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C P Alexander

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RECORDS OF JAPANESE CRANE-FLIES (DIPTERA).

By CHARLES P. ALEXANDER,
University of Kansas, Lawrence, Kansas.

The crane-fly fauna of Japan is a very interesting one but much remains to be ascertained before we can possess a clear conception of the actual faunal constituents of the islands. The published records are grievously incomplete and comparatively few extensive collections have been made. Some years ago (Canadian Entomologist, July, 1913,—July, 1914) the writer published a series of six papers on this subject. Since that time additional material has come to hand principally through the kindness of Dr. Akio Nohira and Dr. T. Miyake and the more interesting records included in this material are given herewith to supplement our knowledge of distribution. A few Limnobiinæ are redescribed in order to make their descriptions more available to American students, the original descriptions having been published in Japan in a publication not readily accessible to all students.

As is to be expected a large proportion of the known Japanese crane-flies are referable to genera that are characteristically Holarctic (*Limnobia*, *Tricyphona*, *Eutonia*, *Crypteria*, *Liogma*, etc.). Others are referable to groups with a wide or cosmopolitan distribution (*Dicranomyia*, *Geranomyia*, *Discobola*, *Erioptera*, *Gonomyia*, *Eriocera*, *Nephrotoma*, *Tipulæ*, etc.). A considerable element is clearly derived from the Oriental fauna through migrations from the south (*Libnotes*, *Conosia*, *Nesopeza*, *Ctenacroscelis*, etc.). The very interesting relationship of the fauna and flora of Japan and the Eastern United States, strikingly shown in many widely-separated groups of plants and animals is indicated in the Tipulidæ by the genus *Oropeza* Needham, at present known only from the eastern States and Japan. The subgenus *Hoplolabis* (*Erioptera*) indicates a somewhat similar condition although representatives also occur in the western States.

Ptychoptera japonica Alex.

Mt. Takao, Musashi, May 15, 1913 (T. Miyake).

Kioto, April 12, 1914 (Nohira).

Dicranomyia depauperata Alex.

Kioto, April 18, 1914 (Nohira).

Male.—Length, 5 mm.; wing, 6.6 mm.

Female.—Length, 6.2 mm.; wing, 7.8 mm.

Rostrum and palpi pale yellowish-brown. Antennæ with the scape yellow, the flagellum pale yellowish-brown. Head yellow.

Thorax dull yellow, with distinct greenish reflections, especially on the dorso-pleural membrane and near the coxæ. Halteres with the stem greenish, the knobs darker. Legs pale with the femora slightly greenish, the terminal tarsal segments brown. Wings with the veins and membrane pale, subhyaline. Venation: *Sc* short, ending before the origin of the arcuated sector; cell *1st M*₂ closed; basal deflection of *Cu*₁ at the fork of *M*.

Abdomen brownish-yellow, tinged with greenish, the apices of the segments more yellowish.

In life it is probable that the insect is quite greenish.

Limnobia avis Alex.

Takuhara, Province Shinano, September 4, 1915 (Nohira).

Male.—Length, 12.5–15 mm.; wing, 13.5–18.5 mm.

Rostrum and palpi dark brownish-black. Antennæ pale brownish-yellow. Head dark brown, the genæ paler brown.

Mesonotal præscutum obscure yellow, with three dark brown stripes, the median one broadest, indistinctly bisected by a reddish line; lateral stripes very short, not reaching the suture; scutum dull yellow, the lobes brown; scutellum and postnotum largely brown. Pleura dark brown and pale whitish-yellow. Halteres pale. Legs with the fore coxæ brown basally, yellow apically; remaining coxæ and the trochanters yellowish; femora yellowish, the tips broadly brown; tibiæ brownish yellow, narrowly tipped with brown; tarsi light brown. Wings yellowish, deepest on the costal region; veins and cross-veins narrowly seamed with brown, especially at the origin of the sector and along the cord; stigma largely pale. Venation: *Rs* angulated or spurred at origin; *r* at the tip *R*₁. Tip of the wing obtuse.

Abdomen with the four basal tergites yellow, with broad median and narrower lateral stripes; terminal tergites dark brownish; sternites similar, the four basal segments yellow, brownish laterally; terminal segments dark brown; hypopygium largely yellowish. The dorso-pleural appendage produced cephalad in a sharp point, the entire sclerite suggesting the head and beak of a bird.

Limnobia avis flavo-abdominalis Alex.

No specific locality, labeled March, No. 32.

