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NEW MUSCOID FLIES (DIPTERA) IN THE UNITED STATES NATIONAL MUSEUM

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INCLUDED among the species of muscoid flies described in this paper are certain forms that are of considerable interest because of their unusual host relationships or their economic importance. Names for these have been requested in connection with investigations being conducted on their biology or control.

Genus **HYLEMYA** Robineau-Desvoidy

HYLEMYA ABDENA, new species

FIGURE 19

Male.—Head with front narrower than breadth of anterior ocellus and but faintly discernible except anteriorly; frontal bristles about eight, only three of these strong; parafrontals and parafacials thinly silvery gray pollinose; antenna black, third segment slightly longer than second; arista pubescent; bucca narrow, black-haired; palpus and proboscis black, both ordinary.

Thorax densely yellowish gray pollinose, opaque, striping hardly discernible; anterior acrostichal bristles three, the median pair strong; anterior dorsocentral bristles two, strong; humeral bristles two; sublateral bristles two; preapical bristles two, the anterior of which are at least half as long as the posterior; posterior dorsocentral

bristles three; propleura, mesopleura, and pteropleura bare; sternopleural bristles three, the median bristle just below and slightly anterior to the hindmost bristle; scutellum with two long marginal bristles, the apical bristles longer.

Abdomen gray pollinose, with a narrow mid-dorsal black stripe and with abundant erect hairs; sternites laterally with longer hairs in series; hypopygium (fig. 19) of moderate size, black, internal morphological features as illustrated.

Wing hyaline; costal spine present; upper squama longer than lower, rounded, whitish, yellow on rim; veins 3 and 4 slightly divergent at apex; outer cross vein almost straight.

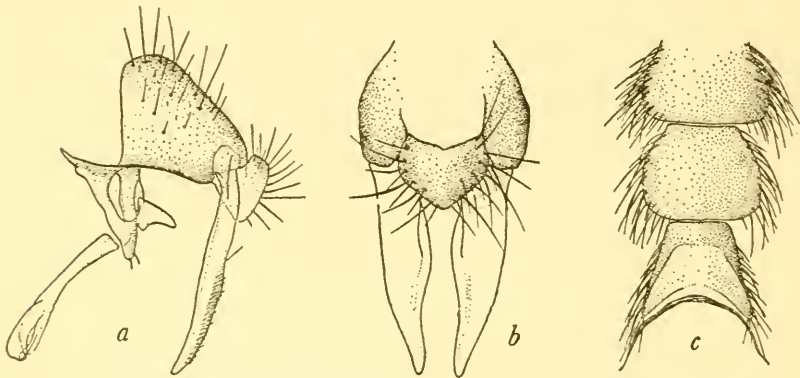


FIGURE 19.—*Hylemya abdona*, new species: *a*, Left lateral view of male terminalia; *b*, rear view of male forceps; *c*, sternites of male.

Legs black; anterior femur with complete posterior and anterior dorsal rows of bristles, a scattered series of setalike hairs posteriorly which are not in rows, and a series of bristles basally on the posterior ventral surface; anterior tibia with one long subapical dorsal bristle and a shorter bristle near apical third, two posterior ventral bristles, the first near the middle, the second curved and sharp, situated almost apically; anterior basal tarsal segment with a short basal ventral fringe, the first bristle the longest; middle femur with a short basal row of four long ventral bristles, one anterior ventral bristle near the basal third, an apical posterior dorsal series of three bristles, a complete row of shorter anterior bristles; middle tibia with one posterior dorsal bristle, one anterior dorsal and two posterior ventral bristles; hind coxa without hair posteriorly; hind femur with two apical dorsal bristles, a complete row of bristles posteriorly which are scattered basally, one long and strong subapical posterior bristle, a short apical anterior dorsal row of bristles, a short apical row of about three bristles posterodorsally, a complete row anteriorly, a short apical row anteroventrally, and one fairly long ventral bristle near the base; hind tibia with three posterior dorsal bristles,

the first at the basal fourth, the second at the basal third, and the last at the apical fourth, with one dorsal subapical bristle, four anterior dorsal bristles in a widely spaced row, two anterior ventral bristles, the first near the middle, the second near the apical fourth, and four bristles in a short row near the middle posteriorly.

Female.—Like male except for normal sexual differences.

Type locality.—Portland, Oreg.

Type and paratypes.—U.S.N.M. no. 51695.

Host plant.—Carnation.

Remarks.—Described from a type (male) and a series of 23 paratype male and female specimens reared during the summer of 1936 as an economic pest of carnation by Charles Doucette at Portland, Oreg.

