, female, Aweme, Manitoba, August 24, 1932, from *Porosagrotis vetusta* Walker. Allotype, male, Aweme, August 25, 1931. Paratypes, five specimens of each sex, Aweme, July 23, 1931 (No. 72), August 22, 1931 (No. 403); July 11, 14, 19, and August 13, 14, 1934, all collected or reared by Mr. R. H. Handford. Types in the Canadian National collection, paratypes in the American Museum.

## SYRPHIDAE

*Microdon laetoides*, new species

Very similar to *laetus* Loew, from Cuba, but there are very few black hairs on the front and the tarsi are whitish haired on at least the basal half. Bright metallic green species with bluish and violaceous reflections. Length, 10 mm.

FEMALE.—Head green, yellowish white pilose, a few black hairs near the ocelli; front slightly narrower than the face, much longer than wide, the sides rather broadly white pollinose on the lower half. Ocellar triangle with equal sides, situated well before the posterior angles of the eyes. Face moderately convex, the sides with a moderately wide band of whitish pollen. First antennal segment almost as long as the third, three times as long as the second, the hair black.

Thorax shining green, with rather strong violaceous reflections, the pile very pale yellowish. Scutellum wider than long, the apex strongly emarginate and with a pair of strong spines on each corner, the spines separated by a distance equal to about one-third of the basal width of the scutellum.

Coxae and femora green, their tips and the tibiae reddish yellow, the tarsi black. Pile whitish, brown apically on the upper surfaces of the tarsi, appressed and partly yellowish on the bases of the tarsi.

Wings cinereous hyaline, the cross-veins bordered with brown; apices of fourth and fifth veins recurrent, the posterior apical corners of the discal and first posterior cells very broadly rounded. Squamae white, the halteres yellow.

Abdomen metallic green, with violaceous reflections laterally and apically, the hair wholly yellow, almost white on the sides. The second abdominal segment is short, widest apically, the others poorly differentiated. Owing to the arrangement of the short, appressed hair there is a distinct tessellate pattern in some views.

HOLOTYPE.—Female, Globe, Arizona, October 1, 1933 (F. H. Parker).

In related species the hair on the dorsum of the abdomen is mostly black. The specimen was received from Mr. D. K. Duncan.

## COPESTYLUM MACQUART

I present a key to the species of this genus known to me.

## TABLE OF SPECIES

- 1.—Pile of the fourth abdominal segment composed of erect and suberect hairs of ordinary form.....2.  
     Pile of fourth abdominal segment subappressed and composed of distinctly flattened hairs of almost equal length.....*caudatum* Curran.
- 2.—Wings brown on the apical half in front of the third vein. *limbipennis* Williston.  
     Apex of the wing very broadly pale except for weak clouds on the cross-veins. .3.
- 3.—Pile of the fourth abdominal segment wholly whitish.....4.  
     Pile of the fourth segment partly black.....7.
- 4.—Wings with a large median brown cloud in front.....*salti* Dobroscky.  
     Wings with only minute dark spots.....5.
- 5.—Tarsi wholly black or very obscurely pale at the immediate base of the middle pair.....*fax* Townsend.  
     Basal two tarsal segments reddish or yellowish.....6.

- 6.—Venter black except laterally; tibiae not pale basally. . . . . *simile* Giglio-Tos.  
 Second and third sternites yellowish or mostly so. . . . . *marginatum* Say.  
 7.—Sternopleura wholly black; dark-colored species. . . . . 8.  
 Sternopleura with large yellowish spot above; abdomen mostly pale. *schwarzi*, n. sp.  
 8.—Wings with large blackish cloud in the middle. . . . . *bequaerti* Curran.  
 Wings without such cloud. . . . . *lentum* Williston.

### **Copestylum fax** Townsend

*Volucella fax* TOWNSEND, 1895, Trans. Amer. Ent. Soc., XXII, p. 42.

I am not certain of the status of this form and it may be nothing more than a dark variety of *marginatum* Say. The legs are less extensively pale and only the middle tarsi show any reddish on the basal fifth of the first segment. In some specimens the venter is wholly black, but the color varies and some have the venter as extensively pale as in *marginatum* although this is restricted to the females. The pile of the thorax and scutellum is much more predominantly black in the males which also have the face mostly black-haired. It is possible that the females with the venter pale do not belong with the males despite the black tarsi. There is a great deal of variation in the color of the abdomen of *marginatum* but it is constant in *fax*, the sides of the second segment being wholly black in the latter. More material is needed to clear up this problem.

### **Copestylum schwarzi**, new species

An unusually pale-colored species in which the cross-veins on the apical half of the wings are distinctly bordered with brown. Length, 9.5 mm.

FEMALE.—Head pale yellowish; occiput black, thickly whitish pollinose, the vertex and a spot above the neck reddish yellow; front with a grayish spot toward either side above the antennae and a smaller one on each side above the middle; pile yellow, white on the occiput, a few black hairs on the vertex. Front strongly widening from the vertex anteriorly, unusually narrow above. Cheeks and face separated by a narrow brown stripe; face with a median brown vitta on the lowest three-fourths. Antennae reddish brown, the second segment about three-fourths as long as the third; arista blackish, very densely haired. Eyes with short yellow and white hair.

Disc of the mesonotum shining black, a pair of large, contiguous spots in front of the scutellum and the broad lateral margins yellow; in the middle anteriorly with a pair of broad, subcontiguous gray pollinose vittae. Scutellum reddish yellow. Pleura brownish, a very large spot on the mesopleura, a large spot on the upper part of the sternopleura and a spot behind it, yellow, the pteropleura and some of the incisures more or less luteous. Pile pale yellow, black on the apical half of the disc of the scutellum.

Legs black; tips of the femora, basal third or more of the tibiae, their tips and the basal two tarsal segments reddish yellow; pile mostly black, pale ventrally on the femora and toward the lower posterior surface.

Wings hyaline, the veins bordered with yellowish brown, the cross-veins with darker clouds, the posterior veins scarcely clouded. Squamae white with pale yellow fringe. Halteres yellow.

Abdomen rusty reddish yellow, the lateral margins wholly black; apical third of the second segment and the apical three-fourths of the third with strong brown tinge. Pile golden yellow, black on the dark bands. Venter reddish yellow, with pale pile basally and black hair apically except on the sides of the sternites.

HOLOTYPE.—Female, Curaçao, August 26, 1934 (H. F. Schwarz).

#### CALLICERA PANZER

This genus contains only three species described from America and a small number from the Old World. The American species are separable as follows.

#### TABLE OF SPECIES

- 1.—Face golden or pale yellowish pilose.....2.  
Face black pilose (Colorado).....*montensis* Snow.
- 2.—Antennal style very short and stubby, not longer than the thickness of the third segment; abdomen uniform in color (Eastern States)....*johnsoni* Hunter.  
Antennae with a long white style.....3.
- 3.—Pile of the face, sides of the thorax and on the abdomen golden (Mexico).  
*poultoni* Verrall.  
Pile yellowish white, the mesonotum with black hairs intermixed (Arizona).  
*duncani*, n. sp.

#### *Callicera duncani*, new species

Related to *poultoni* Verrall but readily distinguished by the color of the pile. Length, 10 to 12 mm.

