A REVISION OF THE GENUS PHLOMYRIA IN NORTH AMERICA (DIPTERA, MELICRIDEAE)

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ABSTRACT

The biology of the Melicridae is briefly summarized, and the systematics of the genus described are based on a study of the type specimens of certain Pholomyria species. The type species described herein are Pholomyria proboscidea, Pholomyria magna, Pholomyria alata, and Pholomyria leucophthalmus. Other species described are Pholomyria fidelis, Pholomyria exigua, Pholomyria marginata, and Pholomyria pallida.

The phylogenetic relationships of the Melicridae are discussed in relation to the family-level classification of the Diptera. The family is divided into three subfamilies: the Melicridinae, the Atdidae, and the Chalcididae. The Melicridinae includes the genera Pholomyria, Melicris, and Atda. The Melicridinae is the most speciose of the subfamilies, with over 100 species described, while the Atdidae includes only six species and the Chalcididae includes only two species.

The type species of Pholomyria is Pholomyria proboscidea, and the type species of Melicris is Melicris magnus. The type species of Atda is Atda marginata. The type species of the genus Pholomyria is Pholomyria fidelis, and the type species of the genus Melicris is Melicris magna.

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keys were published by Meander (Sept. 1913) for six species (one new) and one variety, and by Malloch (Dec. 1914) for five species. A seventh species was added by Albrit (1923) and an eighth by Albrit (1923), the latter giving a key to the males of the eight North American species. All three available keys to the North American species were based entirely or chiefly on the male sex, and for almost all the species it has been impossible to identify the females with certainty.

Hershler (1922) enumerated Ptychodon on the character of almost covered, bare female, whereas Philomela has the female visible, with two small raked.

At the same time he noted the misidentification of Ptychodon, and changed the type of Ptychodon to R. schneideri, new species (= Ptychodon s. Schenkel, 1903). He was followed in this distinction by Malloch (1923), in his book, and Schenkel, p. 6, fasc. 3, 461, pp. 128, although the latter did indicate that the character of the female seemed rather inadequate. Henning considered the two synonymous, and I agree. The species show different degrees of exposure of the female and of development of a pair of bristles on it.

The species of Philomela are uniform for many characters. Head, large, oblong-obovately narrowed than in Philomela, broad, and sometimes a few others anteriorly, the interfascial hairs not on definite stripes except in Philomela, n. sp.; eye large, occupying most of the head in profile, long axis vertical, hind margin usually not emarginate, only shallowly so in several species; chew narrower in male than in female, lower margin with a row of short bristles that extend anteriorly above the occipital, serrate, short, second segment longer than third, the latter usually smaller, hind margin on long spines, acicular, have enlarged, flagellum (except in Philomela) appearing bare, but minutely pubescent under high magnification. Chaetae lateral, inner and outer vertical, postvertical, proximate and divergent, occipital, supra- and infra- orbital (4–6 lower in Philomela) pairs of bristles, outer verticals generally strong in female, weaker in male, completely undivided only in a few species; anterolateral orbital, interocellar, and anterolateral in female; one pair of postvertical, usually approximated bristles or bristle-like hairs on head, varying from short, weak and scarcely visible to long and strong.

Thorax heavily pubescent, grayish or brownish; mesonotum well covered with hairs. Chaetotaxy:

several nuchal, 1–4-1 postnotal, 1 prescutal, 1 prescutellar, 1 suprascutal, 2–5 dorso-central, 1–4 or 5 acrostical, and 2 scutellar pairs of bristles; 2 or 3 bristles on mesopleuron; 2 or 3 sternopleural bristles; females generally more strongly banded and haired on mesonotum than males.

Abdomen, like thorax, heavily pubescent, uniformly dark in females, often ornamented with silvery areas to males, and when broadened and flattened in male, sterno 5 and 5 of male often characterized with bristles and hairs (figs. 6–10); male terminalia (figs. 1–5) rather small and inconspicuous, the ninth tergum with a pair of appendages developed as cerci and differing slightly in shape and size in the various species; the para-and protheca (except of some anther) well developed.

Venation generally as figured for Philomela (see) by Wilkinton (1906), Manual N. Amer. Dipt., ed. 3, p. 272, fig. 19. The figure of Philomela in Carne's manual (1934, Fom. and Gen. N. Amer. Dipt. p. 387, fig. 10) is a little different from the plain type in fig. 6, shared by the others. Three species (and possibly others) have the distinct form shown in fig. 9. Figs. 8 and 10 represent unique species.

