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## UNDESCRIBED SPECIES OF NEMATOCERA FROM JAPAN

(Diptera)

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The new species of Diptera described in this paper were included in material sent to me by my friends, Prof. Teiso Esaki and Dr. Tokuichi Shiraki. With the exception of the Formosan *Ptychoptera*, the flies were taken in the mountainous sections of central Honshiu by Professor Esaki. The two genera, *Bittacomorphella* and *Diomonus*, are of especial interest in that all of the species known hitherto are Nearctic. The types are preserved in the writer's collection through the kindness of the collectors.

### Family PTYCHOPTERIDAE

*Ptychoptera formosensis*, new species.

*Male*.—Length 8.4 mm.; wing 8.6 mm.

Frontal prolongation of head and the palpi pale brownish yellow, the distal segments of the latter a little darker. Antennae with the scape and base of the first flagellar segment yellow, the remainder of the flagellum brownish black. Vertex and occiput broad, shiny blue-black.

Mesonotum deep black, the praescutum with deep, longitudinal impressions; scutellum reddish yellow; postnotum blue-black. Pleura and pleurotergites of postnotum light yellow. Halteres brown. Legs with the coxae light yellow; trochanters light yellow; femora obscure yellow, the tips narrowly darkened; tibiae pale brown, the tips narrowly darker; tarsi brown.

Wings with a faint grayish tinge, the costal and subcostal cells more yellowish; two very narrow cross-bands, one along the cord extending from  $R$  to midlength of  $Cu_2$ , the second band more oblique, slightly interrupted, extending from the stigma at the tip of  $R_1$  to the fork of  $M$ . Wing-surface with the macrotrichiae extensive, in the basal cells extending almost to the base. Venation:  $R_s$  shorter than  $r-m$ , the latter subequal to  $m-cu$  and in alignment; abortive anal vein conspicuous and with macrotrichiae.

Abdomen orange-yellow; tergites two to six with the caudal margins broadly black; segments seven and eight black; hypopygium orange; sternites uniformly dull orange. Male hypopygium large, the ninth tergite profoundly incised, the lateral lobes being very long, digitiform, their tips directed ventrad across the genital chamber.

*Habitat*.—Japan (Taiwan).

*Holotype*, ♂, Funkiko, April 25, 1917 (T. Shiraki).

The present species is most closely related to *P. annandalei* Brunetti (India). I am indebted to Dr. Annandale for the privilege of studying one of the type males of the latter species. The following supplementary notes on *P. annandalei* may be supplied:

The coloration of the mesonotal praescutum is brilliant metallic blue with decided opalescent reflections; the anterior part of the postnotum with a large circular light yellow area with opalescent reflections. Venation with the deflection of  $R_{4+5}$  short to subobsolete,  $r-m$  being correspondingly lengthened; cell  $R_4$  much shorter in proportion to the length of its petiole ( $R_{4+5}$ ) than in *formosensis*.

The ninth tergite is very short at its base, the lateral lobes being greatly prolonged into slender, digitiform pale lobes that are slightly enlarged at their distal ends and here provided with black setae. Dististyle complex, consisting of a flattened blade whose dorsal inner edge is provided with a broad margin of short, blackened teeth, the ventral distal angle produced laterad and caudad into a pale, fleshy clavate lobe that is provided with several coarse, erect bristles; mesal face of this blade, near

the base, produced mesad into a subconical lobe that is provided with short setae, especially on the cephalic face and near the apex. Ninth sternite appearing as two stout reddish brown lateral lobes, the truncate apex of each densely provided with light yellow appressed silken setae, the caudal face with a dense pencil or fascicle of black setae directed mesad and caudad, not quite contiguous across the mid-line; notch between the lobes U-shaped; back of this notch a median lobe that is slightly widened distally, the apex truncate. Aedeagus conspicuous, subtended on either side by a small chitinized apophyse, which terminates in a small point directed ventrad and laterad.

In *P. formosensis*, the tergite is generally similar but the dististyle and ninth sternite are entirely different in structure, the chitinized lobes being replaced by silken yellow setae.

***Bittacomorphella nipponensis*, new species.**

*Female*.—Length 10–11 mm.; wing 7.5–9.4 mm.

