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NEW NORTH AMERICAN DIPTERA, WITH NOTES ON OTHERS

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The flies described in the following pages have mostly been received for identification during the past year. Since the description of the snow-berry fruit fly, *Rhagoletis symphoricarpi*, I have received many queries concerning the correct name for the blueberry maggot, an insect also closely related to the apple maggot, and I now present the results of studies of these related forms.

The types of the new species are in the Museum collection and I wish to express the thanks of the Museum for these donations and also my appreciation to those who have furnished the interesting material upon which this paper is based.

STRATIOMYIDÆ

RHINGIOPSIS Röder

The following key separates the known species.

TABLE OF SPECIES

- 1.—First antennal segment but little longer than the second. 2.
First antennal segment at least twice as long as the second. 3.
- 2.—Abdomen black, with two subtriangular pale spots on either side; the lateral margins of the fifth segment reddish. *rostrata* Wiedemann.
Abdomen yellowish, a broad median vitta and the fourth segment, black; fifth segment yellowish. *tau* Röder.
- 3.—Scutellum greenish yellow, the sides and spines black; mesonotum with a pair of triangular yellow vittæ behind the suture. *bequaerti*, n. sp.
Scutellum with the middle, sides and spines yellow; mesonotum without yellow vittæ. *nasuta* Enderlein.

Rhingiopsis bequaerti, new species

Black and rusty yellow with greenish tinge; first antennal segment three times as long as the second; wings brown on apical half except posteriorly. Length, 16 mm.

FEMALE.—Head rusty yellowish, with greenish tinge below; front shining black, with a large, oval yellow spot on either side lying mostly below the middle. Face most prominent at the upper fourth, the "snout" cut off squarely at the end, black on the upper surface. Front of moderate width, the upper fourth strongly produced upward. Posterior orbits wide, acutely margined above; occiput black in the middle

and emitting a black stripe to the vertex. Proboscis black, the small palpi brown. Antennæ black, the first segment three times as long as the second, the third a little more than twice as long as the first two combined.

Mesonotum shining black, the lateral margins very broadly yellowish, broadly interrupted behind the suture but broadly produced inwardly in front; behind the inner ends of the suture with an elongate, subtriangular yellow vitta. Pleura greenish yellow or yellowish green, the pectus black, emitting a very broad black stripe half-way to the mesonotum behind the front coxæ and a narrow one above the posterior coxæ. Metapleura mostly blackish. Scutellum rusty yellowish, with green tinge apically, the sides very broadly, and the spines, black. Hair very short, black, longer on the upper part of the pleura, yellowish on the pectus.

Legs black, black-haired; first tarsal segment reddish brown.

Wings brown on the apical half, in front of the fourth posterior cell, the basal cells tinged with brown and the strong veins distinctly bordered with this color. Squamæ brown, brown pilose above. Halteres brown on the basal half, bright green apically.

Abdomen shining black, the lateral margins very broadly rusty reddish-yellow, greenish on the first segment and apical half of the fifth. Venter black, the sides very broadly yellowish. Hair very short, black, yellow on the pale portions.

TYPE.—Female, Chichen Itza, Yucatan, Mexico, June, 1929 (J. Bequaert).

TRYPANEIDÆ

ALEOMYIA Phillips

PHILLIPS, 1923, Journ. N. Y. Ent. Soc., XXXI, p. 123.

Only one species was originally included in this genus, but it is very evident that *Rhagoletis caurina* Doane and a new form from Arizona belong here. The three species are separable as follows.

TABLE OF SPECIES

- 1.—Brown fascia extending from the apex of the second vein over the posterior cross-vein interrupted 2.
This fascia entire *rufipes*, n. sp.
- 2.—Brown fascia across the middle of the wing interrupted (Oregon) . . . *caurina* Doane.
Brown fascia across the middle of the wing not interrupted (Maryland).
alpha Phillips.

