
NEW OR LITTLE-KNOWN SPECIES OF THE GENUS *TIPULA* FROM
LABRADOR. (TIPULIDAE, DIPT.).

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Our knowledge of the crane-flies of Labrador is still very insufficient. The most extensive collections that have yet been made are those of Mr. W. W. Perrett, taken in the years 1922 to 1925, inclusive, at and near Hopedale. This important series is the property of the Canadian National Collection and was kindly loaned to me for examination by Mr. Curran, to whom I would express my sincere gratitude.

The pioneer student of the insects of Labrador, Dr. A. S. Packard, Jr., collected a small number of Tipulidae which were later described by Osten Sacken (Packard, *The Labrador Coast*; 1891). The few records of crane-flies from Labrador, excluding the Packard and Perrett collections, are almost all the result of desultory work of travellers and collectors whose interests lay in other fields. In the present paper, eleven species of the genus *Tipula* are recorded from Labrador.

***Tipula grenfelli* sp. n.**

Belongs to the *tricolor* group; general coloration grey, the praescutum with three brown stripes; antennae of male relatively elongate; flagellum black, the segments feebly incised; wings greyish yellow; basal abdominal tergites orange, darker sublaterally; remaining tergites brownish black; ninth tergite of male hypopygium with a low, rounded median lobe, subtended on either side by a smaller triangular lobe.

Male.—Length about 12.5-14 mm.; wing, 13-13.8 mm.; antennae, about 5 mm.

Frontal prolongation of the head of moderate length, grey above, paler laterally and beneath; nasus of moderate length, provided with yellow setae; palpi brown. Antennae relatively elongate, if bent backward extending to beyond the base of the abdomen; first segment pale at base, the distal half enlarged and darkened, sparsely pruinose; second segment brown; first flagellar segment obscure yellowish brown at base, the distal half and remainder of the organ brownish black; flagellar segments very feebly incised. Head clear grey in front, more brownish grey behind; eyes relatively small, the vertex being very broad; vertical tubercle low but distinct.

Pronotum grey, brownish medially, the lateral portions of the scutellum yellow. Mesonotal praescutum yellowish grey with three conspicuous dark brown stripes; scutum grey, each lobe with two contiguous brown areas; remainder of mesonotum clear grey; scutellum broad, the parascutella correspondingly reduced. Pleura clear light grey, the dorso-pleural membrane buffy-yellow. Legs with the coxae clear light grey; trochanters pale brown; femora yellow, clearer yellow basally, darker outwardly, the tips dark brown; tibiae brown, passing into brownish black outwardly; tarsi brownish black. Wings greyish yellow the apical and caudal portions clearer, subhyaline; base and costal region still clearer yellow, especially cell *Sc*; stigma pale brown; veins dark brown. Venation: Distal section of *R*₂ entirely preserved; petiole of cell *M*₁ a little longer than *m*; *M*₃₊₄ short, approximately one-half *m*.

Abdomen relatively elongate; tergites one to four bright orange, with a dark sublateral stripe, most evident on segments three and four and the posterior ring of segment two; on the remaining segments the coloration is dark except narrow posterior and broader lateral margins which remain pale in color; first segment slightly pruinose; basal sternite brownish grey, the succeeding segments orange, the outer segments greyish brown; hypopygium dark. Male hypopygium as in the *tricolor* group, small, the sclerites fused into a continuous ring. Ninth tergite tumid, the caudal margin with a low, rounded, median lobe that is weakly set with short black setae, the lobe subtended on either side by a small, broadly triangular lobule. Outer dististyle large, roughly oval in outline, dark colored. Suture of the basistyle indicated beneath. Ninth sternite with a V-shaped notch. Eighth sternite unarmed.

Hab.—Labrador.

Holotype.—♂, Hopedale, July 7, 1923 (*W. W. Perrett*); No. 2566 in the Canadian National Collection.

Paratopotypes.—♂, June 19, 1924; ♂, July 12, 1923.

The species is respectfully dedicated to Dr. Wilfred T. Grenfell, whose name has become so intimately connected with the physical and spiritual welfare of Labrador.

Tipula macrolabis Lw. Hopedale, August 4-15, 1925 (*W. W. Perrett*). This marks the eastern limit of this widely distributed Hudsonian crane-fly.

