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UNDESCRIBED SPECIES OF TIPULA FROM WEST- ERN NORTH AMERICA (DIPTERA, TIPULIDAE). PART III.

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The preceding part under this general title was published in 1946 (Bull. Brooklyn Ent. Soc., XLI: 45). At this time I am describing three further species of *Tipula*, chiefly based on the materials contained in the great Melander Collection. As before, my deep thanks are extended to Dr. Melander for the opportunity and privilege of naming these flies and for his kindness in permitting me to retain the type of one of the species that is represented by a single specimen.

Tipula (Oreomyza) yellowstonensis, n. sp.

Belongs to the *borealis* or *unca* group; size unusually small (wing, male, 11 mm. or less); mesonotal praescutum gray with three darker gray stripes that are bordered by brown; femora brownish yellow, the tips narrowly brownish black; claws (male) toothed; wings pale brown and yellowish subhyaline, the pattern relatively ill-defined; abdominal tergites obscure yellow, trivittate with brown; male hypopygium with the beak of the inner dististyle short but slender, sloping directly into the long crest that is fringed with delicate setae; lateral appendage with two processes, the lower a long slender curved spine; gonapophysis with its apex obtusely rounded; eighth sternite weakly trilobed, the setae short and abundant.

Male.—Length about 10–11 mm.; wing 10.5–11 mm.; antenna about 4–4.4 mm.

Female.—Length about 13.5 mm.; wing 12 mm.

Frontal prolongation of head light brown, slightly darker above, including the long nasus; palpi dark brown. Antennae (male) relatively long; scape and pedicel yellow, flagellum

black; flagellar segments long, only feebly incised. Front and anterior vertex light yellow; posterior portion of head light gray, with a median brown stripe.

Pronotal scutum gray, variegated with brownish gray; scutellum and pretergites yellow. Mesonotal praescutum with the ground color gray, with three darker gray stripes that are narrowly bordered by brown, the broad median stripe on cephalic third enclosing two similar brown lines, these more or less connected with the outer borders behind; posterior sclerites of notum gray, variegated with darker brownish gray, including two areas on each scutal lobe; central area of scutellum and mediotergite narrowly infuscated; pleurotergite yellow. Pleura with the mesepisternum gray, vaguely patterned with darker brownish gray; mesepimeron and metapleura more uniformly yellowed. Halteres brown, the base of stem restrictedly yellow, apex of knob vaguely pale. Legs with the coxae yellow, sparsely pruinose; trochanters yellow; femora and tibiae brownish yellow, the tips narrowly brownish black; tarsi black, the proximal portions of the basitarsi paler; claws (male) toothed. Wings pale brown and yellowish subhyaline, the pattern relatively indistinct; prearcular field and costal region more saturated yellow; stigma and a small spot over origin of *Rs* somewhat darker brown; the pale areas are best developed as a band beyond the stigma, extending backward to vein M_{1+2} , more or less connected with a similar area centering at cell *1st M*₂; another large pale spot before outer end of cell *M* and including the adjoining cells; other areas still more basad in cells *Cu* and *1st A*; veins brown, more yellowed in the saturated portions. Venation: *Rs* about twice *m-cu*.

Basal abdominal tergites chiefly gray; succeeding tergites grayish brown medially, obscure yellow sublaterally, with conspicuous broken darker brown sublateral stripes; lateral margins broadly, posterior borders more narrowly pale yellow; outer segments, including most of hypopygium, dark brown; median dark tergal stripe narrowed posteriorly and becoming obsolete beyond the sixth segment; basal sternites yellow, the outer ones slightly darker. Ovipositor with the cerci long and slender, virtually straight, considerably exceeding the compressed-flattened hypoalvae. Male hypopygium having the ninth tergite with its apical portion broadly sessile, the lateral angles produced laterad into long slender blackened points. Outer dististyle broad, its apex very obtuse. Inner dististyle

with the beak short but slender, sloping gradually upward into the dorsal crest, the latter with a long row of setae. Lateral appendage with two processes, the upper a pale, nearly parallel-sided blade, the lower one a long slender curved spine. Gonapophysis slender, strongly bent on proximal half, the apex narrowly obtuse. Eighth sternite weakly trilobed, the setae abundant but short.

HABITAT: Wyoming, Utah.

HOLOTYPE: ♂, Yellowstone National Park, Wyoming, south entrance, July 24, 1934 (*Melander*); in Melander Collection. *Allotopotype*, ♀. *Paratopotypes*, 6 ♂♂; *paratype*, ♂, Spanish Fork, Utah Co., Utah, altitude 4550 feet (*D. Elmo Hardy*).