The species described above differs from *Hylemya trichodactyla* Rondani (of which *Hylemya floreliga* Zetterstedt is a synonym) in that the fore tibial spur is sharp, not blunt; the hind femur does not have posterior ventral bristles on the apical half; the middle metatarsus is not setulose above; and the hind tibia does not have a row of posterior ventral setulose hairs. It differs from *Hylemya planipalpus* Stein (which is a valid species and not a synonym of *Hylemya floreliga* Zetterstedt) in the presence of a well-developed anterior ventral bristle near the basal third and in the absence of a posterior ventral series of setulose hairs on the hind tibia. *Hylemya abdena* differs from other species in the genus in the male genitalia and in combinations of chaetotaxal characters.

Genus ZENILLIA Robineau-Desvoidy

ZENILLIA (SISYROPA) NOX, new species

FIGURE 20

Male.—Head (fig. 20, *a*) with front produced anteriorly, approximately one-third width of one eye; antennal axis to vibrissal axis as 7 is to 5; frontal stripe dark brown and as wide above as one parafacial; ocellar bristles distinct and proclinate; outer vertical, postvertical, and vertical bristles present; outer orbital bristles absent; frontal bristles about 12, the rows diverging widely below to nearly the apex of the second antennal segment; parafrontals gray pollinose and with numerous scattered black setalike hairs; parafacials silvery gray pollinose, bare, facial ridges bare; antenna black, third segment three times as long as second and reaching three-fifths the distance to the vibrissae, which are well developed and at the oral margin; antennal bases hardly separated; arista with microscopic pubescence on basal fourth, thickened, penultimate segment not longer than wide; clypeus moderately deep; a slight carina pres-

ent; epistoma sunken; bucca one-sixth eye height, with black hair; eye large, covered with tawny hair; back of head with two rows of

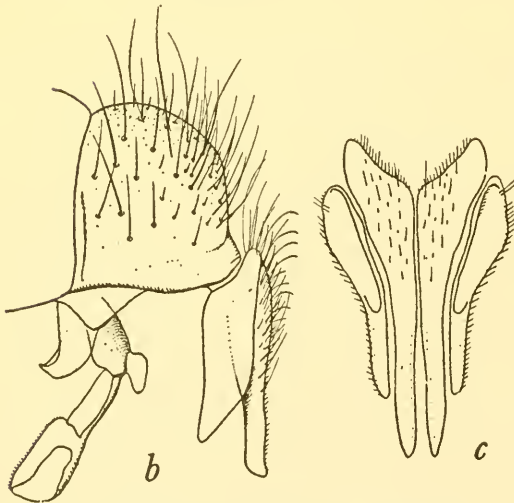
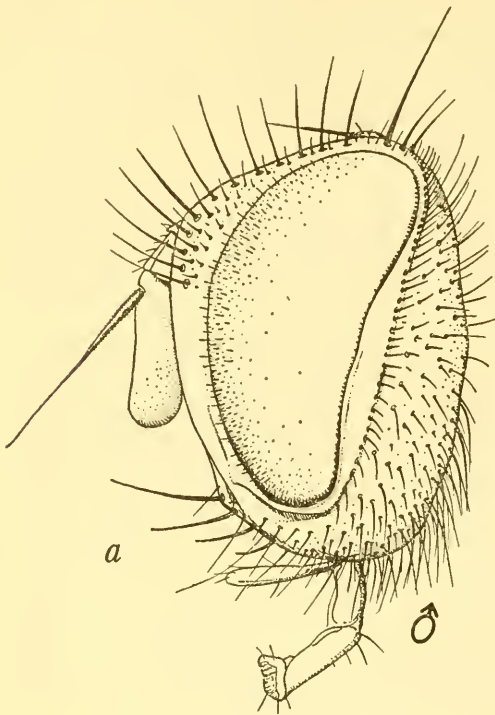


FIGURE 20.—*Zenillia (Sisyropa) nox*, new species: *a*, Left lateral view of male head; *b*, left lateral view of male terminalia; *c*, rear view of male forelegs.

postocular ciliae, the middle and below with pale tawny hairs; palpus and proboscis black, ordinary.

Thorax black, thinly gray pollinose; anterior acrostichal bristles three; anterior dorsocentral bristles three; sublateral bristles two; the presutural sublateral long and well defined; humeral bristles five; posthumeral bristles two; propleura bare; sternopleural bristles three, the mid bristle below and slightly posterior to the foremost; prosternum with a tuft of setalike hairs on lateral margins; postsutural acrostichal bristles three; posterior dorsocentral bristles four; prealar bristles three; scutellum with three marginal bristles, one subapical, and one apical bristle.

Abdomen subconical, black, with thin yellowish gray pollinosity; first segment black, remaining segments mid-dorsally and posteriorly shining black; first and second segments with

well defined median marginal bristles; third and fourth segments with rows of marginal bristles; all segments except first with median

discal bristles not definitely arranged in pairs; fourth segment with numerous scattered discal bristles; hypopygium (fig. 20, *b* and *c*) small, black, almost concealed.

