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A new species of *Hydropsyche* (Trichoptera: Hydropsychidae) from Utah

James A. Korecki
Clemson University, Clemson, South Carolina, treebeard.james@gmail.com

David E. Ruiter
Centennial, Colorado, druiter@msn.com

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A NEW SPECIES OF *HYDROPSYCHE* (TRICHOPTERA: HYDROPSYCHIDAE) FROM UTAH

James A. Korecki[1,3] and David E. Ruiter[2]

ABSTRACT.—***Hydropsyche quitchupaha*, n. sp.**, is described and illustrated based on 3 males collected in Sevier, Emery, and Kane counties, Utah. The upturned posteromesal lobes of tergum X, subapically swollen phallobase, and dorsally depressed phallus apex separate this species from all other members of the *Hydropsyche scalaris* Group.

Key words: Hydropsychidae, Hydropsyche scalaris *Group, Quitchupah Creek, Utah.*

A collection of adult caddisflies from the Quitchupah Creek drainage, Sevier County, Utah, yielded a morphologically distinct male specimen of *Hydropsyche*. The specimen belongs to the *Hydropsyche scalaris* Group, a group reputed for misidentifications and subtle diagnostic characters (Flint et al. 1979, Flint 1992, Lago and Harris 2006). Subsequent collections of single males from Emery and Kane counties confirmed the morphological stability and unique diagnostic characters for this species.

Hydropsyche quitchupaha n. sp.
(Figs. 1, 6–10)

Male (n = 3). Forewing length 10.0 mm; hind wing length 7.3 mm. Interocular distance 0.75 mm; cephalic width 1.4 mm; interocular distance:cephalic width ratio 0.53. Eye width 0.33 mm; occipital setal wart width 0.3 mm; occipital setal wart width:eye width ratio 0.91 (Fig. 1). Antennal length 10.5 mm, oblique sclerotized bands on basal 7 flagellomeres. Abdominal sternum V glands ampulliform (Fig. 10). Abdominal segment IX with dorsal keel, segment about 2.6 times as tall as greatest length; posterolateral projection subtriangular, apex rounded. Tergum X with upturned posteromesal lobes; apicomesally emarginate (Figs. 6, 9). Inferior appendages each with coxopodite clavate, bearing elongate setae distally; harpago intorted, clavate with distal tip rounded in lateral view, tip truncate or rounded in ventral view (Figs. 6, 8). Phallic apparatus with phallobase subapically swollen, apicodorsal margin depressed, lacking convex roof; ventrodistal opening and subapicomesal cavity orbicular in ventral view (Figs. 6, 7). Female and immature stages unknown.

Type Material

HOLOTYPE.—Utah, Sevier Co., Quitchupah Creek, Convulsion Canyon, SW [of] Emery, 14 July 1999, G. Brown, 1 male (United States National Museum).

PARATYPES.—Utah, Kane Co., East Fork Virgin River, 1 mile east of Mineral Gulch, 37.178°N, 112.771°W, elevation 1500 meters, 28 May 2003, S.M. Clark and C.R. Nelson, 1 male (Monte L. Bean Life Science Museum, Brigham Young University); Emery Co., Christiansen Wash above junction with Quitchupah Creek, south of Emery, 18 June 2003, R.W. Baumann and S.M. Clark, 1 male (Ruiter personal collection).