MALE.—Frontal triangle shining black, thinly brownish pollinose except anteriorly, without pile; vertical triangle slightly shining black, black pilose, the vertex with black pile extending but little onto the posterior orbits. Occiput shining black, pale yellowish pollinose along the orbits except above, the pile short, thick, yellowish white. Face shining black, rather thickly yellowish white pollinose except on a median vitta. Antennae black; third segment more or less reddish below on the basal half, broad on the basal half, thence tapering to the tip; arista elongate, white, merging to orange then brown at the base. Eyes with black pile, the pile white below and mixed black and white on the lower half, the white predominating in front and behind, leaving a black or brown stripe extending to the facial orbit below.

Thorax dull brownish black, the pleura somewhat metallic, the mesonotum with four weak brownish gray vittae. Pile of the mesonotum mixed black and pale yellowish, the black predominating in front, the pale pile behind, the sides behind the suture, anterior border except in the middle, the border of the scutellum and the pleura with dense yellowish white hair; scutellum somewhat shining, with thin pale pile on the disc; pectus with black hair.

Legs black; tips of the femora and the tibiae reddish, the tibiae with or without broad, diffuse brown bands; middle and posterior tarsi with the first segment mostly

reddish. Pile whitish yellow, black on the coxae, trochanters, lower surface of the femora and on the tarsi.

Wings cinereous hyaline, the costal border broadly reddish brown except in the costal cell. Squamae rather grayish, the dorsal hairs and fringe brown or tawny. Halteres yellow with the knob tinged with brown.

Abdomen rather dull blue-black, the apices of the second and third segments broadly aeneous, the second segment with a large aeneous triangle on each side connected with the posterior border; third and fourth segments each with a narrowly interrupted aeneous fascia lying before the middle, the inner ends carried forward, the outer ends of the fascia on the third segment connected along the lateral margin with the shiny apical fascia, the fascia on the fourth segment widening somewhat at the sides. The pile of the dorsum is yellowish white but it is much more dense on the aeneous fasciae, the side margins and on much of the fourth segment, giving a decided fasciate appearance to the abdomen. The pile on the venter is black with a wide wedge of pale pile on either side extending from the base to the end of the third sternite. The genitalia are shining black and bear black hair.

Types.—Holotype, male, Globe, Arizona, March. Paratypes: male, Globe, March, and male, Santa Catalina Mountains, Arizona, September. All the specimens were collected by Mr. Douglas K. Duncan to whom I am greatly indebted for the privilege of retaining the type and one paratype.

### *Spilomyia xanthocauda*, new species

Related to *kahli* Snow, but with a reddish yellow vitta on each side behind the suture, the anterior ends curving inward and widely separated from the yellow spot on the notopleura; scutellum reddish yellow, not reddish brown; posterior femora black below, not above, and the face with a median reddish yellow vitta. Length, 12 mm.

FEMALE.—Front shining orange, the orbits very narrowly yellow pollinose on the lower two-thirds, the hair very short, yellow. Occiput black, cinereous pollinose, orange between the neck and vertex and more or less orange behind the mouth, the hair yellow. Cheeks brownish red, with a brown triangle above anteriorly. Face yellow, with a pale orange median vitta and inconspicuous yellow hair, the antennal prominence wholly shining orange. Antennae orange, the second segment about one-half longer than the first, the third slightly longer than wide, almost orbicular but a little flattened above.

Thorax subopaque black, very thinly cinereous pollinose, with orange markings as follows: the humeri and a large, contiguous triangle on their inner side, a small spot on the notopleura, a lunulate spot immediately in front of the scutellum, a sublateral vitta on each side behind the suture, the anterior ends curving inward and bordered outwardly by the reddish lateral margins, the scutellum wholly and an elongate oval spot on the posterior of the mesopleura. On the sternopleura and beneath the squamae are large yellow spots. The hair is black on the dark portions of the mesonotum, tawny on the reddish areas, pale yellowish on the pleura.

Legs reddish, the basal half of the tibiae yellow; posterior femora black beneath and posteriorly except basally and apically; hair pale, black only on the black portion of the femora.

Wings brown in front, cinereous hyaline behind, the costal cell luteous; the brown fills both basal cells, the broad base and most of the anterior border of the

discal cell and the broad base and broad anterior border of the apical cell. Squamae yellow; halteres reddish.

Abdomen black, yellow and reddish. First segment black with the sides broadly yellow. Second segment black with the sides and a large, sub-basal triangle on each side yellow, the triangles very narrowly separated in the middle, strongly widening toward the sides, the apex of the segment very narrowly reddish. Third segment similarly marked but the triangles are united, the black is replaced by brownish red on the posterior half of the segment and the apex is broadly yellow; fourth and fifth segments pale yellow; sternites blackish. Hair yellow, more or less brownish on the black dorsal areas.

HOLOTYPE.—Female, Globe, Arizona, October 10, 1934 (F. H. Parker).

The yellow bands on the abdomen are situated upon raised areas. The specimen was forwarded by Mr. D. K. Duncan.

### *Eristalis duncani*, new species

A small species with black and gray vittate thorax and the eyes widely separated in the male. Length, 7 mm.

MALE.—Head black in ground color, the face reddish with a broad median stripe and the cheeks shining black. Eyes separated by a distance equal to the width of the wide ocellar triangle, the upper and lower parts separated by a subquadrate shining black spot; frontal triangle white pollinose with the middle more cinereous; vertical triangle grayish brown pollinose; frontal pile black, white on the sides of the frontal triangle. Occiput cinereous white pollinose, the hair white. Cheeks whitish pollinose on the posterior half; face thickly white pollinose and with white pile, produced downward, the tubercle rather large. Antennae shining brown, the third segment brownish red, as wide as long, convex above, the lower edge almost straight; arista ferruginous, bare.

Thorax gray pollinose, the mesonotum with four very broad black vittae, all broadly united behind the suture, the median pair separated by a gray line, the outer ones by half the width of the black median vittae; all of the black vittae are very broadly separated from the posterior margin; posterior calli dull black. Pile yellow, black on the posterior calli and scutellum, the latter dull reddish yellow with the narrow base and sides black.

Legs black, the coxae pale pollinose; anterior four legs with the tips of the femora, basal third of the front and half of the middle tibiae yellow, the tips of the posterior femora, basal half of the tibiae and the basal segment of the middle tarsi reddish, the narrow base of the posterior tibiae yellow. Hair black, yellow on the basal third of the upper surface of the posterior femora and a few yellow hairs on the tibiae. Posterior tibiae not produced at the apex, their femora moderately swollen.

Wings hyaline with slight luteous tinge. Squamae pale grayish with white base. Halteres pale yellow.

Abdomen opaque black, the rather broad apices of the second to fourth segments yellow. Second segment produced with a pair of very large, subtriangular aeneous spots, their outer ends produced broadly forward to the base of the segments, the sides of the segment black except in front. The third and fourth segments each bear an aeneous-black, shining fascia, very narrowly interrupted in the middle, narrow medianly, widening laterally, the third with the base opaque black except laterally, the fourth

with the opaque band narrow and limited to the median half; the opaque posterior band on the fourth segment is somewhat narrowed toward the sides. Pile yellow, black on the posterior opaque black bands, although the yellow pile may encroach upon them to some extent. Sternites blackish, with pale anterior and posterior margins.

HOLOTYPE.—Male, Phoenix, Arizona, August (D. K. Duncan).

This species is related to *furcatus* Wiedemann but is at once distinguished from this and allied species by the presence of four broad black mesonotal vittae.

### *Eristalis porteri*, new species

Related to *elegans* Blanchard (*philippii* Schiner) but differs in having the oral margin broadly shining black and without pollen, largely black-haired posterior calli and the presence of black hairs posteriorly on the middle of the abdominal segments. Length, 9 to 11 mm.

