
TWO NEW MAYFLIES FROM JAPAN

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Reprinted from the KONTYÛ, vol. 31, no. 2, pp. 142-145

Issued June 20, 1963

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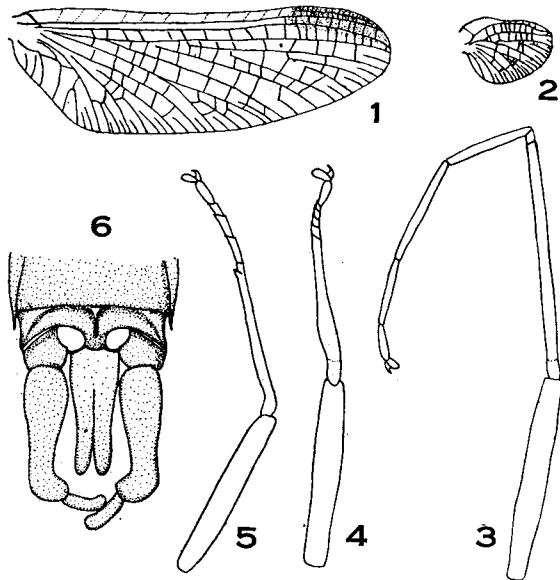
The present article deals with the descriptions of two new species of Ephemeroptera from Japan: one belongs to the genus *Ephemerella*, and the other to *Heptagenia*.

I wish to express my sincere thanks to Prof. M. Tsuda of Nara Women's University for his guidance during the present study and to Dr. Y. Nakagawa of Rakuto High-school, Kyoto for the gift of specimens of *Heptagenia*.

***Ephemerella yoshinoensis* n. sp.**

Measurements:	Male	Female
Body, length	9.2 mm	8.0 mm
Fore wing, length	9.5 mm	9.0 mm
Cercus, length	9.5 mm	8.7 mm

Description. Male: General colour brownish. Head brownish, eyes greyish. Thorax brownish. Legs brownish; in the fore leg, tarsus paler in colour, femur

*Ephemerella yoshinoensis* n. sp.

Figs. 1-4 and 6: imago ♂; Fig. 5: imago ♀. 1. fore-wing. 2. hind-wing.
3. fore-leg. 4. hind-leg. 5. fore-leg. 6. end of abdomen, ventral view.

with a inconspicuous darker marking near its apex, femur: tibia=5:6; tarsal joints rank 3, 2, 4, 5, 1 (Fig. 3); in the middle and hind legs tibia darker than femur and tarsus, each of the middle and hind femora with two dark flecks near its side; in the hind leg femur is longer than tibia, tibia:tarsus=5:2 (Fig. 4). Wings hyaline, apical part of costal and subcostal area weakly brownish amber-colour, veins light brownish (Fig. 1).

Abdominal segments 1-6 semitranslucent, washed with pale brown, tergites 1-7 shaded with a median dark stripe, tergites 8-10 dark brownish; postero-lateral corners of the tergite 9 protruded into spines; sternites 1-7 shaded with smoky brown, sternites 8-9 dark brownish. Cerci and median caudal filament brownish, paler distally. Forceps brownish; second joint swollen on the inner apical margin, three times as long as wide. Penis-lobes brownish, separated apically (Fig. 6).

Female: Similar to the male; general colour dull brownish. Wing hyaline, coloration of veins as in the male. Abdomen above reddish brown to dull brownish, below paler; mid-dorsal pale streak obscure, postero-lateral corners of tergite 9 protruded in spines as in the male.

A nymph reported by Dr. K. Imanishi under the name of *Ephemerella* is the nymph of this species. I reared the nymph and got this imago in May, 1958.

Holotype: ♂, Gojo-shi, Nara Pref., 17. v. 1959 (K. Gose); allotype: ♀, the same locality; paratypes: 2♂♂, 6♀♀, Yoshino-gawa, Nara Pref., 17. v. 1959 (K. Gose); deposited in the Zoological Institute, Nara Women's University.

Distribution: Honshū, Kyushū, Shikoku.

