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THE NORTH AMERICAN LONCHOPTERIDAE (DIPTERA)

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The family Lonchopteridae includes only the genus *Lonchoptera* Meigen and is represented in the Palaearctic region by eight species according to Duda's[1] revision of the family, although the Palaearctic catalogue includes eighteen names of species, and some of these may represent distinct forms. In 1906, De Meijere[2] published an excellent revision of the family as represented in the same region and gave detailed descriptions and synonymy, but dealt with only seven species.

In North America several names have been applied to our common and very variable species, and it has long been the belief that only the one species occurred on this continent.

The four species in the collections before me, comprising material from the Canadian National Collection and the United States National Museum in addition to specimens in the American Museum, are all described as new. In the two species where males are known the genitalia differ from the figures of the European species and the other species do not agree with descriptions.

In the case of our commonest species, to which I have applied the name *dubia*, it is almost certain that no males exist and that the species reproduces parthenogenetically, and it is possible that the same is true of *uniseta*, although this species is known from only four specimens. In the other two species the two sexes appear to occur in about equal numbers. In 1918, Dr. J. M. Aldrich published an article[3] in which he records 2652 females and no males. Another lot of about 2000 specimens was examined by Dr. Aldrich at Moscow, Idaho, but I do not know whether these results were published. I have seen none of the specimens from those two lots, but it seems probable that the records refer to *dubia*, although there may also have been specimens of *uniseta* in the collections. Males of *furcata* Fallén and *lutea* Panzer are quite well known and the genitalia have been illustrated by De Meijere and, even though the females of *dubia* could not be separated from *furcata* on structural characters, the absence of males would seem to indicate that it is a distinct

[1]Konowia, VI, pp. 89–99.
[2]Tijd. v. ent., XLIX, pp. 44–98 (2 plates).
[3]Psyche, XXV, p. 33.

species. However, there are differences, and these are noted in the observations following the description.

The wing venation in the two sexes is quite different. In the males the sixth vein runs to the margin of the wing but in the females it unites with the fifth vein, forming a large, closed cell. The position of the end of the sixth vein in relation to the furcation of the fourth has been used as a diagnostic character for the separation of Palaearctic species but has no significance in a study of Nearctic forms. The best characters are apparently those found on the legs, where the chaetotaxy is distinctive, the color of the vertical bristles and occipital cilia (postorbital bristles), and the shape and chaetotaxy of the wings. Color appears to be of little value although some species are said to show no variation. In the males the genitalia are distinctive but the ovipositor apparently offers no characters.

I am indebted to Dr. J. M. Aldrich for furnishing specimens and to Dr. J. McDunnough for the material from the Canadian National Collection.

TABLE OF SPECIES

1.—Bristles of the vertex and the orbital cilia wholly yellowish.....4.
At least several of the upper orbital cilia black.....2.
2.—Bristles of the vertex black.....3.
Bristles of the vertex yellowish; about half the orbital cilia black.....4.
3.—Wings very sharply pointed, very slightly concave posteriorly toward the apex, or at any rate not gently convex.....*uniseta*, n. sp.
Wings broader and much less sharply pointed, gently convex before the apex. *occidentalis*, n. sp.
4.—Anal vein widely removed from the border of the wing; base of fifth vein with four or five long bristles.....*borealis*, n. sp.
Anal vein fused with the posterior border of the wing; base of fifth vein with numerous setulae.....*dubia*, n. sp.