This fly is most similar to the eastern North American *Tipula* (*Oreomyza*) *grata* Loew, differing in the very small size, details of coloration and, especially, the structure of the male hypopygium, including the tergite, inner dististyle, gonapophyses and eighth sternite. The species is less like *T. (O.) ingrata* Dietz and *T. (O.) rohweri* Doane, which have the lateral appendage of the hypopygium somewhat the same.

***Tipula* (*Arctotipula*) *loganensis*, n. sp.**

General coloration gray; praescutum light gray with four very slightly differentiated darker brownish gray stripes that are narrowly bordered by blackish, most intensely so as a median vitta separating the intermediate stripes; antennae short, the basal swellings of the flagellar segments very poorly developed; legs dark brown, the femoral bases restrictedly obscure yellow; claws (male) toothed; wings grayish subhyaline, variegated with pale brown, appearing as a seam over cord and at wing tip; stigma somewhat darker brown; abdominal tergites brown, the caudal borders broadly gray, the median area more vaguely of this latter color; male hypopygium relatively large; tergite extensive, its caudal margin bilobed; outer dististyle long and slender; inner dististyle with the beak a short cultriform blade, the margin behind this with a slender acute spine; gonapophysis appearing as a conspicuous dark-colored oval blade, the stem short; ninth sternite with a conspicuous protruded pale membrane at base of the median emargination.

Male.—Length about 11 mm.; wing 14.8 mm.; antenna about 2.8 mm.

Frontal prolongation of head brown, gray pruinose, clear above; nasus reduced to a small stub, with a concentration of

black setae on and near it; palpi medium brown. Antennae short; scape gray pruinose, pedicel light brown, flagellum brownish black; flagellar segments short, basal enlargements very poorly developed; verticils shorter than the segments. Head brownish gray, the front and anterior vertex clear light gray, including somewhat depressed areas on either side of the anterior vertex; a vague darkening from the summit of the very low vertical tubercle backward; occipital region restrictedly obscure orange.

Pronotum brownish gray, scutellum yellow, the central depression darker. Mesonotal praescutum light gray, with four very slightly differentiated darker brownish gray stripes that are narrowly bordered by blackish, most intense as a median vitta separating the intermediate stripes; outer margins of lateral stripes undarkened; scutum with median region light gray, the lobes chiefly occupied by two brownish gray areas that are narrowly bordered by more blackish lines, especially on their mesal edges; scutellum brownish gray, parascutella obscure brownish yellow; postnotum clear light gray. Pleura light gray, the anepisternum a trifle darker; dorsopleural region broadly light yellow. Both head and thorax unusually glabrous, the vestiture reduced to virtually microscopic black setulae. Halteres obscure yellow, the knob weakly darkened. Legs with the coxae light gray; trochanters obscure brownish yellow; femora dark brown, the bases restrictedly obscure yellow; tibiae and tarsi dark brown; claws (male) with a tooth on proximal third. Wings grayish subhyaline, variegated with pale brown, the latter appearing chiefly as a seam over the cord and at wing tip; stigma somewhat darker brown; areas that are somewhat paler than the ground before and beyond stigma and in outer end of cell M ; veins brown. Macrotrichia on veins beyond cord, including R_{1+2} to 2nd A , very sparse on M_4 and 1st A ; squama naked. Venation: Rs long, exceeding three times $m-cu$; R_{1+2} entire; petiole of cell M_1 about two and one-half times m ; cell 1st M_2 relatively small, pentagonal; m shorter than the basal section of M_{1+2} ; $m-cu$ shortly before the fork of M_{3+4} .

Abdominal tergites brown, the caudal borders broadly gray, the median area of the segments more vaguely of this latter color; sternites clear gray, with yellow posterior borders, broadest on segments three and four and again on sternite eight; hypopygium dark. Male hypopygium with the ninth

tergite extensive, the outer portion narrowed into a yellowed apex that is bilobed by a shallow V-shaped notch; lobes densely provided with black setae; no ventral armature (as in *besselsi* and allies). Ninth sternite with a conspicuous protruded pale membrane at base of the median emargination. Outer dististyle long and slender, gradually narrowed to the obtuse tip, the length about four times the greatest breadth. Inner dististyle with the beak a short cultriform blade; sensory group placed at base of beak, consisting of relatively few areas; outer margin of style behind the beak bearing a slender acute spine. Gonapophysis appearing as a conspicuous oval dark-colored blade, the stem short. Eighth sternite transverse, the caudal margin pale, unarmed.