MALE.—Head black in ground color, the face and broad anterior border of the frontal triangle brownish red, the lowest fourth or more of the face shining black. Frontal triangle moderately large, cinereous pollinose and black pilose, a large sharply arched area above the antennae without pollen or pile. Vertical triangle scarcely pollinose, with black hair in front and reddish yellow hair behind. Posterior orbits narrowly white, the pile short and white below, long and reddish yellow above, a few of the lateral occipital cilia black. Cheeks thinly white pollinose and yellow pilose. Face rather strongly produced downward, cinereous white pollinose on the pale portion, a median vitta extending over the tubercle bare and shining black or brown; pile yellow, black on the upper fourth or less. Antennae shining black, the third segment dark reddish, as wide as long, convex above, almost straight below, the upper edge and apex somewhat darkened; arista black. Eyes with rather long brown pile.

Mesonotum opaque black, on the anterior two-thirds with a pair of obscure brownish gray vittae and with a small spot of similar color on the inner ends of the suture. Scutellum reddish yellow with the very narrow base and sides black. Pile wholly reddish yellow except on the posterior calli where it is about half black. Pleura very thinly brownish gray pollinose and with yellowish pile.

Legs black, the tibiae rather ferruginous, becoming yellow at the base; tips of femora and basal segment of middle tarsi reddish. Hair reddish yellow, long on the femora.

Wings hyaline, with luteous tinge on the disc. Squamae pale yellow, halteres yellow.

Abdomen opaque, the first segment wholly black, the second yellowish red with a broad median black vitta that expands broadly in front; third segment similarly colored except that the black spot does not widen in front but is usually somewhat broadened behind; fourth segment black, with a broad, obscurely interrupted shining black fascia that widens laterally to reach the basal corners of the segment, the anterior border rather narrowly opaque; second to fourth segments with the posterior border narrowly yellow. Genitalia shining black. Pile reddish yellow, not dense, the disc with some black pile on the second and third segments apically, the third and fourth with some black hairs laterally toward the posterior border. Intermediate sternites yellow, the basal and apical ones black.



Types.—Holotype, male, and paratypes, two males, Chile. The specimens are probably from the vicinity of Valparaiso, one received from Dr. Carlos Porter.

This species will trace to *philippii* in my key published in American Museum Novitates No. 411.

## OTITIDAE

### EUXESTA LOEW

I have prepared a key to the species belonging to this genus, but several included in the genus by Hendel, in 'Genera Insectorum,' fascicle 106, are too poorly described to be placed.

Within the genus there is considerable variation in the shape of the head but the transition from those forms with scarcely a trace of antennal grooves and the face deeply concave in profile to those with deep antennal grooves and only slightly concave may be followed in the material before me. The typical species, *notata* Wiedemann, has the hair on the front rather scattered and is intermediate between the forms with banded wings, in which there are two definite rows of intrafrontal hairs, and the group with spots along the costa, in which the hairs are scattered. The group with fasciate wings has long, strong ocellars, while the others have these bristles, as well as the frontals, short. In the group having strong facial grooves the bristles of the head are weak. These approach *Acrosticta* Loew but the first vein is wholly bare apically while in *Acrosticta* it is haired apically or possesses at least a few spines. It is possible that *Euxesta maculata* Hendel belongs in *Acrosticta* while the species described by Cresson as *Acrosticta bicolor* is placed in *Euxesta*.

There is a possibility that the species placed in the genera related to *Euxesta* should be realigned and that those with long ocellars should be removed from the genus. If such a course is followed there is more reason for considering the species with deep antennal grooves as belonging to *Acrosticta*, despite the absence of spinules on the first vein and the absence of large frontal pits or grooves. This character does not seem to be a very good one for the separation of species into genera in this case, nor is the bristling of the first vein of much greater value, although it does serve to separate two major groups of genera. Thus, use of this latter character is undoubtedly a matter of utility rather than a natural one and its value cannot be denied.

The genera grouped around *Euxesta* are essentially tropical in distribution and only relatively few species occur in the United States. Until much more extensive collections are brought together it seems un-

wise to attempt any revision of the genera since the acquisition of additional material might disprove the conclusions reached from the study of a poorly known fauna.

Much of the following key has been adapted from Hendel and a number of the species are unknown to me except by description.

## TABLE OF SPECIES

- 1.—Head with an opaque black spot between the antennae.....2.  
Lunula not opaque black.....6.
- 2.—Wings with four brown cross-bands.....3.  
Wings with two brown costal spots.....*maculata* Hendel.
- 3.—Marginal cell with a white spot beyond the third brown band.....5.  
Marginal cell wholly brown beyond the base of the third brown fascia; front shining.....4.
- 4.—Legs almost wholly black.....*stigmatias* Loew.  
Legs reddish.....*remota* Cresson.
- 5.—Front shining and swollen anteriorly.....*stigma* Hendel.  
Front reddish, rather dull, not swollen anteriorly.....*eluta* Loew.
- 6.—Wings with brown spots or bands.....7.  
Wings wholly whitish.....*lacteipennis* Hendel.
- 7.—Wings with only two or three brown spots or short bands or with the costal and subcostal cells wholly brown and the apical spot present.....40.  
Wings with four brown fasciae or spots, or more extensively brown.....8.
- 8.—Wings brown with hyaline spots.....9.  
Wings with four brown cross-bands.....11.
- 9.—Wings with many small hyaline spots.....10.  
Wings with two short transverse white fasciae and an 8-shaped spot.  
*lunata* Hendel.
- 10.—Scutellum, legs and abdomen yellow.....*fenestrata* Coquillett.  
Body metallic greenish.....*geminata* Hendel.
- 11.—Abdomen wholly or partly yellowish or brownish red.....12.  
Abdomen wholly dark in ground color.....15.
- 12.—Legs wholly yellowish.....*juncta* Coquillett.  
Legs in large part blackish.....13.
- 13.—Pale wing-bands wider than the brown fasciae.....*major* Wulp.  
Pale fasciae narrower than the brown bands.....14.
- 14.—Apical pale band bowed outward; posterior cross-vein in the middle of the third brown fascia.....*abdominalis* Loew.  
Apical pale band transverse; posterior cross-vein near the inner edge of the third brown fascia.....*schineri* Hendel.
- 15.—Costa not produced near the middle.....16.  
Costa produced forward near the middle.....*acuta* Hendel.
- 16.—Legs reddish or yellowish.....17.  
Femora blackish.....21.
- 17.—Third and fourth brown fasciae connected anteriorly.....19.  
Third and fourth brown fasciae separated from each other.....18.
- 18.—Third brown fascia broadening posteriorly.....*latifasciata* Wulp.