Wing hyaline; epaulet black; costal spine absent; third costal section equal to fifth in length; third vein with two or three basal setulae both above and below; apical cell open; fourth vein ending slightly before wing apex and with a distinct angulated bend; squama infuscated, yellowish or orange white, darker on rim.

Legs black; anterior femur with complete dorsal, posterior dorsal, and posterior ventral rows of bristles and posteriorly with long scattered setalike hairs which are not in rows; anterior tibia with a staggered dorsal row of bristles, and with two posterior bristles on the apical third; claw and pulvillus fully one and one-half times as long as apical tarsal segment; middle femur with staggered anterior basal bristles which are not in rows, a row of anterior ventral bristles on the apical third, three long bristles on the anterior ventral basal third, a complete posterior ventral row of bristles which are longest basally, the apical posterior with a series of bristles; middle tibia with one ventral bristle near middle, one elongate bristle on the anterior ventral surface near middle, two posterior dorsal bristles, the first near middle and the second near apical fourth; hind coxa bare behind; hind femur with three or four long basal posterior ventral bristles, anteroventrally with two long bristles basally and two long bristles apically, a complete anterior dorsal row, a basal anterior row; hind tibia with a row of posterior dorsal bristles, the two at middle of row longer and stronger, a series of three anterior ventral bristles near the apical third, and a complete row of anterior dorsal bristles which may be considered ciliate, the row with one or two longer and stronger bristles near middle.

Female.—Front approximately 0.31 of head width; outer orbital bristles two, proclinate; thorax more heavily pollinose than in male; abdomen with the terminal segment closing slitlike below and with the lateral margins heavily setose; legs as in male.

Type locality.—Hokkaido, Japan.

Type and paratypes.—U.S.N.M. no. 51693.

Host.—*Nematus erichsoni* Hartig.

Remarks.—Described from a type (male) and a series of 119 male and female paratype specimens reared as a parasite of the larch sawfly by Shizuai during the spring of 1936.

Genus MYOCERA Robineau-Desvoidy

1830. *Myocera* ROBINEAU-DESVOIDY, Essai sur les Myodaires, Mém. Prés. Acad. France, vol. 2, p. 328.

1863. *Myocera* ROBINEAU-DESVOIDY, Histoire naturelle des diptères des environs de Paris, vol. 2, pp. 392-393.

In the first reference above, Robineau-Desvoidy described four genera, *Phorostoma* (p. 326), *Myostoma* (p. 327), *Billaea* (p. 328), and *Myocera* (p. 328). In his 1863 paper he stated that the genotypes of the first and last named were specifically identical. He said that his male of *subrotunda*, sole species of *Phorostoma*, and his *longipes* female, first-named species of *Myocera*, were synonyms of *ferina* Fallen. In the original descriptions, *Phorostoma*, *Myostoma*, and *Billaea* are said to be much alike, differing mainly in the position and shape of the antennae. *Myocera* is said to be analogous to the other three in the original description, and the apical cell is said to be open in the apex of the wing.

In the latter work it becomes obvious that *Phorostoma* and *Myocera* are alike, and the supposition can only be that all four are essentially similar.

MYOCERA TABANIVORA, new species¹

FIGURE 21

Male.—Head with front very narrow, about 0.011 of head width in the single specimen; frontal stripe dark, less than one parafrontal in width at narrowest point just below ocelli, but widening gradually to fully four times this width anteriorly; parafrontals black with thin gray pollinosity; frontal bristles about eight, the rows diverging but slightly below and descending to about the base of second antennal segment; a few short bristlelike hairs situated between the frontals; parafacials bare, golden pollinose over the black ground color; facial ridges without ascending bristles; antennae black, third segment about one and one-half times the length of second, descending only to about the lower third of clypeus; arista short, about as long as second and third antennal segments together, yellowish at middle, short-plumose both above and below to tip, penultimate segment short; a well-developed facial carina descending to lower third of clypeus; vibrissae above the oral margin by about the length of the second antennal segment; epistoma protuberant; epistomal and antennal axes approximately equal; bucca about one-fourth eye height, with black hair; palpus elongate, slender, rather yellowish; proboscis hardly longer than buccal length; eye bare, oblique; back of head with one and a partial second row of postocular ciliae, the middle and below with black hairs, below with some hair; ocellar bristles proclinate, well defined; outer orbital bristles absent; vertical bristles distinct; outer vertical bristles not differentiated from surrounding setae.

Thorax black with dorsal stripes poorly differentiated by slight silvery pollinosity; humeral bristles four; postlateral bristles present in foremost only; anterior dorsocentrals four; anterior acrostichals

¹ A description of the pupa of this species by C. T. Greene follows on page 217.

absent; posterior dorsocentrals four; prescutellar bristles one; sternopleurals three, in a triangle, the middle one but slightly posterior to foremost; prosternum bare; postalar declivity bare; intrasquamal setulae absent; propleura with several long bristlelike hairs at its middle; scutellum with numerous hairlike setae, with three marginal bristles, apical bristles about as long as lateral and subapical bristles small.

