

NEW SPECIES OF JAPANESE CRANE-FLIES—
PART IV

(*Diptera, Tipulidae*)

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The new species of Tipulidae described at this time consist of species of *Limonia* taken in Hokkaido and Honshiu by Messrs. Esaki and Kuwayama, and an interesting species of *Limnophila* from the Loochoos, taken by Mr. Sakaguchi. My deep thanks are extended to the collectors of this material for the privilege of retaining the type specimens.

Limonia pallidipleura, new species.

General coloration reddish brown; praescutum with four narrow black stripes; pleura pale; femora yellow, each with two dark brown rings; wings tinged with yellow, the stigma ring-like; no dark markings at arculus; Sc_1 ending beyond the fork of R_s .

Female.—Length about 11 mm.; wing, 12-12.2 mm.

Rostrum and palpi black. Antennae with the basal segment obscure yellow; second segment and basal segment of flagellum obscure brownish yellow; remainder of the flagellum dark brown, in the paratype the extreme bases paler. Head dark brown, pruinose, especially anteriorly.

Pronotum dark brown. Mesonotal praescutum reddish brown with four narrow black stripes, the intermediate pair separated by a pale line that is a little wider than the stripes; lateral margin of praescutum behind pseudosutural foveae narrowly blackened; lateral stripes crossing the suture and suffusing each scutal lobe, the posterior lateral region pale; median area broadly yellow, continued caudad onto the scutellum which is silvery pollinose, the lateral margins of the scutellum black; postnotum with the mediotergite pale, the cephalic lateral portions blackened. Pleura pale reddish brown, sparsely pruinose, the color including the postnotal pleurotergite. Halteres pale, the knots more infuscated, the extreme base yellowish. Legs with the coxae reddish; trochanters obscure yellow; femora

brownish yellow, the tips narrowly brownish black, preceded by a very narrow paler brown annulus. Wings tinged with yellow, the base and costal region more suffused; stigma circular, brown, enclosing a large area of the ground-color, *r* at the extreme outer end of the ring; small brown clouds at origin of R_s , along the cord, including a large blotch at the fork of R_s , connected with the stigmal ring; a narrow seam along the outer end of cell *1st M*₂; faint brown seams along the outer longitudinal veins, more evident on veins *Cu*, *1st A* and *2nd A*; no brown marking at arculus; veins dark brown, paler in the flavous areas. Venation: *Sc* long, *Sc*₁ ending beyond the fork of R_s , *Sc*₂ about its length from the tip; R_s long, arcuated at origin; *r* at extreme tip of R_1 ; basal deflection of *Cu*₁ before the fork of *M*.

Abdomen with the tergites dark brown, the lateral margins obscure brownish yellow, the color more extensive on the posterior segments where the brown is reduced to triangular markings; sternites obscure yellow. Ovipositor with the tergal valves dark castaneous, slender and small; sternal valves very deep and with the tips obtuse.

Habitat.—Japan (Honshiu). *Holotype*, ♀, Hinoëmata, Iwashi-ro-no-kuni, altitude 3280–6235 feet, July 24, 1923 (T. Esaki). *Paratopotype*, ♀.

Limonia pullata, new species.

General coloration black, the abdomen obscure brownish yellow; antennal flagellum largely yellow; femora yellow, each with two black rings; wings light yellow with a sparse brown pattern; *Sc*₁ ending opposite midlength of R_s .

Female.—Length about 10 mm.; wing, 11 mm.

Rostrum and palpi brownish black. Antennae with the first scapal segment black, the second brownish yellow; flagellum light yellow, the intermediate segments narrowly and indistinctly infuscated basally, the amount increasing still more on the terminal segments. Head black.

Pronotum black. Mesonotal praescutum obscure brownish yellow, sub-shiny, with three black stripes; a circular brownish

black spot on lateral margin of sclerite; middle stripe entire, the lateral stripes continued across the suture and suffusing the scutal lobes; median area of scutum and base of scutellum yellowish testaceous; scutellum black, the parascutella pale; postnotum black, the extreme cephalic lateral angles obscure yellow. Pleura black, the dorsal and caudal margins of the pleurotergite paler. Halteres pale, the knobs weakly infuscated. Legs with the fore and middle coxae black; posterior coxae yellow; trochanters obscure brownish yellow; femora yellow, the tips conspicuously brownish black, preceded by a slightly more extensive yellow ring, which in turn, is preceded by a subequal dark brown ring; tibiae brownish yellow, the tips narrowly infuscated; tarsi passing into brownish black. Wings light yellow, the base and costal region brighter yellow; stigma a very pale brown ring, the center paler, with *r* a little beyond the middle; inconspicuous dark brown seams at tip of *Sc*₁, origin and distal third of R_s , along the cord and outer end of cell *1st M*₂ and, more conspicuously, along vein *Cu*; veins dark brown, yellow in the flavous areas. Venation: *Sc*₁ ending just beyond midlength of R_s , *Sc*₂ longer than *Sc*₁ and near its tip; R_s feebly arcuated, subsinuuous; *r* about twice its length from the tip of R_1 ; inner ends of cells R_3 and *1st M*₂ lying proximad of cell R_5 ; basal deflection of *Cu*₁ near the fork of *M*.

