

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

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The preceding article under this general title was published in ENTOMOLOGICAL NEWS, 69: 129-136, 1958. Most of the species discussed at this time were collected by the writer, the types being preserved in the Alexander Collection; one interesting crane-fly from Arizona was taken by the late J. August Kusche and is in the collection of the California Academy of Sciences.

Limonia (Limonia) kuschei new species

Belongs to the *eiseni* group; mesonotal praescutum dark chestnut brown with a broad obscure yellow central stripe; pleura dark chestnut brown; wings tinged with brown, patterned with darker, *Sc* long; male hypopygium with the posterior border of the tergite emarginate; gonapophysis with mesal-apical lobe broad, its apex obliquely truncated; aedeagus broad, apex conspicuously bilobed.

♂. Length about 6.5 mm.; wing 7.5 mm.; antenna about 1.3 mm.

Rostrum and palpi black. Antennae black, apex of pedicel paler; flagellar segments passing from oval to elongate, each with one very long verticil. Anterior vertex narrow, light silvery; posterior part of head dark brown.

Cervical region brownish black. Pronotum yellow above, dark brown on sides; pretergites and dorsopleural membrane yellow. Mesonotal praescutum dark chestnut brown with a broad obscure yellow central stripe that represents the confluent median and very reduced lateral areas; scutal lobes chestnut

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brown, narrowly bordered by dark brown, median area gray pruinose; scutellum brownish black; mediotergite brownish black with a gray central area that does not reach the posterior border. Pleura dark chestnut brown. Halteres with stem dusky, knob dark brown. Legs with the coxae and trochanters obscure yellow; femora obscure brownish yellow, tips darker brown, extreme genua vaguely whitened; tibiae and tarsi light brown, outer tarsal segments brownish black; claws long and slender, with a single very long spine before midlength. Wings tinged with brown, patterned with darker brown, including areas at origin of *Rs*, fork of *Sc*, cord and outer end of cell *1st M*₂; distal ends of outer radial cells darkened; vague subhyaline areas before and beyond origin of *Rs* and beyond the subcircular brown stigma; veins brown. Venation: *Sc* long, *Sc*₁ ending about opposite two-thirds the length of *Rs*, *Sc*₂ near its tip; *Rs* square at origin; *m-cu* shortly before fork of *M*.

Abdomen dark brown, outer dististyle of male hypopygium pale. Male hypopygium with the tergite transverse; posterior border emarginate, forming two broadly rounded lobes, each with about fifteen long setae. Basistyle with the ventromesal lobe short and stout. Dorsal dististyle straight, apex suddenly decurved to a point, surface glabrous. Ventral dististyle small, its total area about two-thirds that of the basistyle; rostral blade very large, spines widely separated, accessory tubercle at base of the prolongation with the usual pair of very long setae. Gonapophysis with the mesal-apical lobe stout, blackened, apex obliquely truncated to appear slightly bilobed. Aedeagus broad, apex conspicuously bilobed.

Habitat. ARIZONA. *Holotype:* ♂, Rustler Park, Chiricahua Mountains, Cochise County, 8,000–9,000 feet, July 28, 1927 (J. A. Kusche).

The species is named for the collector, Mr. J. August Kusche, who collected numerous Tipulidae in California, Arizona and in the Pacific Islands. The most similar Nearctic species is *Limonia* (*Limonia*) *rara* (Osten Sacken) which agrees well in the general appearance and venation, differing conspicuously in the structure of the male hypopygium.

***Limonia (Limonia) indigena loloensis* new subspecies**

♂. Length about 9.5 mm.; wing 9 mm.

Antennae with the first flagellar segment yellow, succeeding two or three indistinctly bicolored, the incisures pale, outer segments more uniformly darkened. Thorax light yellow; pronotum broadly blackened medially; intermediate praescutal black stripes very narrowly separated by a ground line, lateral stripes very pale to subobsolete; scutal lobes with solid brownish black centers; scutellum dark brown, narrowly yellow on central part; mediotergite dark brown. Pleura and pleurotergite yellow, the brown transverse girdle on anterior mesepisternum pale brown, inconspicuous. Legs yellow; femora with a narrow brown terminal ring; remainder of legs brownish yellow, terminal tarsal segments brownish black. Wings much as in the typical subspecies but with the dark pattern even more reduced, including the stigma and the darkened washes in the cubital and anal cells. Abdominal tergites chiefly obscure yellow, the sides broadly dark brown, the dark pattern expanded behind; sternites clear yellow, the extreme lateral borders darkened, especially on the cephalic portions. Male hypopygium with the dististyle much stouter than in typical *indigena*, the length about twice the greatest width; apex produced into a single spine, with a more obtuse denticle on lower margin back from the tip. Tergite with the median notch very shallow or lacking.