It is interesting to note the character of the metapleural bristles, because in the past their presence has been recorded but not the number. The typical number in Philomela is four strong bristles in a single row. Only Albrit (1923) has a greater number, with seven to eight bristles in two irregular rows. Only indicans and latifrons, n. sp., have three bristles in a single row. While some variation is to be expected in a bristle character, it appears from the considerable material available that the character is remarkably consistent.

KEY TO THE NORTH AMERICAN SPECIES OF PHILOMELA

Three to four pairs of dorso-central bristles, the anterior pairs only in the mesosoma: postvertical bristles restricted to frons.

Two pairs of dorso-central, close together on posterior edge of mesonotum: postvertical bristles except on scutellum restricted to frons.

Antennae, tips, legs, and body yellow (tibias and femora black or dark brown)...

These structures black or black-brown...

3

Long series of two new species were observed: the females in this species, and they have been described in an addendum, with notes as they were found in the key. Interesting biological notes accompany the series. Future work on these and other species of the new genus is well described in the large faunas in this group.
Appendix A: Revised Description of the Genus Phyloxenia

Phloxenia latifrons, new species

This species is characterized by its broad, flat face, distinguishing it from other species in the genus. Its wings are dark brown with a distinct yellow stripe. The antennae are long and slender. This species is found in tropical rainforests and is known for its ability to camouflage itself in the surrounding vegetation.

Another species, Phloxenia nigricans, is similar in appearance but can be distinguished by its smaller size and darker coloration. It is commonly found in more temperate regions and is often seen in gardens and parks.

Phloxenia species are known for their unique reproductive behavior, often engaging in mass spawning events. This behavior is believed to increase the chances of successful reproduction in environments with high levels of predation.

In addition to their aesthetic value, Phloxenia species play an important role in the ecosystem, serving as food for various bird species and contributing to the pollination of other plants.

These species are recognized for their adaptability and resilience, thriving in a variety of conditions and contributing to the biodiversity of their habitats.

Further research is needed to fully understand the ecological significance and conservation status of these fascinating species.
short black hair, except for narrow band along anterior margin of each tegmen and a small yellowish area at the base of the tegmen; the wings of both sexes are marked with some of the latter. For the present, I regard it as a variant of *L. listeri*.

3. *Phloeosidea linderoi* (Low.)

(Figure 2)


The peculiar mode of life, together with the pointed snout and long narrow antennae, resembles a well-developed social wasp. The body is slender, with a narrow waist, and the abdomen is pointed.

Diagnosis. - The sexes differ in size, the male being larger than the female. The male is darker in color, with a more prominent pattern of black and yellow bands on the abdomen. The female is lighter in color, with a less prominent pattern. The antennae of the male are longer and more slender than those of the female. The male has a long, narrow snout, while the female has a shorter, wider snout. The male has a more prominent pattern of black and yellow bands on the abdomen than the female. The male has a longer and more slender snout than the female. The male has a more prominent pattern of black and yellow bands on the abdomen than the female.

4. *Phloeosidea exigua* Aldrich

(Figure 3)


The female is smaller than the male, with a shorter and more slender snout. The female has a less prominent pattern of black and yellow bands on the abdomen than the male. The female has a shorter and more slender snout than the male. The female has a less prominent pattern of black and yellow bands on the abdomen than the male.

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This species was originally described as having very narrow silvery fascia on the anterior margin to fourth terga. However, the appearance is deceiving; actually there are no silvery fasciae, and the abdomen is entirely black, with clearly visible and contrasting pustules. The species is characterized by the absence of a silvery fascia on the abdomen, and the presence of pustules distributed over the entire surface. The species is named in honor of the Swedish entomologist [[Swedish entomologist name]].

**Photomyza decorata** Scudder


10.

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males that appear to be associated differ markedly from the male in that the front and thorax are consistently associated by locality and by the fact that neither sex can be matched with any other available species. It is concluded, therefore, that the species is sexually dimorphic in the color of front and thorax as well as in the more obvious dimorphism of the abdomen. The male terminalia (fig. 5) are unique among the genera that I have examined.

10. Phleomya leucogastra (Leach)

Phleomya leucogastra (Leach), 1821, Wien. Ent. Monatsh. 2, pl. 11 (Cayman).


Diagnosis.—Front velvety black, reddish on anterior fourth to third; thorax and abdomen black-brown, dark brown posteriorly, concolorous in both sexes except for distal portion of male abdomen, in which the fifth tergum is silvery except for narrow median stripe and apex, and the extreme sides of third and fourth tergum are obscurely silvery-gray; wing brown tinged; calyptrae brown.

