

New Species of *Heptagenia* From Western North America (Ephemeroptera: Heptageniidae)

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Abstract

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Two undescribed species of the genus *Heptagenia* of the *maculipennis* group are described and illustrated. *Heptagenia jewetti* n. sp. is known from Oregon, and *H. petersi* n. sp. from Wyoming and Utah.

Two undescribed species of *Heptagenia* with *maculipennis*-type male genitalia were recently found in collections of mayflies from western North America. The *maculipennis* group is widely distributed in eastern North America and the previous most western records of this species-complex are reported from Illinois and Manitoba.

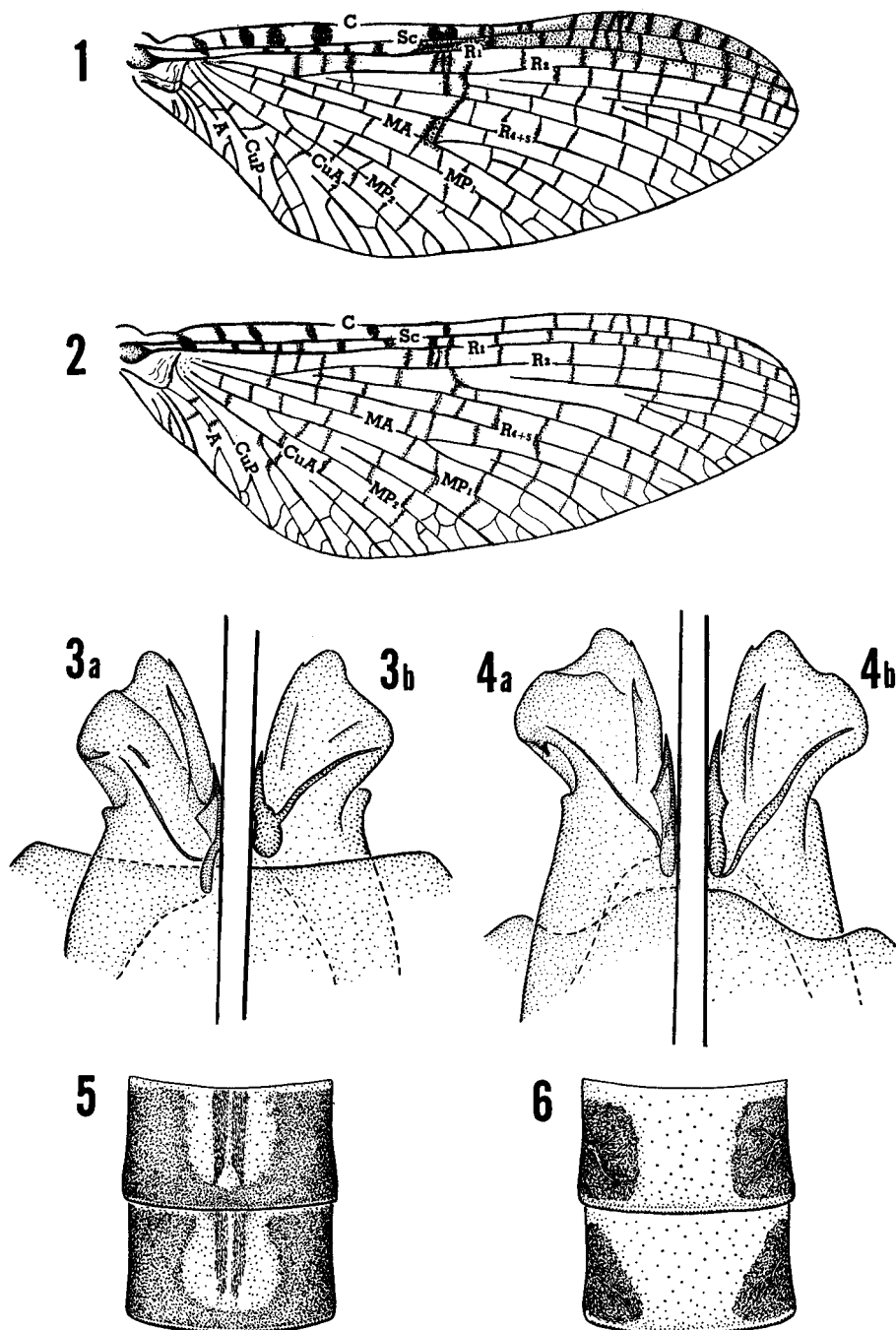
Heptagenia jewetti n. sp.

MALE IMAGO (in alcohol). Length: body 7.0-8.0 mm.; 8.0-9.0 mm. Head light brown, occiput reddish brown; ocelli black at base; compound eyes black or gray, a black line separating upper and lower halves. Pronotum brown with a dark brown anterior transverse stripe and a square-shaped light brown macula medially; mesonotum brown with irregular pale and dark brown markings; prescutum dark brown with a pale median longitudinal stripe and pale laterally; scutum olive brown; scutellum brown; pleura pale; an interrupted longitudinal purple stripe above leg bases; thoracic sterna pale; fore wings hyaline, stigmatic area tinged with light brown; primary longitudinal and intercalary veins brown; crossveins brown, margined with dark brown to black, especially between C and R₂, and above fork of MA (Fig. 1); hind wings hyaline; venation light brown; legs pale, apex of femora, base of tibiae and tarsi often with light brown markings. Abdominal terga brown to dark brown with pale markings; segments 1-6 dark brown with pale median maculae, maculae often with paired submedian reddish stripes (Fig. 5); segments 7-10 brown; abdominal pleura and sterna pale. Male genitalia of the *maculipennis* type (Figs. 3a-b). Caudal filaments pale.