Abdomen obscure brownish yellow, the bases of the subterminal segments somewhat darker. Ovipositor with the tergal valves slender, reddish horn-color; sternal valves straight.

Habitat.—Japan (Honshiu). *Holotype*, ♀, Hinoëmata, Iwashi-ro-no-kuni, altitude 3280–6235 feet, July 24, 1923 (T. Esaki).

Limonia mendax, new species.

Belongs to the *quadrinotata* group; general coloration black, the mesothorax sparsely dusted with gray; knobs of halteres dark brown; legs black, the femora with a conspicuous orange subterminal ring; wings yellow, sparsely variegated with brown; cell *R* with no spots between arculus and origin of

R_s ; abdominal tergites brownish black, the basal half of the individual segments obscure yellow.

Female.—Length, 11 mm.; wing, 13 mm.

Rostrum shiny black, the palpi dark brown. Antennae with the scape obscure orange, the flagellum dark brown; basal segments oval, the terminal segments passing into cylindrical. Head heavily golden-yellow in front, black on the posterior vertex and occiput.

Pronotum black, the posterior lateral angles paler. Mesonotum black, the praescutum sparsely yellow pollinose, the scutellum and postnotum sparsely gray pruinose. Pleura black, pruinose, especially on the anepisternum and sternopleurite. Halteres obscure yellow, the knobs conspicuously dark brown. Legs with the coxae yellow, the fore and middle coxae infuscated basally; trochanters obscure yellow; femora black, each with a relatively narrow but conspicuous orange ring about its own length from the tip; tibiae black, the extreme base and a subterminal ring a little paler; tarsi black. Wings yellow, sparsely variegated with dark and paler brown; cells C and Sc entirely clear yellow; dark brown seams at origin of R_s , along cord and outer end of cell $1st M_2$ and behind vein Cu ; paler clouds forming an irregular fascia before the wing-tip and again in the ends of the anal cells; longitudinal veins narrowly seamed with brown; bases of cells R and M only faintly darkened; veins black, paler in the costal region. Venation: r at tip of R_1 ; basal deflection of Cu_1 about one-fourth its length before the fork of M .

Abdominal tergites brownish black, the basal half of the sclerites obscure yellow, on the intermediate segments restricted to broad basal triangles; on the posterior segments more uniformly blackened; sternites obscure yellow, the caudal margins of the segments darkened. Genital segment obscure yellow. Ovipositor with the tergal valves small and slender; sternal valves short but very deep, blade-like.

Habitat.—Japan (Hokkaido). *Holotype*, ♀, Jozankei, Ishikari-no-kuni, altitude 1000 feet, August 16, 1923 (T. Esaki).

Limonia euphileta, new species.

General coloration light yellow; antennae yellow, the basal segment black; head dark yellowish gray; halteres long and slender, the knobs light yellow; tips of femora blackened; wings yellowish gray, the stigma pale brown.

Female.—Length, 7.5 mm.; wing, 8.8 mm.

Rostrum and palpi black. Antennae with the basal segment black, sparsely pruinose, the remainder of the organ yellow, the terminal flagellar segments a very little darker. Head dark yellowish gray, the cervical sclerites concolorous.

Pronotum brownish yellow. Mesonotum and pleura clear light yellow throughout. Halteres long and slender, pale, the knobs light yellow. Legs yellow, the femoral tips conspicuous brownish black, the tibial tips narrowly infuscated, the tarsal segments soon passing into black. Wings tinged with yellowish gray, the base and costal region a little more yellowish; stigma oval, pale brown; veins dark brown, paler on the basal half of wing. Venation: Sc relatively short, Sc_1 ending about opposite one-third the length of R_s , Sc_2 not far from its tip; R_s angulated at origin; r at tip of R_1 ; basal deflection of Cu_1 at or before the fork of M .

Abdomen yellow, the base of the sternal valves of the ovipositor blackened. Ovipositor of rather peculiar structure; tergal valves very short, scarcely exceeding the tips of the sternal valves, the latter broad on the blackened parts, suddenly narrowed into the median depressed blades.