Aleomyia rufipes, new species

Figure 1

Reddish yellow, the abdomen entirely, the thorax partly black. Length, 2.5 mm.

FEMALE.—Head reddish yellow, the upper three-fifths of the occiput blackish. Front, from dorsal view, almost half as wide as the whole head, slightly longer than wide; three pairs of frontals, the upper pair reclinate; ocellars of moderate length; posterior cilia black; cheeks shining, bare. Proboscis elongate and geniculate, yellowish; palpi slender, yellow and with pale yellow hair. Antennæ yellow, the arista mostly brown.

Thorax reddish yellow, shining, the pleura posteriorly and the metanotum black. Mesonotum with a pair of wide, united median black vittæ on the anterior two-thirds,

a broad sublateral vitta on either side broadly united with the median pair in front of the scutellum and extending from inside the humeri to cover the base of the scutellum at the sides, and an indistinct blackish stripe above the roots of the wings. The black parts on the anterior two-thirds are covered with cinereous pollen. Hair and bristles black. Scutellum bright reddish-yellow with the basal corners black; with four bristles.

Legs wholly reddish yellow, the posterior four coxæ more or less brownish; hair short, pale, the bristles on the anterior femora brown.

Wings hyaline, with whitish tinge and marked with five brown fasciæ as shown in figure 1. Squamæ and halteres yellow.

Abdomen shining brownish black, the first segment of the ovipositor almost as long as the preceding abdominal segments combined. Hair black, the bristles very weak.

TYPE.—Female, Coyote Mts., Arizona, August 4-7, 1916 (F. E. Lutz).

NEASPILOTA Osten Sacken

As no complete key to the Nearctic forms has been published, and as I have before me examples of all the species, I present a key for their separation. *N. brunneostigmata* Doane, published without locality record, probably came from California. The Museum possesses a specimen from Arizona, which agrees with Doane's description, but the species appears to be doubtfully distinct from *albidipennis* Loew.

TABLE OF SPECIES

- 1.—Stigma unicolorous or practically so, yellowish or pale brownish.....2.
Stigmal cell strongly bicolored, brown basally, pale on apical half.....4.
- 2.—Stigma browish or brownish yellow.....3.
Stigma very pale yellowish, almost uncolored.....*alba* Loew.
- 3.—Third antennal segment more than twice as long as wide. *albidipennis* Loew.
Third antennal segment less than twice as long as wide. *brunneostigmata* Doane.
- 4.—Cross-veins not bordered with brown.....*signifera* Coquillett.
Cross-veins strongly bordered with brown and the wings otherwise marked with this color.....*achilleæ* Johnson.

RHAGOLETIS Loew

In his revision of the genus *Rhagoletis* Loew, Cresson¹ places *zephyria* Snow and *symphoricarpi* Curran as synonyms of *pomonella* Walsh. Both species bear superficial resemblance to *pomonella* but, as I have already pointed out,² they are distinct and may be recognized on either biological reactions or adult characters. At the time I published my results of the examination of the type of *zephyria* and described *symphoricarpi* I examined only part of the male genitalia and feel sure that the most striking differences were overlooked. Unfortunately, my

¹Trans. Amer. Ent. Soc., LV, pp. 401-414.

²Can. Ent., LVI, pp. 62-63.



- Fig. 1. *Aleomyia rufipes*, n. sp. Wing.
 Fig. 2. *Rhagoletis pomonella* Walsh. Lateral view of male genitalia.
 Fig. 3. *Rhagoletis mendax*, n. sp. Lateral view of male genitalia.
 Fig. 4. *Rhagoletis cingulata* Loew. Lateral view of male genitalia.
 S. A., sustentacular apodeme.
 Fig. 5. *Rhagoletis indifferens*, n. sp. Lateral view of male genitalia.
 Fig. 6. *Rhagoletis berberis*, n. sp. Wing.
 Fig. 7. *Euaresta jonesi*, n. sp. Wing.
 Fig. 8. *Anorostoma cinereum*, n. sp. Head.
 Fig. 9. *Anorostoma cinereum*, n. sp. Wing.

material of *symphoricarpi* now consists of a paratype of each sex and I do not feel justified in destroying the abdomen of the male in order to prepare a slide for examination.

