

A NEW SPECIES OF THE GENUS *ISOPERLA* (PLECOPTERA) FROM ECHIGO, JAPAN

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Having had an opportunity to examine the insect collection of Dr. Kintaro Baba, I found 48 species of stoneflies belonging to nine families. The majority of them are widely distributed elsewhere in the central and northern parts of Japan. Among those, an aberrant form of *Isoperla* with tergal processes seems to be new species. I intend to describe it below. I wish to express my sincere thanks to Dr. Kintaro Baba for his kindness in placing the stonefly collection at my disposal for study.

Isoperla digitata sp. nov.

Male: Medium-sized stonefly; body and appendages covered with white hairs; basic colour yellowish brown with dark brown markings. A large brown marking, yellow

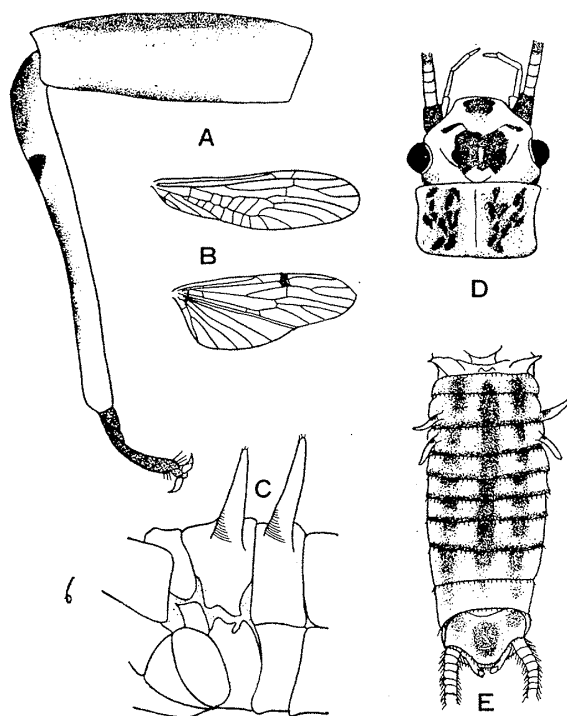


Fig. 1. *Isoperla digitata* sp. nov.

A. fore-leg; B. wings; C. first three abdominal segments, lateral view; D. head and pronotum; E. abdominal segments, dorsal view.

in its center, situated on the area between three ocelli (Fig. 1, D). A dark brown marking present near frontal margin of head; M-line brown, touched frontal margin of large marking. Behind compound eyes dark brown. Antennae brown, but from first to fourth joints yellowish. Pronotum with a broad yellowish median longitudinal stripe, a little narrower at middle than at frontal and hind margins, its each side brown with many dark brown irregular markings; pronotal margin yellowish brown. Meso- and metanotum with dark brown U-marking on each hind margin. Abdomen yellowish brown, with three dark brown longitudinal stripes present on first to ninth segments and with dark brown band on the hind margin of each of first seven segments; ninth segment yellowish brown with three dark brown spots (Fig. 1, E). Ventral side of body yellowish brown, basisternum of each thoracic segment yellow. Legs yellowish; dorsal and ventral sides of each femur brown; dorsal side of basal part of each tibia brown and with a dark brown spot on its proximal one-third; three tarsal segments dark brown; claws brown (Fig. 1, A). Cerci yellow.

Head nearly as wide as pronotum, with three black ocelli, posterior two larger than anterior one and situated in a line passed through the middle of compound eyes; the distance between posterior two about two times as far as that between posterior one and inner margin of compound eye; dorsal callosities indistinct; antennae long and slender, nearly as long as body, 8 mm in length, composed of 37 joints (Fig. 1, D).

Pronotum quadrangular, slightly wider than long; anterior angles acute, posterior ones somewhat rounded; lateral margin slightly straight; dorsum somewhat rugose. Legs long and slender; femur of each leg shorter than tibia; first and second tarsal segments combined together shorter than third, ratio of tarsal segments, 1:0.5:3; distal end of third segment with a group of bristles (Fig. 1, A, D).

Wings pale or hyaline without coloured stigmal area; veins pale and almost concolourous with connecting membrane. Venation typical to the genus (Fig. 1, B).

Abdomen nearly cylindrical, first two abdominal segments completely divided into tergum and sternum, the remaining not divided; on each lateral side of second and third segments present a horn-like process which is directed upwards (Fig. 1, C). Last tergum with rounded hind margin, without supra-anal process. Subanal lobes produced into finger-like knobs, with a pointed tip, which are recurved upwards and backwards (Fig. 2, A); eighth sternum with a tongue-shaped lobe at middle of hind margin; ninth sternum large and strongly recurved backwards and turned upwards, with rounded hind margin, so that the last tergum is invisible in the ventral side (Fig. 2, B, C). Cerci short, about one-third as long as body, 3 mm in length, composed of 12 joints. No gill remnant on any body area.

Body length 9 mm; length of fore-wing 11.5 mm, of hind-wing 10.5 mm.

Female: Unknown.

Holotype: Male, Urasa, Middle Echigo, Niigata Pref., 14-V-1961, K. Bada leg. (the type specimen preserved in my collection).

Remarks: This new species is closely allied to *Isoperla aizwana* Kohno in the features of the genital parts but is different from the latter and the other known isoperlid stoneflies by the presence of two pairs of horn-like processes on the

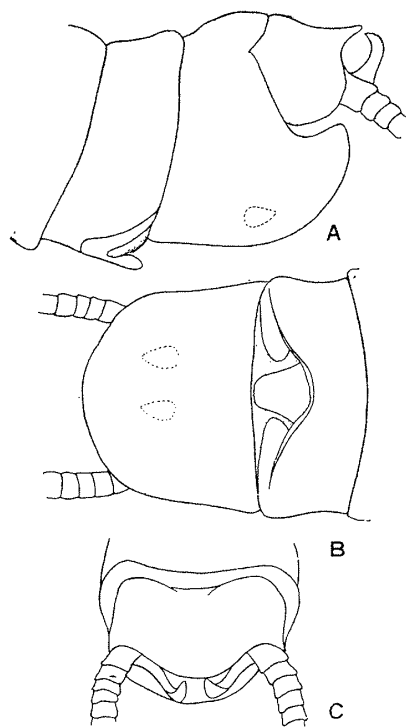


Fig. 2. The male terminal segments of *Isoperla digitata* sp. nov.
A. lateral view; B. ventral view; C. dorsal view.

lateral margins of the second and third abdominal terga.

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