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NEW SPECIES AND NOTES ON SYNONYMY AND DISTRIBUTION OF MUSCIDÆ ACALYPTERATÆ (DIPTERA)

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During the year 1922 I had the opportunity of examining many of the types of acalypterate species described by Walker, Williston, Loew, Coquillett, and others. The present paper includes some of the results of this study, together with a few observations from my own collection (which contains a series of European species determined by the late Dr. Kertész). The types of the four new species here described are deposited in The American Museum of Natural History.

Lonchminm

Periscelis annulata (Fallén)

Specimens Examined.—Kushla, Alabama, May 2, 1920 (at fruit); Brookings South Dakota (Coll. J. M. Aldrich); New Mexico (Coll. U. S. Nat. Mus.).

This is a European species, which is apparently here recorded as American for the first time. The identification was first made. I think. by Dr. J. M. Aldrich. I have examined three European specimens, determined by Kertész. The three American specimens agree with these and with the descriptions given by Oldenberg (1914, Arch. Naturgesch., LXXX A, p. 2) and others. Oldenberg, in the paper cited, has made this species the type of a new genus, Microperiscelis, separating it from *Periscelis* Loew chiefly on the basis of the posterior crossvein (present in annulata; absent in annulipes Loew, the genotype of Periscelis). Lioy (1864) had already based the genus Myodris on the species annulata Fallén (described under the genus Notiphila), so that Microperiscelis Oldenberg is not available. It seems questionable, however, whether it is desirable to separate annulata from Periscelis, especially in view of the intermediate nature of the posterior crossvein in the related form here described (Sphyroperiscelis wheeleri, new species; see below).

The subfamily reference for *Periscelis* is discussed under the following species.

SPHYROPERISCELIS, new genus

Arista plumose. Second joint of antenna rather long, the third joint arising from its ventral surface (as in *Periscelis*). One vibrissa, followed by a row of smaller oral

bristles; a few scattered hairs on lower part of face; one large reclinate orbital, a slightly divergent ocellar, a large divergent postvertical, an outer divergent and an inner convergent vertical. Head broader than the thorax; as viewed from above it is about five times as broad as long. Front about three times the width of an eye (as viewed from above); antennal bases about as far apart as the width of an eye. Face narrowed below the antennæ; the bucca reaches far forward, and the vibrissa is inserted at narrowest portion of the face. Whole front of head flattened. Clypeus prominent. Proboscis short; palpi well developed. Eyes sparsely pubescent.

One humeral; two notopleurals; two sternopleurals, posterior one larger; propleuræ and mesopleuræ bare; one (the posterior) supra-alar; one (the anterior) postalar; no presutural; two dorsocentrals; two scutellars, the posterior one only slightly convergent; disc of scutellum bare; no prescutellars; acrostichal hairs few, in six to eight irregular rows. Strong apical but no preapical bristles on each tibia.

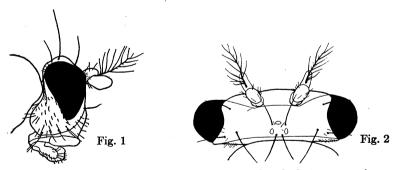
Costa not broken or spined, reaching only the apex of the third vein; first vein ends between one-third and one-half the distance from base to apex of the wing; auxiliary vein disappears near the base of the first vein, without fusing either with the first or with the costa, but bends sharply toward costa at its apex; discal and second basal cells separate; crossvein at apex of anal cell absent; anal vein distinct; posterior crossvein incomplete but clearly represented by a bend in the fourth vein and a branch from the fifth.

Genotype.—S. wheeleri, new species.

Sphyroperiscelis wheeleri, new species

Figures 1 and 2

Male.—Arista with about 7 branches above and 4 below. Antennæ yellow; third joint and outer surface of second dark brown on upper apical portions. Front



Side (Fig. 1) and top (Fig. 2) of head of Sphyroperiscelis wheeleri, new species.

dull black, with the orbits narrowly yellowish near vertex, and a yellow mark anteriorly, lateral to each antennal insertion. Face yellow, with a brown mark under each antenna. Palpi black. Cheeks and lower occiput yellow; upper occiput dark brown.

Mesonotum and scutellum black, subshining. Humeri and pleuræ brown. First coxæ brown, yellow apically; second and third coxæ yellow. Femora dark brown,

yellow at each end. Tibiæ yellow, each one with two brown bands. Tarsi yellow, darker on apical joints. Halteres white.