The question of biological races is a puzzling one but may be said to be comparable to the puzzle provided by species that are superficially very similar in markings and structure. It is almost impossible to decide the specific status of adult specimens, and by the same token it is almost impossible to limit the term "biological race." As our knowledge of insects increases it becomes obvious that specific limits are not to be decided by a mere superficial examination of a dried insect, but that a knowledge of the habits as well is of importance. The knowledge that certain insects have different habits or hosts should lead to a detailed examination of the adults to discover, if possible, any constant differences that may be correlated with the unusual habit. In the case of the examination of the four species of *Rhagoletis* discussed below, the habits of each of the two related species are distinct. The species feeding on wild cherry, and closely related to *R. cingulata*, will not oviposit on cultivated cherries and, inversely, the so-called cherry fruit-fly will not oviposit on wild cherries. The same is true of the blueberry and apple-feeding species.

In interpreting the illustrations of the genitalia, too much stress must not be placed upon the detailed structure of the penes, since a very slight turn of these organs results in a different appearance and the length or shape of the "tube" is of no importance. Since the specimens from which the illustrations were made are mounted on slides it was impossible to secure the same view for each specimen. In the sustentacular apodeme is to be found ready means of determining the species, as this organ exhibits striking differences in shape in the various forms studied. The slides are preserved in the Museum collection.

In order to facilitate the identification of the species I have prepared a key to the Nearctic forms. The species described as *caurina* by Doane belongs to the genus *Aleomyia* Phillips.

TABLE OF SPECIES

- 1.—Wings with a continuous hyaline fascia extending from the costa to the posterior border and passing between the anterior and posterior cross-veins. 2.
 Wings without such fascia. 12.
- 2.—Brown fasciæ on the basal half of the wing not connected posteriorly. 3.
 Brown fasciæ on basal half of the wing broadly connected posteriorly. *tabellaria* Fitch.
- 3.—A short brown band extends from the costa to the third vein between the second and third nearly complete fasciæ. 4.

- No such narrow brown band between the usual broad fasciæ.....5.
- 4.—Broad costal fascia on apex of the wing united with the third fascia in its full width or nearly so (Europe).....*cerasi* Linnæus.
The apical costal fascia is narrow and broadly separated from the third transverse fascia (California).....*formosa* Coquillett.¹
- 5.—A brown fascia extends over the basal and part of the anal cells.....6.
Basal fascia absent.....*juglandis* Cresson.
- 6.—Third vein with an isolated elongate brown spot behind the costal brown band.
boycei Cresson.
- Third vein without such spot.....7.
- 7.—Two brown bands beyond the third transverse fascia (or the costal band very deeply indented in the apical cell).....8.
Costal band never divided longitudinally for part of its length.....10.
- 8.—The third transverse fascia and the two brown apical bands form an F-like marking; no hyaline spots along the costa at the apex of the second vein.
striatella Wulp.
- The apical costal band is divided by a deep indentation in the apical cell and there is a hyaline costal spot on either side of the apex of the second vein..9.
- 9.—Sustentacular apodeme extremely wide, more than half as wide as long (figure 5).
indifferens, n. sp.
- Sustentacular apodeme less than half as wide as long (figure 4)..*cingulata* Loew.
- 10.—Costal brown band separated from the costa on most of its length.
ribicola Doane.
- Costal brown band not separated from the costa.....11.
- 11.—Mesonotum wholly black in ground color.....*berberis*, n. sp.
Mesonotum mostly rusty yellowish in ground color.....*completa* Cresson.
- 12.—Marginal cell hyaline immediately beyond the first vein.....13.
Marginal cell brown except the apex.....14.
- 13.—Apical fourth of the wing with two brown bands.....*fausta* Osten Sacken.
Apical fourth of the wing with only the costal brown band.....*sauvis* Loew.
- 14.—The pale orbital band of the front extends as far inside the frontal bristles as the distance from the bases of the bristles to the orbits.....*zephyria* Snow.
The pale orbital stripe extends only slightly inside the frontal bristles at the middle of the front.....15.
- 15.—Anterior femora wholly brown posteriorly and on the basal half anteriorly, never reddish on their whole length.....*symphoricarpi* Curran.
Anterior femora reddish yellow on their whole length at least on the ventral surface.....16.
- 16.—Anterior femora all reddish yellow, with slight brownish tinge posteriorly; sustentacular apodeme of male very obtuse apically, almost transverse.
mendax, n. sp.
- Anterior femora largely brown posteriorly and sometimes in front on the basal half; sustentacular apodeme rather acute apically....*pomonella* Walsh.