Female.—Length, 13 mm.; wing, 13.4 mm.

Similar to the typical *avis*, differing as follows; Smaller. The head yellow with two, linear, brown, subparallel marks on the vertex; stripes on the præscutum represented only by two median black marks at the anterior end and four similar marks near the suture; scutal lobes black in the centers; legs yellow except the tips of the femora, which are very narrowly brown; abdomen clear yellow throughout.

Libnotes nohirai Alex.

Iwate, June, 1916.

Female.—Length, 10.5–13 mm.; wing, 15–17.4 mm.

Rostrum and palpi dark brown. Antennæ with the scape brown, the flagellum clear light yellow throughout. Head brownish-gray, clearer gray along the inner margin of the eyes.

Pronotum elongate, dark brown above. Mesonotal præscutum light brownish-yellow, whitish pollinose with four brown stripes, the median one extending the length of the sclerite, the lateral pair very short; scutum brown, lobes darker; scutellum and postnotum dark brown, sparsely gray pruinose. Pleura yellowish, the mesopleura slightly gray pruinose, darkest on the mesosternum. Halteres elongate, yellow, the knobs a little darker. Legs yellow, tips of the femora broadly black, tips of the tibiæ narrowly darkened; the last three tarsal segments and tips of the other two dark brown. Wings with a yellow tinge basally, more grayish distally. Veins, especially costa, bright yellow, except where they traverse dark spots, where they are brown; cross veins and deflections of veins, the radial sector and second anal vein narrowly seamed with dark brown. Venation: basal deflection of Cu_1 short, about as long as $r-m$.

Abdomen yellowish, the tergites more or less distinctly trivittate with dark brown.

Limnophila (Eutonia) satsuma (Westw.)

Kioto, May 10, 1914 (Nohira).

Limnophila japonica Alex.

Mount Tateyama, July 28, 1914 (Nohira).

Limnophila inconcussa Alex.

Kioto, April to June, 1916 (Nohira).

Limnophila (Prionolabis) submunda Alex.

Kioto, May 4 to 18, 1914 (Nohira).

Male.—Length, 6–6.5 mm.; wing, 7.8–8 mm.

Female.—Length, 7.2 mm.; wing, 8 mm.

Rostrum, palpi, head and antennæ black.

Thorax black, sub-shining. Halteres yellow. Legs with the coxæ and trochanters blackish; femora dull brownish-yellow basally, the tips broadly blackened, these dark tips broadest on the fore femora, where they include the outer two-thirds, narrowest on the hind femora where they include the apical third; remainder of the legs black. In the female the black apices are more extensive on all the legs and the femora are stouter, more clavate. Wings grayish-yellow, brighter yellow basally, and on the costa; stigma distinct, elongate-oval, dark brown; cross veins and deflections of veins seamed with pale brown. Venation as in *L. munda* O. S. (Eastern United States).

Abdomen black; valves of the female ovipositor rusty.

Limnophila (Prionolabis) auribasis Alex.

Osaka, April 26, 1914 (Nohira).

Female.—Length, 11.7 mm.; wing, 11.2 mm.

Similar to *L. submunda*, but much larger and more brightly colored. The legs are long and slender, the femora not incrassated as in the female of *submunda*. The basal portions of the femora are bright yellow, the wings are much brighter colored, suffused basally with deep orange.

Eriocera nipponensis Alex.

Kioto, May 28, 1914 (Nohira).

Male.—Length, 12 mm.; wing, 13.3 mm.

Rostrum dull yellow above, the palpi dark brown. Antennæ with the scapal segments conspicuously bright brownish-orange

beneath, darker brown above; flagellum black. Head blackish, with a sparse brownish-gray pruinosity; genæ dull yellowish. Frontal tubercle prominent.

Mesonotal præscutum brownish-gray, with four distinct shiny black stripes, the median pair elongated, narrowed behind, becoming obliterated just before the suture; the remainder of the thorax black, sparsely silvery-gray pruinose, especially on the pleurites. Halteres short, light brown, the knobs darker. Legs with the coxæ blackish-gray; trochanters rusty yellow; femora rusty yellow, the tips blackened, these broadest on the fore femora, narrowest on the hind femora; remainder of the legs dark brown. Wings slightly infumed, the costal cell brownish; stigma small, rounded; indistinct brownish seams along the veins and deflections; an indistinct yellowish spot before the stigma. Venation: *Rs* elongate; cell *M*₁ lacking.

Abdomen black, sub-shiny.