Front at narrowest fourth the head in male, two-fifths in female, posterolaterally crescent; outer vertex long and strong in female, very short and hardly noticeable in male; face gray polionce, yellow on vertex; ocellus not strongly projecting; cheek linear in male, narrow in female; proboscis not elongate, dilated section obsolete; antennae short; tarsus of dorsoventral bristles; mesonotum with four strong bristles in a single row. Abdomen not dissected in the limited material, but the sternum is 4 and approximately as in dispar (cf. fig. 9), the lateral areas on 4 less dense.

Distribution.—I have seen only two males of this species: August, Ga., Apr. 2, 1946 (P. W. Partidge); Cape, Fla., Oct. 20, 1945 (R. A. Morse) [USNM]. In addition, there are five females which I identify as pseudodendron: August, Ga., same data as male noted above; Tifton, Ga. 1896 (previously identified as leucogastra); Miami, Fla., 1924 (R. C. Sharron) [USNM]; Mocha Co., Fla., Aug. 12, 1955 (R. A. Morse) [F. State Plant Board].

Becker’s figure of the male abdomen makes it difficult to identify the species accurately. He describes the calyptrae as whitish, whereas they are brown, or at least brown-margined, in the females which I identify as pseudodendron. He describes the female wing as “somewhat whitish.” It may also be noted that the extreme sides of the third and fourth tergum are narrowly and obscurely silvery, although this was overlooked by Becker, and thus they are probably different species.

If I have correctly associated the females, the species are not closely related. The females of Phleomya are very close in the male sex by the characteristic bristles of the sternum of the fourth and fifth abdominal segments. The females of Phleomya are whitish with whitish wings and calyptrae, and those with brownish wing and calyptrae as pseudodendron. The small series of females of Phleomya (one available for study) makes it impossible to do more than make a tentative association at this time.

11. Phleomya dispar (Becker), new status


Diagnosis.—As described for leucogastra except as follows. Stenopleuron typically with only three strong bristles and bristle-like hairs, an occasional additional hair very weak and inconspicuous; fourth and fifth abdominal sternum of male as in fig. 9, the fourth with a conspicuous group of long hairs on each side on posterior half, the fifth with numerous hairs and bristles but not with a dense posterior marginal area of fine hairs in leucogastra (cf. fig. 8); male terminalia as in dispar (cf. fig. 4). Length 3.6 mm.

Distribution.—I have seen the following typical leucogastra: 2 males, Santiago de Las Vegas, Cuba, Feb. 19, 1926 (R. A. Morse) [USNM]; 2 males, J. Fernandez, [USNM]; 3 males, 2 females, Chimalhuacan, Guerrero, Mexico, 3700 ft., Aug. 7, 1954 (J. C. Chilcott); 1 male, Lagos de Moreno, Jalisco, Mexico, 4600 ft., Aug. 19, 1934 (Chilcott); 1 female, Chilcott, 1934 (Chilcott). The females were placed under leucogastra.

The specimens in collections as leucogastra must be referred elsewhere. For example, of those recorded by Malloch (1913, Proc. U. S. Nat. Mus. 40: 153), the specimen from Victoria, Tex., in Leucogastria, that from Rosterd, Tex., in dispar, and the two from Georgia are P. leucogastra.

P. leucogastra and dispar are the most whisth, the species of the genus known to the writers. The females have the wings and calyptrae and brilliany silvery abdomen male. The characteristics are very closely related, and are shared by pseudodendron. P. leucogastra and dispar are easily confused superficially, but the males of leucogastra are very close in the male sex by the characteristic bristles of the sternum of the fourth and fifth abdominal segments. The females of Phleomya are whitish with whitish wings and calyptrae, and those with brownish wing and calyptrae as pseudodendron. The small series of females of Phleomya (one available for study) makes it impossible to do more than make a tentative association at this time.

12. Phleomya albida, new species

Large species with two pairs of strong, well-spaced dorsoventral and short posterior, mesopleuron appearing shining black as viewed from behind, and terga 2-3 almost entirely silvery.

Male.—Prosternum black; abdominal terga 2-3 silvery except for a small median black triangle at posterior half of tergum 2, and at mid-base of black 3; terga 4-6 silvery, with the length of the width at ventral; fore-tarsus almost narrower than an eye, 0.33 times the head width, narrowing to 0.19 times at the humerus; postventral crenulate at tips; outer vertex evident, but slender; eye large; anterior facets moderately enlarged, hind margins virtually straight, with a barely perceptible shallow emargination anteriorly; face pubescence, slightly coarse, epistoma not strongly wrenched forward and not strongly projecting in profile; postclypeus reduced to a line; cheek broad; proboscis well developed, but not unusually elongate, the distal sections not longer than the head; third antennal segment small; ariete microscopically pubescent.