Lonchoptera uniseta, new species

Figure 1

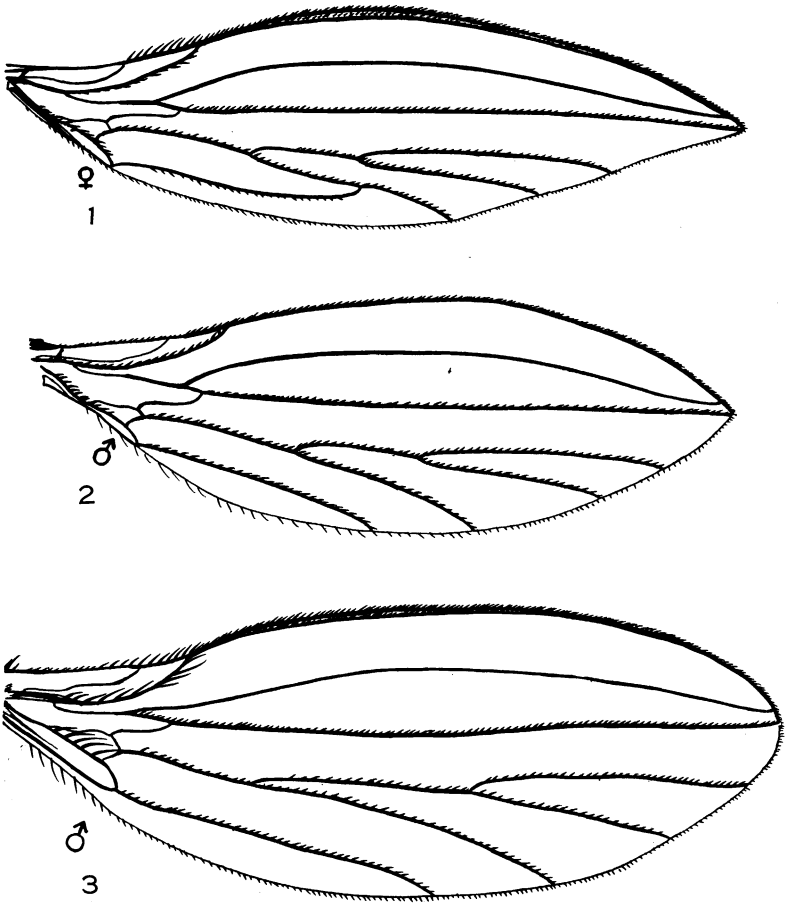
Blackish, the face, legs and halteres yellowish. Length, 2.5 mm.

FEMALE.—Upper occipital cilia and frontal bristles wholly black; front white pollinose except on the ocellar triangle; lower occipital cilia and hairs yellow; face and cheeks yellow, the oral margin with four or five black bristles on either side. Labellae pale brownish; palpi yellow. Antennae brown, the basal segment more or less reddish.

Thorax blackish, rather thickly cinereous pollinose; scutellum reddish brown in ground color.

Legs yellowish, the anterior pair brown or brownish red, the knees paler, the coxae yellow; apical segment of the posterior four tarsi black or brown. Anterior

tibiae with only two bristles, an anterodorsal one beyond the basal third and a preapical posterior bristle; middle tibiae with two anterodorsal bristles and a posterodorsal situated near the basal third; posterior tibiae with two anterodorsal bristles, two anteroventrals, and a single posterodorsal, the latter situated near the middle.



Figs. 1–3. Wings of *Lonchoptera*.
1, *L. uniseta*, new species; 2, *L. occidentalis*, new species; 3, *L. borealis*, new species.

Wings cinereous hyaline; sixth vein ending behind the fork of the fourth vein; anal vein confluent with the posterior border of the wing. Halteres yellow.

Abdomen blackish thinly grayish-brown pollinose, the venter with paler pollen.

TYPES.—Holotype, female, Colorado (Wheeler Collection). Paratypes: two females, Thunder River, Quebec, June 11, 1929 (W. J. Brown); female, Kaslo, British Columbia, June 6 (H. G. Dyar). Paratypes in Canadian National Collection and United States National Museum.

Only this and the following species have a single dorsal bristle on the front tibiae. The two species are easily separated by the shape of the wings, but are almost identical in other respects.

Lonchoptera occidentalis, new species

Figure 2

Agrees with *uniseta* in practically every respect, but the wings are much less pointed and wider, and the anterior legs are paler in color. The two species are so similar in color and chaetotaxy that a detailed description is unnecessary.

The male has the posterior forceps or cerci elongate, forming an oval appendage, the apex emarginate, the apex of each lobe rather evenly rounded but slightly longer toward the inner side, the appendages covered on their posterior side and outer and apical margins with short, fine black hair.

TYPES.—Holotype, male, and allotype, female, Monterey Co., California, July 13, 26, 1896 (W. M. Wheeler Collection). Paratypes: male, Monterey Co., California, July 26, 1896; male, Juliaetta, Idaho, June 5, 1930 (J. M. Aldrich); female, Fairbanks, Alaska, June 29, 1921 (J. M. Aldrich); the last two in the U. S. N. M.

The specimens from the Wheeler Collection bore the manuscript name *occidentalis*, but there is no indication of who applied the name and I can find no reference to a description.

Lonchoptera borealis, new species

Figure 3

Yellowish, the thorax and abdomen partly blackish in ground color; anal vein broadly separated from posterior margin of the wing; fifth vein with long bristles above. Length, 2.75 mm.

MALE.—Head yellowish, the ocellar spot black, front yellow, rather dull; frontal bristles and those along the sides of the oral margin black, the others yellow. Proboscis and palpi yellow. Antennae yellowish, with the third segment and arista brown.

Thorax reddish yellow, yellowish pollinose; mesonotum with a blackish median vitta extending almost to the apex of the scutellum, broad sublateral vittae and the sides in front of the wings brown; a streak on the mesopleura and the mesosternum brownish. Bristles black.