¹Cresson omitted this species. I include it from description only and it may not be a *Rhagoletis*.

Rhagoletis pomonella Walsh

Figure 2

Trypeta pomonella WALSH, 1868, 'Rep. Nox. Ins. Ill.,' I, p. 29 (f).

Rhagoletis pomonella CURRAN, 1924, Ann. Rept. Ent. Soc. Ont., LIV, p. 57 (f).
CRESSON, 1929, Trans. Ent. Soc. Amer., LV, p. 409 (f).

As I have already pointed out above, the synonymy given by Cresson is erroneous and *zephyria* and *symphoricarpi* are distinct species. In discussing the synonymy of *zephyria*, Cresson followed Doane, who saw the types but apparently was misled by Snow's statement that the three types were males. The type that I examined was a female and was labelled by Snow. I have no doubt that both sexes possess the differences I pointed out for the female, but since I had no male before me I naturally did not mention that sex.

R. symphoricarpi may be recognized by the decidedly smaller pale spot on the scutellum. Figures of part of the genitalia of this species and *pomonella* will be found in the Curran reference cited above, while the complete genitalia of *pomonella* is figured at the present time. It will be noted that the sustentacular apodeme is acutely rounded apically and the same is true of the crescentric rings on the darkened portion. The appendage at the end of the penis is large and densely haired and is usually readily discernible in dried specimens.

Rhagoletis mendax, new species

Figure 3

Similar to *pomonella* but separable by the shape of the male genitalia. The sustentacular apodeme is more strongly widened apically and is very obtuse on the end, almost transverse. The same is true of the crescentric rings on the darkened portion and it is usually from this part that the shape is to be determined, since the colorless outer portion is not easily seen unless the lighting is excellent.

TYPES.—Holotype and allotype, male and female, Maine (A. D. Pickett); paratypes, male and female, Maine, and two males and three females, Aylesford, Nova Scotia (A. D. Pickett), all reared from *Vaccinium*; male and female, Lakehurst, N. J., July 1 (L. B. Woodruff).

This is the "blueberry maggot," the so-called apple maggot of blueberries, and many references to *pomonella* refer to this species. The wing and body markings are the same as found in *pomonella* but the hair on the front is finer and less conspicuous and the pale scutellar spot is usually smaller in the female.

Rhagoletis cingulata Loew

Figure 4

Trypeta cingulata LOEW, 1862, 'Mon. N. Amer. Dipt.,' I, p. 76 (f). CRESSON, 1929, Trans. Amer. Ent. Soc., LV, p. 408 (f).

In Cresson's figure of the wing the basal brown fascia has been omitted and this figure shows a marked difference from that of Loew. In all my specimens the extent of the hyaline spots extending along the costa on either side of the apex of the second vein is less than shown by Cresson, but in Loew's figure the hyaline area in the submarginal cell is much larger and is actually joined to the hyaline triangle, which extends into this cell from the apex of the apical cell, leaving the anterior portion of the fascia in the form of a roundish spot. There is a possibility that the "cherry fruit-fly" is not *R. cingulata*, but an examination of the type of *cingulata* and a study of the male genitalia will be necessary in order to determine this.

