

Undescribed Species of Crane-Flies from the Western United States and Canada (Dipt.: Tipulidae). Part III

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The preceding part under the above title was published in ENTOMOLOGICAL NEWS, 54: 253-258; 1943. At this time I wish to define three further species of the genus *Tipula* Linnaeus from Idaho, Washington and California, based on materials taken by Dr. A. L. Melander and by Mr. Anthony Downs. Except where indicated to the contrary in the text, the types of the novelties are preserved in my collection of Tipulidae. I am very deeply indebted to both collectors for their kindness in permitting me to examine large series of these flies in their possession.

***Tipula* (*Bellardina*) *sacajawea* n. sp.**

Belongs to the *subcinerea* group; male hypopygium with the arm of the basistyle uniformly yellow, including the denticles; outer dististyle narrow, the apical yellow setae relatively long; inner dististyle only moderately dilated, at its apex with a group of at least twenty large blackened spines.

♂. Length about 16-17 mm.; wing 19-20 mm.; antenna about 3.4-3.5 mm.

Frontal prolongation of head dark brown, gray pruinose above; nasus elongate; palpi dark brown, the third segment a trifle paler. Antennae with scape and pedicel brownish yellow, flagellum dark brown; verticils long and conspicuous. Head light gray, patterned with dark brown, including a cen-

tral vitta on vertex and more or less distinct lateral lines bordering the gray posterior orbits, the whole darkening more or less interconnected to form a trident.

Pronotum gray, with three brown spots. Mesonotal praescutum conspicuously patterned with light brown, black and gray, the disk chiefly occupied by light brown and gray stripes with broad brownish black centers; ground color of interspaces brownish black, more pruinose near suture; intermediate black stripes narrow, their pale lateral borders broader, the narrow median vitta gray pruinose; lateral stripes brownish gray with black centers; humeral and lateral portions of praescutum light gray pruinose; posterior sclerites of notum gray, patterned with dark brown, including areas on scutal lobes, a capillary dark line on scutellum, and three darkenings on mediotergite. Pleura and pleurotergite gray, with a very conspicuous dark brown dorsal stripe extending from the cervical region across the propleura and bases of fore coxae, the broad anepisternum to the wing-root, slightly involving the dorsal pteropleurite; a smaller dark spot on dorsal sternopleurite; metapleura chiefly pale yellow. Halteres black, the base of stem restrictedly yellow, with a small black spot on membrane at its base. Legs with coxae light gray, the bases of the fore and hind pairs narrowly infuscated; trochanters brown, light gray pruinose; femora and tibiae fulvous, the tips narrowly blackened, especially on the latter; basitarsi passing into black; claws (male) with a small obtuse tooth. Wings relatively narrow, heavily patterned with light and darker brown on a cream-colored ground; the dark pattern exceeds in area the pale markings except on proximal third of wing; the darkest pattern includes the stigma with a confluent seam over the cord and smaller spots beyond arculus and over origin of *Rs*; dark marginal spots at ends of outer veins, alternating with cream-colored marginal spots in the centers of the cells; the paler brown pattern involves most of the remaining cells, alternating with ground areas of about the same size; veins brown, paler in the more yellowed costal field. Venation: *Rs* a little more than twice *m-cu*; R_{1+2} entire; cell 1st M_2 relatively small, narrowed at outer end; *m-cu* on M_4 shortly beyond base.

Abdomen with basal tergite dark brown, bordered by light gray; succeeding tergites broadly orange medially, with conspicuous brown sublateral stripes, the lateral borders broadly gray, widest on the more proximal sclerites, the posterior margins more narrowly pale; sternites obscure fulvous, more or less pruinose, especially on the basal segment, the outer segments with broad paler margins; hypopygium chiefly brownish black, the lobe of the basistyle and the outer dististyle paler. Male hypopygium with the caudal margin of the ninth tergite subtransverse, the rounded median lobe small and dark; sublateral points small, conical. Basistyle produced caudad into a long arm, as in the group, this provided with a few teeth or points on the mesal face. Outer dististyle a little shorter than the arm of the basistyle, relatively narrow, the greatest width not exceeding one-fourth the length, at its tip with a few long yellow setae. Inner dististyle only moderately dilated as compared with allied forms; apex with a group of at least twenty conspicuous blackened spinous points.