- Third brown fascia uniform in width. . . . . *latifascia* Schiner.
- 19.—The brown apical fascia is much broader than the preceding white band. . . . . 20.  
The brown apical fascia is narrower than the preceding whitish band.  
*conserta* Wulp.
- 20.—Pollen of the mesonotum cinereous and quite thick. . . . . *scoriacea* Loew.  
Pollen of the mesonotum tawny. . . . . *schnusei* Hendel.
- 21.—Brown fasciae short, extending but little behind the fourth vein. . . . . 22.  
At least one brown fascia extending to the fifth vein or beyond. . . . . 23.
- 22.—Base of the wing hyaline. . . . . *quaternaria* Loew.  
Base of wing brown. . . . . *calligyna* Bigot.
- 23.—Apical brown band lying on the apex of the wing. . . . . 24.  
Apical brown band lies before the apex of the wing. . . . . *nigricans* Wulp.
- 24.—Third and fourth brown fasciae united anteriorly. . . . . 29.  
Third and fourth fasciae not connected anteriorly. . . . . 25.
- 25.—Posterior triangle of the anal cell as long as the basal section of the cell.  
*bilimeki* Hendel.  
Posterior triangle very much shorter than the basal section of the anal cell. . . . . 26.
- 26.—The second brown band reaches only to the middle of the wing or slightly behind it. . . . . *macquarti* Schiner.  
The second brown fascia extends practically to the posterior border. . . . . 27.
- 27.—Base of the wing hyaline. . . . . 28.  
Base of the wing brown. . . . . *atripes* Loew.
- 28.—The two apical hyaline fasciae are much wider than the brown fasciae.  
*alternans* Loew.  
These fasciae are much narrower than the second and fourth brown fasciae.  
*alternata*, n. sp.
- 29.—Apical brown fascia transverse on its inner side and entire, or convex and uniformly covering the apex of the wing. . . . . 30.  
Apical brown band oblique on its inner side or incomplete. . . . . 33.
- 30.—Discal cell twice as long as the last section of the fourth vein. . . . . *acuticornis* Hendel.  
Discal cell at most one-half longer than the apical section of the fourth vein. . . . . 31.
- 31.—The posterior cross-vein lies in the middle of the third brown fascia. . . . . 39.  
The posterior cross-vein lies close to the inner edge of the third brown fascia. . . . . 32.
- 32.—Costal and subcostal cells wholly brown. . . . . *arcuata* Hendel.  
Only the apex of the costal cell brown. . . . . *schnusei* Hendel.
- 33.—Third brown fascia narrow anteriorly, very strongly widening behind. . . . . 34.  
Third brown fascia at most slightly wider posteriorly than in front. . . . . 35.
- 34.—The brown apical band is narrower than the preceding hyaline fascia.  
*sororcula* Wiedemann.  
The brown apical band is broader than the preceding hyaline fascia.  
*obliquestriata* Hendel.
- 35.—Base of the wing hyaline. . . . . 36.  
Base of the wing blackish. . . . . *insolita* Hendel.
- 36.—Face reddish, with scarcely any metallic coloration. . . . . *annonae* Fabricius.  
Face mostly metallic bluish in ground color, sometimes reddish below. . . . . 37.
- 37.—Third brown fascia uniformly brown. . . . . 38.

- Third brown fascia very broadly gray or pale brown on its outer side.  
*fascipennis* Wulp.
- 38.—Apical hyaline fascia very much wider than the apical brown band.  
*panamena*, n. sp.
- Apical hyaline fascia decidedly narrower than the apical brown band.  
*thomae* Loew.
- 39.—Apical hyaline band extending into the marginal cell. . . . . *wettsteini* Hendel.  
 Apical hyaline band not extending in front of the third vein. . . . . *tenuissima* Hendel.
- 40.—Wings with two fasciae extending to behind the fourth vein. . . . . *binotata* Loew.  
 The basal brown spot rarely extends behind the third vein, if reaching the fourth the apical spot does not do so. . . . . 41.
- 41.—Scutellum reddish<sup>1</sup>. . . . . 42.  
 Scutellum metallic green, blue or black. . . . . 47.
- 42.—Thorax almost wholly reddish. . . . . 44.  
 At least the disc of the mesonotum blackish in ground color. . . . . 43.
- 43.—Only the scutellum reddish. . . . . *scutellaris*, n. sp.  
 Sides of the mesonotum and upper half of the pleura reddish; wings unusually wide. . . . . *contorta*, n. sp.
- 44.—Mesopleura almost all shining, a narrow pollinose band above. . . . . 45.  
 Mesopleura almost all pollinose, shining anteriorly. . . . . *rubida*, n. sp.
- 45.—Abdomen broadly reddish basally. . . . . 46.  
 Abdomen blackish basally, reddish apically. . . . . *lutzi*, n. sp.
- 46.—Sternum metallic greenish in ground color. . . . . *knowltoni*, n. sp.  
 Sternum reddish. . . . . *fervida*, n. sp.
- 47.—Abdomen with the base broadly reddish. . . . . 48.  
 Abdomen metallic, the apex and ovipositor sometimes yellow. . . . . 51.
- 48.—Costal cell brown. . . . . 49.  
 Costal cell hyaline on the apical half. . . . . *minor* Cresson.
- 49.—Third antennal segment little longer than wide. . . . . 50.  
 Third antennal segment decidedly longer than wide, scarcely wider than the second segment. . . . . 60.
- 50.—Apical brown spot beginning a little beyond the middle of the third costal section. . . . . *willistoni* Coquillett.  
*basalis* Walker.
- Apical brown spot beginning at the apical sixth of the third costal section.  
*abana*, n. sp.
- 51.—Femora reddish or yellowish, except sometimes the front pair. . . . . 52.  
 All the femora blackish. . . . . 55.
- 52.—Face black, at least below. . . . . 53.  
 Face reddish. . . . . 54.
- 53.—Costal cell wholly brown. . . . . *apicalis* Williston.  
 Costal cell not brown. . . . . *nitidiventris* Loew.
- 54.—Front tarsi wholly black. . . . . *laticeps* Wulp.  
 Front tarsi with the basal segment mostly yellowish. . . . . *spoliata* Loew.
- 55.—Costal cell wholly brown. . . . . 61.  
 Costal cell mostly hyaline or only slightly darkened. . . . . 56.

<sup>1</sup> I am unable to place *compta* Cole, from Laguna Beach, Calif.

- 56.—Front largely reddish.....57.  
 Front shining black.....*nigriceps*, n. sp.  
 57.—Median brown spot extending to the fourth vein.....*costalis* Fabricius.  
 Median brown spot not extending to the fourth vein.....58.  
 58.—Apical spot lying before the apex of the wing.....*pusio* Loew.  
 Apical spot touching the tip of the wing.....59.  
 59.—Median brown spot extending to behind the third vein.....*mitis* Curran.  
 Median brown spot not extending to the third vein.....*notata* Wiedemann.  
 60.—Face luteous in ground color, rather thickly pollinose.....*xeres*, n. sp.  
 Face black or dark brown in ground color, pale pollinose at least above.....62.  
 61.—Knob of halteres whitish.....*pulchella* Cresson.  
 Knob of halteres brown.....*magdalenae* Cresson.  
 62.—Face almost wholly white pollinose; front black.....*sanguinea* Hendel.  
 Face pollinose on upper half or less.....*bicolor* Cresson.

#### **Euxesta abana**, new species

Related to *willistoni* Coquillett but differing in having a smaller apical spot on the wing. The brown spot occupies less than the apical fifth of the third costal section, whereas in *willistoni* it occupies almost the apical half. Head pale orange, thorax metallic greenish black, the scutellum and apical abdominal segments bronzed or somewhat violaceous. Length, 4.25 mm.

**MALE.**—Head pale orange, the occiput black behind the eyes, the vertex with three black triangles, the lateral ones contiguous with the eyes, the median one covering the ocellar triangle. Front slightly shining, three-fourths as wide as one eye, with sparse, small punctures from each of which arises a short, black hair; two pairs of weak, reclinate frontals and a pair of weaker ocellars; verticals and outer verticals stronger than the frontals. Occiput below and the upper half of the face thinly white pollinose. Cheeks about two-fifths as wide as the eye-height, shining. Face broad, without distinct carina, the antennal grooves weak; antennae reddish, broadly separated, the third segment oval, a little longer than wide; arista brown, whitish at the base of the thinned section. Proboscis brown; palpi reddish, with black hairs.