***Rhagoletis indifferens*, new species**

Figure 5

Related to *cingulata* Loew from which it differs in characters of the male genitalia. While the genitalia show several differences, as may be determined by a comparison of the figures, the most obvious is to be found in the remarkably wide sustentacular apodeme in *indifferens* and this species is recognizable on this character alone.

Types.—Holotype, male, and allotype, female, Hood River, Oregon, August 17, 1931. Paratypes: seven males and three females, Hood River, June 12, 23, 1931; six males and two females, Corvallis, Oregon, July 15, 19 and August 14, 17, 1931; and two males and one female, Hood River, Oregon, June, 1931 (S. C. Jones). All reared from *Prunus marginata* Douglas.

I am unable to compare this species critically with *cingulata* as all my specimens of the latter are in alcohol. Mr. Jones has informed me that he has failed to induce this form to oviposit on cultivated cherries and that even though it is common on wild cherries adjacent to orchards there is no infestation of the cultivated varieties, nor have attempts to induce *cingulata* to oviposit in wild cherries proved successful.

***Rhagoletis berberis*, new species**

Figure 6

Evidently related to *indifferens*, new species, but without the hyaline area in the apex of the apical cell. Differs from *completa* Cresson in being black in general color, in having a wider hyaline fascia across the middle of the wing, etc. Length, 3.25 to 4.25 mm.

FEMALE.—Head yellowish, frontal vitta reddish or pale orange; occiput black, with the posterior orbits and vertex reddish or yellowish; the head sometimes reddish with the face and frontal orbits yellow and the anterior half of the frontal vitta blackish or dark brown. Five pairs of frontals, the upper two pairs reclinate; frontal hair yellow, practically wanting on the frontal vitta. Occiput very thinly, the face more obviously whitish pollinose. Proboscis and palpi pale orange, the latter with black bristly hairs apically. Cheeks with short black hairs and a black bristle posteriorly, the posterior orbits with yellow hair. Antennæ reddish, the arista mostly brown.

Thorax black, with a broad whitish vitta extending over the humeri and along the upper border of the pleura to the squamæ. Mesonotum with brownish or yellowish-gray pollen on the disc, which leaves the very broad posterior and lateral margins and three rather narrow vittæ shining black. Hair and bristles black, the hair on the mesonotum yellow. Scutellum with four bristles, the apical pair situated within the yellow spot; basal two-fifths of the scutellum black, the apical portion yellow except on the sides; no hair.

Coxæ and femora black or dark brown, the trochanters, apices of the femora, tibiæ and tarsi reddish yellow, the posterior tibiæ brown except on the broad base and apex.

Wings hyaline and brown as shown in figure 6. Squamæ white. Halteres pale yellow.

Abdomen shining blackish, the apices of the second to fourth segments broadly pale in ground color and thickly cinereous-yellow pollinose. Seventh segment (first genital) not or only slightly longer than wide, usually appearing quite short. Hair and bristles black, yellowish on the first and second segments except the sides of the second.

Types.—Holotype, female, and four paratypes, females, from *Berberis nervosa* at Hood River, Oregon, June 23, 1931; allotype, male, and ten male paratypes, from *B. nervosa*, Hood River, July 30, 1930, reared by S. C. Jones.

***Euaresta jonesi*, new species**

Figure 7

Differs from *bella* Loew in having a very large hyaline spot in front of the anterior cross-vein. Related to *bellula* Snow but differing in having much larger hyaline spots in the discal cell and usually a hyaline spot at the basal fifth of the apical cell, larger clear spot in front of the anterior cross-vein, etc. Length, 3.5 to 3.75 mm.