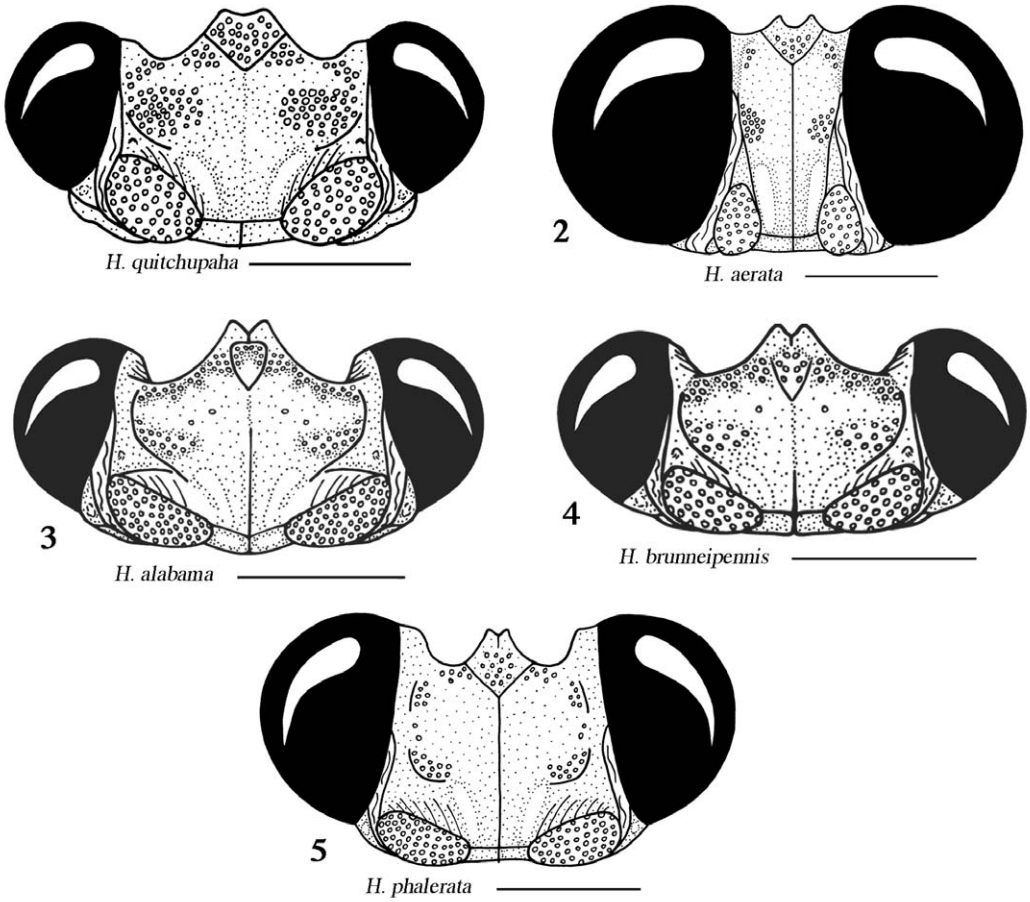
Etymology

The species is named for the type locality, Quitchupah Creek, located in south central Utah.

Diagnosis

Interocular width broad, greater than eye width. Occipital setal warts transverse, subequal to width of eye. Tergum X with upturned posteromesal lobes. Phallic apparatus with phallobase subapically swollen; dorsal apex depressed, and ventral opening orbicular (Fig. 7).

[1]Clemson University, Department of Entomology, Soils, and Plant Sciences, 114 Long Hall, Clemson, SC 29634.
[2]6260 South Grant Street, Centennial, CO 80121.
[3]Present address: 230-59 International Airport Center Boulevard, Jamaica, NY 11413. E-mail: treebeard.james@gmail.com