Rostrum silvery; palpi pale yellow. Antennae setaceous, black throughout. Head black, the front, anterior part of vertex and the orbits silvery white.

Mesonotal praescutum and scutum black, the lateral margins broadly silvery; scutellum brown; postnotum pale brownish silvery. Pleura blackish, heavily silvery pruinose. Halteres long, pale, the knobs infuscated. Legs with the fore coxae blackened, the remaining coxae and the trochanters reddish yellow; femora pale basally, passing into brownish black at the tips, the fore and middle femora only narrowly pale basally, the posterior femora with only the tips darkened; tibiae black, hairy; basitarsi black, the apical two-fifths (fore leg), one-third (middle leg) or one-fifth (posterior leg) snowy-white; tarsal segments two and three snowy-white; terminal two segments abruptly narrowed, brownish black. Wings gray, the small stigma pale brown; extreme base of wing faintly yellowish; veins black. Macrotrichiae very sparse, confined to the extreme outer margins of cells  $Sc_1$ ,  $R_3$  and  $R_5$ . Venation about as in *B. sackeni*.

Abdomen dark brown, the caudal margins of the segments



narrowly paler; terminal abdominal segments with appressed silvery pubescence.

*Habitat*.—Japan (Honshiu).

*Holotype*, ♀, Hinoemata, Iwashiro-no-kuni, altitude 4,000 feet, July 24, 1923 (T. Esaki); flying near surface of mountain stream.

*Paratype*, ♀, Ozenuma, on boundary between Iwashiro-no-kuni and Kotsuke-no-kuni, altitude 6,545 feet, July 26, 1923 (T. Esaki).

*Bittacomorphella nipponensis* is most closely related to *B. sackeni* (Röder) of western North America, from which it differs notably in the great reduction in number of macrotrichia in the cells of the wing. In *sackeni* these include the entire distal sixth of the wing.

#### Family BLEPHAROCERIDAE

##### *Blepharocera esakii*, new species.

*Male*.—Length about 8.5 mm.; wing 9.8 mm.

Labrum shiny black, the maxillary palpi and remaining mouthparts pale brown. Antennae black throughout. Front light gray pruinose; remainder of the head darker gray.

Pronotum light gray. Mesonotum gray with three dark brown stripes, the median stripe broad and indistinctly bisected by a capillary pale line; an incomplete transverse suture, extending mesad to the mesal edge of the lateral praescutal stripes; scutal lobes dark brown, the median area light gray pruinose; scutellum light gray, the caudal margin broadly black; postnotum very short, gray pruinose. Pleura light gray pruinose. Halteres obscure orange-yellow throughout. Legs with the outer faces of the coxae more or less darkened, the inner faces of the mid-coxae and trochanters with dense black setae; femora and tibiae obscure yellow, the tips broadly dark brown; tarsi dark brown. Wings subhyaline, the extreme base conspicuously light yellow; costal margin narrowly tinged with pale brown; veins black; *Cu* and its branches paler on basal half. Venation: *Rs* long, fully five to six times the basal deflection of *R*<sub>4+5</sub>.

Abdominal segments grayish brown, the basal tergite clearer gray, the extreme caudal margins of the segments pale.

*Habitat*.—Japan (Honshiu).

*Holotype*, ♂, Mt. Takao, Musashi-no-kuni, altitude about 500 feet, May 7, 1922 (T. Esaki); beside a stream in dense forest.

This interesting *Blepharocera* is named in honor of the collector, my friend, Prof. Teiso Esaki. *B. shirakii* Alexander is readily told from the present species by its general black coloration and smaller size.

#### Family MYCETOPHILIDAE

##### *Macrocera ephemeræformis*, new species.

*Male*.—Length about 9.5 mm.; wing 8.4 mm.; antenna 27 mm.

Front and palpi brownish black. Antennae very long, as shown by the measurements; basal segment of scape glabrous, obscure yellow basally, the apex blackened; second segment very short; basal segment of flagellum brown on basal third, the apex yellowish white; succeeding flagellar segments with the basal third black, the apex yellowish, the amount of black becoming further reduced on the intermediate and terminal segments. Head black.