Thorax shining greenish black, with just a trace of pollen inside the humeri. Scutellum bronze-black.

Legs reddish, the tarsi with the apical three segments wholly, and the broad apex of the third, brown.

Wings hyaline, milky only basally, the veins brown except basally; costal cell luteous, the subcostal light brown; apex of wing with dark brown spot extending from the costa to the fourth vein and beginning beyond the apical fifth of the third costal section. Squamae pale yellowish; halteres reddish.

Basal two abdominal segments and the basal half of the third shining dark reddish, the apical segments bronzed with strong violaceous reflections. Venter blackish green, reddish basally. Hair black, inconspicuous dorsally.

**HOLOTYPE.**—Male, Promontory, Utah, May 24, 1930 (G. F. Knowlton).

#### **Euxesta rubida**, new species

Rusty reddish, the thorax and abdomen thinly white pollinose; tarsi brown apically; mesopleura almost all pollinose. Length, 5 mm.

**MALE.**—Head shining, the occiput and less than the upper half of the face thinly white pollinose, the pollen extending along the frontal orbits for a short distance. Front about as wide as one eye, with sparse, very short black hairs arising from tiny punctures; only one pair of extremely weak frontals and ocellars; verticals, outer verticals and postocellars moderately strong. Cheeks one-third the eye-height. Face gently concave in profile, finely grooved on the lower half, the antennal grooves well marked. Proboscis and palpi reddish, with black hairs. Antennae reddish, the third segment oval, one-half longer than wide; arista brown, thickened on the basal sixth.

Thorax wholly reddish and thinly white pollinose, a bare shining stripe extending from the humeri to a point behind the front coxae, the scutellum and metanotum also shining. Hair very short, the mesopleura almost wholly haired.

Legs reddish, the apical two tarsal segments brownish.

Wings milky white, the veins yellow except apically and in front. Costal and subcostal cells brown, the apex of the wing with a brown spot extending from the apical seventh of the third section of the costa back to the fourth vein; apical cell at the tip only about one-third as long as the preceding costal section. Squamae white; halteres reddish with white knobs.

Abdomen reddish, thinly white pollinose; hair extremely short.

**FEMALE.**—Front slightly wider; apical segment of the ovipositor blackish.

**TYPES.**—Holotype, male, Corinne, Utah, June 22, 1929 (G. F. Knowlton and M. F. Bowen). Allotype, female, Delta, Utah, June 24, 1927, on beet (G. F. Knowlton). Paratypes: male, Lucin, Utah, August 12, 1929 (G. F. Knowlton); male, Phoenix, Arizona, August (D. K. Duncan).

Readily distinguished from any of the described species by its wholly reddish color and from the following by the mostly pollinose mesopleura.

#### ***Euxesta fervida*, new species**

Very similar to *rubida* but the abdomen is mostly black or brownish and the mesopleura is almost wholly shining. Length, 5 mm.

**MALE.**—Head orange, shining, the occiput thinly white pollinose except along the orbits, the middle of the face whitish pollinose on the upper third; antennal grooves well marked, the face finely wrinkled on the lower half. Front somewhat narrower than one eye, with sparse short hair, each hair arising from a tiny puncture; one pair of very weak orbitals and ocellars; vertical, outer vertical and postocellar bristles moderately strong. Cheeks in the middle about one-third the eye-height. Face gently concave in profile. Proboscis and palpi reddish, black-haired. Antennae reddish, the third segment elongate oval, two-thirds longer than wide; arista brown, thickened on the basal fifth, reddish at the base.

Thorax rusty reddish, thinly white pollinose, the mesopleura shining except on its upper margin; a pair of contiguous black spots extending from the neck to the dorsum on the anterior margin; scutellum and postnotum shining. Hair short, black, the mesopleura mostly haired.

Legs reddish, the apical two or three tarsal segments brown.

Wings milky white, less so apically, the veins yellow except in the brown areas; costal and subcostal cells brown; apex of the wing with a subtriangular brown spot extending from the costa to the fourth vein, its inner margin at the apical sixth of the

third section of the costa; end of the apical cell half as long as the preceding costal section. Squamae and knobs of the halteres white.

Abdomen shining black or brown, the basal two or three segments reddish, venter brownish red, reddish basally. Hair very short, black. Genitalia brown or reddish.

**TYPES.**—Holotype, male, Delta, Utah, July 12, 1930 (L. F. Clarke). Paratype, male, Delle, Utah, August 16, 1929 (G. F. Knowlton).

The holotype has the abdomen reddish brown with paler base, the paratype with the apical segments shining black. This species is readily distinguished from *rubida* by the shining mesonotum and more shining abdomen, more widely open apical cell, black mesonotal spots anteriorly, and the absence of whitish pollen on the sides of the face.

#### ***Euxesta knowltoni*, new species**

Wings whitish, the costal and subcostal cells and an apical spot brown; thorax red, the mesosternum mostly metallic black or green; abdomen red basally. Length, 4 mm.

**MALE.**—Head shining reddish, the occiput and upper half of the face thinly whitish pollinose; occiput with brownish spot on either side above the neck. Front narrower than one eye, the sparse black hairs arising from tiny punctures; the pair of frontals and ocellars extremely weak; bristles of the vertex rather weak. Cheeks about one-third as wide as the eye-height. Face very gently concave, finely wrinkled below; antennal grooves deep, the carina broad. Proboscis brown; palpi reddish, black-haired. Antennae reddish, the third segment with brown tinge, oval, one-half longer than wide; arista brown, thickened on basal sixth or less.

Thorax reddish, black in the middle anteriorly and on the mesosternum, thinly whitish or cinereous white pollinose; scutellum, metanotum, mesopleura except above, sternopleura above and the pteropleura shining, a blackish spot above the posterior coxae.

Legs reddish, the posterior tibiae with indications of a brownish band except below; apical two tarsal segments blackish.

Wings milky white, the costal and subcostal cells and an apical spot dark brown, the apical spot beginning at the apical sixth of the third costal section and extending back to the fourth vein; fourth vein ending distinctly before the tip of the wing. Squamae and halteres white.

Abdomen shining black with the basal two segments red; venter red with the apical two sternites black.

**FEMALE.**—Front slightly wider; dark spots on lower part of thorax rather greenish; basal three abdominal segments reddish yellow, the apex of the third broadly black, the fourth black with more or less metallic green tinge, the fifth dark metallic green, the ovipositor metallic green above, black below; venter reddish, dark apically.

**TYPES.**—Holotype, male, Trout Creek, Utah, July 26, 1933 (H. B. Stafford). Allotype, female, Randlett, Utah, July 14, 1927 (G. F. Knowlton).

The female apparently belongs with the male despite the difference in

color, although it may be found to represent a distinct species. There is a second male, without head or abdomen, taken by Mr. Knowlton at Timple, Utah, on June 4, 1930. In this specimen the black markings on the lower part of the thorax show a greenish tinge.

This species is related to *fervida* but differs in its smaller size, more slender form, and less widely separated antennae.

#### ***Euxesta lutzi*, new species**

Similar to *knowltoni* but the fourth vein ends slightly behind the tip of the wing; reddish, the abdomen brown; apical spot dark brown, costal cell luteous, the stigma brown. Length, 4.5 mm.