Abdomen dull black; first segment brownish in middle basally; second to fifth segments each with a lateral basal silvery spot.

Wings clear. Costal index about 6.0; fourth vein index about 2.8; 4c index about 0.5; 5x index about 1.4.

Length, 2.5 mm.; wing, 2.5 mm.

Type and Two Paratypes (all males).—Naushon Island, Massachusetts, July 10 and 16, 1922.

All three specimens were taken on the trunks of oak trees, near the north end of the island. There is here a small patch of woods that seems never to have been appreciably disturbed by civilization. This species is named after Professor W. M. Wheeler, with whom I was collecting when the type specimen was taken.

This form at first glance suggests a diopsine because of its broad head. The presence of vibrissæ, separation of discal and second basal cells, and the rudimentary nature of the auxiliary vein, together with its obvious relationship to *Periscelis*, are sufficient to show that it does not belong in that group. The shape of the face suggests ephydrine affinities; but the clear anal vein, plumose arista, absence of costal breaks, and separateness of discal and second basal cells show that that subfamily cannot be considered here. The relationship to *Periscelis* is very clear. *P. annulata* differs from the generic description given above only as follows: vibrissa not clearly differentiated; head not broader than thorax; front only slightly more than twice width of eye; antennal bases approximated; front of head not flattened; face convex; a small prescutellar; posterior crossvein complete (but lacking in the European *P. annulipes* Loew). *Scutops* Coquillett must also be close to these genera; I have not seen it.

Periscelis itself is a genus of uncertain position in the system. It has been referred to the Ephydrinæ, Drosophilinæ, and Agromyzinæ. The reasons for rejecting the ephydrine location have been given above. The Drosophilinæ are made improbable by the divergent postverticals, unbroken costa, and absence of preapical tibial bristles. The chief differences from the Agromyzinæ lie in the unbroken costa, plumose arista, and large clypeus. The Lonchæinæ fit better than any of these in the length of the first vein and in the single reclinate orbital; they diverge conspicuously in that they lack the well-developed vibrissa of Sphyroperiscelis and have a complete auxiliary vein. The indicated course of the auxiliary is, however, more like the Lonchæinæ than it is like the other groups under discussion. Unfortunately, I have no females of Periscelis or of Sphyroperiscelis, so that I cannot determine the structure of the ovi-

positor, which I believe to be an important character allying the Agromyzinæ, Lonchæinæ, Ortalinæ, Trypetinæ, and Micropezinæ. However, pending examination of this organ and of the seminal receptacles, I am inclined to place these two genera in the Lonchæinæ, to which group Melander (1913, Psyche, XX, p. 167) has already referred *Scutops*.

Ochthiphilinæ

Acrometopia punctata Coquillett

Specimens Examined.—Southern Georgia (type of A. punctata; Coll. U. S. Nat. Mus.); Saraland, Mobile County, Alabama, October 1916; Crescent City, Florida, April 1908 (type of T. reticulatus; Coll. Amer. Mus. Nat. Hist.).

This was described in 1902, Journ. N. Y. Ent. Soc., X, p. 185. *Trigonometopus reticulatus* Johnson (1913, Bull. Amer. Mus. Nat. Hist., XXXII, p. 81) is a synonym of it. Coquillett's generic reference seems preferable.

Geomyzinæ

Diastata¹ tenuipes Walker

The type of this species is not a *Diastata* but a *Drosophila*. The costa is not pectinate; the face has a large carina; the arista has about four short branches above and three below. I am not able to recognize in this specimen any species of *Drosophila* known to me, since the specimen is poorly preserved and belongs in the difficult group near *D. melanica* Sturtevant.

Diastata vagans Loew

This is not a manuscript name, as stated by Aldrich (1905, 'Cat. N. Amer. Dipt.,' p. 644), but was described from Europe (Loew, 1864, Berlin. ent. Zeit., VIII, p. 362).

Diastata repleta (Walker)

Notiphila repleta WALKER, 1849, 'List,' IV, p. 1099.

Drosophila decemguttata WALKER, 1852, 'Dipt. Saund.,' IV, p. 411.

Diastata pulchra Loew, 1861, 'Cent.,' I, p. 100.

