

## NEW OR LITTLE-KNOWN SPECIES OF CLADURA FROM JAPAN (DIPTERA, TIPULIDAE).

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The genus *Cladura* Osten Sacken is represented by a relatively small number of forms in the United States and Canada, with a greater concentration of species in Eastern Asia, particularly in Japan. There are now known more than a score of species in Japan, the majority occurring in the mountainous areas of the island of Honshu. All known species of the genus are adult in the autumn, being most frequent from September into November. In the present report I am describing three novelties and furnishing additional records of distribution for two of the uncommon and little-known species.

### *Cladura (Cladura) alpicola* Alexander

Shinano, Honshu: Mount Norikura, near Reisentoge, altitude 2,400 meters, September 8, 1951 (H. Hasegawa); Norikura, near Kwaigahara, altitude 2,600 meters, September 8, 1951 (Hasegawa); Sirahoneonsen, altitude 1,500 meters, September 9, 1951 (Hasegawa).

### *Cladura (Cladura) babai* n. sp.

Belongs to the *megacauda* group, allied to *daimio*; general coloration yellow, including the antennae and legs, the tips of the femora narrowly darkened; wings subhyaline, unpatterned; abdominal tergites yellow, each segment with a **┐**-shaped dark marking; male hypopygium with the tergite produced into two spatulate blades; dististyle stout, expanded outwardly; mesal lobe of basistyle with its inner arm densely covered with microscopic setulae; each gonapophysis terminating in a strong recurved spine.

*Male*: Length about 7-7.5 mm.; wing 8.5-9 mm.

Rostrum testaceous yellow; palpi a little darker. Antennae yellow; flagellar verticils long and conspicuous. Head light gray, paling to yellow on the occiput.

Thoracic dorsum fulvous yellow, the pleura somewhat paler yellow. Halteres with stem yellow, knob weakly infuscated. Legs with the coxae and trochanters pale yellow; remainder of legs yellow, the tips of the femora and tibiae very narrowly blackened; tarsi passing into brownish black. Wings subhyaline, unpatterned; veins brown, those in the prearcular and costal fields more yellowed. Venation:  $R_2$  faintly indicated;  $R_{1+2}$  and  $R_{2+3}$  subequal; petiole of cell  $M_1$  more than twice  $m$ .

Abdominal tergites yellow, each segment with a **└**-shaped brown area, including the median stem and the nearly terminal posterior margin; ninth tergite darker; sternites yellow with darkened posterior borders. Male hypopygium with the posterior border of the tergite produced into two conspicuous spatulate blades. Apical lobe of basistyle more slender and a little shorter than the dististyle, narrowed to the tip, the major setae grouped at apex; proximal lobe of basistyle distinctive, the entire major blade and its inner arm densely covered with microscopic setulae. Disistyle stout, expanded outwardly, the apex vaguely bilobed. Gonapophysis appearing as a powerful sclerotized structure, the tip bent backward into a powerful spine.

Most nearly allied to *daimio* which has the tergite, outer lobe of basistyle and dististyle somewhat the same; proximal lobe of basistyle with its inner arm a glabrous oval blade, without setulae, but with about six strong setae on outer half.

*Habitat*: Japan (Honshu).

*Holotype*; ♂, Kurokawa, Echigo, October 15, 1953 (Kintaro Baba). *Paratype*: ♂, Mount Chokai, Uzen, altitude 600 meters, October 17, 1950 (Kotaro Shirahata), through Dr. Baba; ♂, Morioka, Rikuchiu, October 6, 1934 (T. Kato).

I am pleased to name this fly for Dr. Kintaro Baba, to whom I am indebted for numerous Tipulidae from Echigo. Although it is closely allied to *Cladura* (*Cladura*) *daimio* Alexander, I regard the two flies as being distinct.

### **Cladura (Cladura) itoi** n. sp.

Belongs to the *megacauda* group, allied to *alpicola*; size very large (wing, male, exceeding 10 mm.); general coloration yellow, including the palpi and antennae; legs yellow, the tips of the femora and tibiae very narrowly and gradually darkened; male hypopygium very large and complicated in structure; basistyle elongate, its basal lobe unequally bilobulate, the outer lobe very long and slender, subequal in length to the style itself; dististyle stout, a little more than one-half as long as the outer lobe of basistyle, bearing a slender erect rod near base, tipped with dense black setae; gonapophysis appearing as a flattened blade, the outer margin with microscopic denticles, the apical one largest.

*Male*: Length about 9 mm.; wing 10.5 mm.

Rostrum and palpi pale yellow. Antennae yellow, the conspicuous verticils black. Head above faintly infuscated, more yellowed behind, with long erect setae.

Thorax yellow, the dorsum slightly more fulvous. Halteres white, the base of the knob weakly darkened. Legs yellow, the tips of the femora and tibiae very narrowly and vaguely darkened; tarsi brown, passing into black. Wings subhyaline, the prearcular, costal and stigmal regions very faintly more yellowed; veins dark brown, paler in the brightened fields. Venation:  $Sc_1$  relatively long,  $Sc_2$  lying shortly before fork of  $R_{2+3+4}$ ;  $R_2$  distinct,  $R_{1+2}$  and  $R_{2+3}$  subequal; petiole of cell  $M_1$  about twice  $m$ ;  $m-cu$  a little less than its own length beyond the fork of  $M$ .