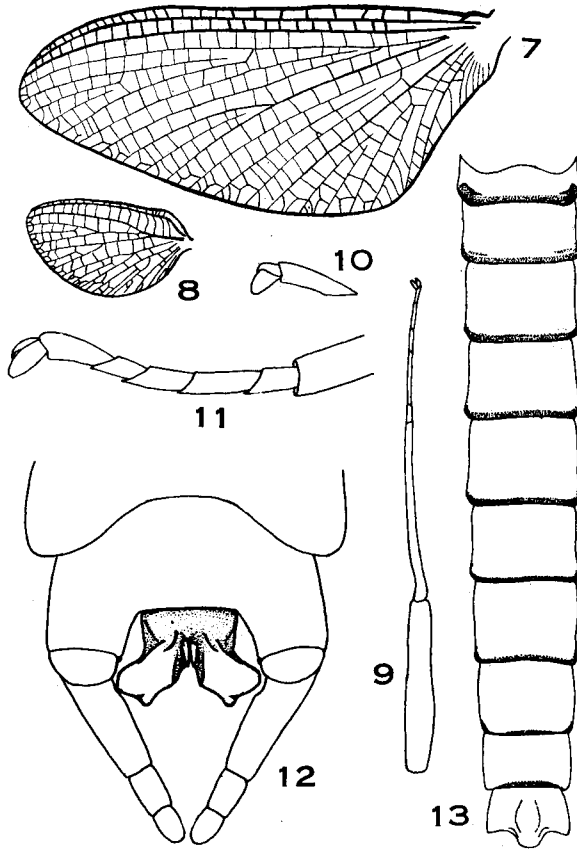
Remarks: This species is similar to *Ephemerella cryptomeria* Imanishi, but is considerably larger than it and is also distinguishable from it by the ratio of femur to tibia in the fore leg, which is 5:6 in this new species.

Heptagenia kyotoensis n. sp.

Dr. Nakagawa reared the nymph "*Heptagenia*" described by Prof. Imanishi by nymph and gained subimagos 2♂♂, 2♀♀, which he gave me. Examining the specimens, I found them to be new. So, I give the description of the subimago.

Measurements:	Male (subimago)	Female (subimago)
Body, length	12.5 mm	14.2 mm
Fore wing, length	13.8 mm	15.7 mm
Cercus, length	26.4 mm	28.3 mm

Description. Male (subimago): General colour brownish. Eyes and ocelli black. Pronotum brown, mesonotum dark olive brown, metanotum dark brown. Legs brown, in fore leg femur dark brownish; fuscous at its tip; femur:tibia:tarsus=5.6:4.8:3.7, tarsal joints rank 2, 3, 4, 5, 1 (Fig. 9); in hind legs, femur:tibia:tarsus=4:3.5:1.5, tarsal joints rank 5=2, 3, 4, 1 (Fig. 11). Claws dissimilar in all legs (Fig. 10). Wings subhyaline (Fig. 7), pale; veins whitish brown. Abdomen dark olive brown. Each of the tergites 1-9 with a narrow brownish band on its posterior margin (Fig. 13); tergites 10 with broad ()-shaped blackish brown markings; the posterior margin of tenth sternite incurved between the bases of the forceps. Penis-lobes large, yellowish brown, separated, dilated in wing-like



Heptagenia kyotoensis n. sp.

Figs. 7-13: subimago ♂. 7. fore-wing. 8. hind-wing. 9. fore-leg. 10. claws of the same. 11. hind-tarsus. 12. end of abdomen, ventral view. 13. abdomen, dorsal view.

form, the inner margin curved outwards at the apex and bears a pair of large blackish spines near the separating point, near the tip of which there is a pair of smaller spines (Fig. 12). Cerci pale brownish.

Female (subimago): Similar to the male (subimago). Colouring likes to male (subimago), larger than male (subimago). In the fore leg, femur: tibia: tarsus = 4.5 : 4.2 : 2.0; tarsal joints rank 5, 2, 3, 4=1; claws dissimilar in all legs.

Holotype: ♂, Yamashina, Kyoto Pref., 2. vii. 1957 (Y. Nakagawa); allotype: ♀, the same locality; paratypes: 2♂♂, 2♀♀, Yamashina, Kyoto Pref., 2. vii. 1957 (Y. Nakagawa); deposited in the Zoological Institute, Nara Women's University.

Distribution: Honshū.

Remarks: This species is similar to *Heptagenia kihada*, but is distinguished by the

different form of the penis-lobes. The penis-lobes are rather similar to the genus *Ecdyonurus*.

Literature

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