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Two new species of *Ochrotrichia* (Trichoptera: Hydroptilidae) from the southwestern United States

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Abstract

Descriptions and figures are provided for two new species of *Ochrotrichia* Mosely 1934 from Southern California and Arizona, United States, *O. bickfordae*, n. sp., and *O. bogani*, n. sp. Both species have the combination of a relatively simple 10th tergum and long inferior appendages.

Key words: taxonomy, Trichoptera, Hydroptilidae, *Ochrotrichia*, new species, California, Arizona

Introduction

Ochrotrichia is a large New World genus with over 170 species known so far (Morse 2010). Based on the material I have examined, there are many species yet to be described. Many of these species inhabit small, intermittent, headwater streams and additional collecting at such habitats will undoubtedly result in additional species being discovered. While most species of *Ochrotrichia* have a very complex set of appendages associated with the male 10th tergum, and/or short (length < 3 times height), often complex, inferior appendages (see Denning and Blickle 1972, Flint 1972, Bueno-Soria 2009), a few from the eastern United States have a combination of a simple 10th tergum and long, simple, nearly parallel-sided inferior appendages (*Ochrotrichia elongiralla* Harris 1986, *Ochrotrichia unio* (Ross 1941), *Ochrotrichia xena* (Ross 1938)). The two species described in this paper have the unique combination of a fairly simple 10th tergum, with only two simple appendages, and the long inferior appendage. They are distributed in the southwestern United States.

Methods

All material examined was collected with the use of light traps and stored in ETOH. The male genitalia were figured after being cleared in a 10% solution of KOH. Separate figures showing variation within the 10th tergum are presented. In the material examined, the number of females in the collection is also noted but placed in parentheses to indicate this is a presumed association. Depositories of the specimens are abbreviated as follows: California Academy of Sciences, San Francisco, California (CAS); D.E. Ruiter personal collection, Centennial, Colorado (DERPC); United States National Museum, Washington, District of Columbia (USNM).

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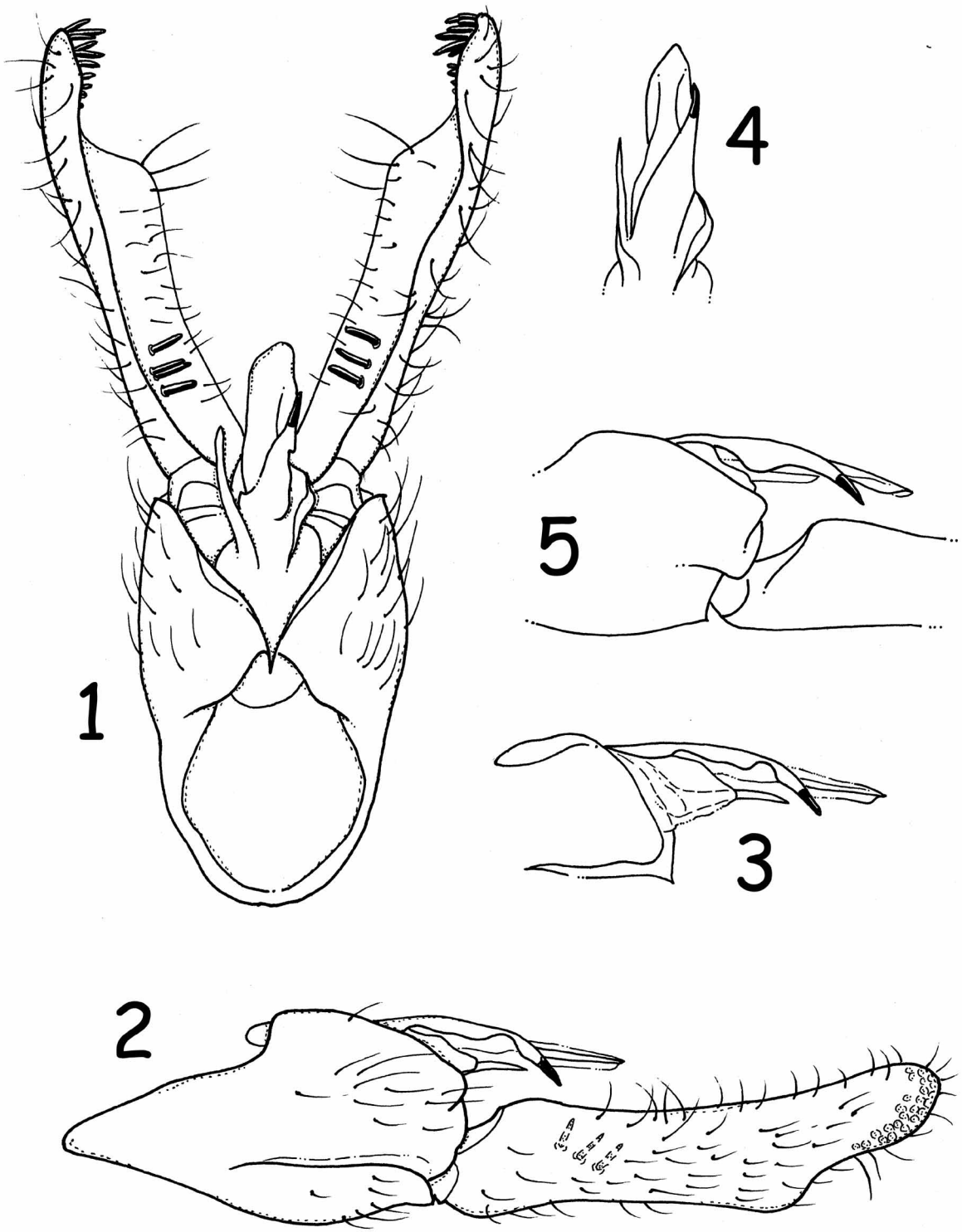
***Ochrotrichia bickfordae*, new species**
(Figs 1–5)