Abdomen black, thinly grayish pollinose, tessellated; dorsally without defined marginal bristles but with numerous hairlike setae; fourth segment mostly red, basally the dorsum a little darkened; ventrally all sternites overlapped by tergites; hypopygium red, morphological features (fig. 21) as illustrated.

Wing normal, hyaline; a few basal setulae on third vein; bend of fourth vein with a rounded angle; apical cell plainly open near apex of wing; third costal section about as long as fifth and sixth together.

Legs black; fore tibia with two posterior bristles at middle and with a row of anterior dorsal

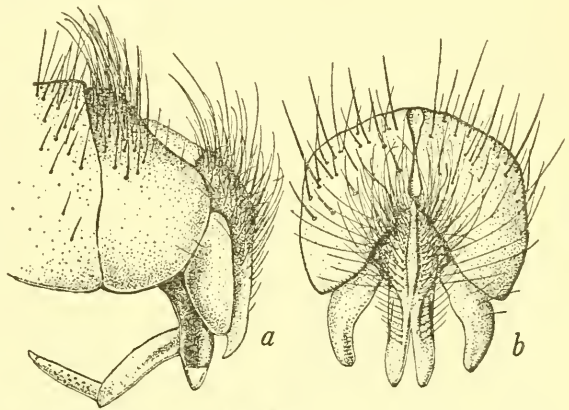


FIGURE 21.—*Myocera tabanivora*, new species: *a*, Left lateral view of male terminalia; *b*, rear view of male terminalia.

bristles; middle tibia at middle with two anterior dorsal and two posterior bristles, hind tibia not ciliated, with two anterior ventral, three or four anterior dorsal, and three posterior dorsal bristles.

Type locality.—Ramsey County, Minn.

Type.—U.S.N.M. no. 51694.

Host.—Tabanid larva.

Remarks.—Described from the single holotype male specimen reared on May 3, 1926, by Dr. C. B. Philip.

Dipterous parasitism of tabanid larvae seems to be of rare occurrence. The records of the United States National Museum show that there are but two such reported instances. An adult of the common widespread bombyliid *Anthrax lateralis* Say was reared from the larva of *Tabanus annulatus* Say, a horsefly that ranges over much of the South Central States, and an adult of *Phasiops flava* Coquillett, a tachinid about which little is known, was reared from the larva of *Tabanus trimaculatus* Beauvais, which has a range similar to that of the horsefly mentioned above. These two records are by Jones and

Bradley,² who reared the material during the summer of 1922 at Magnolia, La.

Genus *SARCOPHAGA* Meigen

SARCOPHAGA DENTIFERA, new species

FIGURE 22

Male.—Head with front 0.214 of head width, average of two specimens (0.221, 0.207); parafrontals and parafacials golden pollinose, the latter with a row of minute bristles below near eye; frontal bristles about nine in number, the rows gradually diverging below to about the middle of the second antennal segment; orbital bristles absent; outer vertical bristles absent; antenna black, third segment two and one-half times the length of second and reaching three-fifths the distance to the vibrissae, which are normal and at the oral margin; arista with long plumosity for three-fifths its length; palpus and proboscis black; bucca three-fifths eye height, with only black hairs before the metacephalic suture; back of head with two rows of postocular ciliae, the middle and below with light hairs.

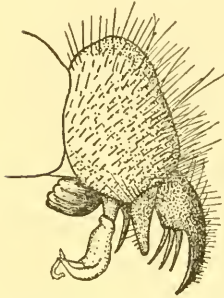


FIGURE 22.—*Sarcophaga dentifera*, new species: Left lateral view of male terminalia.

Thorax gray and golden pollinose with the normal three to five black stripes; pleura with some golden pollinosity; anterior acrostichal bristles three or four; posterior dorsocentral bristles four; sternopleural bristles three; prescutellar bristles one; scutellum with three marginal bristles, one preapical bristle, and one apical bristle.

Abdomen tessellated and with three shifting black stripes, rather bluish metallic in certain lights; median marginal bristles on the third segment; fourth segment with a marginal row of about 12 bristles.

Hypopygium with the first segment black, covered with abundant black hairs and without a marginal row of bristles; second segment red, with black hairs. Genital features as illustrated (fig. 22).

Wing smoky; costal spine absent; third costal section as long as fifth and sixth together; first vein bare; third vein with several basal setulae.

Legs black; middle femur with comb; middle tibia with one anterior dorsal bristle; hind tibia with some long hairs.

Female.—Unknown.