MALE.—Head reddish, face on a little more than the upper half, and the occiput except on the upper orbits, thinly white pollinose, the upper orbits with slight metallic reflection. Front about as wide as one eye, sparsely haired and with tiny punctures; two pairs of very weak frontals and a pair of very weak ocellars; bristles of the vertex rather weak. Cheeks a little more than one-third as wide as the eye-height. Face gently concave, finely wrinkled below. Proboscis and palpi reddish, the labellae brown. Antennae reddish, the third segment slightly more than twice as long as wide; arista brown, swollen on the basal fourth.

Thorax reddish, the bare parts with opalescent reflections; mesonotum, anterior and posterior borders of the pleura and the pectus thinly pale pollinose, the sternopleura pollinose on the anterior half.

Legs reddish, the tarsi scarcely darkened at their tips.

Wings whitish hyaline, the veins yellow except on the dark portions. Costal cell luteous, the subcostal cell brown; apical brown spot beginning at the apical fourth of the third costal section and extending back to the fourth vein; fourth vein ending slightly behind the tip of the wing. Squamae and knobs of the halteres white.

Abdomen brown, becoming more reddish apically, the basal segments almost black. Sternites shining brown, the incisures more or less pale. Hair black, inconspicuous. Genitalia reddish.

TYPE.—Male, Junta, Colorado, August 12, 1920 (F. E. Lutz).

#### ***Euxesta contorta*, new species**

A black and reddish species, the stigmatal cell considerably enlarged and the costa thickened and curved outward beyond the middle of the wing, the apical brown spot transverse. Length, 5.5 mm.

MALE.—Head reddish, the occiput and more than the upper half of the face thinly white pollinose. Front wider than one eye, with a transverse median depression and irregular sublateral depressions, but without pits or large punctures; hair short and very sparse; a pair of very weak frontals and ocellars; bristles on the vertex moderately strong. Cheeks in profile about one-third the eye-height, fully half the eye-height when viewed obliquely. Face scarcely concave in profile, the antennal grooves large and deep; finely wrinkled below. Proboscis brown, the palpi reddish. Hair black. Antennae reddish; third segment reddish yellow, twice as long as wide, the apex rounded; arista black, thickened on almost the basal third.

Mesonotum black with the sides broadly reddish, rather thickly cinereous white



pollinose. Scutellum shining reddish. Pleura reddish, mostly shining, the sternopleura, metanotum, and spots above the posterior coxae and on the pteropleura black, the lower and posterior third of the pleura whitish pollinose.

Legs reddish, the apical one or two tarsal segments brownish.

Wings hyaline, the veins yellow, black at the apex of the wing; costal cell somewhat yellowish, the subcostal cell mostly brown; stigmal cell brown, elongated and widened, the costa thickened beyond the apex of the subcostal vein, produced anteriorly on the apical third; apical brown spot transverse, reaching the costa only in the apex of the marginal cell. Squamae and halteres white.

Abdomen shining dark reddish, the fifth segment black. Hair inconspicuous, black.

HOLOTYPE.—Male, Iosepa, Utah, June 14, 1932 (G. F. Knowlton).

### ***Euxesta scutellaris*, new species**

Head and base of abdomen reddish; thorax bronze-black with only the scutellum red. Length, 4 to 4.5 mm.

MALE.—Head dark reddish, the front sometimes mostly brownish red; occiput brown above the neck except on the broad posterior orbits, the antennal grooves more or less metallic blackish in ground color. Front somewhat narrower than one eye, with sparse short black hairs arising from tiny punctures; frontals and ocellars minute, the vertical bristles weak. Occiput and upper three-fourths of the face cinereous white pollinose. Cheeks a little more than one-third as wide as the eye-height. Face gently concave in profile, finely wrinkled below, the antennal grooves deep. Proboscis black; palpi reddish. Antennae reddish, the third segment mostly brown above, twice as long as wide, the apex rounded; arista black, thickened on the basal fifth, yellowish just beyond the thickening.

Thorax bronze-black, moderately cinereous white pollinose, the metanotum and the pleura except anteriorly and posteriorly, shining, often strongly violaceous, the pectus pollinose. Scutellum shining reddish.

Legs reddish, the tarsi becoming brown apically; posterior femora with a broad brownish stripe below.

Wings white, the veins yellow except on the dark areas; costal and subcostal cells and the apical spot dark brown; apical spot extending almost half way to the posterior cross-vein, and from the costa to the fourth vein; fourth vein ending in the wing-tip. Squamae and knob of the halteres white.

Abdomen shining metallic blackish green, the basal two segments dark reddish at least on the sides; venter bronze-black, dark reddish basally.

FEMALE.—The base of the abdomen shows scarcely a trace of reddish and the third segment is bronzed; ovipositor greenish, the under surface mostly black.

TYPES.—Holotype, male, Timple, Utah, June 4, 1930. Allotype, female, Corinne, Utah, May 18, 1929. Paratypes; male, Skull Valley, Utah, July 24, 1929; male, Timple, August 14, 1931; female, Delle, Utah, August 6, 1929, and male, Grantsville, Utah, August 6, 1929. All the specimens were collected by Mr. G. F. Knowlton.

### ***Euxesta xeres*, new species**

#### Figure 1

Related to *basalis* Walker and *willistoni* Coquillett but at once distinguished by

the narrow third antennal segment. Base of the abdomen reddish, the thorax wholly dark. Length, 3.5 to 4 mm.

MALE.—Head brownish red, the occiput blackish on the upper half; face and occiput with cinereous white pollen. Front a little narrower than one eye, with two pairs of orbitals, the anterior pair very weak, the upper about as strong as the ocellars; bristles on the vertex moderately strong; frontal hair sparse. Cheeks two-fifths as wide as the eye-height. Face scarcely concave in profile, finely wrinkled below, the antennal grooves deep. Proboscis brown; palpi reddish, black-haired. Antennae reddish, the third segment mostly brown, almost twice as long as wide; arista thickened on the basal sixth.

Thorax metallic blackish green, rather thickly cinereous pollinose, the middle of the pleura and the scutellum and notopleura shining.

Legs reddish, the femora usually in large part brown; tarsi blackish beyond the base of the second segment; tibiae sometimes extensively tinged with brown.

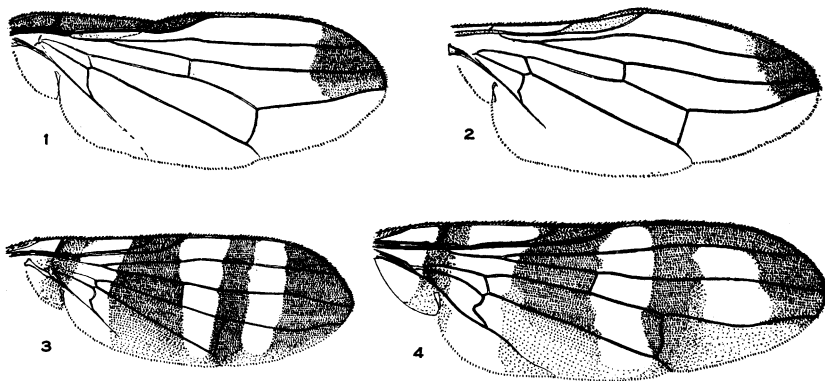


Fig. 1. *Euxesta xeres*, new species.

Fig. 2. *Euxesta nigriceps*, new species.

Fig. 3. *Euxesta alternata*, new species.

Fig. 4. *Euxesta panamena*, new species.

Wings whitish hyaline, the costal and subcostal cells and an apical triangle extending from the costa to the fourth vein and halfway to the posterior cross-vein brown; fourth vein ending slightly behind the tip of the wing. Squamae and the knob of the halteres white.