Specimens Examined.—St. Martin's Falls, Hudson Bay Territory (type of N. repleta; Brit. Mus. Coll.); Salines, Ontario (H. S. Parish); Woods Hole, Massa-

¹Coquillett (1910, Proc. U. S. Nat. Mus., XXXVII, p. 532) and Hendel (1910, Wien. ent. Zeit., XXIX, p. 313) would apply the name *Diastata* to the genus listed in the Palearctic Catalog as *Geomyza* (the *Trixoscclis* of Melander). To the genus commonly known as *Diastata* they give the name *Calopterella* Coquillett (genotype *Diastata vagans* Loew). The problem is extremely complicated, including an unusual ramification of the much-discussed 1800 paper of Meigen. I have not felt justified in adopting *Calopterella*.

chusetts; Fort Lee, New Jersey (H. H. Johnson); Pennsylvania (type of *D. pulchra*; Coll. Mus. Comp. Zoöl.); La Fayette, Indiana (J. M. Aldrich); Black Mountains, North Carolina (Coll. J. M. Aldrich); Gulfcrest, Alabama; Gainesville, Florida (Coll. J. M. Aldrich).

The type of *D. decemguttata* has apparently been lost; but from the description there can be little doubt that it was this species. The types of the other two species named agree with each other and with the usual conception of *D. pulchra. Notiphila repleta* was referred to the Helomyzinæ by Austen (see Cresson, 1917, Trans. Amer. Ent. Soc., XLIII, p. 62). The specimen is badly damaged, and Austen was evidently misled by the pectinate costa. One wing is in good condition, and agrees in detail with the very characteristic pattern of *pulchra*; the color of the damaged mesonotum also agrees. There can be no doubt that the synonymy here given is correct.

Stenomicra angustata Coquillett

Specimens Examined.—Bryn Mawr, Pennsylvania (F. Schrader); Lake Charles Louisiana (Coll. J. M. Aldrich); Kushla, Alabama; Orlando, Florida (Coll. J. M. Aldrich); Porto Rico (types; Coll. U. S. Nat. Mus.). Only the types have been previously recorded.

This form, described as a drosophiline, clearly belongs among the Geomyzinæ, as shown by the absence of alula and anal angle of wing; face narrowed below; no proximal break in costa. The genus will be easily recognized among the Geomyzinæ by these characters and the following: wings clear; third and fourth veins converging at apex; second section of costa scarcely one and one-half times longer than the third section; arista plumose; third antennal joint with a few relatively long hairs.

TETHINA, PELOMYIA, RHICNOESSA

The genus *Tethina* was established by Haliday in 1839, the only species included being *Opomyza illota* Haliday.¹ *Rhicnoëssa* Loew was established in 1862, with a single included species, *R. cinerea* Loew. These two genera have recently been considered to be both valid, and there can be no doubt that there are two distinct groups present. Collin (1911, Ent. Mo. Mag., XLVII, p. 234) suggested, however, that *T. illota* had been wrongly identified and that it really belongs to the same group as *R*.

^{&#}x27;This species is often credited to Curtis; I have followed Collin in ascribing it to Haliday. The species is not included in the edition of Curtis' 'Guide' that I have seen; but reference to other species in that volume and to Haliday's paper that includes the description of *Tethina* leaves little doubt that, even if Curtis wrote the original description, Haliday, had at least part of the type series.

cinerea. In 1922 I received from Mr. Collin some specimens that were labelled *Tethina illota*, and that belong to the genus *Rhicnoëssa* as now understood. I accordingly wrote to him, asking if he had further data on the matter. He replied, under date of February 11, 1923:

I have written nothing further on *Tethina* since 1911, but I can confirm my opinion expressed then that *Tethina* and *Rhicnoëssa* are synonyms. . . Loew in 1865 pointed out that *cinerella* Haliday was probably the type of a distinct genus. *Tethina* Haliday, if I have correctly identified *T. illota*, is certainly congeneric with *cinerea* Loew and not with *cinerella* Haliday. I feel sure that my identification of *illota* is correct. I caught the species on *Cakile maritima*, just as Haliday did, and, moreover, I have seen specimens that were caught by Haliday (though unfortunately these were without a name label). It would appear that Williston's name of *Pelomyia* must be used for *cinerella* Haliday and its allies.