Type locality.—Iguazu, Argentina.

Type and paratype.—U.S.N.M. no. 51690.

² Journ. Econ. Ent., vol. 16, p. 312, 1923.

Remarks.—Described from the type and one male paratype specimen collected October 4, 1927, by R. C. Shannon.

In addition to the Argentine specimens described above, I have several Brazilian specimens collected by Dr. S. W. Williston at Chapada (two males from the American Museum of Natural History, and one male from the Aldrich collection now in the United States National Museum), which differ from the Argentine specimens in that they are not bluish metallic on the abdomen. The male genitalia appear to be identical throughout the series, as are also the chaetotaxy and other characters so far as I am able to ascertain.

SARCOPHAGA TRIDENTATA, new species

FIGURE 23

Male.—Head with front 0.176 of head width; parafrontals and parafacials yellow pollinose, the latter with the usual row of minute bristles below near eye; frontal bristles about 11 in number, the rows diverging below to about the middle of the second antennal segment; orbital bristles absent; outer vertical bristles absent; antenna black, third segment two and one-half times as long as second and reaching three-fifths the distance to the vibrissae, which are normal and at the oral margin; arista with long plumosity for over half its length; palpus and proboscis black, both ordinary; bucca one-fourth the eye height, with intermixed black and pale hair before the metacephalic suture; back of head with three rows of postocular ciliae, the middle and below with some pale hair.

Thorax gray pollinose, with the normal three to five black stripes; anterior acrostichal bristles absent; posterior dorsocentral bristles four; sternopleural bristles three; prescutellar bristles one; scutellum with three marginal bristles, one preapical bristle, and one apical bristle.

Abdomen gray tessellated and with three shifting black stripes; median marginal bristles on the third segment; fourth segment reddish with a marginal row of about 16 bristles.

Hypopygium rather small, dark reddish, almost black; both segments somewhat pollinose and covered with numerous black hairs. Genital features as illustrated (fig. 23).

Wing hyaline; costal spine absent; third costal section as long as fifth and sixth together; first vein bare; third vein with several basal setulae.

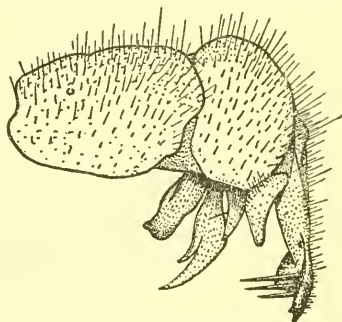


FIGURE 23.—*Sarcophaga tridentata*, new species: Left lateral view of male terminalia.

Legs black; middle tibia with one anterior dorsal bristle and with some long hairs; hind tibia without long hairs.

Female.—Unknown.

Type locality.—Obrilony, Brazil.

Type.—U.S.N.M. no. 51692.

Remarks.—Described from the holotype male specimen collected in January (year and collector unknown).

SARCOPHAGA MINUTIPENIS, new species

FIGURE 24

Male.—Head with front 0.277 of head width; parafrontals and parafacials bright golden pollinose, the latter with scattered minute bristles below near eye; frontal bristles about eight in number, the rows diverging below to about the middle of the second antennal segment; orbital bristles absent; outer vertical bristles absent; antenna black, third segment three times as long as second, reaching four-fifths the distance to the vibrissae, which are normal and at the oral margin; arista plumose for almost its entire length; palpus

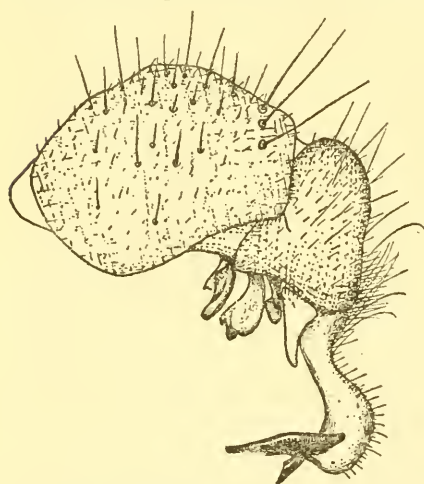


FIGURE 24.—*Sarcophaga minutipenis*, new species: Left lateral view of male terminalia.

and proboscis black, both ordinary; bucca one-fourth the eye height, with intermixed black and pale hair before the metacephalic suture; back of head with two and a partial third row of postocular ciliae, the middle and below with pale hairs.

Thorax gray pollinose, with the normal three to five black stripes; anterior acrostichal bristles absent; posterior dorso-central bristles four; sternopleural bristles three; prescutellar bristles one; scutellum with two marginal bristles, no preapical bristles, and one apical bristle.

Abdomen tessellated and with three shifting black stripes; median marginal bristles on the third segment; fourth segment reddish with a marginal row of about 12 bristles.