Legs yellowish, the apical tarsal segment brown. Front tibiae with one or two anterodorsal bristles and one posterodorsal, the latter situated near the apical third, the apical anterodorsal usually absent; middle tibiae with two anterodorsal and one posterodorsal, the latter short and situated near the basal third; posterior tibiae with two anteroventral, two anterodorsal, and one posterodorsal, the row of short posterodorsal bristles on the apical half very weak.

Wings cinereous hyaline, the veins mostly brownish. Anal vein reaching the wing margin far before the fork of the fourth vein; anal vein well separated from the posterior border of the wing; base of fifth vein with four or five strong bristles. Halteres yellow.

Abdomen yellowish, the dorsum with two very wide, pale brown vittae, leaving the base, middle and sides yellow, and bearing brownish-yellow pollen. Genitalia

rather small, the cerci convex apically, longer on the inner edges and with short, fine hair.

FEMALE.—Generally darker than the light-colored male described above. Front brownish in the middle, the dark stripes on the mesonotum wide and usually fused posteriorly, the abdomen sometimes all black, but usually with a paler median vitta. Wing venation as in other females, the sixth vein joining the fifth almost behind the fork of the fourth vein.

TYPES.—Holotype, male, Thunder River, Quebec, August 19, 1930 (W. J. Brown); allotype, female, Fairbanks, Alaska, July 1, 1921 (J. M. Aldrich). Paratypes: four males and two females, Fairbanks, Alaska, July 1, 2, 1921; male and female, Wilmington Notch, Adirondacks, New York, July 3, 1922 (J. M. Aldrich); male, Ottawa, Ontario, May 23, 1927 (Curran).

The holotype is in the Canadian National Collection, the allotype and paratypes in the United States National Museum and paratypes in The American Museum of Natural History.

The species varies considerably in color and may have the mesonotum and abdomen almost all blackish, the former with traces of two reddish vittae. *L. borealis* is very easily distinguished from the remaining species, since the anal vein is distinct and broadly separated from the posterior border of the wing behind the anal cell, and the basal section of the fifth vein bears strong bristles, a character not found in other species. The holotype is apparently abnormal in having an anterodorsal bristle near the apical third of the anterior tibiae, all the other specimens lacking this bristle. However, I have retained this specimen as the type, since it was the first to come to hand. The fact that it is known to be abnormal should eliminate confusion.

Lonchoptera dubia, new species

An extremely variable species, the thorax and abdomen sometimes all black or yellow with a dark mesonotal vitta, the head either almost all yellow or black with only the cheeks and parafacials yellow in ground color. Only the female is known. Length, 3 mm.

DARK FORM.—Head blackish, the front densely cinereous-white pollinose; vertical bristles yellowish, the upper occipital cilia black, the lower yellow. Cheeks and parafacials yellow, pale pollinose. Proboscis reddish brown, the palpi brown. Antennae black or with the basal segment yellowish.

Thorax black, gray pollinose, the scutellum not paler in ground color.

Front legs and all the femora brownish red or reddish brown; coxae dull reddish-yellow; tibiae reddish yellow, darker toward the base; posterior four tarsi yellowish with the apical one or two segments brownish. Anterior tibiae with three weak dorsal bristles, one near basal and apical third of the anterior edge, the other just before the middle posteriorly and situated fully its own length from the first anterodorsal; middle tibiae with one ventral, two anterodorsal, and one posterodorsal bristle, the ventral situated near the apical third, the posterodorsal near the basal third; posterior tibiae with two anteroventrals, two anterodorsals, one posterodorsal, and a row of short posterodorsal bristles on the apical half.

Wings cinereous hyaline, the veins mostly yellowish; sixth vein ending slightly beyond the fork of the fourth vein. All the veins, except the second, with setulae above. Halteres yellow.

Abdomen black, yellowish-brown pollinose, the venter with paler pollen.

TESTACEOUS FORM.—Head yellowish, with the ocellar triangle and sometimes the middle of the front brownish, the front with pale yellowish pollen. Mesonotum yellowish, usually with a dark central vitta, but this may be entirely absent, represented only in front, or may extend to the scutellum, in which case there may be a pair of more or less distinct lateral vittae. Abdomen yellowish, usually with evidences of a broad, median brownish vitta, but this may be entirely absent or incomplete, whereas in examples with dark thorax it may cover most of the abdomen. Legs yellowish, the front tarsi wholly brownish or with only the base reddish, the posterior four tarsi with only the apical segment blackish or brown.