Diagnosis. *Ochrotrichia bickfordae* has two 10th-tergum processes: a small, short, nearly straight, acute process originating dorsolaterally on the right side; and a dorsal process, subequal in length to the lateral process, that is broad at its base and evenly tapered to its apex near the triangular apex of



FIGURES 1–5. *Ochrotrichia bickfordae*, male—1: 9th and 10th segments, dorsal view; 2: 9th and 10th segments, left lateral view; 3: 10th tergum, left lateral view; 4: 10th tergum, dorsal view showing variation; 5: 10th tergum, left lateral view showing variation.

the 10th tergum. The only other known *Ochrotrichia* with the combination of long inferior appendages and the fairly simple 10th tergum possessing only 2 simple appendages is *Ochrotrichia bogani*, described below. *Ochrotrichia bickfordae* is readily distinguished from *Ochrotrichia bogani* by the fairly straight 10th tergum processes in dorsal view, and the ventral shoulder of the inferior appendage located near the appendage apex.

Description. Male: Length from apex of head to wing tips is 3 mm. Brown in alcohol. Head, thorax and abdomen typical for genus (see Flint 1972). Ninth segment nearly twice as long as tall, with triangular anterior margin, posteroventral margin perpendicular to length; dorsal margin incomplete, v-shaped in dorsal view, fused with 10th tergum, 10th tergum about 2/3 length of 9th segment; right lateral projection slender, extending from base about 1/2 length of 10th tergum, nearly linear; dorsal projection broad at base, tapering smoothly to acute apex, apex located left of main body of 10th tergum and directed slightly downward at apex. Inferior appendages symmetrical, slightly separated basomesally; linear, about 4 times longer than high; tallest portion near each base; apex slightly curved dorsad in lateral view; viewed dorsally and ventrally, inferior appendage with wide shoulder near apex; small cluster of 2-4 dark, long, peg-like setae located mesally near base; additional cluster of dark peg-like setae at apex. Phallus is typical of many species in the genus, long and threadlike.