Hypopygium yellow, first segment pollinose, with a submarginal row of six bristles; second segment pollinose, rather flat and truncated behind. Genital features as illustrated (fig. 24).

Wing hyaline; costal spine absent; third costal section about as long as fifth; first vein bare; third vein with several basal setulae.

Legs black; middle femur with comb; middle tibia with one anterior dorsal setula; hind tibia without long hairs.

Female.—Unknown.

Type locality.—Chapada, Brazil.

Type.—U.S.N.M. no. 51691.

Remarks.—Described from the holotype male specimen collected by S. W. Williston.

SARCOPHAGA ABNORMALIS, new species

FIGURE 25

Male.—Head with front 0.21 of head width; parafrontals and parafacials golden pollinose, the latter with the usual row of minute setulae below near eye; frontal bristles about eight in number, the rows diverging below and descending to about the middle of the second antennal segment; orbital bristles absent; outer vertical bristles absent; antenna black, third segment three and one-half

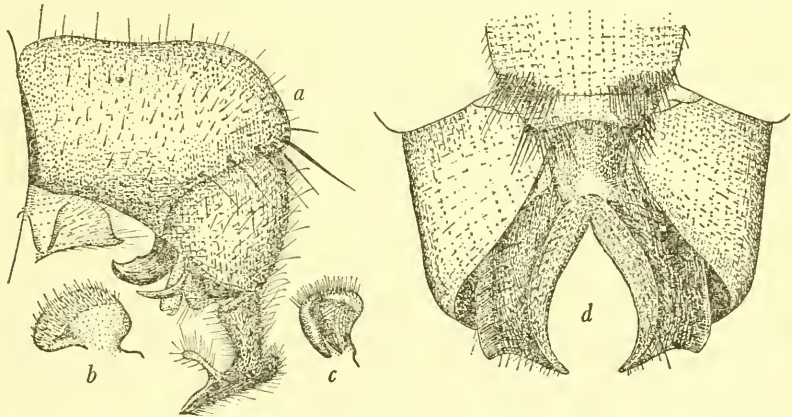


FIGURE 25.—*Sarcophaga abnormalis*, new species: *a*, Left lateral view of male terminalia; *b* and *c*, two views from different angles of accessory plate; *d*, fourth and fifth male sternites.

times the length of second, reaching four-fifths the distance to the vibrissae, which are normal and at the oral margin; facial ridges with ascending setulae; arista with long plumosity for three-fifths its length; palpus and proboscis black, both ordinary; buccal height about one-fourth eye height; with black hairs before the meta-cephalic suture; back of head with three rows of postocular ciliae, the middle and below with pale hairs.

Thorax gray and golden pollinose, with the normal three to five black stripes; pleurae with some golden pollinosity; anterior acrostichal bristles absent; posterior dorsocentral bristles four; sternopleural bristles three; prescutellar bristles one. Scutellum with two marginal bristles, one preapical bristle, and one apical bristle.

Abdomen tessellated with three shifting black stripes; median marginal bristles on the third segment; fourth segment reddish, with golden spots, and with a marginal row of about 10 bristles; venter of abdomen densely hairy; fourth sternite with posterior margin armed with a distinct brush of short stiff bristles; fifth sternite (fig. 25, *d*) reddish, hairy, divided U-shaped, the arms diverging, and these turning toward each other with a sharp spur.

Hypopygium reddish, first segment anteriorly rather small, then bulging out to about half again its original size, armed along its hind margin with 10 bristles and two subdiscal bristles, bulge pollinose, as is the second segment, which is relatively small in contrast to the preceding one; genital features as illustrated (fig. 25).

Wing subhyaline; costal spine absent; third costal section almost as long as fifth and sixth together; first vein bare; third vein with several basal setulae.

Legs black; middle femur with comb; middle tibia with one anterior dorsal bristle and with some long villosity; hind tibia with long hairs.

Female.—Like male except for normal sexual differences.

Type locality.—Colombia, South America.

Type and paratypes.—U.S.N.M. no. 51689.

Remarks.—Described from one male holotype and one female paratype specimen collected in 1928 by John Glass; and one male paratype collected on June 7 at Bartica, British Guiana (American Museum of Natural History).

SARCOPHAGA PAULINA, new species

Male.—Head with front 0.207 of head width (average of two specimens, 0.206 and 0.208); parafrontals and parafacials deep brown pollinose, the former with the usual row of parafacial hairs below near eye, the lower few hairs long; frontal bristles about nine, the rows diverging below to about the middle of the second antennal segment; antenna black, third segment over twice as long as second, reaching three-fourths the distance to the vibrissae, which are normal and at the oral margin; arista plumose for about half its length; palpus and proboscis black, ordinary; bucca one-third eye height; back of head with three rows of postocular ciliae, a few pale hairs below, none pale below the metacephalic suture.