Tricyphona vetusta Alex.

Osaka, April 27, 1917 (Nohira).

Erioptera (Acyphona) asymmetrica Alex.

Kioto, April to June, 1916 (Nohira).

Erioptera (Hoplolabis) asiatica Alex.

Kioto, April to June, 1916 (Nohira).

Female.—Length, 5 mm.; wing, 4.4 mm.

Rostrum and palpi brown. Antennæ dull yellow; apical segments a little more brownish; flagellar segments short-oval. Head yellowish-brown.

Thorax brownish-yellow; if any bloom is present, it is destroyed by emersion in alcohol; the usual brownish stripes present on the præscutum; pseudosutural foveæ distinct, dark brown. Pleura dull yellow, the mesopleura more brownish. Halteres yellow. Legs with the coxæ brown, the posterior coxæ darkest; trochanters dull yellow; femora yellowish, brownish at the tips; tibiæ yellow, narrowly darkened apically; tarsi brown. Wings subhyaline, or whitish, with a heavy brown pattern; about seven brown marks along the costal margin, the largest at the base of the sector, tip of *Sc*₁ and tip of *R*₁, the last at the tip of vein *R*₄₊₅; similar but smaller brown marks along the cross-veins and deflections and along the margin at

the ends of the longitudinal veins. Venation: the spur in cell 1st M_2 completely traverses the cell (as in *E. bipartita* O. S.).

Abdominal tergites yellowish-brown, the lateral margin darker. Basal sternites yellow, the apical sternites more brownish.

Conosia irrorata (Wied.).

Kioto, May 25, 1914 (Nohira).

Crypteria japonica Alex.

No specific data, but possibly Kioto (Nohira).

Female.—Length, 7.3 mm.; wing, 8–8.8 mm.

Rostrum, palpi, head and antennæ light yellow. Antennæ with the two basal flagellar segments united into a fusion-segment, there being twelve segments beyond it.

Thorax yellow. Halteres yellow. Legs yellow, the tips of the femora and tibiæ narrowly darkened; tarsi yellowish-brown. Wings subhyaline; veins brown, the costal and subcostal veins more yellowish, especially near the base of the wings. Venation: r barely evident; Rs strongly arcuated; second anal veins ending opposite about mid-length of the sector.

Abdominal tergites dull yellow, the basal third to half of the segments brown; sternites yellow.

Nesopeza geniculata, sp. n.

Similar to the genotype, *N. gracilis* (de Meij.) but somewhat smaller (wing of the female, 9.2 mm.). The wings of the teneral type specimen are not fully colored but the distinctive pattern is well indicated. The ground-color is gray, of a paler shade than the dark costal margin which is narrowly bordered behind by a hyaline line; the dark seams along the cord, at the origin of the sector and at the base of the wing are broader; the hyaline spot in cell 2nd R_1 is trapezoidal in shape, not elongate-oval as in *gracilis*; a small hyaline drop in the end of cell R_5 . The venation is quite distinct. The radial cross-vein is but little longer than the tip of R_1 beyond it; the forks of the medial veins are very short and shallow, not of the deep, narrow type of *gracilis*; vein M_1 is no longer than M_{1+2} alone, in *N. gracilis* it is longer than M beyond the $r-m$ cross-vein and before the last fork.

Holotype, ♀, Tokyo, Japan, August, 1912 (Kuwana).

In an earlier paper (Can. Ent., Vol. 46, p. 157; 1914) I determined this species as being *N. gracilis* (de Meij.) of Java. Since that time I have seen authentic specimens of *gracilis* and find the present species to be a very different form. The two species constitute a well-marked group that is quite distinct from the only other described member of the genus, *N. pallidithorax* (de Meij.) of Java.

Dictenidia fasciata Coq.

Iwate, July, 1916 (Nohira).

Ctenacroscelis mikado (Westw.).

Kioto, July 7 to 20, 1917; Yoshino, July 29, 1913; Tajima, July 7, 1913 (Nohira).

Tipula nohirai (Mats.).

Ichijoji, Kioto, July 21, 1916 (Nohira).

Akakura, Province Ichigo, August 7, 1914 (Nohira).

Tipula pulveolosa (Mats.).

Shinano, August 3, 1914 (Nohira).

Tipula aino Alex.

Kioto, March to April 12, 1914 (Nohira).

Tipula coquilletti End.

Kioto, April 20, 1914, (Nohira).

Minomo, near Osaka, October 4, 1914 (Nohira).