FEMALE IMAGO (in alcohol). Length: body 8.0-9.0 mm.; fore wing 9.0-10.0 mm. Head pale; compound eyes pale, tinged with green. Thorax pale. Abdominal terga pale with reddish brown markings; segments 1-7 with sublateral reddish markings; segments 8-10 pale. Other characters as in male except for usual sexual differences.

TYPES. Holotype. Male imago, vicinity Gronnel Road ca. 2 mi. E. Elsie, Clatsop Co., Oregon, 24-VIII-63, S. G. Jewett, Jr., in collection of California Academy of Sciences, San Francisco. Allotype. Female imago, same data and deposition as holotype. Paratopotypes. Seven male and 9 female imagoes, 24-VIII/13-IX-63, other data as holotype and allotype, 3 males and 6 females in collection of University of Utah, Salt Lake City, others in collection of S. G. Jewett, Jr., Portland, Oregon.

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Figs. 1-2. Fore wings, male imagoes: 1, *Heptagenia jewetti*; 2, *H. petersi*. Figs. 3a,b-4a,b. Penis lobes, male imagoes: 3, *H. jewetti*: a, dorsal view; b, ventral view; 4, *H. petersi*: a, dorsal view; b, ventral view. Figs. 5-6. Abdominal terga 3-4, male imagoes: 5, *H. jewetti*; 6, *H. petersi*.

REMARKS. In Traver's key (Biology of Mayflies, 1935) *Heptagenia jewetti* keys to *H. hebe* McD., known from New York, Quebec and Ontario. The male imago of *H. jewetti* is distinguished from *H. hebe*, and all other known species of the *maculipennis* group, by the following combination of characters: (1) abdominal terga 1-6 are brown with a pale median macula, and usually with paired submedian stripes (Fig. 5); (2) fore wings are heavily pigmented (Fig. 1); and (3) titillators of the penes have well-developed lateral arms, and some discal spines are represented by only thin, sclerotized bands (Figs. 3a-b). This species is named in honor of Stanley G. Jewett, Jr.

Heptagenia petersi n. sp.

MALE IMAGO (in alcohol). Length: body 7.0-8.0 mm.; fore wing 8.0-9.0 mm. Head pale, occiput dark brown; ocelli suffused with black at base; compound eyes black, a black line separating upper and lower halves. Pronotum pale with dark brown lateral margins; mesonotum light brown with pale and brown markings; prescutum pale with paired submedian dark brown longitudinal stripes; scutum light brown; scutellum light brown; pleura pale; a longitudinal dark brown stripe above leg bases; thoracic sterna pale; fore wings hyaline; primary longitudinal veins brown, intercalaries pale; crossveins brown, margined with dark brown, especially between C and R₁ (Fig. 2); hind wing hyaline; venation pale; legs pale, apex of tibiae and tarsal claws with brown markings. Abdominal terga pale with dark brown markings; segments 1-6 pale with lateral dark brown markings (Fig. 6); segment 7 pale with brown markings laterally and posteriorly; segments 8-9 brown, with pale markings; segment 10 pale, abdominal pleura and sterna pale. Male genitalia of the *maculipennis* type (Figs. 4a-b). Caudal filaments pale.

FEMALE IMAGO (in alcohol). Length: body 8.0-9.0 mm.; fore wing 9.0-10.0 mm. Thoracic and abdominal brown markings less distinct than in male. Other characters as in male except for usual sexual differences.

TYPES. Holotype. Male imago, Little America, Sweetwater Co., Wyoming, 11-VIII-62, W. L. Peters, in collection of University of Utah, Salt Lake City. Allotype. Female imago, same data and deposition as holotype. Paratopotypes. Two male and 4 female imagoes, same data and deposition as holotype and allotype. Paratype. Male imago, Leeton, Utah, 26-VII-45, G. F. Knowlton, in collection of University of Utah.

REMARKS. *Heptagenia petersi* keys to *H. aphrodite* McD., an eastern North American species, in Traver's key (Biology of Mayflies, 1935). *Heptagenia petersi* is distinguished from *H. jewetti* n. sp., and all other known species with *maculipennis*-type male genitalia by the characters of the wings, abdomen, and penes. The fore wings are only moderately pigmented with brown (Fig. 2), and the abdominal terga are pale with brown markings (Fig. 6). The titillators of the penes have well-developed lateral arms, and each penis lobe has one or two discal spines (Figs. 4a-b). This species is named in honor of William L. Peters.

References

- Traver, J. R. 1935. Part II. Systematic, pp. 237-739. In J. G. Needham, J. R. Traver, and Yin-Chi Hsu, The Biology of Mayflies. Ithaca, N.Y., Comstock Publishing Co. 759 pp.

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