Habitat. IDAHO. *Holotype:* ♂, Powell Ranger Station, along Lochsa River, Lolo National Forest, Idaho County, June 24, 1956 (Alexander).

The general coloration of the body and wings in the present fly is much more as in the eastern Nearctic *Limonia (Limonia) indigena* (Osten Sacken) than in the Rocky Mountain race *L. (L.) indigena jacksoni* (Alexander). It may be noted that the aedeagus of the latter is conspicuously setuliferous whereas it is glabrous in typical *indigena*. The condition in the present fly cannot be stated due to the condition of mounting of the hypopygium of the unique type. It seems probable that all three forms here discussed will eventually be found to represent distinct species.

Limnophila (Phylidorea) nevadensis new species

Allied to *snoqualmiensis*; mesonotum almost uniformly fulvous or fulvous yellow, pleura light yellow; femora of all legs yellow with a very narrow pale brown subterminal ring; wings tinged with very pale yellow, stigma dark brown; abdomen brownish yellow, segments seven and eight black to form a conspicuous ring, hypopygium light yellow; male hypopygium with the tergal lobes paired; filaments of aedeagus long and slender; basal gonapophysis a slender blade, its tip subacute.

♂. Length about 9.5–10 mm.; wing 9.5–10 mm.; antenna about 1.9–2.1 mm.

Rostrum dark brown; palpi black. Antennae with scape black, pedicel light yellow; basal flagellar segments obscure yellow, the outer ones darker; verticils conspicuous. Head light gray.

Pronotum slightly infuscated above, yellowed on sides. Mesonotal praescutum and scutum almost uniformly fulvous or fulvous yellow, in cases somewhat darker medially but otherwise unpatterned; scutellum more testaceous; postnotum very vaguely pruinose; in fully colored specimens, including the holotype, a capillary pale brown central vitta on mediotergite and, in cases, involving virtually the whole mesonotum. Pleura and pleurotergite light yellow. Halteres with stem pale yellow, knob weakly darkened. Legs with the coxae and trochanters light yellow; femora yellow, with a very narrow pale brown subterminal ring, subequal in extent to the pale tip; tibiae obscure yellow; tarsi gradually darkened, the outer segments dark brown. Wings tinged with very pale yellow, the prearcular and costal fields more evidently so; stigma dark brown, conspicuous; veins dark brown. Venation: R_s relatively short, about twice R_{2+3+4} , more or less angulated near origin; veins R_3 and R_4 divergent, cell R_3 at margin from about one-third more to nearly twice as extensive as cell R_2 ; cell M_1 longer than its petiole; $m-cu$ at or shortly before midlength of cell 1st M_2 .

Abdomen brownish yellow, segments seven and eight black, forming a conspicuous ring; hypopygium light yellow, base of

ninth sternite darkened. Male hypopygium with the tergal lobes small, paired. Filaments of aedeagus long and slender, much longer than in *brevifilosa*. Basal gonapophysis a narrow slender blade, shorter and stouter than in *snoqualmiensis*, the tip subacute.

Habitat. NEVADA. *Holotype:* ♂, East side of Lake Tahoe, Ormsby County, 6,800 feet, July 3, 1953 (Alexander). *Paratopotypes:* 4 ♂♂; *paratypes:* Spooners Summit, Douglas County, July 3, 1953 (Alexander). The type was taken along a small stream flowing into Lake Tahoe, described in detail in my field notes as Station No. 2.

The most similar described species is *Limnophila* (*Phylidorea*) *snoqualmiensis* Alexander, of the Pacific Northwest, which differs especially in the pattern of the legs and wings and in slight differences in the structure of the male hypopygium. The types of *snoqualmiensis* have the darkened pattern of the fore legs very extensive but other specimens that appear to be conspecific have it more restricted.

Molophilus (Molophilus) arapahoensis new species

Belongs to the *gracilis* group, *pubipennis* subgroup; size large (wing of male 6 mm.); general coloration of mesonotum dark brownish gray, scutellum testaceous yellow; antennae short, flagellum black; legs brownish black, only the femoral bases restrictedly obscure yellow; wings weakly suffused, macrotrichia of veins long and conspicuous, dark brown; male hypopygium with the apical lobe of the basistyle relatively long and slender; outer dististyle broad, with microscopic spinulae over the entire surface; phallosomic plate broad, outer half narrowed, apex subacute.