It is to be noted that much of the type material in the Haliday collection, which Collin has examined in Dublin, is unlabelled (see Collin, 1914, Scient. Proc. Royal Dublin Soc., XIV, pp. 235–255). Pelomyia Williston, referred to above, was described as an ephydrine, and included a single species, P. occidentalis, described as new. Melander (1913, Journ. N. Y. Ent. Soc. XXI, p. 297), at the suggestion of Aldrich, made this species a synonym of Rhicnoëssa coronata Loew, which is congeneric with cinerella Haliday. I can confirm this synonymy from an examination of the types of both coronata and occidentalis. I have also seen specimens of cinerella determined by Kertész. It should be added that the conclusions outlined above have also been adopted, without a detailed statement of the reasons, by Hendel (1917, Deutsch. ent. Zeit., p. 46). Hendel has, in the same place, made his Tethina rostrata the type of a new genus, Neopelomyia.

Both Melander (loc. cit., p. 297) and Malloch (1913, Proc. U. S. Nat. Mus., XLVI, p. 147) have made Rhicnoëssa parvula Loew congeneric with coronata Loew. An examination of the type at Harvard shows this to be due to a wrong identification; R. parvula is the same as R. whitmani Melander. The species identified as parvula is thus left without a name; it is described below as Pelomyia mallochi, new species, and a similar form is described as P. melanderi, new species.

After these changes are carried out the list of Nearctic species of the genera in question is greatly altered in appearance; the following tabulation is accordingly presented.

Tethina Haliday, 1839, Ann. Nat. Hist., II, p. 188.

- 1. T. albula Loew, 1869, 'Cent.,' VIII, p. 80. (Rhicnoëssa.)
- T. milichioides Melander, 1913, Journ. N. Y. Ent. Soc., XXI, p. 299. (Rhicnoëssa.)

- T. parrula Loew, 1869, 'Cent.,' VIII, p. 81. (Rhicnoëssa.) Rhicnoëssa whitmani Melander, 1913, Journ. N. Y. Ent. Soc., XXI, p. 298.
- 4. T. texana Malloch, 1913, Proc. U. S. Nat. Mus., XLVI, p. 148. (Rhicnoëssa.) Pelomyia Williston, 1893, 'Dipt. Death Valley Exped.,' p. 259.
 - P. coronata Loew, 1865, 'Cent.,' VI, p. 98. (Rhicnoëssa.) P. occidentalis Williston, 1893, loc. cit., p. 259.
 - 2. P. mallochi, new species.

Tethina parvula of authors, not Rhicnoëssa parvula Loew.

- 3. P. maritima Melander, 1913, Journ. N. Y. Ent. Soc., XXI, p. 297. (Tethina.)
- 4. P. melanderi, new species.

Neopelomyia Hendel, 1917, Deutsch. ent. Zeit., p. 46.

1. N. rostrata Hendel, 1911, Wien. ent. Zeit., XXX, p. 41. (Tethina.)

Pelomyia melanderi, new species

Antennæ dark cinereous brown; face and cheeks grayish white; front gray, yellow anteriorly. Cheeks nearly as broad as the eye-height, sparsely clothed with small black hairs, especially anteriorly. Two small equal orbitals. Pleuræ, coxæ, femora, and tibiæ all densely cinereous black. Tarsi yellow, brownish at apices. Mesonotum and scutellum densely cinereous, slightly brownish dorsally. Four dorsocentral pairs; no acrostichal hairs or bristles. Halteres yellow. Abdomen densely cinereous. Wings clear, veins brown. Second section of costa four times the length of the third; posterior crossvein three-fourths of the penultimate section of the fourth vein and two-fifths of the last section of the fifth.

Length, 1.5 mm.

Type and One Paratype.—Palo Alto, California; a third specimen, Meyers Station, Tahoe region, California.

Pelomyia mallochi, new species

Differs from the description of *P. melanderi* only as follows: small hairs on cheek white; anterior orbital minute, scarcely one-fourth the size of the posterior; posterior crossvein slightly shorter, one-third of the last section of the fifth vein; all tibiæ yellowish at apices and bases.

Type and Sixteen Paratypes.—North Falmouth, Massachusetts, July 22, 1922. Specimens are before me from Falmouth Heights, Woods Hole, and Naushon Island, Massachusetts.

