

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

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The preceding part under this general title was published in ENTOMOLOGICAL NEWS, 70: 47-54. The majority of the species considered at this time were taken by the writer, chiefly in California. A few further species from other sources are acknowledged in the text. All types of new species and subspecies are retained in my personal collection.

Tipula (*Yamatotipula*) *tenuilinea* new species

Allied to *albocaudata*; mesonotal praescutum grayish brown, with four scarcely differentiated grayish brown stripes that are very narrowly margined by medium brown to form six narrow lines; wings weakly tinged with brown, stigma dark brown, conspicuous; abdominal tergites with two pale brown stripes, very narrowly separated by a yellow median line, outer segments darkened; male hypopygium with the apex of the outer dististyle truncated, the lower margin dilated at near midlength; inner style with the beak and outer basal lobe subequal in size and appearance.

♂. Length about 17-19 mm.; wing 16.5-19 mm.; antenna about 5.5-6.5 mm.

Frontal prolongation of head obscure yellow, including the elongate nasus; palpi light brown, terminal segment darker. Antennae relatively long, as shown by the measurements; scape, pedicel and basal half of first flagellar segment yellow, remainder of organ brownish black; flagellar segments moderately incised. Head gray, more whitened on front and anterior part of vertex; posterior vertex with a brown central area, the sides, with the genae, clouded with darker.

* Contribution from the Entomological Laboratory, University of Massachusetts.

I am greatly indebted to the National Science Foundation for financial assistance in conducting field studies in California in 1957.

Pronotum pale, vaguely patterned with darker. Mesonotal praescutum with the ground light gray or grayish brown, with four scarcely differentiated gray or grayish brown stripes that are very narrowly margined with medium brown, forming six narrow lines, with indications of a still further central vitta; scutum gray, the lobes patterned with brown, the smaller anterior area darker; scutellum buffy, parascutella testaceous; postnotum pale gray. Pleura almost uniformly light gray; dorso-pleural membrane pale yellow. Halteres with stem brownish yellow, knob infuscated. Legs with coxae light gray; trochanters yellow; femora yellow, tips narrowly but conspicuously blackened, the amount subequal on all legs; tibiae yellowish brown, tips very narrowly and inconspicuously darker; tarsi brown, claws simple. Wings weakly tinged with brown, prearcular and costal fields, especially cell *Sc*, more yellowed; stigma large, dark brown, conspicuous; anterior cord, *m-cu* and distal section of *Cu* narrowly seamed with brown; central part of disk, especially cell *M*, paler than remainder of ground; veins brown, more yellowed in the brightened fields. Venation: Petiole of cell *M*₁ variable in length, in cases very short.

Abdominal tergites chiefly covered by two broad pale brown stripes that are very narrowly separated by a yellow median line; sternites more yellowed; outer segments, especially eight and nine, more darkened. Male hypopygium with the posterior border of the ninth tergite produced into an elongate median lobe that is split for approximately one-half its length into two lobules, their apices with blackened points. Outer dististyle elongate, pale, truncated at apex, lower margin beyond mid-length strongly dilated; base and posterior margin on more than the proximal half with very long and conspicuous black setae, these pale and inconspicuous on outer half. Inner dististyle complex, the beak and outer basal lobe of somewhat similar shape and size, the latter somewhat longer, densely covered with setulae; dorsal crest forming an irregular obtuse lobe, not appearing as a spinous point, as in *edmundsi*, outer part with a row of short setae, near base with a row of short setae, still nearer base with several longer setae from strong basal tubercles.

Habitat. WESTERN UNITED STATES. *Holotype:* ♂, Castle Crags State Park, Shasta County, CALIFORNIA, 2,000 feet, July 5, 1953 (Alexander). *Paratypes:* ♂, Pullman, Washington, June 6, 1907 (Melander), determined as *cognata* by Melander; ♂, Odell Lake, Klamath County, Oregon, August 6, 1948 (Alexander); ♂, Intake Camp, Bishop Creek, Inyo County, California, 8,000 feet, July 8, 1957 (Alexander); ♂, Zion National Park, Washington County, Utah, May 13, 1936 (B. E. Rees).