Mesonotum light brown, sparsely yellowish pollinose, with three conspicuous shiny black stripes; scutellum and postnotum chiefly dark brown. Pleura black, the region surrounding the wing-root light brown. Halteres testaceous, the knobs yellow. Legs with the fore and middle coxae obscure yellow, the anterior face more infuscated; posterior coxae largely brown; trochanters brownish yellow; fore femora brown, near the apex with a conspicuous subterminal spine; posterior femora yellow; remainder of legs passing into brown. Wings grayish subhyaline, the costal region variegated with bright yellow and brown, the markings alternately arranged; the brown marks include conspicuous seams at *h*; tip of *Sc*<sub>1</sub>; tip of *R*<sub>1</sub>; arculus; origin of *Rs*; a large blotch at fusion of *R* and *M*, continued caudad as a paler cloud along vein *Cu*<sub>2</sub> almost to the wing-margin; a spot on *R*<sub>4+5</sub> opposite to and nearly confluent with

the area at  $R_1$ ; on  $R_{2+3}$  and a conspicuous apical cloud continued back along vein  $R_{4+5}$ ; veins yellow, brown in the infuscated areas; a very small paler brown cloud at tip of vein  $Cu_1$  but none at tips of the medial veins. Anal angle of wing square, more so than in any described species of the genus. Venation: Petiole of cell  $M_2$  fully one-half  $R_{2+3}$ ; fusion of  $M$  and  $Cu_1$  relatively extensive, about two-thirds the section of  $M$  beyond it.

Abdomen with the basal five segments obscure yellow, the caudal margins of the segments conspicuously blackened; terminal segments and hypopygium uniformly blackened.

*Habitat*.—Japan (Honshiu).

*Holotype*, ♂, Mountains near Kawamata, Shimotsuke-no-kuni, July 24, 1923 (T. Esaki).

This remarkable fungus-gnat is the largest species of the genus known to the writer. In its general appearance it differs so strikingly from the Nearctic species of *Macrocera* that it might appear that a new genus is necessary for its reception. The Oriental *M. alternata* Brunetti, however, appears to form a connecting link between the groups. The anal angle of the present species is practically rectangular. The specific name was suggested by Professor Esaki, the fly presenting a curious resemblance to certain may-flies, as *Heptagenia* and *Ephemera*.

***Diomonus esakii*, new species.**

*Male*.—Length 11.5 mm.; wing 11.4 mm.

*Female*.—Length 11 mm.; wing 10.2 mm.

Rostrum and palpi black. Antennae black, the terminal six segments abruptly yellowish white. Head shiny black, the yellowish ocelli placed in almost a transverse line, the median one a little smaller than the laterals.

Thorax entirely coal-black, with short, delicate black pile. Halteres black, the extreme base of the stem a little brighter. Legs with the coxae black, very slightly pruinose; trochanters and extreme bases of femora yellow; remainder of legs black, the terminal tarsal segment a little paler; no spine on mid-femur. Wings subhyaline, the costal margin more yellowish; apical fourth of wing uniformly infuscated; an irregularly

circular brown cloud in the bases of cells  $R_3$  and  $R_5$  and a conspicuous wash at the end of vein  $Cu_2$ ; veins brown, darker in the clouded areas. Venation:  $Sc_1$  ending some distance beyond the origin of  $Rs$ ,  $Sc_2$  immediately before this origin in the female, far before in the male; cell  $R_2$  very tiny, sub-square in the female, completely obliterated in the male; tip of anal vein atrophied.

Abdomen black.

In the female, the basal tarsal segments are paler than in the male and the abdomen shows faint bluish reflections.

*Habitat*.—Japan (Honshiu).

*Holotype*, ♂, Yumoto, Shimotsuke-no-kuni, altitude 5,820 feet, July 23, 1923 (T. Esaki).

*Allotopotype*, ♀.

This beautiful and striking fungus-gnat is named in honor of the collector, Professor Esaki. The previously described species of *Diomonus* are all Nearctic. The obliteration of cell  $R_2$  in the type male is presumably an abnormality of the specimen. Such individuals would run to the subfamily Mycetophilinae. The nearest ally of *D. esakii* is the genotype, *D. nebulosus* Walker.