Holotype: ♂; Moscow Mountain, Idaho, June 26, 1920 (Melander); in Melander Collection. *Paratopotypes*: 4 ♂♂, June 24, 1919; June 26, 1920 (Melander). Dr. Melander has supplied me with detailed notes on the type locality, of which the following is a digest. "Moscow Mountain, altitude about 4500 feet, is indicated on the maps as 'Cedar Mountain of the Thatuna Hills.' The north side is cool, with large cedar trees on the slope, toward the top the vegetation becoming dense, including mountain ash and alder, with patches of *Veratrum*. A favorite collecting ground of the entomologists from Pullman, Washington, and Moscow, Idaho, including Aldrich and Melander."

Named for *Sacajawea*, "The Bird Woman," Shoshone Indian, wife of the French trader Charbonneau, who, in 1805-1806, guided Lewis and Clark across the Rockies and beyond to the Pacific Ocean. Her papoose, Baptiste Charbonneau, was born on the expedition, February 11, 1805. Sacajawea died on April 9, 1884, at the age of nearly 100 years and is buried in the Shoshone Reservation cemetery near Fort Washakie, in the eastern foothills of the Wind River Range, Wyoming.

The species is well distinguished from the other members of the group, *T. (B.) subcinerea* Doane and *T. (B.) rastristyla* n. sp., by the hypopygial structure, as above described. In *subcinerea*, the median tergal lobe is yellow and conspicuous, the arm of the basistyle provided with blackened teeth and long yellow setae, and the inner dististyle is unusually flattened and expanded, the apical spinous points so reduced in size as to be visible only under relatively high magnification.

Tipula (Bellardina) rastristyla n. sp.

♂. Length about 18 mm.; wing 20 mm.; antenna about 3.1 mm.

Characters generally as in *sacajawea* n. sp., as described.

Frontal prolongation of head dark brown on either side, the middorsal line gray. Antennae relatively short. Posterior vertex with the median dark brown line but without lateral infuscations. Thoracic pattern virtually identical in both species. Wings a trifle wider, with cell 1st M_2 larger, subequal in length to cell M_1 .

Abdominal tergites with a very conspicuous yellow or orange-yellow median stripe, the sublateral portions dark brown or brownish black, the yellow becoming obsolete on tergite six; tergites seven to nine black, the eighth concealed beneath the seventh; lateral tergal borders broadly, the posterior margins very narrowly, grayish white; sternites chiefly obscure orange, gray pruinose, the outer segments more heavily pruinose and with yellow posterior borders, this coloration extending through segment eight; sternite nine uniformly blackened except for the lobe of the basistyle and the dististyles which are obscure yellow. Male hypopygium generally as in *sacajawea* but with all details quite distinct. Ninth tergite with the median region between the sublateral lobes more evidently emarginate; median tubercle conspicuous, low and broad, with abundant setae. Basistyle with the most proximal point a long fingerlike tubercle. Outer dististyle narrow, its width across midlength approximately one-fifth the total length; setae at apex unusually short and incon-

spicuous for a member of the *subcinerea* group, continued down the inner edge of style. Inner dististyle narrowed just beyond base, widely expanded outwardly, the spines large, black and very conspicuous, forming a compact group on the margin at the most expanded portion of the blade, about three of these spines larger and more powerful.

Holotype: ♂; Snoqualmie Pass, between King and Kittitas Counties, Washington, June 29, 1924 (Melander); Alexander Collection, through courtesy of Doctor Melander.

Tipula (Lunatipula) cladacantha n. sp.

Allied to *bifalcata*; general coloration of thorax yellow, the praescutal stripes scarcely defined; nasus lacking; antennae black, the scape, pedicel and most of the first flagellar segment yellow; male hypopygium with the beak of the inner dististyle obtuse; posterior spinous appendage stout, terminating in a long spine, with a second smaller spine a short distance back from the tip.