*Tipula sert*a Lw. Hopedale, July 24-August 4, 1923; June 19, 1924 (*W. W. Perrett*). Through the kindness of Prof. R. L. Webster and Prof. Anthony Spuler, Washington State College, I was able to examine the type-specimen of *Tipula albonotata* Doane and find that it is conspecific with *T. sert*a.

***Tipula subserta* sp. n.**

Belongs to the *angustipennis* group; closely allied to *T. sert*a Lw., differing especially in the structure of the male hypopygium.

Male.—Length about 15 mm.; wing, 15 mm.

Female.—Length about 18 mm.; wing, 13.5 mm.

Antennae with the basal segment black, brown at base; second segment reddish brown; in some specimens, the scapal segments paler, yellow to yellowish brown; flagellum entirely black, the segments strongly incised; nasus lacking, as in *serta*. Head darker grey, the brown median line more diffuse.

Pleura clearer blue-grey, including the coxae; dorso-pleural region buffy-yellow. Femoral tips narrowly but conspicuously brownish black.

Abdomen with the sublateral brownish black stripe narrow but clearly defined. Male hypopygium with the tergal region much as in *serta*, but the eighth sternite quite different, with a short, stout, finger-like lobe on either side, these lobes clothed with a few, very long yellow setae; between these lobes on the margin, a low, triangular median lobule; dorsal of the latter, arising beneath the margin and covering the base of the ninth sternite, a broad subquadrate plate, its apex truncate and fringed with short setae. In *serta* the eighth sternite is provided only with a median glabrous plate that terminates in two acute spines, the structure somewhat resembling a stick-tight (*Bidens*) seed.

The Alaskan paratype has the thoracic coloration even more obscure, the praescutal stripes being poorly defined. The low median lobule of the eighth sternite is here prolonged apically into a slender, finger-like point. The white wing-pattern is only faintly developed. This specimen measures about 12.5-13 mm. in length, the wing 13 mm. It is very possible that this Alaskan material pertains to still another species or subspecies.

Hab.—Labrador, Alaska.

Holotype.—♂, Hopedale, Labrador, July 18, 1923 (*W. W. Perrett*); No. 2560 in the Canadian National Collection.

Allotopotype.—♀, July 25, 1924.

Paratopotype.—♂, with the allotype; *paratype*.—♂, Healy, Alaska, June 26, 1921 (*J. M. Aldrich*), in the U. S. National Museum.

Tipula canadensis Lw. Hopedale, July 31, 1922; June 21, 1924 (*W. W. Perrett*).

Tipula labradorica Alex. Hopedale, June 18-25, 1924; June 15, 1925 (*W. W. Perrett*).

Tipula septentrionalis Lw. Hopedale, July 5, 1923; June 18, 1924; June 30, 1925 (*W. W. Perrett*).

Tipula perretti sp. n.

Belongs to the *arctica* group; general coloration brownish grey, the mesonotal praescutum with four clearer grey stripes that are narrowly margined with brown; wings strongly tinged with brown, sparsely variegated with whitish areas; abdomen bright orange, the tergites trivittate with brownish black; male hypopygium with the ninth tergite appearing as a thin, flattened, black plate, the caudal margin with a broad U-shaped notch, the angles of which are produced into decurved triangular points.

Male.—Length about 13.5 mm.; wing, 14.3 mm.

Frontal prolongation of head relatively short, greyish brown above, more yellowish laterally; nasus conspicuous; palpi dark brown. Antennae relatively long, if bent backward extending about to the base of the abdomen; scapal segments obscure yellow; first flagellar segment brownish yellow; remaining segments very indistinctly bicolorous, the basal swellings black, the remainder dark brown; flagellar segments rather strongly incised, the apical portion approximately two or more times longer than the basal enlargement. Head light grey with a capillary brown median line.