Habitat.—Japan (Honshiu). *Holotype*, ♀, Ozenuma, on boundary between Iwashiro-no-kuni and Kotsuke-no-kuni, altitude 5460 feet, July 26, 1923 (T. Esaki). *Paratype*, ♀, Kawamata, in mountains, Shimotsuke-no-kuni, July 23, 1923 (T. Esaki).

Limonia crinita, new species.

Male.—Length about 5.5 mm.; wing, 6.3 mm.

Generally similar to *L. angustistria* Alexander (Northern Japan), differing chiefly in genitalic characters.

Head light gray. Pleural stripe even paler in color. Legs

distinctly stouter, the tips of the femora broadly and conspicuously dark brown; tibiae yellowish brown, the tips narrowly dark brown; tarsi passing into dark brown. Wings with a faint brown tinge, the base and costal region a little brighter; stigma oval, brown; paler brown seams at origin of R_s and along the cord and outer end of cell $1st\ M_2$; veins brown, veins Sc , R , Cu and the prearcular veins paler. Venation: Sc_1 ending opposite two-fifths the length of the weakly angulated R_s , Sc_2 close to its tip; r at tip of R_1 ; basal deflection of Cu_1 at the fork of M . Abdominal segments bicolorous, a little more than the caudal half dark brown, the bases testaceous yellow; sternites with the caudal portions a very little brighter than the base. Male hypopygium of a very peculiar structure. Basistyle with the mesal face produced mesad into three tubercles of various sizes, the largest one bearing a number of stout setae some of which are crenulate or so roughened as to appear almost branched. Ventral dististyle with the usual rostrum replaced by a powerful, arcuated, cylindrical, chitinized rod or arm, directed caudad and then mesad, the apex terminating in a powerful seta. Dorsal dististyle a very powerful, gently curved, heavily chitinized rod, tapering gradually to the acute tip, the outer margin with weak appressed spinulae.

Habitat.—Japan (Hokkaido). *Holotype*, ♂, Shimokebo, Hitaka-no-kuni, August 13, 1923 (S. Kuwayama).

***Limonia fusciceps*, new species.**

General coloration yellow; head brownish black, sparsely pruinose; antennal flagellum obscure brownish yellow; pronotum and an anterior triangle on the mesonotal praescutum shiny black; femora obscure yellow; wings amber-yellow, the stigma barely indicated; r far from tip of R_1 ; basal deflection of Cu_1 at or close to fork of M ; tergal valves of ovipositor bifid at tips.

Female.—Length about 7.8 mm.; wing, 9.2 mm.

Rostrum and palpi brownish black. Antennae with the basal segment brownish black; flagellum obscure brownish yellow,

the terminal segments somewhat darker; flagellar verticals relatively short. Head brownish black, sparsely pruinose.

Pronotum brownish black, the extreme lateral margin obscure yellow. Mesonotal praescutum orange-yellow with a shiny black anterior triangle, the point behind, becoming obsolete before midlength of the sclerite; remainder of mesonotum pale orange-yellow, the scutellum even paler. Pleura shiny obscure yellow. Halteres pale, the base of the stem brighter. Legs with the coxae and trochanters concolorous with the pleura; femora obscure yellow, the tips vaguely infuscated; tibiae and basitarsi brownish yellow, the terminal segments of the tarsi passing into brown. Wings with a clear, light amber-yellow tinge; stigma barely indicated; veins brown, those in the costal region and at the wing-base more yellowish. Venation: Sc_1 ending just before midlength of R_s , Sc_2 at its tip; R_s long and relatively straight; r nearly four times its length from the tip of R_1 ; basal deflection of Cu_1 at or immediately before the fork of M .

Abdomen pale reddish or testaceous yellow. Ovipositor with the tergal valves chitinized, strongly upcurved, the bases of the valves blackened, just before the tip on outer margin with an acute lateral spine, the apex thus appearing bifid; sternal valves pale, deep at base, relatively straight.

Habitat.—Japan (Hokkaido). *Holotype*, ♀, Shimokebo, Hitaka-no-kuni, August 13, 1923 (S. Kuwayama).

***Limonia inelegans*, new species.**

General coloration dark brown; antennae black, the flagellar segments short-pedicellate; wings strongly tinged with brown, the small oval stigma darker brown; Sc long, Sc_2 at tip of Sc_1 ; cell $1st\ M_2$ small, subquadrate.

Female.—Length, 5–5.5 mm.; wing, 5.6–6.3 mm.

Rostrum and palpi black. Antennae black throughout, the flagellar segments oval, each with a short, shiny, apical pedicel. Head brown.

Mesonotum dark brown, sparsely pruinose, subshiny, the scutellum and postnotal mediotergite more heavily pruinose.