Thorax with the usual three to five black stripes; anterior acrostichal bristles absent; presutural bristles present and well developed; postsutural dorsocentral bristles three; sternopleural bristles three; scutellum with two marginal bristles, one subapical bristle, and one apical bristle.

Abdomen with the usual black and silvery tessellation; first and second segments with lateral bristles only; third segment with

median marginal bristles; fourth with a marginal row of about 14 bristles; fifth sternite divided, rather brownish, and with long black hair along the inner edges.

Hypopygium black; first segment distinctly pollinose, and with scattered black hair; second segment black, rather shining; forceps black, slightly curved anteriorly and with a distinct tooth at about the middle of the blunt tip; accessory plate somewhat reddish, quite long and pointing anteriorly; posterior clasper black, short, curved slightly anteriorly and with a blunt tip; anterior clasper long, black, curved strongly forward; penis with the first segment semitransparent white, short, slightly curved anteriorly and covered with very minute short white spines; second segment mostly black, its tip sharply pointed anteriorly and terminating in a sharp point, a small tube projecting downward, anteriorly with a pair of small black hooklike plates.

Wing hyaline; costal spine absent; third costal section as long as fifth; first vein bare; third vein with a few scattered setulae.

Legs black; middle femur with comb; middle tibia with two anterior dorsal bristles; hind tibia with long scattered hairs.

Type locality.—Miami County, Ohio.

Type and paratype.—U.S.N.M. no. 51687.

Remarks.—Described from the holotype male collected on June 14, 1928, and one paratype male collected in Lucas County, Ohio, June 19, 1928, by David G. Hall.

This species differs mainly from its closest relative, *Sarcophaga morosa* Aldrich, in the shape of the accessory plate, which in *S. morosa* is triangular, the angles approximately equal. In *S. paulina* the anterior angle is distinctly larger than the opposite angle, causing the free angle to point anteriorly, not directly downward as in *S. morosa*.

SARCOPHAGA DAMPFI, new species

FIGURE 26

Male.—Head with front 0.188 of head width, average of five specimens (0.181, 0.200, 0.192, 0.186, 0.184); parafrontals and parafacials silvery pollinose, the latter with the usual minute bristles below near eye; frontal bristles about 12 in number, the rows diverging below to about the middle of the second antennal segment; orbital bristles absent; outer vertical bristles absent; antenna black, second segment rather yellow; third segment three times as long as the second and reaching almost to the vibrissae, which are normal and at the oral margin; arista with medium-length plumosity for fully three-fifths its length; palpus and proboscis black, both ordinary; bucca about one-fourth the eye height, with black hair; back of head with three rows of postocular ciliae, the middle and below with black hair.

Thorax gray pollinose, with the normal longitudinal stripes; anterior acrostichal bristles somewhat larger than adjacent hairs; anterior dorsocentral bristles two; posterior dorsocentral bristles three; prescutellar bristle one; sternopleural bristles three, in line. Scutellum with two marginal bristles, one apical bristle, and one preapical bristle.

Abdomen tessellated and with three shifting black stripes; only third segment with medium marginal bristles, fourth with a marginal row of about 12 bristles, the segment reddish with golden pollen.

Hypopygium yellowish orange, rather large; first segment with a marginal row of about six well-developed setae; second segment with

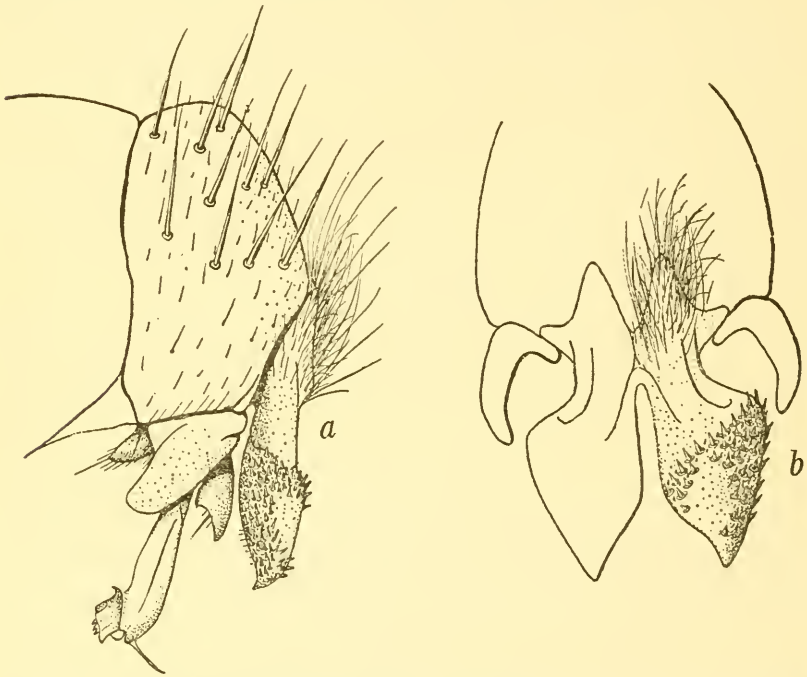


FIGURE 26.—*Sarcophaga dampfi*, new species: *a*, Left lateral view of male terminalia; *b*, rear view of male forceps.