HABITAT: Montana.

HOLOTYPE: ♂, Logan Pass, Glacier National Park, altitude 6,655 feet, July 18, 1935 (*Melander*); Alexander Collection, through Melander.

Tipula (*Arctotipula*) *loganensis* is quite distinct from the other members of the subgenus occurring in the northern and central Rocky Mountain Region. It comes closest to species such as *T. (A.) sacra* Alexander and *T. (A.) semidea* Alexander, differing conspicuously in the coloration of the body and wings and in the structure of the male hypopygium. The body is unusually glabrous for a member of this subgenus but the assignment seems unquestionably to be correct.

Tipula (*Lunatipula*) *rainiericola*, n. sp.

Belongs to the *unicincta* group, allied to *unicincta*; general coloration of mesonotum gray, the praescutum with four entire rich brown stripes, the intermediate pair narrowed and out-bowed behind; antennae relatively short, flagellum black; femora yellow, the tips narrowly blackened; wings with a weak pale brown and whitish subhyaline pattern, the latter including a major prestigmal area; male hypopygium with the appendage of the ninth sternite narrowed into a cylinder that is tipped with a brush of reddish setae; inner dististyle narrow; gonapophyses symmetrical.

Male.—Length about 13 mm.; wing 17–18 mm.; antenna about 4 mm.

Frontal prolongation of head light brown, sparsely pruinose above; nasus short and stout to virtually lacking; palpi with basal segment obscure yellow, succeeding segments dark brown,

the incisures pale. Antennae with scape and pedicel yellow; basal flagellar segment pale brown, outer ones brownish black to black; flagellar segments with small basal enlargements; longest verticils slightly longer than the segments. Head above brownish gray, with a more or less distinct brown line on vertex, best indicated on the vertical tubercle.

Pronotum brown, pruinose. Mesonotal praescutum with the ground gray, with four entire rich brown stripes, the intermediate pair narrowed and outbowed behind so the central ground area is widened on posterior half; posterior sclerites of notum gray, each scutal lobe with two paler brown areas. Pleura light brown, sparsely pruinose. Halteres pale, the base of knob a little darker. Legs with the coxae and trochanters pale, yellow pollinose; trochanters yellow; femora and tibiae yellow, the tips narrowly blackened; tarsi black, the basitarsi paler at proximal ends; claws (male) toothed. Wings with a very pale brownish tinge, restrictedly patterned with whitish subhyaline; stigma slightly darker brown than the ground, relatively small; obliterative band before cord broad and conspicuous, extending into cells M_3 and M_4 ; no post-stigmal brightening; two isolated small pale spots in cell *1st A*; veins pale brown. Venation: *m* longer than the petiole of cell M_1 .

Abdominal tergites pale, more or less trivittate with brown, somewhat more extensive and intense on the fourth and fifth segments, the margins yellow; outer segments, including hypopygium paler brown. Male hypopygium having the ninth tergite with conspicuous, relatively broad lobes, their outer angle acute; a broad dorsal furrow; lobes separated by a relatively narrow U-shaped notch. Ninth sternite with its appendage a broad-based lobe that narrows into a short cylinder that is tipped with a brush of reddish setae. Basistyle with the ventral angle produced into a flattened sclerotized point or blade. Outer dististyle broadly expanded on outer portion, provided with very long setae. Inner dististyle with the beak relatively slender; lower beak stout; posterior crest narrow, the dorsal portion pale to subhyaline, the margin microscopically serrulate; outer basal lobe broad, with numerous long pale setae and a few scattered blackened short bristles. Gonapophyses paired, the major blade appearing as a nearly straight reddish spine, narrowed very gradually to the acute tip; at base, each spine bears a smaller flattened yellow blade. Eighth sternite with the lateral lobes very low, each terminating in

a strong fasciculate bristle, with one or two much smaller setae at its base; median cushion relatively small, the relatively few setae expanded and branched at their outer ends.

HABITAT: Washington.

HOLOTYPE: ♂, Berkeley Park, Mount Rainier, August 23, 1934 (*Melander*); in Melander Collection. Paratopotypes, 8 ♂♂, August 23-27, 1934 (*Melander*).

Among the related species of the *unicincta* group, the present fly is most similar to *Tipula* (*Lunatipula*) *unicincta* Doane, which differs in slight details of size and coloration and, especially, in the details of structure of the male hypopygium, particularly the appendage of the ninth sternite and the inner dististyle.