The Utah record had previously been recorded as being *cognata* (Alexander, Amer. Midl. Nat., 39: 20; 1948); the Oregon specimen also as being *cognata* (Alexander, l.c., 51: 27; 1954). In the 1948 paper, the male hypopygium had been figured, under the name *cognata*. It can be seen that the present fly has been confused under the name *Tipula (Yamatotipula) cognata* Doane, 1901, to which it is closely allied. Of the four most similar regional species, *T. (Y.) cognata* and *T. (Y.) edmundsi* Alexander, have the praescutal pattern generally alike, differing markedly from that of *T. (Y.) albocaudata* Doane and the present fly, which are approximately similar to one another in this respect. All four flies differ further from one another in the details of structure of the male hypopygium.

***Tipula (Oreomyza) cylindrata barda* new subspecies**

♂. Length about 13 mm.; wing 14 mm.; antenna about 4 mm.

Close to typical *cylindrata* Doane, differing in slight details of the male hypopygium. Ninth tergite with the lateral lobes much more broadly truncate, the median notch wider, on either side produced into a low blackened lobe, so that the general outline of the posterior emargination appears as shallow lateral notches and a deeper central one. In *cylindrata*, the lateral tergal lobes are narrow, the posterior emargination shallow, with a deep and narrow median notch, the lateral lobes on sides of the median notch lacking. Vestiture of outer basal lobe of inner dististyle relatively short and dense, black; in the typical race longer and yellow.

Habitat. CALIFORNIA. *Holotype:* ♂, Tub Canyon, Borrego State Park, San Diego County, 1,100 feet, March 23, 1947 (Crickmer).

I am indebted to my long-time friend, Noël Crickmer, for many interesting crane-flies from Borrego.

Tipula (Lunatipula) filamentosa new species

Belongs to the *unicincta* group; size large (wing of male 22 mm.); mesonotal praescutum brownish gray with four conspicuous dark brown stripes, the humeral and lateral borders broadly paler brown; tips of femora narrowly blackened; wings grayish brown, vaguely patterned with darker brown and subhyaline; male hypopygium with the tergite produced into two narrow lobes, the divergent tips subacute; phallosome with a small unpaired gonapophysis that divides at apex into two slender needlelike points, the paired apophyses appearing as longer simple rods; eighth sternite conspicuously ornamented with hair brushes and groups, including a major fasciculate seta at apex of each lateral lobe; median area with an anterior central cushion with relatively few setae that are expanded at tips into pale blades, each further produced into five or six hairlike filaments.

♂. Length about 20 mm.; wing 22 mm.

Frontal prolongation of head elongate, fully equal to remainder of head, dark brown above, including the short nasus, obscure yellow or brownish yellow at base and sides; palpi black. Antennae with scape and pedicel obscure yellow, basal flagellar segments bicolored, brownish black on proximal ends, the outer half obscure yellow, on about the fourth segment becoming uniformly darkened; basal enlargements small; verticils subequal to the segments. Head brownish gray, clearer brown behind; vertical tubercle low and inconspicuous; sides of vertex with conspicuous setae, the posterior ones more delicate.

Pronotal scutum light brown, with conspicuous black setae; scutellum light yellow. Mesonotal praescutum brownish gray, with four conspicuous dark brown stripes, the intermediate pair narrower than the central interspace; lateral stripes narrow,