Type material. Holotype, male (cleared), in ethanol: USA: CALIFORNIA: Fresno County, ultraviolet light, Little Dry Creek, Marshall Station, D.J. Burdick, 23 May 1983 (CAS). Paratype material: same data as holotype, but 26 April 1983, male (female) (CAS); Marshall Station, D.J. Burdick, 9 June 1983, 1 male (CAS); Madera County, USDA Experimental Range, 22 miles northeast of Madera, R.F. Gall, 12 May 1982, 14 males (10 females) (CAS); same data but 1 male, (CAS).

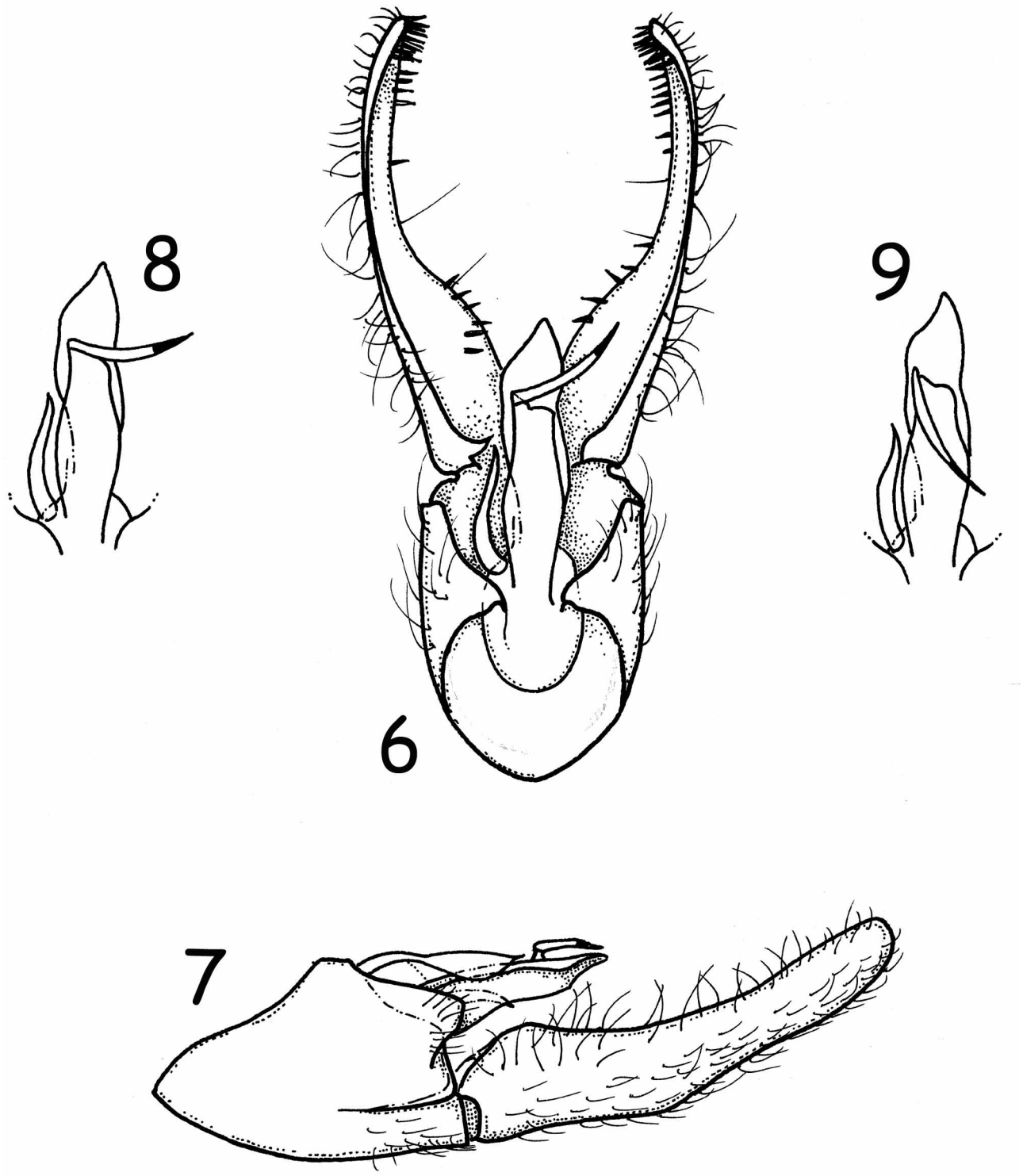
Etymology. *Bickfordae*, named for Shannon Bickford who has prepared numerous excellent illustrations of the California caddisflies, including those in this paper.