Pleura brown, sparsely pruinose. Halteres brown, the base of the stem yellow. Legs with the coxae obscure yellow, the fore coxae darker on outer face; femora obscure brownish yellow, the tips a little darkened; tibiae light brown; the basal segments of tarsi brownish yellow, the terminal segments passing into dark brown. Wings strongly tinged with brown, the small oval stigma darker brown; veins dark brown. Venation: Sc_1 ending opposite the fork of R_s , Sc_2 at its tip and subequal to it; R_s long, evenly arcuated, about twice the length of the arcuated deflection of R_{4+5} ; tip of R_1 obsolete or nearly so, r bending to R_{2+3} and appearing to capture the tip of R_1 ; cell *1st* M_2 small to very small, in the type broader than long; in the paratype, $r-m$ short to subobsolete; basal deflection of Cu_1 at the fork of M .

Abdominal tergites dark reddish brown, the caudal margins indistinctly paler; sternites bicolorous, the basal half or more dark brown, the caudal half or less obscure brownish yellow. Ovipositor with the tergal valves slender but strongly up-curved, the sternal valves shiny black at base.

Habitat.—Japan (Hokkaido, Honshiu). *Holotype*, ♀, Chuzenji, Shimotsuke-no-kuni, Honshiu, altitude 4170 feet, July 22, 1923 (T. Esaki). *Paratype*, ♀, Jozankei, Ishikari-no-kuni, Hokkaido, altitude 1000 feet, August 16, 1923 (T. Esaki).

***Limnophila dicranophragmoides*, new species.**

Generally similar to a species of *Dicranophragma* but the supernumerary crossvein in cell R_2 lacking; legs yellow; wings with a heavy brown pattern arranged in six transverse ocellate cross-bands.

Sex?—Wing, 6.2 mm.

Rostrum and palpi brown. Antennal scape brown, the basal flagellar segment yellow, the remaining segments of the flagellum passing into brown. Head brown.

Mesonotal praescutum grayish brown with a pattern of scattered darker brown spots and dots, representing the broken praescutal stripes; scutal lobes with small brown centers; postnotum darkened. Pleura dark brown, vaguely

spotted with pale. Halteres broken. Legs with the coxae reddish brown; trochanters brownish yellow; remainder of the legs light yellow, the tips of the tibiae and basal tarsal segments faintly darkened; terminal tarsal segments infuscated. Wings with a yellowish tinge, with a heavy ocellate pattern, the markings arranged in more or less transverse bands across the wings, the centers dark; basal band with arculus as a center; second band across the base of cell R and midlength of cell *2nd* A ; third band at level of origin of R_s ; fourth band very wide, at level of cord; subterminal band at level of tip of R_2 and fork of M_{1+2} ; wing-apex more uniformly darkened; veins yellow, dark brown in the infuscated areas. Venation: Sc_1 ending shortly beyond the fork of R_s , Sc_2 about twice its length from the tip of R_1 ; r about its length from the tip of R_1 ; R_{2+3} a little longer than the basal deflection of R_{4+5} ; no supernumerary crossvein in cell R_2 ; petiole of cell M_1 variable, from about one-half to equal to the cell; basal deflection of Cu_1 before midlength of cell *1st* M_2 .

Abdomen broken.

Habitat.—Japan (Loochoo Islands). *Holotype*, Sex? Kunjan-gun, Okinawa, altitude 500–1000 feet, May, 1923 (S. Sakaguchi). *Paratype*, Sex? Shuri, Okinawa, altitude 500 feet, May, 1923 (S. Sakaguchi).

***Nipponomyia*, new genus.**

Characters as in *Tricyphona*, with the following exceptions: Eyes glabrous. Wings with a peculiar and very characteristic pattern consisting of a yellow longitudinal stripe paralleling the costal margin to the wing-tip. Sc_2 far before the origin of R_s ; $r-m$ connecting with R_s some distance before the fork of the latter; R_{2+3} perpendicular at origin; in some species (*N. symphyletes*, *N. trispinosa*) veins R_{2+3+4} are united into a short to very short nearly perpendicular fusion at the end of R_s , the latter thus being in approximate alignment with R_5 ; fusion of R_1 and R_2 extensive; petiole of cell R_4 short to virtually lacking, in alignment with R_s ; cell *1st* M_2 closed or open; basal deflection of Cu_1 at the fork of M . Male hypopygium with the

dististyle crowned with from three to twelve heavily chitinized spines.

Genotype: Tricyphona kuwanai Alexander (Japan).

Besides the genotype, the following species belong to the genus *Nipponomyia*: *Tricyphona novempunctata* Senior-White (Khasia Hills, India, altitude 4908 feet); *T. symphyletes* Alexander (Formosa); and *T. trispinosa* Alexander (Japan, Honshiu).