FEMALE.—Head yellow, the face paler, posterior orbits, face, cheeks, and narrow frontal orbits with very pale yellowish, the occiput with dull yellow pollen; hair and bristles whitish, the three or four pairs of frontals and the vertical bristles brown. Antennæ pale yellow, the arista brown with yellow base. Proboscis and palpi yellow.

Thorax black in ground color, cinereous pollinose, the squamose hair yellow, the bristles brownish or brownish yellow. Scutellum with four bristles.

Legs reddish yellow, with yellowish hair and bristles; coxæ black in ground color, cinereous pollinose.

Wings (figure 7) dark brown and hyaline, the size of the hyaline spots somewhat variable. There are sometimes two hyaline spots in the stigmal cell; the hyaline spot in front of the anterior cross-vein is always large and always extends broadly to third vein; the basal of the two brown rays lying entirely within the second posterior cell is very often united with the brown of the apical cell, leaving two hyaline areas and there may be three large hyaline spots in the discal cell or the two apical spots may be united; the basal spot in the apical cell may be absent. Squamæ white. Halteres pale yellow.

Abdomen shining black, with the second to fourth segments shining reddish. Hair yellow on the basal half and sides, black on the apical half except laterally. Ovipositor very long.

• TYPES.—Holotype and five paratypes, all females, Delake, Oregon, June 6, 1931 (S. C. Jones), from *Gaertneria* species.

In comparison with specimens of *bellula* Snow from California the wings of *jonesi* are much more extensively light-colored and the bristles of the head and thorax are darker in color.

ANOROSTOMA Loew

The following key will serve to distinguish the described Nearctic species.

TABLE OF SPECIES¹

- 1.—Sternopleura with three or four strong bristles.....2.
Sternopleura with only one or two strong bristles.....3.
- 2.—Front deep orange; abdomen reddish yellow.....*alternans* Garrett.
Front brownish; abdomen black in ground color, the genitalia reddish.
grande Darlington.
- 3.—Sternopleura with two strong bristles.....*opacum* Coquillett.
Sternopleura with only one strong bristle.....4.
- 4.—Mesopleura with a broad brown stripe above.....*hinei* Garrett.
Mesopleura without such stripe.....5.
- 5.—Wings without gray blotches, the end of the auxiliary vein and the cross-veins
with brown spots.....*marginatum* Loew.
Wings with gray blotches in addition to the clouded cross-veins.....6.
- 6.—Hairs and bristles of the mesonotum arising from brown spots.
maculatum Darlington.
Hairs not arising from dark spots.....*cinereum*, n. sp.

Anorostoma cinereum, new species

Figures 8 and 9

Related to *maculatum* Darlington but readily distinguished by the absence of brown spots at the bases of the mesonotal hairs. Length, 5 to 6 mm.

MALE.—Head thickly whitish pollinose; face, cheeks and lowest three-fifths of the occiput reddish yellow in ground color, the upper part of the occiput and the vertex black, the front reddish. Front half as wide as the total head-width when viewed from above, narrowing anteriorly; two pairs of short frontals, the anterior half of the front with short, coarse, sparse black hairs; ocellars long; verticals and outer verticals strong; occipital hairs black; cheeks with only a few hairs below, much wider than the transversely oval eyes. Proboscis blackish; palpi yellow, with a few black hairs. Antennæ black, the first segment brownish red; arista yellowish basally. Vibrissæ weak.

Thorax black in ground color, densely cinereous-white pollinose; mesonotum with an obscure brownish-yellow vitta on either side along the lines of the dorso-centrals and fainter vittæ outside these, the upper part of the mesopleura pale yellowish; the dorsocentral bristles arise from tiny brown spots. The short hair is black and is limited to the mesonotum and sternopleura. The mesopleura bears one bristle, and sometimes a weak hair, behind, while the sternopleura bears only one strong

¹*A. jerseyi* and *coloradensis* Garrett are not included but trace to *marginatum* Loew.

bristle. The scutellum is bare except for the four marginal bristles, and the propleural is weak.

