

NEW SPECIES OF UTAH MAYFLIES. II. BAETIDAE,  
CENTROPTILUM

(EPHEMEROPTERA)<sup>1</sup>

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Part I of this paper appeared in the December 1951 (vol. 51:327-331, pl. 41) issue of this journal. The present paper presents the descriptions of two new species of the mayfly genus *Centroptilum* which are found within the borders of Utah. The holotypes, allotypes and paratypes of these species are deposited at the University of Utah; paratypes of each species are in the collections of the California Academy of Sciences and of Dr. J. R. Traver.

*Centroptilum oreophilum*, new species

(Figs. 8-12)

*Male imago*.—Length: Body, 7-8; wing, 7-8 mm.

Head dark brown, antennal scape and pedicel dark brown, flagellum paler, turbinate portion of eyes orange, lower portion gray; turbinate eyes large, stalk short, figs. 11 and 12. Thorax dark brown, fuscous on mesoscutellum; a pale spot on each side at the anterior confluence of the parapsidal furrows; pleural membranes whitish; the mesepisternum medium brown. Forelegs medium brown; the middle and hind legs lighter brown. Wings hyaline, venation brown; costal margin, especially the stigmatic area, cloudy. Hind wing venation variable, figs. 8, 9, veins behind the second longitudinal vein attached or free, usually weak, occasionally absent.

Abdominal tergites medium to light brown; pleural margin pale; posterior margin narrowly pale giving a faint annulate appearance to the abdomen; the dark tracheal trunks often visible beneath the tergites, faint paired oblique streaks near the front margin on the anterior segments.

Sternites much paler than tergites, light brown to yellowish; smoky paramedian oblique streaks followed by a smoky dot in the anterior half of each sternite, these markings obscure or absent on the posterior seg-

<sup>1</sup>Extracted from a thesis submitted to the Department of Entomology, University of Massachusetts in partial fulfillment of the requirements for the degree of Doctor of Philosophy.

ments; lateral margins of sternite nine dark brown. Genitalia as in fig. 10. Tails smoky brown basally, paler distally.

*Female imago*.—Length: Body, 7-8; wing, 7-8 mm.

Similar to male except for usual sexual differences, but much paler. Head, thorax, and legs lighter than in male. Wings as in male.

Abdominal tergites light yellow brown with no pale markings as in male; tracheal trunks purplish brown and quite conspicuous. Sternites paler than tergites, without smoky markings as in male. Apex of subanal plate deeply notched. Tails pale with a faint suggestion of smoky brown at the base.

*Types*.—Holotype, ♂, Home Creek, Steens Mountains, Oregon, 22-V-50, K. Fender and S. Jewett. Allotype, ♀, Blacksmith Fork Canyon, Cache Co., Utah, 14-VI-46, F. C. Harmston. Paratopotypes, 10, ♂♂. Paratype, 1 ♂, same data as allotype. Also 1 intersex, same data as allotype.

#### TAXONOMY AND BIOLOGY

*Centroptilum oreophilum* is apparently most closely related to *C. elsa* Traver but is considerably larger than that species, the venation is brown rather than whitish, and there appear to be several differences in the male genitalia.

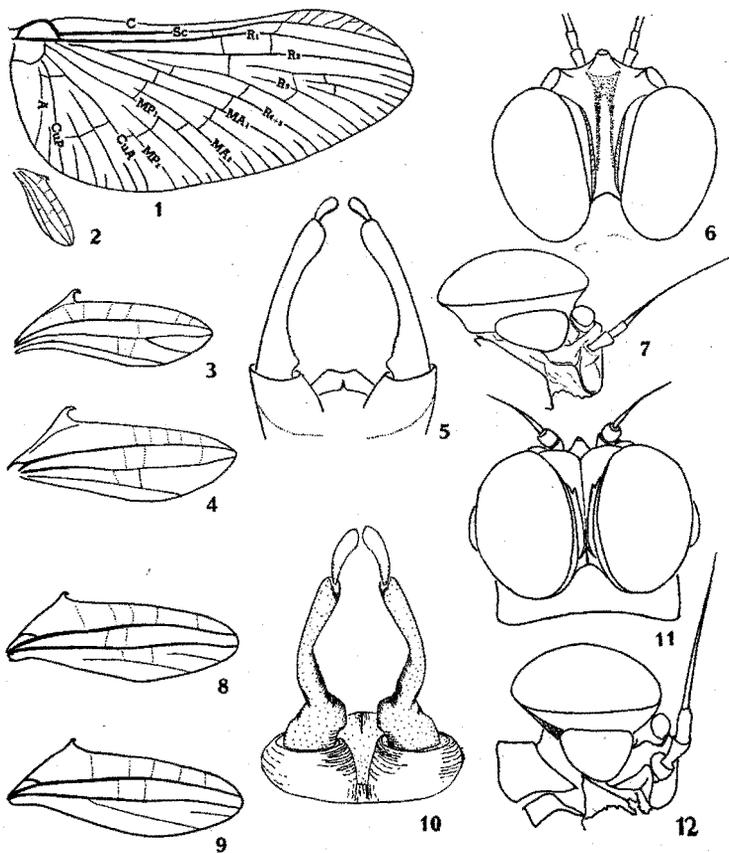
Little is known of the biology of this species except that it is a mountain species that has been collected in late May and early June. Mr. Jewett reports (in letter) that this species was exceptionally abundant at the type locality.