♂. Length about 6 mm.; wing 6 mm.; antenna about 1.4 mm.

Rostrum and palpi black. Antennae short; scape brown, flagellum black; flagellar segments long-oval to subcylindrical, verticils of the more basal segments very long. Head dark gray.

Pronotum brownish gray; scutellum and pretergites restrictedly light yellow. Mesonotal praescutum and scutum dark

brownish gray, without clearly defined pattern; pseudosutural foveae pale brown; scutellum obscure testaceous yellow, postnotum brown. Pleura brown. Halteres obscure yellow. Legs with the coxae and trochanters brownish yellow, the posterior pair clear yellow; remainder of legs brownish black, only the femoral bases restrictedly obscure yellow. Wings subhyaline to weakly suffused, prearcular field slightly more yellowed; veins brownish yellow, macrotrichia long and conspicuous, dark brown. Venation: Vein R_2 lying beyond level of $r-m$; petiole of cell M_3 about twice $m-cu$; vein $2nd\ A$ strongly sinuous on outer half, ending distinctly beyond the level of $m-cu$.

Abdomen dark brown, the hypopygium only slightly brighter. Male hypopygium with the apical lobe of the basistyle relatively long and slender, subequal in length to the outer dististyle, tip narrowly obtuse; ventral lobe with about 30 spicules. Outer dististyle broad and flattened, the apex bent laterad into a spine; entire surface of style with microscopic spinulae, those near the base smaller; inner style longer, strongly bent at near midlength, terminating in an acute point, with relatively few spines, including a single outer one before the tip and a scattered series of four or more spines along the lower edge, the outer ones smaller. Phallosomic plate broad basally, the outer half strongly narrowed, apex subacute; disk of plate with microscopic setulae, the margins glabrous.

Habitat. COLORADO. *Holotype*: ♂, Milner Pass, Rocky Mountain National Park, Grand County, 10,730 feet, July 19, 1955 (Alexander).

Although evidently allied to other western Nearctic species, as *Molophilus* (*Molophilus*) *kulshanicus* Alexander and *M.* (*M.*) *spiculatus* Alexander, the present fly appears to be quite distinct in the diagnostic characters above listed, especially the structure of the male hypopygium, particularly the outer dististyle and phallosome. All members of the *pubipennis* subgroup of the genus are unusually difficult to determine and exact relationships still are insufficiently known.

Molophilus (Molophilus) dirhaphis new species

Belongs to the *gracilis* group, *nitidus* subgroup; general coloration of body, legs and antennae black; knobs of halteres light yellow; wings strongly darkened; *m-cu* long, very oblique, slightly angulated; male hypopygium with the tergal furcula very shallowly notched; basistyle with the dorsal spine very long and slender; mesal spines two, long and slender; inner dististyle relatively short and stout.

♂. Length about 5.5–6 mm.; wing 5–5.6 mm.; antenna about 1.2–1.3 mm.

Rostrum and palpi black. Antennae black throughout, relatively short; segments oval, shorter than the verticils. Head black.

Thorax entirely black, subnitidous to nitidous. Halteres with stem dusky, knobs light yellow. Legs black throughout. Wings strongly darkened; veins dark brown. Venation: R_{2+3} long, R_2 and basal section of R_5 nearly in transverse alignment or the former more distal in position; petiole of cell M_3 short, less than the very oblique to slightly angulated *m-cu*; vein 2nd *A* long, ending about opposite the fork of M_{3+4} .

Abdomen black throughout. Male hypopygium of the type of *nitidus*, differing from all previously described species in structure. Notch of the tergal furcula very shallow, gently emarginate to subtruncate. Basistyle with the dorsal spine very long and slender, extended distad to beyond the level of the apices of the dististyles; mesal spines two, very long and slender. Inner or simple dististyle much shorter and stouter than in *nitidus*.

Habitat. CALIFORNIA. *Holotype:* ♂, Castle Crags State Park, Shasta County, 2,000 feet, July 7, 1953 (Alexander). *Paratopotypes:* 2 ♂♂ on a single pin, July 8, 1953.

Molophilus (Molophilus) dirhaphis is quite distinct from the five other regional members of the *nitidus* subgroup. It is most similar to *M. (M.) nitidus* Coquillett in the elongate mesal spines of the basistyle. In *nitidus* the tergal fork is deep and conspicuous and there is a single mesal spine.



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