Notes made a year ago on specimens in the collection of Dr. J. M. Aldrich indicate that the species occurs in Mississippi and Louisiana. This form, like several other species, both of *Pelomyia* and of *Tethina*, is to be found in salt marshes.

Pelomyia coronata Loew

I have seen this species from Florida, Georgia, Alabama, Texas, Missouri, Indiana, South Dakota, New Mexico, Utah, Colorado, Idaho,

Nevada, Washington, California, and Peru. Melander recorded it also from Louisiana and Alaska; Malloch from Louisiana and Mexico. It is very common in California, but scarce in the southeastern states.

Drosophilinæ

Examination of the types of the following species in the British Museum has shown that they were correctly placed and described in my account of the group (1921, Carnegie Inst. Washington, Publ. 301):

Leucophenga frontalis Williston (Drosophila)

L. varia Walker (Drosophila)

Mycodrosophila pleuralis Williston (Drosophila)

M. thoracis Williston (Drosophila)

Drosophila guttifera Walker

D. nana Williston

D. nebulosa Sturtevant (D. limbata Williston)

D. repleta Wollaston

D. sororia Williston

D. splendida Williston

Phortica scutellaris Williston

The only workable specimen of the type series (at the British Museum) is a sapromyzine, with the well-developed auxiliary vein and two large reclinate orbital bristles characteristic of that subfamily. It seems very probable that this is not the species described by Williston, but that the species labels have been mixed. A second specimen in the type series of *scutellaris* consists only of a thorax without wings and with only one leg. No other specimens have been found.

Zaprionus bilineata (Williston)

The type of this species, originally described as *Drosophila*, has the first and third orbitals nearly equally distant from the second, which is about two-thirds their size; face and carina prominent; only one large vibrissa; postverticals large; frontal and mesonotal stripes recall those of *Z. vittiger* Coquillett. These characters are sufficient to refer *bilineata* to *Zaprionus*.

Drosophila colorata Walker

D. sulcata Sturtevant turns out to be a synonym of this, as was suggested before examination of the type (Sturtevant, 1921, loc. cit., p. 105). Further study may yet show that D. robusta Sturtevant should be added to this list, but, as yet, I have not had an opportunity to compare preparations of the male genitalia.

Drosophila illota Williston

I was unable to place this species in my former key to the Neotropical species of the genus (1921, *loc. cit.*, p. 68). The following notes on the type are accordingly presented: second orbital one-third the first; arista with about six rays above and three below; carina large, flat; acrostichal hairs in eight rows; costal index about 2.0; fourth vein index about 1.8; 5x index about 1.1; 4c index about 1.2. Fully 3 mm. long.

In the above-mentioned key this form will run to couplet 37—or to 38 if we disregard a very slight discrepancy in the fourth vein index. Under 38 it will be easily distinguishable by its large size, absence of tarsal combs in the male, and abdomen without definite black bands.

Drosophila californica, new species

Male.—Arista with about four branches above and two below. Antennæ brown, third joint blackish. Front nearly one-half the width of the head, broader above; grayish brown anteriorly, ocellar triangle and orbits gray, slightly silvery, frontal lines velvety black. Second orbital one-fourth the other two. Only one prominent oral bristle. Carina sulcate; face brown. Proboscis and palpi brown. Cheeks grayish brown; their greatest width over one-half the greatest diameter of an eye. Eyes with relatively dense black pile.

Acrostichal hairs in eight rows; no prescutellar bristles; two well-developed humerals. Mesonotum dull black, with a few irregular silvery gray spots. The pattern is like that of *D. repleta* Wollaston, but the dark spots have mostly coalesced. Scutellum black, with gray spots on each side and a single gray mark in the middle anteriorly. Pleuræ dark brown, grayish below. Legs yellowish brown, first femora darker and grayish dusted, first coxæ dark brown. Preapicals on all tibiæ, apicals on first and second.

Abdomen dark brown; basal segments with indications of a median gray line and a basal gray splotch on each side. No lateral pale areas such as occur in D. repleta Wollaston.

Wings faintly smoky; apex of first costal section black, posterior crossvein with a faint cloud. Costal index about 3.1; fourth vein index about 1.9; 5x index about 1.0; 4c index about 0.8.

Length. 2.5 mm.

Type and Four Paratypes (3 and 9).—Pacific Grove, California, June-August, 1920. The species is attracted to fruit, but can be bred on banana only with great difficulty.