#### *Centroptilum selanderorum*, new species

(Figs. 1-7)

*Male imago*.—Length: Body 5-6, wing 5-6 mm.

Top of head between eyes yellowish brown, with a reddish brown median marking; front of head reddish brown, paler along margin of frontal carina and near bases of antennae; antennal scape pale, pedicel reddish brown, flagellum reddish brown, becoming paler distally; lower portion of compound eyes black, stalk of upper portion yellow, faceted area orange brown, figs. 6, 7. Pronotum reddish brown; mesonotum reddish brown, somewhat paler along median line and parapsidal furrows, darker between inner parapsidal furrows; alabaster white or light yellow brown laterad of outer parapsidal furrows, anterior to base of wing and on posterior and postero-lateral margins, and on scutellum; anterior half of metanotum alabaster white, posterior half deep reddish brown; thoracic pleura reddish brown with extensive white areas above the coxae, especially near the base of the forewing; venter of thorax reddish brown, paler between legs. Forelegs and coxae of middle and hind legs opaque white, remainder of other legs pale hyaline yellowish brown. Wings hyaline, venation pale, as in figs. 1 and 2; hind wing relatively broad; costal projection strongly curved; second vein single, forked, or with the



Figs. 1-7, male paratypes of *Centroptilum selanderorum*; fig. 1, forewing; fig. 2, hind wing, same scale as forewing; figs. 3-4, hind wings, enlarged; fig. 5, genitalia; fig. 6, head, dorsal view; fig. 7, head, lateral view. Figs. 8-12, male paratypes of *Centroptilum oreophilum*; figs. 8-9, hind wings; fig. 10, genitalia; fig. 11, head, dorsal view; fig. 12, head, lateral view.

detached fork appearing as an intercalary; crossveins obsolescent, figs. 3, 4.

Abdominal segments one to six semi-hyaline, seven to ten opaque; tergites one to six brownish except that the brown does not attain the anterior or lateral margins, thus leaving a hyaline margin; tergites seven to ten reddish brown with median and paramedian hyaline streaks; tergite ten paler than seven to nine. Sternites one to six hyaline; seven to ten alabaster white, washed with reddish brown near the pleural line. Genitalia as in fig. 5. Forceps and tails white.

*Female imago*.—Length: Body 5.5-6.5; wing 5.5-6.5 mm.

Head yellowish, antennal scape white, pedicel and flagellum light brown; eyes black. Prothorax pale yellowish brown, narrowly margined with reddish brown; mesothorax pale yellowish brown, pleural sclerites alabaster white, a reddish brown marking anterior to the wing base; metanotum darker brown. Legs white. Wings as in male. Abdominal segments opaque; tergites one to seven brownish, similar to male, eight to ten paler; trachea underlying segments one to seven dark purplish brown. Sternites white. Apex of subanal plate with a deep flaring V-shaped notch. Tails pale.

*Types*.—Holotype, ♂, Brigham City, Utah, 15-VI-50, J. C. Downey and R. B. Selander, from windows. Allotopotype, ♀. Paratopotypes, 25 ♂♂, 5 ♀♀. This species is named for my good friends Richard and Robert Selander who have collected numerous specimens of Utah Ephemeroptera for me.

#### TAXONOMY AND BIOLOGY

In Traver's key (The Biology of Mayflies, 1935:705) to the males of *Centroptilum*, *C. selanderorum* keys to couplet 10. It can be distinguished here from both *C. bifurcatum* and *C. semirufum* by the color of the abdominal tergites. It appears to be most closely related to *C. bifurcatum* from which it can be distinguished also by the male genitalia, the fact that the femora are not deeper in color than the other parts of the legs, and by the absence of a dark broken line along the spiracular area. The species *Centroptilum bifurcatum* McD., *C. semirufum* McD., *C. victoriae* McD., and *C. selanderorum* form a natural species group characterized by the presence of a small spine between the bases of the forceps and distinguished from one another by color characters and details of the male genitalia.

Practically nothing is known of the habits or habitat of this beautiful little mayfly. All the adults were collected from windows in Brigham City, Utah in mid-June. They probably originated from Brigham Canyon Creek which passes through the town nearby. It is also likely that the adults were attracted to the windows by lights the evening before.