Abdomen metallic green, the basal two segments reddish, the third sometimes mostly black. Venter reddish basally, black apically, the genitalia black, sometimes bronzed.

FEMALE.—Front slightly wider, the ovipositor black.

TYPES.—Holotype, male, Corinne, Utah, June 18, 1929 (Knowlton and Bowen). Allotype, female, Corinne, June 5, 1929 (Knowlton). Paratypes: male, Corinne, June 22, 1929 (Knowlton and Bowen); male, Blue Creek, Utah, June 12, 1929; male, Clinton, Utah, June 11, 1930; male, Timple, Utah, June 4, 1930 (G. F. Knowlton); female, Snowville, Utah, June 20, 1930 (Knowlton and Bowen).

Walker's description mentions a "deep" third antennal segment for *basalis* so that these specimens cannot possibly be that species. In *willistoni* the third antennal segment is little longer than wide.

***Euxesta nigriceps*, new species**

Figure 2

Black, the abdomen metallic blackish green; tibiae mostly yellowish. Length, 3.5 to 4.5 mm.

MALE.—Head shining black, the face cinereous pollinose except below the antennal grooves. Front moderately shining, very sparsely haired, each hair arising from a tiny puncture; two pairs of weak frontals, the upper stronger than the ocellars; vertical bristles moderately strong. Occiput thinly cinereous pollinose except broadly along the upper orbits. Cheeks one-third as wide as the eye-height. Face scarcely concave in profile. Proboscis and palpi black. Antennae black, the third segment not wider than the second, two-thirds longer than wide, its apex rounded; arista thickened on the basal sixth.

Thorax blue-black, the dorsum metallic dark green, moderately cinereous pollinose; scutellum, metanotum and pleura, shining.

Legs black, the posterior four tibiae dull yellowish or yellow; tips of the femora, narrow base and apex of the front tibiae, basal two segments of the posterior four tarsi, and the immediate base of the front ones, reddish.

Wings whitish, with a brown spot apically, the spot extending from the costa to the fourth vein, its inner margin oblique, beginning at the apical sixth of the third section of the costa; fourth vein ending before the apex of the wing; costal cell scarcely darkened, the stigmal cell pale luteous, somewhat broadened, the costa slightly dilated. Squamae whitish; halteres yellowish, the knob somewhat brownish apically.

Abdomen dark metallic green, sometimes more or less bronzed. Hair black, inconspicuous.

TYPES.—Holotype, male, Delle, Utah, May 26, 1930. Paratypes: male, Timple, Utah, April 27, 1930; male, Vernon, Utah, June 15, 1929 (all G. F. Knowlton); male, Delle, April 27, 1930 (Knowlton and Janes).

***Euxesta alternata*, new species**

Figure 3

Related to *alternans* Loew but the apical brown fascia is much wider than the preceding white band. Length, 3.5 mm.

FEMALE.—Front about half as wide as one eye, the sides narrowly whitish pollinose, reddish yellow in ground color; upper third metallic blue-green except behind the ocelli, sides very thinly yellowish pollinose; four pairs of frontals, the upper pair strong and reclinate, three pairs of intrafrontals; ocellars long and strong; outer verticals very weak. Occiput bluish, becoming reddish below, cinereous pollinose. Cheeks about one-fifth as wide as the eye-height pale orange above, rather metallic below. Face deeply concave, metallic greenish blue, merging into reddish below, the sides reddish yellow, moderately white pollinose; clypeus brownish, more or less metallic, with reddish area in front. Proboscis metallic greenish; palpi yellowish red.

Antennae reddish yellow, the third segment mostly brown on the apical half; arista brown, long and thin, thickened and reddish at the base.

Thorax metallic pollinose green; mesonotum thinly brown pollinose, the pleura with thin cinereous pollen; scutellum and metanotum shining dark brown. Two pairs of dorsocentrals.

Legs black; the knees and tarsi yellowish; anterior coxae reddish yellow, the others brownish red.

Wings with alternate white and brown bands, the posterior border gray (Fig. 3). Squamae and knobs of the halteres white.

Abdomen metallic green-blue on the sides and ovipositor, the dorsum shining dark brownish, possibly wholly blue in most specimens. Venter brown with blue reflections except basally. Hair black, the apical three segments each with a row of weak marginals.

HOLOTYPE.—Female, Barro Colorado Island, Canal Zone, February 18, 1929 (Curran).

I have a male from Costa Rica that might belong with the female. It differs in having six pairs of frontals, four pairs of intrafrontals, much darker coxae, a wider, white preapical band on the wings and the abdomen is more evenly bluish. The vertex is unusually shining in this species, whereas, in *alternans*, it is moderately thickly pollinose.

#### ***Euxesta alternans* Loew**

LOEW, 1867, Berl. Ent. Zeitschr., XI, p. 308 (f.).

I took three specimens of this species from a fallen banana stalk on Barro Colorado Island on December 21 and 28, 1928. They were very active but did not take to flight readily, when doing so dodging downward so that their capture was difficult. Mr. Herbert F. Schwarz captured a single female at Summit, Canal Zone, on November 26, 1930. We have additional material from British Dominica and Brazil.

#### ***Euxesta panamena*, new species**

##### Figure 4

Perhaps related to *schnusei* Hendel but with white squamae and very light yellow halteres. Length, 5 mm.

FEMALE.—Front about two-thirds as wide as one eye, reddish, the vertex with three long, bluish triangles, the sides whitish pollinose, the vertex with cinereous yellow pollen; about seven pairs of frontals, the upper pair strong and reclinate; four pairs of intrafrontals; ocellars and outer verticals long and strong. Occiput bluish in ground color, rather thickly cinereous white pollinose; a reddish area above the neck. Cheeks and parafacials reddish yellow, the latter white pollinose, the cheeks rather metallic below. Middle of the face bluish green, thickly white pollinose on the upper three-fifths, strongly concave in profile. Clypeus bluish on the sides, reddish in the middle. Proboscis blue-green; palpi broad, dark reddish. Antennae reddish, the third segment brownish red on the apical half; arista brown.

Thorax black, the pleura blackish green; thickly pollinose, the pleura with cinereous pollen and moderately shining on the upper half, the mesonotum with cinereous brown pollen and a large blackish area on each side behind the suture; scutellum and metanotum shining bronze-black.

Legs black, the knees and tips of the tibiae reddish; anterior coxae reddish, the others with reddish tips; basal segment of middle tarsi obscurely reddish basally.

Wings (Fig. 4) whitish and brown, the posterior border grayish.

Abdomen blue-black, the apex and ovipositor more brownish; base narrowly greenish above. Hair black, the apices of the second to fourth segments with short bristles.

HOLOTYPE.—Female, Barro Colorado Island, Canal Zone, January 3, 1929 (Curran).

### PALLOPTERIDAE

#### *Omomyia regularis*, new species

Differs from the male of *hirsuta* Coquillett in having the scutellum of ordinary shape, the hair black, and the costal and subcostal cells black. In color rather similar to the female of *hirsuta* but more ferruginous. Length, about 5 mm.

MALE.—Head shining dark reddish, the occiput dulled by whitish pollen; face dull yellowish in the middle, white pollinose. Front distinctly narrowing anteriorly, with long hair, on either side with a row of six weak proclinate frontals and a strong, reclinate one above; ocellars and bristles of the vertex long. Cheeks a little more than one-third as wide as the eye-height, with black hair on the lowest two-thirds. Proboscis reddish, brown below; palpi pale reddish. Antennae reddish, the third segment broadly brown above; arista black, dark reddish basally.