The two forms described above are the extremes in coloration. The legs are somewhat darker in the dark form but display no marked differences. If the two forms represent a single species it is natural to expect intergradation in color, and this occurs among specimens collected at the same time and place. The color of the pleura varies just as does that of the mesonotum and abdomen, and with a large series it is possible to trace this variation from one extreme to the other by only slight changes between specimens in the color series.

TYPES.—Holotype, female, Cold Spring Harbor, Long Island, July 22, 1932 (Curran). Paratypes: twelve specimens, Truro, Nova Scotia, September 5 to October 11, 1913; female, Thunder River, Quebec, June 11, 1929 (W. J. Brown; nine females, Cottage Beaulieu, Quebec, July 10 to August 21, 1906 (Beaulieu); female. Montreal, Quebec, October 1, 1905 (Beaulieu); two females, Wakefield, Quebec, May 16, 1914 (C. G. Hewitt); two females, Hull, Quebec, September 25, 1923, and May 7, 1924 (Curran); female, Aylmer, Quebec, August 10, 1924 (Curran); female, Ottawa, Ontario, September 17 (J. D. Tothill); two females, Muskoka, Ontario, August, 1925 (H. S. Parish); three females, Trenton, Ontario, August 27 and September 1, 1902 (Evans); eighteen females, Brockville, Ontario, September 20 to November 1, 1903 (W. Metcalfe); female, Port Hope, Ontario, May 24, 1897 (W. Metcalfe); female, Strathroy, Ontario, September 30, 1915 (J. R. Gareau); two females, Chatham, Ontario, May 19, 20, 1925, and female, Point Pelee, Ontario, May 28, 1925 (G. S. Walley); four females, Kaslo, British Columbia, June 26 to July 17 (R. P. Currie); three females, Agassiz, B. C., April 28 and June 26, 1927 (H. H. Ross); five females, Salmon Arm, B. C., August 4 and September 21, 1925 (A. A. Dennys); female, Minnie Lake, B. C., July 27, 1925 (H. G. Crawford); female, Oliver, B. C., July 13, 1923 (C. Garrett); female, Vernon, B. C., September 26, 1918 (W. Downes); three females, Saanich, B. C., June 22 and September 11, 1918 (W. Downes); four females, Royal Oak, B. C., April 29, 1917 (R. C. Treherne), and June 30, 1917 (W. Downes); ten females, New Bedford, Mass., April 18, 22 (W. M. Wheeler), and female, August 30, 1896 (Hough); four females Readville, Boston, and Beverly, Mass.; two females Franconia, New Hampshire, and two Mt. Washington, N. H. (Mrs. Slosson); female, Georgetown, Connecticut, August 23, 1910; four females, Cold Spring Harbor, Long Island, July 22, 1932 (Curran); female, Parkville, Long Island; two females, Wilmington Notch, Adirondacks, N. Y., July 3 (J. M. Aldrich); two females, Forest Hill, New Jersey, April, May (A. J. Weidt);

four females, Newark, N. J., June (A. J. Weidt); female, Pennsylvania (W. M. Wheeler); three females, Washington, D. C. (Osten Sacken), and June 27, July 8, 1915 (V. A. Roberts); female, Black Mts., North Carolina, July; three females, Wisconsin (W. M. Wheeler); twenty females, Monterey Co., California, July, 1896 (W. M. Wheeler).

SOUTH AMERICAN SPECIMENS.—Two females, Angol, Chile, December 12, 1926, and January 1, 1927; female, Castro, Isla Chiloe, Chile, December, 1926 (R. and E. Shannon); female, San Rosendo, Concepcion, Chile, December, 1926 (R. and E. Shannon); four females, Correntoso, Rio Negro, Argentine, November, 1926 (R. and E. Shannon). Paratypes in Canadian National Collection and United States National Museum.

In American literature this species is recorded under the names *lutea* Panzer, *furcata* Fallén, *lacustris* Meigen, and *riparia* Meigen. *L. lacustris* and *riparia* are considered to be synonyms of *furcata*, the names applying to color varieties.

L. dubia cannot be *furcata* because that species is described as having the bristles of the back of the head wholly yellow, whereas in *dubia* some of the occipital cilia are black and it is only rarely that the dark bristles are reduced to one or two in number. In addition, the fact that males are entirely unknown in *dubia* is strong grounds for believing that our species cannot possibly be the same as the European. The distribution is somewhat unusual but is paralleled in the syrphid, *Allograpta obliqua* Say, which occurs in the Nearctic region and also in Argentina.

L. lutea is a larger species and usually has the vertical bristles partly black and also has different venation, the sixth vein joining the fifth under or before the fork of the fourth vein.