Mesonotal praescutum brownish grey with four clearer grey stripes that are narrowly margined with dark brown, the lateral margins of the intermediate stripes becoming more or less obliterated in front; scutum dull grey, each lobe with two clearer grey areas that are narrowly margined with brown; remainder of mesonotum grey, with a continuous capillary median brown vitta extending from the suture to the abdomen. Pleura whitish grey, clearer grey on the sternopleurite and anepisternum; dorso-pleural region more buffy. Halteres pale brown, the base of the stem and tip of the knobs yellowish. Legs with the coxae pale brown, pruinose; trochanters brownish yellow; femora brownish yellow, the tips of the latter and remainder of tarsi passing into dark brown. Wings with a strong brown tinge, cells *C* and *Sc* more yellowish; stigmal region and a spot at origin of *Rs* darker brown; restricted but conspicuous whitish areas distributed as follows: Before and beyond origin of *Rs*; a broad crossband beyond the cord and stigma, extending from the costal margin into cell *R*₅, narrowly separated by a dark seam along vein *M*₁₊₂ from a smaller white area across cell 1st *M*₂, including the extreme tip of *R* and the base of *M*₃; a large blotch at near two-thirds the length of cell *M*; an irregular area in the basal portions of cells *M*, *Cu* and 1st *A*; veins dark brown, the costal veins paler; oblitative areas conspicuous. Venation: Distal section of *R*₂ entire, the basal third with machotrichiae; *M*₃₊₄ about three-fourths the first section of *M*₃.

Abdominal tergites bright orange, narrowly trivittate with brownish black on segments one to six; on segments seven and eight the brownish black sublateral stripes are widened out, greatly restricting the ground-color; sublateral stripes narrowly interrupted by the glabrous basal rings of the tergites; lateral margins of the segments rather narrowly pale; sternites similarly orange with three dark stripes, the median stripe becoming evident at near midlength of the abdomen; eighth sternite uniformly darkened, except for the narrow pale apex. Male hypopygium small, the ninth tergite appearing as a relatively small, very thin and flattened, entirely chitinized plate, the caudal margin with a broad, shallow

U-shaped notch, the angles of the notch extended into slightly decurved triangular teeth. Outer dististyle relatively large, pale yellow, gently widened outwardly, the tips obtuse. Ninth sternite with a V-shaped median notch. Eighth sternite unarmed.

Hab. Labrador.

Holotype.—♂, Hopedale, July 17, 1923 (*W. W. Perrett*); No. 2559 in the Canadian National Collection.

This interesting crane-fly is named in honor of the collector, Mr. W. W. Perrett, who had added so materially to our knowledge of the insects of Labrador.

Tipula entomophthorae Alex. Hopedale, June 19-27, 1925 (*W. W. Perrett*).

***Tipula packardi* sp. n.**

Belongs to the *marmorata* group; mesonotal praescutum yellowish grey with four conspicuous dark brown stripes; pseudosutural foveae reduced to a tiny point; wings grey, variegated with subhyaline; M_{3+4} very short, as in the group; male hypopygium with the ninth tergite relatively large, the caudal margin with a V-shaped median notch; ninth sternite extensive, strongly carinate beneath.

Male.—Length about 13 mm.; wing, 12.5 mm.

Frontal prolongation of head brown, somewhat more reddish brown laterally; nasus conspicuous; palpi brownish black. Antennae relatively short, if bent backward extending about to the root of the halteres; first scapal segment pale yellowish brown; second segment yellow; flagellum black; segments scarcely, if at all, incised, with a delicate erect white pubescence; terminal segment very small, narrowed at tip, only about one-half as long as the penultimate. Head brownish grey, with a capillary dark brown median vitta; vertex of moderate width; vertical tubercle very low, with an impressed line.

Pronotum yellowish grey, with a capillary brown vitta. Mesonotal praescutum yellowish grey, with four conspicuous dark brown stripes, the intermediate pair long and narrow distinctly separated; pseudo-sutural foveae reduced to tiny points; scutum brownish grey, clearer medially, each lobe with two separate brown marks; scutellum brownish grey; postnotum grey. Pleura grey, somewhat variegated with darker, especially on the sternopleurite; dorso-pleural membrane buffy brown. Halteres yellow, the knobs brown. Legs with the coxae dark grey; trochanters obscure brownish yellow; femora yellowish brown, the tips rather narrowly but conspicuously dark brown; tibiae brown, the tips passing into dark brown; tarsi brownish black, proximal ends of the basitarsi paler. Wings grey, variegated with subhyaline; stigma darker brown, with a yellowish mark immediately before it; the dusky clouds include the following: Before the cord, crossing cell 1st M_2 ; beyond the stigma, especially in the base of cell R_2 ; in cell M beyond midlength; a streaked area in cell 1st A , the base and apex of cell 2nd A being similarly pale; veins dark brown, the obliterative areas paler; vein R_1 before the stigma yellow. Venation: M_{3+4} very short, as in the group; m oblique in position.

