

Michael Hubbard

Two New Mayflies from Kagawa-ken, Japan

By

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Ecdyurus tobitronis n. sp.

Holotype, a male adult.

The body is stout but narrow. The head is normal in size, but the face is comparatively broader and very much projected forward. In the legs, coxae, trochanters and femurs are stout and thick; the tibia and the tarsi are very slender, the tarsi especially, so. The abdomen is slender. It is usually curled on the dorsum.

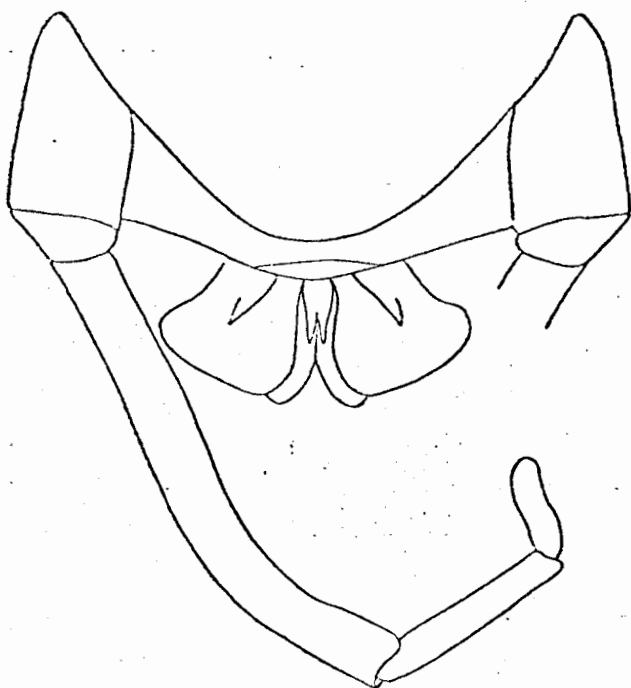
Measurement:—The total length of the body 8 mm. The length of the legs are: the femur 3.93 mm., the tibia 2.86 mm., the tarsi 5.33 mm., the 1st tarsus 0.57 mm., the 2nd 0.48 mm., the 3rd tarsus 1.37 mm., the 4th tarsus 1.09 mm., the 5th tarsus 0.49 mm. The length of the middle legs are: the femur 2.86 mm., the tibia 4.46 mm., the tarsi 1.20 mm.; the 1st tarsus 0.43 mm.; the 2nd tarsus 0.26 mm., the 3rd tarsus 0.23 mm.; the 4th tarsus 0.17 mm.; the 5th tarsus 0.28 mm. The length of hind legs are: the femur 3.03 mm., the tibia 2.74 mm., the tarsi 1.20 mm.; the basal tarsus 0.40 mm.; the 2nd tarsus 0.34 mm., the 3rd tarsus 0.28 mm., the 4th tarsus 0.23 mm., the 5th tarsi 0.28 mm. The length of the fore wing is 10.50 mm. and that of the hind wing 4.50 mm. The length of each segment of the forceps are: the basal 0.06 mm., the 2nd 1.03 mm., the 3rd. 0.40 mm., the fourth 0.20 mm. The seta is about 32 mm.

long.

Colour (in alcohol). The head is blackish brown. Antennae are also of the same colour but they are comparatively short; the gena and compound eyes are grey. The thorax is blackish brown. Its notum being deeper in colour; the humeral callus and the area of the spiracles are white. The former is provided with cretaceous cross lines which bends towards the same direction at their outer ends. The lateral side is provided with a few white marks which

Forceps and Penis of *Eadyurus tebiironis*

TAKAHASHI, 1929 n. sp.



TAKAHASHI del.

are composed of the sutural membranes of the thoracic plates. The wings are translucent, but they are tinted very faintly with

greyish brown, which becomes deeper at the bases of the subcosta as well as at the pterostigmatic space where the later is beset with many cross veins. In the fore wing the cross veins are deeper in colour and stout. In the costal margin of the fore wing there are a few cross veins between the middle and the pterostigmatic space. These are congregated and extend to the second radius, after producing a small spot. The hind wings are devoid of macula. Coxae and trochanters blackish brown throughout every segments of fore legs same in colour. Meso- and metathoracic legs fuscous. Tarsus and claws more deep in colour; femur has two blackish brown bands at the middle and along the terminal edge.

The first and the apical three abdominal segments are blackish brown above and markless; its back ventral segment is greyish brown, the last three segments being cretaceous. The segments 2-7 inclusive are subtranslucent, the venter is greyish brown, but the dorsum is slightly tinged with fuscous, with a broad band at the apical edge and a triangular fuscous mark at the lateral side, the latero-terminal edge of each of these segments are tinged. The forelegs are brownish black and the penis is brownish yellow. The caudal setae are long, being about 4 times as long as the body and blackish brown with very narrow white joinings.

I captured this specimen at Zentsuji-cho, Kagawa-ken, Shikoku, on April 10, 1928.