numerous hairs and with scattered elongate setae; fifth sternite divided, heavily chitinized, the posterior lateral margins with close-set short thick spine; below the accessory plate anteriorly, a small knob-like structure, evidently fused with the plate and covered with thick-set hair or hairlike setae; anterior claspers setose at tips; posterior claspers with one short thick seta at the middle of the excavation on the anterior edge, and a smaller seta on each side of it. Internal features as illustrated (fig. 26).

Wing hyaline; costal spine not developed; third costal segment not so long as fifth; first vein bare; third vein with several basal setulae.

Legs black; middle femur with comb; middle tibia with one anterior dorsal bristle; hind tibia without long hairs.

Type locality.—La Barca, Jalisco, Mexico.

Type and paratypes.—U.S.N.M. no. 51688.

Remarks.—Described from the holotype male and three paratype male specimens collected in fruit-fly traps on October 3 and 4, 1934, by Dr. Alfons Dampf, for whom the species is named.

The species belongs to a large group of sarcophagine flies that are parasitic upon other insects. The group is limited to North America and South America and is usually found most prevalent in plain or grassland country.

Genus PHAONIA Robineau-Desvoidy

PHAONIA PUDOA, new species

Male.—Head with front very narrow, frontal bristles about 12, the rows descending below to about base of antennae; parafrontals and parafacials thinly silvery pollinose, the latter bare; antenna black, third segment hardly twice the length of second; arista with short plumosity for its full length; vibrissal axis slightly less in length than antennal axis; bucca about one-fifth eye height, black haired, the hair on upper edge of lower margin curved upward; eyes with long sparse tawny hairs; palpus and proboscis black, ordinary.

Thorax black with thin gray pollen and with the normal four indistinct black stripes; propleura and pteropleura bare; mesopleura with some erect hairs anterior to spiracle; anterior acrostichals two, slight; anterior dorsocentrals two; prescutellars present; postsutural dorsocentrals four; humerals three; sternopleurals three, widely spaced; prealar long; prosternum without setulae; postalar declivity bare; scutellum with two long marginal bristles, the apical pair crossed.

Abdomen black, silvery pollinose, with a well-defined black mid-dorsal stripe; hypopygium black, rather large; fifth sternite entire.

Wing hyaline; basicosta black; all veins without setulae; last section of fourth vein hardly twice length of preceding section, curved slightly posteriorly; calypters clear, rims yellowish orange; halteres orange.

Legs black; anterior tibia with long apical dorsal bristle; basal tarsal segment with a tuft of longer setae ventrally at base; midtibia with two median posterior bristles; hind tibia with three short median anterior ventral bristles, two median anterior dorsal bristles, and one long posterior bristle.

Female.—Like the male except for normal sexual differences.

Type locality.—Coeur d'Alene, Idaho.

Type and paratypes.—U.S.N.M. no. 51845.

Host.—*Dendroctonus monticolae* Hopkins.

Remarks.—Described from a series of 40 specimens: Holotype male and 36 paratype male and female specimens, Coeur d'Alene, Idaho, June 18, 1929 (H. J. Rust); 1 paratype female, Metaline, Wash., July 7, 1934 (W. D. Redard); 2 paratype females, Sula, Mont., June 25, 1929 (D. DeLeon).

This species differs from *Phaonia protuberans* Malloch in that the antennal axis and the vibrissal axis are subequal, the buccal length being produced in *protuberans*. It differs from *P. serva* Fallen in that the bases of the wings are not yellow or orange and from *P. savonoskii* Malloch in that the midtibia of both sexes lacks a median anterior dorsal bristle.

Pupae of these flies were found under the bark of lodgepole pine and western white pine, most abundantly in wet windfalls, according to James C. Evenden, entomologist, Forest Insect Laboratory, Bureau of Entomology and Plant Quarantine, Coeur d'Alene, Idaho. He states that they are always associated with the mountain-pine beetle in white pine and that they have not been found in wet windfalls that have not been attacked by this insect. D. DeLeon found pupae of this fly in egg galleries of *D. monticolae* at Sula, Mont., in nearly every instance.

The larvae are successfully reared upon larvae of *D. monticolae*, and during studies upon the insect at Sullivan Lake, Metaline Falls, Wash., in June 1932, larvae were found in the act of devouring *D. monticolae* larvae, and other larvae were found with their heads covered with beetle larval head capsules.