Mesonotum with two pairs of dorsocentral bristles, the anterior large and strong and well removed from the posterior pair, the interval longer than that between the posterior pair. The mesopleuron central and the prescutellar acrostic, intrapostaurals, postnotaulus and postalar bristles, three bristles, only the posterior strong.

Abdominal terga 2-4 each with a row of well-developed bristles on the dorsal margin: sternum 4 and 5, the second with a few additional scattered hairs on meson tergum; fifth tergum with a number of longer bristles, only those with three bristles, only the posterior strong. The mesopleuron moderately deep, slightly longer than the fore-crown.

Type. Male. Wing 3 and wing of and of 3 mm. 3 mm.

Female.—Unknown.

Holotype and one paratype, both males, Georgia, August 1950, Type Coll. No. 9531 in the U.S. National Museum.

This species belongs to a group confused with leucogastra in part because of its coloration. It was described as leucogastra by Malloch (1913, Proc. U. S. Nat. Mus. 40: 153). The type is very close to dispar, having the same kind of terminalia and fourth and fifth abdominal sternum in the male (cf. figs. 1-9). The differences are in color characters, except for the presence of additional setae on the meson tergum of the second abdominal sternum in the female. It is possible that it may be demonstrated to be only a variant of dispar.
13. *Phloeomyza dampfi*, new species

(Fig. 7)

*Phloeomyza* dampfi, new species. Holotype male, allotype, and 12 paratypes (10 males, 2 females) from Panamá, Colombia. Type locality: D. O. Parque Nacional, Florencia, Colombia, 1932, collected by J. H. Dampfi, Nov. 29, 1932, captured in a net (A. Dampfi). J. H. Dampfi, 1934, in the U. S. Nat. Mus., No. 7607. This species is closely related to *P. tenebrosa* and is characterized by its elongate body, long antennae, and small, rounded wings.

14. *Phloeomyza robertsoni* (Coquillett)


Diagnosis (male).—Thorax brown-gray plumose; abdomen with terga 2-4 silvery on sides and terga 5-6 brown. Abdomen anterior with two pairs of strong dorsoventral bristles; mesonotal with four strong bristles, one at each side.

15. *Phloeomyza tenebrosa*, new species

(Fig. 8)

*Phloeomyza tenebrosa*, new species. Holotype male, allotype, and 15 paratypes (10 males, 5 females) from San Antonio, Texas, 1930 (E. V. Walker), "near of cut and out." Male, 1935, gen. (C. N. Allison) [USNM] differ in having the cephalothoracic region of the second tergum extensively hairless, rather than the single row. I can find no other differences and conclude that this is only an occasional variant from the typical form. One other point is the presence of an intermediate condition, with more and fewer bristles in the marginal row, and a few scattered bristles on the posterior margin.

This species is closest to *P. tenebrosa* and is characterized by its elongate body, long antennae, and small, rounded wings.

16. *Phloeomyza leucotis* (Hilbrek)


Species with two pairs of dorsoventral bristles and short procumbent, the male with characteristic pattern of larvae.
MOYCHELA FungiCULA FEIT: A REDescription and Review of its Biology (DiPTera, ITONiDAE)

RICHARD F. FEIT and CHARLES A. THOMAS

ABSTRACT

MOYCHELA FungiCULA, Felt, is described from California and the central and eastern United States. It is reported from the B-mold of the mushroom Lactarius deliciosus. A detailed study of the biology of this species is presented.

MOYCHELA FungiCULA was described from San Rafael, California, by Felt (1908), who was perhaps the first to note that it is a pest of cultivated mushrooms in the United States. For a number of years the larvae of this mushroom beetle have been recorded in Virginia, southeastern Pennsylvania, Ohio, and Indiana as a minor pest. However, as long as 1912, Thomas stated that the larvae appeared to be gaining in importance, and during the last 3 years a further increase in its abundance has occasioned considerable concern to growers of the Kenilworth Square region of Pennsylvania.

This paper is presented in response to increased requests for information about the morphology and biology of this potentially important fly. A re-description and detailed illustration of the adult, larva, and pupal stages are supplemented by a morphological and ecological review of the genus.

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The type species of the genus is M. aeruginosa, new species. A detailed study of the biology and ecology of this species is presented.

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