widely separated from the intermediate pair; humeral region and lateral borders broadly paler brown; pseudosutural fovea a small circular depression; scutum brownish gray, restrictedly more yellowed at midline, each lobe patterned with brown; scutellum brownish gray; mediotergite obscure brownish yellow behind, vaguely more darkened in front. Pleura chiefly brown, darker on the anepisternum, paler on the meron. Halteres with stem brown, narrowly yellow at base, knob darker, obscure yellow at tip. Legs with the coxae light brown; trochanters obscure yellow; femora obscure yellow, tips narrowly but conspicuously black, the amount subequal on all legs; tibiae obscure yellow, tips more narrowly dark brown; tarsi brownish yellow, outer segments passing into dark brown; claws of male conspicuously hairy, toothed. Wings with the ground pale grayish brown, vaguely patterned with darker brown and subhyaline; darker areas include the very small stigma and a seam over *m-cu* and adjoining parts of vein *Cu*; less evident darkenings at arculus and at outer end of vein *2nd A*; the pale marks include the obliterative area, costal field, narrow seams along veins *R* and *M*; narrow pale streams at and near the Anal veins; veins brown to brownish yellow. Venation: Petiole of cell M_1 subequal to *m*; M_{3+4} subequal to basal section of M_{1+2} .

Abdomen obscure brownish yellow, tergites with very interrupted median and lateral stripes, on the intermediate segments almost restricted to the basal rings; hypopygium obscure brownish yellow. Male hypopygium with the elongate tergite narrowed posteriorly, the caudal margin with a narrow U-shaped median notch and two narrow lobes with slightly divergent subacute tips; a conspicuous dorsal furrow. Ninth sternite with a short massive lobe, its outer dorsal part produced into a knob that is tipped with a brush of reddish setae. Outer dististyle spatulate at outer end. Inner style with the beak more slender than the obtuse blackened lower beak; dorsal crest conspicuous, greatly produced backward, ending opposite or beyond the level of the obtuse outer basal lobe. Phallosome with a pair of simple elongate gonapophyses and an unpaired median one that is only about one-half as long, appearing as a depressed-flattened blade

that divides at apex into two slender needlelike points, the apical notch U-shaped. Eighth sternite large and sheathing; lateral lobes stout, each tipped with a very powerful fasciculate bristle; inner margin of lobe with numerous tubercles that bear strongly recurved simple setae; median area with a more cephalic densely setiferous area that is provided with long simple reddish bristles and a low outer central cushion that bears relatively few long modified setae, each dilated at apex into a pale triangular blade that is farther produced into five or six long hairlike filaments.

Habitat. CALIFORNIA. *Holotype:* ♂, Glacier Lodge, Big Pine Creek, Inyo County, 7,800 feet, July 10, 1957 (Alexander). On dry sage-covered hillsides, associated with *Tipula (Lunatipula) leiocantha* Alexander and *T. (L.) mono* Alexander.

Allied species having an unpaired expanded or forked gonapophysis in the male phallosome include *Tipula (Lunatipula) bigeminata* Alexander, *T. (L.) diacanthophora* Alexander, *T. (L.) sagittifera* Alexander, and *T. (L.) spatha* Doane, all distinct from the present fly in the shape of the gonapophysis and armature of the eighth sternite.

***Limonia (Dicranomyia) melanderi tharpiana* new subspecies**

♂. Length about 6–6.5 mm.; wing 6–6.5 mm.

Characters as in the typical form, from Idaho, differing chiefly in characters of the male hypopygium. Basistyle with the outer fingerlike lobe stronger. Apex of rostrum of ventral dististyle short, narrowed outwardly, subequal to or only a little longer than the rostral spine. Gonapophysis with mesal apical lobe short, more or less triangular in outline, quite different from the condition in the typical race where they are long and sinuous.

Habitat. CALIFORNIA. *Holotype:* ♂, Sequoia National Park, Log Meadow, Tulare County, July 19, 1946 (Alexander). *Paratopotypes,* ♂♂, Dorst Camp Ground, Sequoia National Park, 6,800 feet, July 19, 1946, July 18, 1957 (Alexander); Hatchet Pass, Burney, Shasta County, 4,000 feet, July 9, 1947 (Alexander); Eureka Valley Forest Camp, Middle Fork of Stanislaus River, Tuolumne County, 6,100 feet, June 28, 1957 (Alexander).

The subspecies is dedicated to Hale Tharp, who discovered and named the "Giant Forest" of Sequoia National Park in 1858.