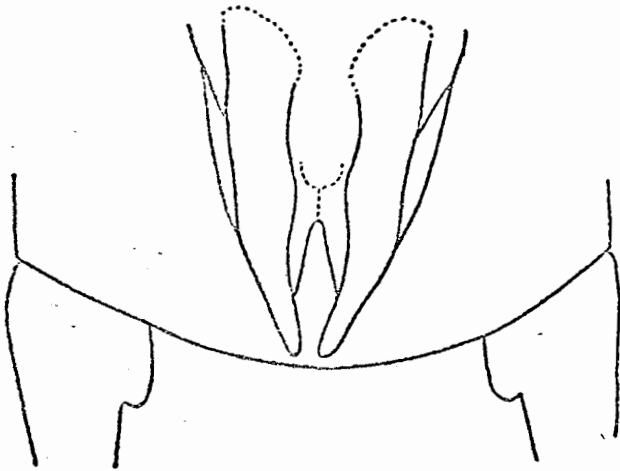
Siphylurus sanukensis n. sp.

The holotype is an adult male.

The body is 13.5 mm. long. The head is brownish black. It is especially deep coloured at the vertex. The area surrounding the base of the antenna is however, white. The compound eyes are gray. They are almost attached together to the vertex, and is 1.3

mm. long. The simple eyes are white. The basal segment of the antennae is brownish black and swollen at the terminal edge like a head. The apical part of the antennal flagellum is distinctly composed of seven segments and is greyish in colour. The thorax is deep brownish black, with the notum having a few short white mark. The humeral callus is white, with the centre of the postal edge of the mesoscutum having two small white spots. There are also a spot of the same colour in each side of the mesoscutellum.

Penis of *Siphurus samukensis* TAKAHASHI, 1929 n. sp.



TAKAHASHI del.

The lateral side of the thorax is provided with many small white marks, one of which is situated one on each of the anterior as well as posterior thoracic spiracles, the others being found on the lateral parts of each legs and also at the basal area of the hind wing. Each of the upper as well as the basal parts of pleropleura has also one. The length of the thorax is 2.8 mm in height. The wings are vitreous, without any marks, but they are slightly tinged with amber brown at their and subcostal margins. The neurations

are blackish brown. The costal as well as the subcostal cross veins of the fore wing are rather rudimentary, and the pterostigmatic area has many cross veins, some of which are united each to the other. The subcostal vein has a bulla at its middle.

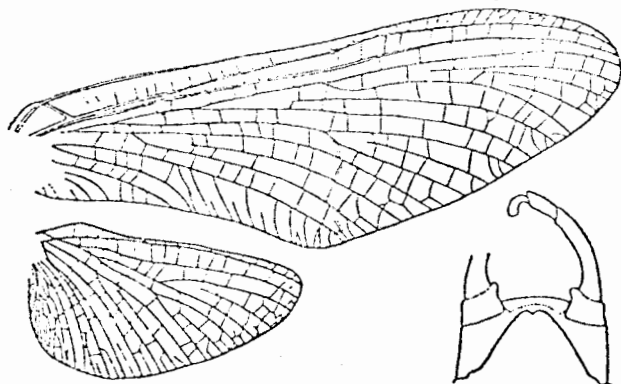
There is also a bulla on the media at its junction with the radial branch. In the hind wing there are many irregular longitudinal and cross veins between the inner margin and the second anal vein. All the segments of the fore legs are brownish black, but the coxa is slightly tinged with green and the basal half of the external surface of the femur is yellowish brown. The coxae in the meso- and metathoracic legs are blackish brown with the trochanters brown with black tint. The femur, tibia, tarsus and claws are greenish brown, becoming deeper toward the claws. The terminal margin of every segment has brownish black border. In the fore legs the tibia is shorter than the femur which is $\frac{1}{2}$ as long as the tarsus. The first tarsal segment is shorter than the next segment and the second segment much longer than the third which is in turn longer than the fourth; the apical one being the shortest of all. In the middle legs the tibia is shorter than femur; but longer than tarsus, of which the basal segment is the longest, the apical segment being the next in length. The longest tarsal segment is the second one. In the hind legs the femur is longer than the tibia which is longer than the tarsi, the tarsal ranks being almost the same as of the middle legs.

The abdomen is greenish above, rather blackish brown. The last 5 segments are brownish light colour with copious black marks. The terminal edge of the lateral side of the last segment and the base of the lateral side of the next segment are cretaceous in colour. The venter of the abdomen is the same in colouration as the dorsum except that there is no copious marks and apical four segments with some marks which are of cretaceous colour and variable in shape.

The seventh and the eighth are entirely of the cretaceous colour which is faintly tinged with reddish brown. There are a brownish black spot at the middle of the base. Forceps are blackish brown and the basal and terminal segments resemble in shape to that of *Ciccon dipterum* LINNAEUS. The penis is narrow and slender, but it

Forceps and wings of *Siphurus sanukensis*

TAKAHASHI, 1929 n. sp.



TAKAHASHI del.

is too short to reveal any thing on its ventral view. The caudal setae are brownish black, being deeper towards the base. The base is almost black. Both edges of each segment is provided with brownish black border rings; They are about $1\frac{1}{3}$ times as long as the body.

This specimen was captured by me at Zentsuji-cho, Kagawa-ken, Shikoku, on April 24, 1925.