Legs with the anterior coxæ, the trochanters, tibiæ, and tarsi reddish yellow, the femora black with pale apices, the whole more or less thickly cinereous-white pollinose. Tarsi with strong apical bristles below; pulvilli cinereous yellow.

Wings with yellowish tinge, in some views appearing white, the veins yellow except apically. There are blackish-brown spots on the apex of the auxiliary vein and on the cross-veins, and gray patches as shown in figure 9, these patches apparently being due to the color of the villous wing covering. Squamæ cinereous yellow, the halteres yellow.

Abdomen black in ground color, densely cinereous-white pollinose, the hairs and weak bristles black. Genital organs reddish, the basal genital segments both dark in ground color.

FEMALE.—Frontal bristles stronger; a small brownish spot inside the basal scutellar hairs; middle femora wholly reddish yellow; apical genital segment with numerous spines.

TYPES.—Holotype, male, allotype, female, and seven males and five female paratypes, Fogerty Creek, Oregon, October 11, 1931 (S. C. Jones), on sea-rocket and sand; six males and five females, Boiler Bay, Oregon, May 18, 1930 (J. Wilcox).

Erycia Desvoidy

The key that follows includes Nearctic species described since the publication of the key in the Canadian Entomologist, LIX, p. 15, 1927, but omits *exilis* Coquillett, since that species belongs to the genus *Dexodes*.

TABLE OF SPECIES

- 1.—Middle tibiæ with at most one strong and one quite weak anterodorsal bristle. 2.
Middle tibiæ with two or three strong anterodorsals. 6.
- 2.—Dorsocentrals 3-4. 3.
Dorsocentrals 3-3. *seticauda* Reinhard.¹
- 3.—First two antennal segments and base of the third reddish; front light-golden pollinose; outer forceps of male strongly widened near the middle.
arator Aldrich.
- Antennæ usually wholly black, if the second segment is reddish the front is usually cinereous, the scutellum broadly yellow apically and the apices of the abdominal segments very narrowly dark. 4.
- 4.—Five frontals below the upper base of the antennæ. *tuxedo* Curran.
Three frontals below the upper base of the antennæ. 5.
- 5.—Front dull golden pollinose; basal antennal segments rarely reddish; outer forceps of male not constricted basally. *celer* Coquillett.
Front cinereous pollinose; second antennal segment partly reddish; outer forceps of male strongly widened on the apical half. *delecta* Curran.
- 6.—Three sternopleurals. 9.
Four sternopleurals. 7.

¹If there are infrasquamal setulæ this species falls into *Lydella*, otherwise it would appear to belong in *Erycia*.

- 7.—Apical scutellars suberect; scutellum normally wholly black; apices of abdominal segments broadly shining black. *myoidæa* Desvoidy.
 Apical scutellars horizontal; scutellum largely reddish. 8.
- 8.—Male outer forceps less than one-half longer than wide; apices of abdominal segments rather broadly shining, very thinly brown pollinose (Europe).
fatua Meigen.
 Male outer forceps twice as long as wide; abdominal segments pollinose to the apices which are, however, brownish (Europe). *ferruginea* Meigen.
- 9.—Second segment without strong discs, sometimes with stout, bristly hairs. . 10.
 Second segment with at least a pair of strong discs (sometimes irregular in female). 12.
- 10.—Large species, over 9 mm. in length (European). 11.
 Small species, under 8 mm. in length (Texas). *unispinosa* Reinhard.
- 11.—Third abdominal segment on either side with an area of appressed, short, fine black hair. *pratensis* Meigen.
 Third segment without such hair; front of male usually with two pairs of orbitals. *silvatica* Fallen.
- 12.—Abdomen, from most views, with the apices of the segments broadly shining black. 13.
 Abdomen yellowish-gray pollinose, the segmental apices only narrowly black; grayish looking species, the fourth segment usually with yellowish tinge. . 17.
- 13.—Abdomen wholly shining black (♀). *leechi*, n. sp.
 Abdomen conspicuously pollinose. 14.
- 14.—Pollen on the second and third abdominal segments forming a narrow, interrupted basal cross-band (♀). *deckeri* Curran.
 Pollen occupying at least the basal half of the segments. 15.
- 15.—Second antennal segment less than half as long as the third. 16.
 Second antennal segment more than half as long as the third. . . *leechi*, n. sp.
- 16.—Not more than the basal half of the abdominal segments whitish pollinose; outer forceps of male genitalia rather narrow; a single pair of discs on intermediate abdominal segments. *varifrons* Curran.
 Usually the basal two-thirds of the abdominal segments pale pollinose; the second and third segments usually with more than one pair of discs; outer forceps of male genitalia narrow basally, broad on apical half.
aldrichi Curran.
- 17.—Front in both sexes wider than one eye. *rutila* Meigen.
 Front in both sexes narrower than one eye. *celer* Coquillett.