This species will run to couplet 22 in the table of Nearctic species given on p. 68 of my former paper. It will be easily separated from the other species included in this couplet by its broad cheeks, dark mesonotum, dark fore coxæ, and by the absence of the pale lateral areas on the abdomen.

Scaptomyza vittata (Coquillett)

The key given in my earlier paper (p. 64) is misleading for the separation of this and S. graminum (Fallén). S. vittata is sometimes as strongly pollinose on the mesonotum as is S. graminum. The dark palpi will serve to distinguish vittata; another character is the presence of a well-developed presutural dorsocentral bristle, absent in S. graminum. A re-examination of my material has shown S. vittata from the following localities, extending its known range much farther north than previously: Arlington, Virginia; Greenville, South Carolina; Macon, Georgia (H. H. Johnson); Lakeland, Florida (C. W. Metz); Kushla, Alabama. I also have S. graminum from all these localities except Macon and Lakeland; its occurrence in Florida depended on the Lakeland record, so that for the present S. graminum should be removed from the Florida list.

Ephydrinæ

PARATISSA Coquillett

This genus was based on *Drosophila pollinosa* Williston, as the only included species. The type specimen of *D. pollinosa* has apparently been lost. The only specimen so labelled in the Williston collection at the British Museum was clearly *D. (Chymomyza) procnemis* Williston, which does not at all resemble the description of *pollinosa*. There is no cotype of *pollinosa* in The American Museum of Natural History, and Professor H. B. Hungerford writes me that he can find none in the Kansas University Collection. Coquillett's specimens resemble *Discocerina*, but have an extra pair of frontal bristles. I am not entirely convinced that they represent Williston's species, which will be very difficult to identify with certainty from the description.

DISCOCERINA Macquart

obscura Williston.

Strongly cinereous; brown on mesonotum, silvery on pleuræ and on sides and apex of abdomen; cheeks grayish yellow......leucoprocta Loew.

Discocerina obscurella (Fallén)

Notiphila obscurella Fallén, 1823, 'Dipt. Suec. Hydromyz.,' p. 10.
Discocerina parva Loew, 1862, 'Mon. N. Amer. Dipt.,' I, p. 146.
Discocerina obscurella subspecies parva Cresson, 1918, Trans. Amer. Ent. Soc., XLIV, p. 58.

I have carefully compared specimens from Hungary (determined by Kertész), Holland, New Hampshire, Massachusetts, New York, Pennsylvania, North Carolina, South Carolina, Alabama, Florida, and Costa Rica. These specimens agree with each other and with the descriptions given by Becker for *obscurella* and by Loew for *parva*, as also with Cresson's notes on his Costa Rican material. I can see no reason for referring the American specimens to a separate subspecies. Becker (1919, 'Miss. Arc Merid. Amer. Sud.,' X, p. 202) has referred specimens from Ecuador to D. obscurella.

Discocerina obscura Williston

I have this from Kushla, Alabama, and have examined a cotype, from St. Vincent, that is in The American Museum of Natural History. So far as I am aware, the species has not before been recorded from the United States.

AXYSTA Haliday

This genus has apparently not been recorded as American. I have three specimens (Woods Hole, Massachusetts; Morristown, New Jersey) that clearly belong here. They agree with the descriptions of A. cesta Haliday, the only recorded European species; but in the absence of European material for comparison I hesitate either to identify them with that species or to describe them as new.

Scatophila despecta (Haliday)

Scatella despecta Haliday, 1839, Ann. Nat. Hist., III, p. 409. ?Ephydra striata Walker, 1849, 'List,' IV, p. 1107. Scatophila variabilis Cresson, 1917, Ent. News, XXVIII, p. 341.

Walker's species was referred to Scatella by Aldrich (1905, 'Cat. N. Amer. Dipt.,' p. 631) on the basis of the original description. Examination of the type shows that it is a Scatophila, probably the same as variabilis. S. variabilis was stated in the original description to be a

possible synonym of despecta. Cresson had no material of the latter form for comparison and so hesitated to identify the American form with it. I have a European specimen of S. despecta, determined by Kertész; I have compared it with Cresson's description of variabilis and with a series of American specimens (from Massachusetts, New York, Alabama, California, and Costa Rica). I can see no significant differences.

Scatella mesogramma Loew also belongs to the genus Scatophila.