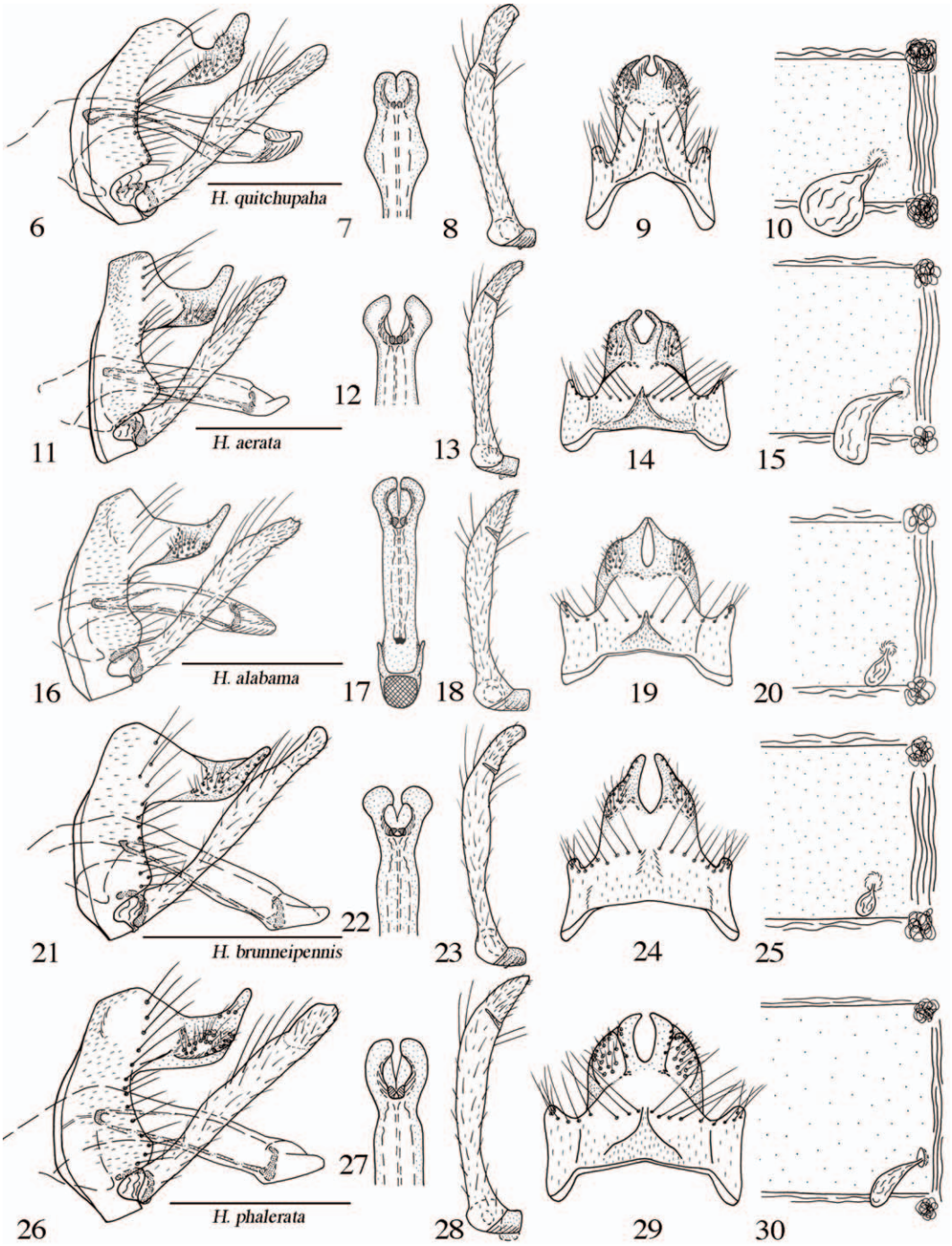


Figs. 1–5. Dorsal views of adult male heads, scale bars 0.5 mm: 1, *Hydropsyche quitchupaha* Korecki and Ruiter; 2, *Hydropsyche aerata;* 3, *Hydropsyche alabama;* 4, *Hydropsyche brunneipennis;* 5, *Hydropsyche phalerata.*

H. quitchupaha is the only species in the *H. scalaris* Group to have both a subapically swollen phallobase and tergum X with upturned posteromesal lobes (Figs. 6, 9). *Hydropsyche aerata* Ross, *H. alabama* Lago and Harris, *H. brunneipennis* Flint and Butler, and *H. phalerata* Hagen are similar in having tergum X with upturned posteromesal lobes (Figs. 11, 16, 21, 26) but none of these species have the phallobase subapically swollen (Figs. 12, 17, 22, 27). The narrow interocular width of the head and ovaliform occipital setal warts distinguish *H. aerata* from *H. quitchupaha* (Figs. 1, 2). The harpagones, the distal segments of the inferior appendages, of *H. phalerata* and H. *alabama* are triangular in ventral view (Figs. 28, 18) and clavate in *Hydropsyche quitchupaha* (Fig. 8). In addition, *Hydropsyche quitchupaha* is the only species in the *H. scalaris* Group recorded west of the Rocky Mountains with the posteromesal lobes of tergum X upturned; *Hydropsyche aerata, H. alabama, H. brunneipennis,* and *H. phalerata* are eastern in distribution (Ross 1938, Ross 1944, Schuster and Etnier 1978, Huryn and Foote 1983, Flint and Butler 1983, Nimmo 1987, Lago and Harris 2006). Other western *H. Scalaris* Group species such as *Hydropsyche auricolor* Ulmer, *H. californica* Banks, and *H. winema* Denning have the phallobase subapically, swollen but tergite X is quadrate and lacks the upturned posteromesal lobes.

DISCUSSION

The discovery of a new western species in the *Hydropsyche scalaris* Group was very unexpected. The southwestern species of this



Figs. 6–30. Adult male *Hydropsyche,* scale bars 0.5 mm: 6–10, *Hydropsyche quitchupaha* Korecki and Ruiter; 11–15, *Hydropsyche aerata;* 16–20, *Hydropsyche alabama;* 21–25, *Hydropsyche brunneipennis;* 26–30, *Hydropsyche phalerata.* 6, 11, 16, 21, and 26, lateral view of adult male terminalia; 7, 12, 17, 22, and 27, ventral view of phallobase apex; 8, 13, 18, 23, and 28, ventral view of left inferior appendage; 9, 14, 19, 24, and 29, dorsal view of terga IX and X; 10, 15, 20, 25, and 30, dorsal view of abdominal sternum V with gland.

group (*H. auricolor, H. californica*, *H. occidentalis* Banks, and *H. philo* Ross) are usually abundant where present. Also, Utah is one of the better-collected states in the west. Since only 3 males have been identified, it is possible *H. quitchupaha* occurs in very small habitat patches and the actual microhabitat is not reflected by the available collection information. We are publishing this description to encourage others to examine their existing collections from southern Utah in greater detail for additional specimens and associated life stages.

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