Abdominal tergites reddish brown without distinct stripes, the outer segments somewhat darker, especially the base of the eighth segment; sternites red-

with whitish subhyaline; male hypopygium with the lateral lobes of the tergite relatively large, the caudal margin with a V-shaped median notch, the margins fringed with delicate setae; median area of the dorsal surface sunken, the margins of the depressed area limited by a weak longitudinal carina on either side. Ninth sternite very extensive, the ventral portion strongly carinate. Basistyle completely fused with the sternite. Eighth sternite relatively small, unarmed.

Hab. Labrador.

Holotype.—♂, Hopedale, August 24, 1924 (*W. W. Perrett*); No. 2562 in the Canadian National Collection.

This interesting *Tipula* is named in honor of the late Dr. Alpheus S. Packard, Jr., who was apparently one of the first to collect crane-flies in Labrador.

***Tipula productella* sp. n.**

Belongs to the *marmorata* group; general coloration grey, the praescutum with four broad, dark brown stripes; wings brownish grey, sparsely variegated with whitish subhyaline; male hypopygium with the lateral lobes of the tergite ending in decurved blackened points; basistyle produced into a fingerlike lobe; a long yellow lobe arising from the ninth sternite; eighth sternite large, deeply emarginate medially, the lobes conspicuously clothed with long yellow setae.

Male.—Length about 10 mm.; wing, 12.3 mm.

Frontal prolongation of head dark brown, the nasus elongate, with a few long yellow setae. Antennae of moderate length, if bent backward extending to shortly beyond the wing-root; scapal segments obscure yellow; flagellum brownish black, the segments feebly incised, the basal enlargement a trifle darker than the apical portion of the segment; terminal segment very small, not longer than the basal enlargement of the penultimate segment. Head yellowish grey, darker behind.

Mesonotal praescutum yellowish grey, with four broad conspicuous dark-brown stripes, the intermediate pair only narrowly separated; all interspaces obscure; pseudosutural foveae reduced to small, circular points; scutum discolored; remainder of mesonotum dark grey, the scutellum more brownish grey. Pleura yellowish grey, indistinctly variegated with darker grey to form vague darker stripes, including the sternopleurite; dorsopleural region buffy. Halteres obscure yellow, the knobs darker, with pale apices. Legs with the coxae light grey; trochanters yellow; femora obscure yellow, the tips narrowly blackened, preceded by a more or less distinct yellow ring; tibiae yellowish brown, the tips darkened; tarsi dark brown. Wings with a brownish grey tinge, sparingly variegated with whitish subhyaline areas, as in the *marmorata* group; cell *Sc* darker; stigma elongate, brown; a brown cloud on the anterior cord; a brown marginal cloud at end of vein *Cu*₁; the subhyaline areas include an obliterative region before the cord; a post-stigmal area and spots near midlength of cell *M*, on both sides of *m-cu*, at one third and at near midlength of cell *Cu* and in the outer ends of the Anal cells; veins dark brown, the obliterative areas extensive. Venation: *M*₃₊₄ short, as in the group, being only about one-third *r-m*; cells *M*₁ and 1st *M*₂ large and ample.

Abdominal tergites brownish yellow, darker sublaterally, especially on the basal segments; outer segments more uniformly darkened; caudal margins of segments narrowly pale; sternites brownish yellow, the caudal margins ringed

with paler; eighth and ninth sternites dark, the caudal lobes of the eighth sternite conspicuously pale. Male hypopygium with the tergite of moderate size, the caudal margin with a V-shaped median notch, the lateral lobes terminating in acute blackened decurved points that are gently divergent, the extreme apex of each further produced into a short acute spine. Ninth sternite extensive, the ventral portion restricted and not markedly carinate. Basistyle produced into a slender, fingerlike lobe, directed dorsad and but slightly caudad, clothed with erect setae. Outer dististyle very narrow, pale, only sparsely setiferous. Immediately ventrad and caudad of the basistyle arises a more slender, elongate lobe, light yellow in color, densely clothed with silken setae that are directed dorsad and caudad. Eighth sternite large, deeply emarginate caudally, the notch filled with membrane, the lobes conspicuously provided with long yellow setae, including a fringe directed mesad across the median notch.

Hab. Labrador.

Holotype.—♂, Hopedale, September 13, 1923 (*W. W. Perrett*); No. 2563 in the Canadian National Collection.

Tipula productella is most closely allied to the Western North American *T. fragilina* Alex., differing in the details of structure of the male hypopygium, especially the basistyles and eighth sternite.