Erycia leechi, new species

Recognizable by the characters given in the key, especially in the case of the female. This is the only species of *Erycia* I have seen in which sexual coloration shows a striking difference. In the males the abdomen is cinereous pollinose with the segmental apices broadly black while the females have the abdomen wholly shining. Length, 5 to 6.5 mm.

MALE.—Head cinereous pollinose, with yellowish tinge, the parafrontals only thinly pollinose on the upper third. Front less than half as wide as greatest width of either eye, strongly widening on the anterior two-thirds; frontal vitta dark brownish-red, with almost parallel sides; ten to fourteen pairs of frontals, the lowest two to

four pairs situated below the base of the antennæ, the upper three or four pairs reclinate; hairs outside the frontals sparse and coarse, a few of those below the frontals directed downward, the lowest frontal opposite the base of the third antennal segment; ocellars long and strong; occipital pile pale yellowish. Cheeks about one-third as wide as the eye-height, the hair coarse. Parafacials decidedly wider than the third antennal segment, very slightly narrowed below. Vibrissæ situated level with the oral margin, the ridges with rather closely placed bristles and hairs on the lowest third. Face rather strongly receding. Antennæ black, the basal segments more or less brownish; third segment not twice as long as the second, rather narrow, rounded at the apex; arista thickened on almost the basal third. Palpi reddish yellow.

Thorax black, rather thinly cinereous white pollinose, the four shining black vittæ conspicuous in some views and rather broad. Acrosticals, 3-3; dorsocentrals 3-4; posterior sublateral very weak or absent; four pairs of marginal scutellars, the apical pair slightly divergent; sternopleurals, 2-1, rarely a second fine one behind.

Legs black; anterior tibiæ with a single posterior bristle; middle tibiæ with three anterodorsal bristles; pulvilli rather short.

Wings cinereous hyaline, rather conspicuously darkened in front. Base of third vein with two or three bristles. Squamæ whitish with yellowish tinge, the lower lobe with brown tinge on the apical two-thirds. Halteres pale yellowish brown.

Abdomen black, cinereous pollinose, a broad median vitta and about the apical fourth of the second and third segments shining. First and second segments each with a pair of median marginals, the third and fourth each with a row; second and third segments each with a pair of discals, the fourth with two rows. Genitalia small.

FEMALE.—Front about half as wide as either eye, gently widening anteriorly, about ten pairs of frontals, the upper two pairs reclinate; two pairs of orbitals; outer verticals about half as long as the verticals; facial ridges less obviously bristled, two or three rather short bristles above the vibrissæ, the face receding. Abdomen shining black.

TYPES.—Holotype, allotype, and four paratypes, Vernon, British Columbia, July 4, 1929 (H. B. Leech).

The six specimens were reared from *Carabus lædatus* variety, but I am not certain whether they are all from the same adult. However, this species is a parasite of adult beetles and at least four of the specimens are from a single host. Many of the beetle parasites have piercer-like ovipositors but there is no such development in this species.