Abdomen obscure yellow, the posterior borders of the segments narrowly darkened, the midregion of the tergites less evidently so; hypopygium very large, yellow. Male hypopygium of the *megacauda* type but even more accentuated, representing the extreme of ornamentation as far as known in the genus. Ninth segment large and complex, the tergite and sternite fused into a continuous ring; tergal region produced into two relatively slender dorsally directed lobules; cephalad of these with a group of long erect pale setae; region of the sternite with abundant long erect pale setae. Basistyle elongate, erect, its ventral margin rounded, with a brush of very long setae; basal lobe of mesal face of style deeply bilobulate, the larger lobule foot-shaped, the appressed smaller one fingerlike, tipped with a few long setae; apical lobe of style subequal to or a little longer than the style itself, very slender, terminating in three or four long setae, with other scattered erect very long bristles down the outer margin. Dististyle stouter than the apical lobe of basistyle, a little more than one-half as long, near its base with a slender erect rod that is fully one-fourth as long as the style; apex of style with a dense brush of black setae, with fewer similar darkened setae on the cephalic and mesal faces. Gonapophysis about equal in length to the aedeagus, appearing as a flattened blade, the outer margin with microscopic denticles, the apical spine largest.

*Habitat*: Japan (Honshu).

*Holotype*: ♂, Sigakôgen, Shinano, altitude 1600 meters, September 11, 1953 (Ito).

This interesting crane-fly is dedicated to Professor Syusiro Ito, who has added vastly to our knowledge of the Japanese Tipulidae. It is the largest regional member of the genus so far discovered. The nearest ally is *Cladura* (*Cladura*) *alpicola* Alexander, which has the details of structure of the hypopygium quite distinct.

*Cladura* (*Cladura*) *megacauda* Alexander

Shinano: Sigakôgen, altitude 1600 meters, September 11, 1953 (Ito).

Echigo: Kurokawa, October 15, 1953 (Baba).

Kotsuke: Hatomati Toge, Oze, September 22, 1950 (Hasegawa); Hiramino Tashiro, Oze, September 7, 1952 (Fuhuhara).

Uzen: Mount Chokai, altitude 600 meters, October 17, 1950 (Shirahata).

**Cladura (Cladura) shirahatai n. sp.**

Belongs to the *megacauda* group; size small (wing, male, 5.5 mm.); general coloration yellow, the mesonotum and ventral pleura vaguely patterned with darker; wings subhyaline, veins pale brown;  $Sc$  relatively short,  $Sc_1$  ending some distance before level of fork of  $R_{2+3+4}$ ; cell  $M_1$  long-petiolate, subequal to its stem; male hypopygium with the apical lobe of the basistyle shorter than the clavate dististyle; gonapophysis foot-shaped.

*Male*: Length about 5mm.; wing 5.5 mm.

Rostrum yellow; palpi pale basally, the outer segments darker. Antennae with the basal segments yellow, the flagellum chiefly pale brown, the segments with very long verticils. Head light brownish gray.

Pronotum pale yellow. Mesonotal praescutum yellow with three darker stripes, the lateral pair and posterior end of the median stripe paler, posterior sclerites yellow, the scutal lobes conspicuously darkened; scutellum and mediotergite less evidently infuscated. Pleura and pleurotergite pale yellow, the ventral sternopleurite and meron vaguely darkened. Halteres with stem white, knob conspicuously infuscated. Legs with the coxae and trochanters pale yellow; remainder of legs yellow, the tips of the femora very vaguely more darkened; outer tarsal segments becoming brownish black. Wings subhyaline, the prearcular and costal portions a trifle more yellowed; veins pale brown. Venation:  $Sc$  relatively short,  $Sc_1$  ending some distance before the level of fork of  $R_{2+3+4}$ ,  $Sc_2$  about opposite one-third the length of the latter vein; cell  $M_1$  long-petiolate, the cell subequal in length to its stem.

Abdominal tergites pale brown, sternites more yellowed; ninth segment brownish black, forming a conspicuous ring; hypopygium brownish yellow. Male hypopygium with the tergite relatively large, its posterior border produced into two slender lobes that are separated by a U-shaped notch, with two further smaller and weaker lobules lying still more ventrad. Apical lobe of basistyle a little more than one-half the length of the style itself, shorter than the dististyle, the latter clavate, broader at apex than at base, provided with sparse setae; mesal lobe of basistyle stout, produced into



a slender apical lobule and a stouter more basal one. Phallosome distinctive, the gonapophysis foot-shaped, the apex or sole microscopically corrugated; aedeagus slender, subequal in length to the apophysis.

*Habitat*: Japan (Honshu).

*Holotype*: ♂, Sakata, Uzen, October 15, 1953 (Kotaro Shirahata); received through Dr. Kintaro Baba.

This small *Cladura* is named for the collector, Mr. Kotaro Shirahata. It is quite distinct from all other members of the *megacauda* group in the venation, as the short *Sc* and long petiole of cell  $M_1$ , and in the structure of the male hypopygium, especially the basistyle, dististyle and gonapophysis. This is the smallest member of the genus so far discovered in Japan.