Dicranota (Plectromyia) reducta tehamicola new subspecies

♂. Length about 4.5–5 mm.; wing 0.8–1.5 mm.

♀. Length about 4.5–5.5 mm.; wing 0.8–1.5 mm.

Fully-winged individuals—Length 4.5–5 mm.; wing 6–6.5 mm. Intermediate stenopterous specimens—Wing 2–2.3 mm.

Generally similar to *reducta* Alexander and considered as representing a race of the same. General coloration of thorax yellow, more or less pruinose, the mesonotum infuscated medially. Wings greatly reduced in both sexes, as shown by the measurements; in a small proportion of individuals, fully-winged specimens and others with wings intermediate in length occur. Male hypopygium generally as in typical *reducta*. Ninth tergite with the median lobe parallel-sided, its apex weakly emarginate; lateral tergal arms projecting caudad beyond the level of the apex of the median lobe, expanded into a weak head. Basistyle with both apical spines of the interbases slender, slightly unequal in length. Dististyle with basal half narrower than in *reducta*.

Habitat. CALIFORNIA. *Holotype:* ♂, Kings Creek Meadows, Lassen Volcanic National Park, Shasta County, 7,500 feet, July 7, 1947 (Alexander). *Allotopotype:* ♀. *Paratopotypes:* Several of both sexes, July 6–7, 1947, July 21–23, 1950 (Alexander).

The subspecific name is derived from Tehama, the Indian name for Mount Lassen.

Hexatoma (Eriocera) dayana new species

Allied to *velveta*; size small (wing of male less than 10 mm.); antennae short, outer two segments reduced, their combined length less than one-half the stouter antepenultimate segment; mesonotal praescutum with four black stripes, the intermediate pair narrowly separated; praescutal vestiture sparse and pale; legs black, femoral bases broadly yellow; wings brownish yel-

low, patterned with darker brown, including the costal border and wing tip; *Rs* relatively short, inner end of cell *1st M*₂ not arcuated; outer radial branches with macrotrichia; abdomen black, lateral borders narrowly brownish yellow; hypopygium small, dark reddish brown.

♂. Length about 10 mm.; wing 9.5 mm.; antenna about 3 mm.

Rostrum and palpi black. Antennae of male short, as shown by the measurements, black throughout; 8-segmented, outer two segments reduced, the ultimate a little longer, the two combined less than one-half the length of the stouter antepenultimate; vestiture of the four enlarged flagellar segments consisting of strong setae, those of the lower face more numerous than in *dorothea*. Head brownish black, sparsely pruinose; vertical tubercle small; vestiture including stouter black proclinate bristles and pale slender setae.

Pronotum black, sparsely pruinose. Mesonotal praescutum light gray, with four conspicuous black stripes, the intermediate pair narrowed posteriorly, not reaching the suture, lateral stripes polished; praescutum with very sparse pale setae on the interspaces only; scutum gray, scutal lobes extensively brownish black, bordered by paler brown, suture polished black; posterior sclerites of notum sparsely pruinose, the posterior half of mediotergite black. Pleura and ventral half of pleurotergite heavily light gray pruinose; dorsopleural membrane brown. Halteres with stem yellowish brown, knob dark brown. Legs with coxae light gray; trochanters yellowish brown; remainder of legs black, the femoral bases conspicuously yellow, involving about the proximal three-fifths of the segment. Wings with the ground brownish yellow, conspicuously patterned with darker brown, including cells *C* and *Sc*; other dark areas include the stigma, seams at origin of *Rs*, cord and outer ends of anal veins; other paler darkenings include the broad wing tip and seams over most of the veins, restricting the ground to the centers of the cells; veins dark brown. Outer radial branches with macrotrichia, including both sections of *R*₅, more numerous at near midlength of the sections, lacking at the outer ends. In

dorothea, the trichia of veins beyond cord very sparse, occurring as short series on both sections of R_5 . Venation: R_s evidently shorter than in *dorothea*, only a little longer than vein R_4 ; inner end of cells $1st M_2$ not arcuated, the cell subequal to the distal section of vein M_{1+2} ; $m-cu$ and distal section of Cu_1 subequal.