♂. Length about 17–18 mm.; wing 19–20 mm.; antenna about 5–5.2 mm.

Frontal prolongation of head light yellow, without nasus, the dorsal surface weakly pruinose; palpi with basal three segments yellow, terminal segment blackened. Antennae with scape, pedicel and proximal two-thirds of first flagellar segment yellow, the remainder of flagellum black; segments moderately incised, a little exceeding their longest verticils. Head above yellow, sparsely pruinose, with a capillary dark median vitta.

Thorax chiefly yellow, the praescutal stripes ill-defined, somewhat clearer yellow than the ground. Pleura yellow, very sparsely pruinose; dorsopleural membrane clearer yellow. Halteres with stem obscure yellow, clearer yellow at base, knob brownish black. Legs with coxae light yellow; remainder of legs yellow, the tips of the femora, tibiae and basitarsi narrowly infuscated; outer tarsal segments more darkened; claws (male) toothed. Wings with a strong yellowish brown tinge, clearer yellow on basal half, particularly in the prearcular and costal

fields; stigma very small and inconspicuous, pale brown; obliterative area before cord moderately conspicuous, especially across cell 1st M_2 , barely entering cell M_3 ; veins brown, more brownish yellow in the brightened fields. Venation: Rs somewhat less than twice $m-cu$; petiole of cell M_1 subequal to or a little exceeding m .

Abdomen yellow, clearest on the basal segments, becoming more obscure outwardly, on the outer segments with indications of a very slightly darker sublateral stripe; lateral borders and the very narrow posterior margins paler; hypopygium castaneous. Male hypopygium with the ninth tergite transverse, the dorsal surface with a deep median furrow; caudal margin with a narrow median notch, on either side of which is an obliquely truncated lobe, the latter more or less sclerotized but not blackened, the margin of the truncated edge microscopically crenulated. Ninth sternite with the appendage large, the convex upper portion with a dense fringe of long yellow setae, the lower end produced into a smaller lobule that bears a pencil of very long reddish setae. Basistyle entire, not produced. Outer dististyle expanded on more than the outer half, the latter more or less bent backward, as in *bifalcata*. Inner dististyle complex, the main body with the rostrum obtuse, the dorsal crest triangularly produced backward, the face of the crest above the beak with very conspicuous, parallel ribs; lower beak blackened, its tip narrowly obtuse to subacute; outer basal lobe a flattened foot-shaped lobe; at base of last with a still further arm, as in *bifalcata* and allied forms, this appearing as a flattened blade or rod, its tip extended into a long reddish spine, on outer margin before apex with a smaller similar spine; the entire arm but especially the outer margin and apex with very long yellow setae. Phallosome including two sets of paired blades, one pair short, terminating in small curved hooks, the second pair long and slender. Eighth sternite sheathing, the apical lobes separated from the body of sclerite by pale membrane; the lobes include elongate lateral structures, their inner margins fringed with long setae from strong tubercles, two near the apex very large and powerful, fasciculate, bent strongly mesad just beyond

their base, decussate at median line; a low depressed median cushion is similarly fringed with long yellow setae.

Holotype: ♂; Wawona, Mariposa County, California, altitude 5000 feet, June 6, 1939 (A. Downes). Paratopotypes, 4 ♂♂.

Although evidently allied to both *Tipula* (*Lunatipula*) *biarmata* Doane and *T. (L.) bifalcata* Doane by the structure of the male hypopygium, the present fly is well distinguished by the lack of the nasus and in various details of structure of the male hypopygium, particularly of the inner dististyle, as the obtuse beak and the very stout, branched posterior arm. The affinities of this particular group of flies remain somewhat obscure. The presence of a third lobe or spine on the inner dististyle, additional to the apparent outer basal lobe, sets these flies off as somewhat distinct. It should be noted that within this subgroup some species have the nasus whereas in the present fly it is quite lacking.