Thorax blackish and dark reddish. Mesonotum with three very broad, narrowly separated black vittae (mostly blackish), the pleura very broadly black in the middle and below; pollen whitish, mostly limited to the black areas, almost absent on the mesonotum except in front; metanotum shining black; scutellum shining reddish. Hair black, moderately long and abundant, the bristles limited to the sides and a prescutellar row; scutellum bare except for the two pairs of strong marginals, gently convex.

Legs reddish, the tibiae mostly ferruginous, the tarsi reddish with the apical two or three segments black. Hair black, abundant and moderately long on the femora.

Wings hyaline, the extreme tip obscurely white; costal and subcostal cells dark brown; apex of the second vein surrounded by a small blackish spot; veins black, yellow basally except in front, and on the apex of the wing, the third and fourth veins convergent apically. Squamae and halteres white.

Abdomen shining black, the basal two segments dark reddish. Hair abundant, moderately long. Genitalia small.

HOLOTYPE.—Male, Globe, Arizona, March (D. K. Duncan).

The color of the thorax will no doubt be found to be somewhat variable, so I have not described it in detail.

## TACHINIDAE

*Sturmia balloui*, new species

Traces to *inquinata* Wulp in Coquillett's key (1897) but differs in having a large, dense sexual patch on each side of the under part of the third tergite and the sides of the abdomen reddish. Length, 8 to 8.5 mm.

MALE.—Head black in ground color, white pollinose, front and the posterior orbits on the upper half or more with strong golden yellow tinge. Front about two-thirds as wide as one eye, the parafrontals at the middle wider than the frontal vitta; eight or nine pairs of frontals and a partial secondary row, the upper two reclinate; hair short and not abundant; orbitals and ocellars absent; outer verticals not developed. A row of black hairs behind the occipital cilia on the lower half of the head, the occipital hair white. Cheeks about one-fifth as wide as the eye-height, with black hair. Parafacials narrowing below where they are more than half as wide as the third antennal segment; facial ridges bare except adjacent to the vibrissae. Palpi black, the apex more or less reddish below. Antennae black, thinly cinereous pollinose, the incisures reddish, reaching almost to the vibrissae; third segment of moderate width, with parallel sides, the apex subtruncate; arista long and slender, thickened on the basal third and microscopically pubescent.

Thorax cinereous pollinose; mesonotum with four narrow, blackish vittae. Four postsutural dorsocentrals and sternopleurals. Scutellum reddish yellow in ground color, the base darkened; four pairs of marginals, the apical pair decussate.

Legs black, the posterior tibiae evenly ciliate anterodorsally, one of the bristles long; middle tibia with a single anterodorsal bristle; pulvilli as long as the apical tarsal segment.

Wings cinereous hyaline; third vein with a single basal bristle.

Abdomen black, the sides of the second and third segments reddish, cinereous pollinose, the first segment, apices of the following segments and a narrow median vitta rather shining, thinly brown pollinose. First and second segments each with a pair of median marginals, the third and fourth each with a row, the fourth with some scattered, short discals, particularly posteriorly. Under side reddish on the second and third tergites, the third with a large, rectangular sexual patch covering most of its surface.

TYPES.—Holotype, male, and three male paratypes, San Pedro de Montes de Oca, Costa Rica, September 15, 1932 (Edgar Ortiz); received from Charles H. Ballou. The species was reared from the pupa of a sphingid.

TABLE OF SPECIES OF THE MALES OF *Lixophaga* TOWNSEND

- |  |                          |
|--|--------------------------|
| 1.—With one or two pairs of proclinate orbital bristles.....                                 | 2.                       |
| Without orbital bristles.....  | 7.                       |
| 2.—With two pairs of orbital bristles.....   | 3.                       |
| With a single pair of orbitals situated almost in the frontal row.                           |                          |
|  | <i>impatiens</i> Curran. |
| 3.—Parafacial below much narrower than the third antennal segment.....                       | 4.                       |
| Parafacial as wide as the third antennal segment or practically so; pulvilli very small..... | <i>plumbea</i> Aldrich.  |
| 4.—Pulvilli small.....   | 5.                       |
| Pulvilli almost as long as the fifth tarsal segment.....                                     | <i>fasciata</i> Curran.  |

- 5.—Parafacials, below, about three-fourths as wide as the third antennal segment.  
*orbitalis* Aldrich.  
 Parafacials less than half as wide as the third antennal segment.....6.  
 6.—Parafacials about one-fourth as wide as the third antennal segment; apical  
 cell closed in the wing-margin.....*jennei* Aldrich.  
 Parafacials almost half as wide as the third antennal segment; apical cell open.  
*mediocris* Aldrich.  
 7.—Sides of the abdomen broadly reddish.....*diatraeae* Townsend.  
 Abdomen wholly blackish.....8.  
 8.—Front more than half as wide as one eye.....9.  
 Front much less than half as wide as one eye.....10.  
 9.—Pale abdominal fasciae narrow and sharply limited; front golden yellow.  
*stenomae*, n. sp.  
 Pale abdominal pollen occupying at least the basal half of the intermediate seg-  
 ments and not sharply limited, the hairs arising from dark spots.  
*parva* Townsend.  
 10.—Veins at the base of the wings broadly yellowish.....*variabilis* Coquillett.  
 Veins at the base of the wings black; squamae brownish; front very narrow.  
*nigribasis* Curran.

### *Lixophaga stenomae*, new species

Black, the palpi and halteres yellow; abdomen rather narrow cinereous fasciate.  
 Length, 5 to 5.5 mm.

MALE.—Front a little more than half as wide as one eye, golden pollinose, the frontal vitta deep black; ten pairs of frontals, the upper two reclinate, the next to the upper pair very strong; a row of tiny hairs on the parafrontals; ocellars long; outer verticals not clearly differentiated. Occiput cinereous white pollinose, the orbits golden yellow on the upper half, the black occipital cilia extending to the lowest fourth of the eye; pile white. Cheeks about one-fifth as wide as the eye-height, black-haired. Parafacials narrow, slightly widening above. Palpi dull yellowish. Antennae black, the third segment missing.

Mesonotum with golden-yellow pollen, the vittae distinct; acrosticals and dorso-centrals 3-3; three pairs of marginal scutellars and a very weak, decussate apical pair; sternopleurals 2-1. Scutellum golden-yellow pollinose on more than the apical half, brown basally.

Legs black, the pulvilli of median length.

Wings cinereous hyaline, lightly tinged with brown in front. Apical cell ending a little before the wing-tip. Squamae whitish. Halteres yellow.

Abdomen shining black, the basal third of the segments cinereous-yellow pollinose above, cinereous pollinose ventrally where the pollen expands to occupy most of the under surface; on the fourth segment the pollinose fascia is narrow in the middle but expands strongly toward the sides. Abdomen without discals, the first and second segments each with a pair of marginals, the third and fourth each with a row.

FEMALE.—Front a little wider, gradually widening anteriorly, with two pairs of orbitals; outer verticals well developed; third antennal segment reaching almost to the vibrissae, moderately wide; arista thickened on the basal fourth, short pubescent.

Pollinose abdominal bands wider, those on the second and third segments widened in the middle.

TYPES.—Holotype, male, and allotype, female, San Pedro de Montes de Oca, Costa Rica, September 15, 1932 (C. H. Ballou), ex *Stenoma* species on avocado.