Abdomen black, subnitidous, lateral borders narrowly brownish yellow; hypopygium small, dark reddish brown.

Habitat. CALIFORNIA. *Holotype:* ♂, Waddell Creek, Santa Cruz County, May 19, 1951 (W. C. Day).

This distinct fly is named for the collector, Mr. William C. Day, student of the Ephemeroptera. It is readily told from other species that are allied to *Hexatoma (Eriocera) velveta* (Doane) by the pattern of the wings, including the darkened costal border. The most similar species, in nature of leg pattern, is *H. (E.) dorothea* Alexander, of Oregon, which differs in details of size, structure of the antennae, trichiation of the wing veins, and in other characters that are indicated in the description.

Rhabdomastix (Sacandaga) megacantha new species

General coloration yellow: mesonotal praescutum, scutum and pleura patterned with brown, antennae short, flagellum black; legs pale brownish yellow; wings subhyaline, outer veins with conspicuous macrotrichia; vein R_3 perpendicular; $m-cu$ only a short distance beyond the fork of M ; abdomen yellow, the segments with basal brown rings; male hypopygium with the apical spine of the outer dististyle large, decurved; gonapophysis with outer end slightly expanded, the tip subacute.

♂. Length about 5.5 mm.; wing 6.5 mm.; antenna about 1 mm.

Rostrum yellow; palpi brownish black. Antennae with scape yellow, pedicel testaceous, flagellum brownish black to black; basal two flagellar segments fused, succeeding ones oval, the outer segments more elongate, a little shorter than the verticils. Head clear light yellow.

Pronotum yellow. Mesonotal praescutum almost covered by three reddish brown stripes, the ground color yellow, interspaces narrow; pseudosutural foveae reddish brown, inconspicuous; posterior sclerites of notum yellow, scutal lobes extensively reddish brown. Pleura chiefly yellow, variegated on ventral sternopleurite and meron by reddish brown areas. Halteres pale, knob clear light yellow. Legs with coxae yellow, trochanters more obscure yellow; remainder of legs pale brownish yellow to light brown, the outer tarsal segments slightly darker. Wings subhyaline, prearcular and costal fields more yellowed; veins pale brown. Macrotrichia on veins beyond cord, including R_4 , all of distal sections of R_5 and M_{1+2} , more restricted on M_3 and M_4 . Venation: Sc long, Sc_1 ending about opposite two-thirds the length of the long Rs , Sc_2 apparently atrophied; vein R_3 perpendicular, separated from R_{1+2} at margin by a distance a little less than its own length; vein R_4 nearly as long as R_{2+3+4} , very gently arcuated; cell 1st M_2 gently widened outwardly; *m-cu* unusually far basad, about one-third to one-fourth its length beyond the fork of M ; cell 2nd A pointed at outer end.

Abdomen yellow, segments with a narrow but conspicuous brown basal ring; hypopygium yellow. Male hypopygium with the spines of outer margin of outer dististyle relatively few but conspicuous, the terminal spine very large, decurved; inner style strongly narrowed at tip. Gonapophysis relatively stout, the slightly expanded elongate apical blade subacute at tip.

Habitat. CALIFORNIA. *Holotype:* ♂, South Fork of Kings River, Kings Canyon National Park, Fresno County, 4,500 feet, July 20, 1957 (Alexander).

The most similar regional species is *Rhabdomastix (Sacandaga) trichophora* Alexander, which differs especially in the venation and in the structure of the male hypopygium, particularly the dististyles. Associated crane-flies along the Kings River included *Pedicia (Tricyphona) aperta* (Coquillett), *Dicranota (Rhaphidolabis) querula* Alexander, *Erioptera (Arcticonopa) cinctipennis* Alexander, *E. (Psiloconopa) bisulca* Alexander, and *Molophilus (Molophilus) perflaveolus* Alexander.