***Ochrotrichia bogani*, new species**
(Figs 6–9)

Diagnosis. *Ochrotrichia bogani* is the second species known in the genus with only two 10^{th}-tergum processes: a small, slightly downcurved, acute process originating dorsolaterally on the right side; and a longer dorsal process that is broad at its base and abruptly tapered near the apex of the 10th tergum with the tapered portion acutely bent to the left side. This combination of two 10^{th}-tergum processes and the acutely bent dorsal process is unique within *Ochrotrichia*. The location of the ventral shoulder of the inferior appendage varies from near the base to near mid-length.

Description. Male: Length from apex of head to wing tips is 2 mm. Brown in alcohol. Head, thorax and abdomen typical for genus (see Flint 1972). Ninth segment with triangular anterior margins, posteroventral margins perpendicular to length; posterior dorsolateral margin with nearly quadrate lobe extending slightly beyond lateral margin; dorsal margin incomplete, fused with 10th tergum. Tenth segment about same length as 9th segment; right lateral projection slender, extending from base about 1/2 length of 10^{th} segment, directed downward apically; dorsal projection broad at base and extending about 3/4 length of 10th tergum, then abruptly narrowing to acute apex twisted across 10th tergum to left, angle of twist varying from about 45 degrees from linear axis to reversed upon base of projection with apex pointed anterad. Inferior appendages slightly separated basomesally; linear, about 4 times longer than high; tallest portion near base, apex slightly curved dorsad in lateral view; viewed ventrally, inferior appendages with wide shoulder near base with

small cluster of dark, peg-like setae along wide portion; additional cluster of dark peg-like setae at apex; inferior appendages slightly asymmetrical with small, mesally directed, dorsal spur present at base of right inferior appendage. Phallus typical of many species in the genus, long and threadlike.



FIGURES 6–9. *Ochrotrichia bogani*, male—6: 9th and 10th segments, dorsal view; 7: 9th and 10th segments, left lateral view; 8: 10th tergum, dorsal view showing variation; 9: 10th tergum, dorsal view showing variation.

Type material. Holotype, male (cleared), in ethanol: USA: CALIFORNIA: Fresno County, ultraviolet light, Little Dry Creek, Marshall Station, D.J. Burdick, 7–14 March 1983 (CAS). Paratype material: U.S.A.: ARIZONA: Cochise County, light trap, East Turkey Creek, Chiricahua Mountains,

Michael Bogan, 30 July 2004, 1 male (DERPC); light trap, Cave Creek, Southwest Research Station, Chiricahua Mountains, Michael Bogan, 25 June 2004, 1 male (DERPC); light trap, Rattlesnake Creek, Golium Mountains, Michael Bogan, 4 June 2004, 21 males (175 females) (DERPC); Pima County, light trap, Rattlesnake Creek, above Sycamore Creek, near Tucson, Chris O'Brien, 4 June 2004, 2 males (44 females) (USNM).

U.S.A. CALIFORNIA: Fresno County, ultraviolet light, Little Dry Creek, Marshall Station, D.J. Burdick, 4–11 May 1983, 7 males (CAS); Marshall Station, D.J. Burdick, 7–14 March 1983, 18 males (3 females) (CAS); same data but 2 males (CAS); same data but 4–11 May 1983, 51 males (CAS), same data but 1 male (CAS), same data but 11 May 1983, 119 males (CAS); same data but 17 May 1983, 1 male (CAS); same data but 11 May 1989, 2 males (3 females) (CAS); same data but 23–30 June 1983, 1 male (CAS); North Burrough Road, Township 11 south, Range 24 east, southeast corner of Section 8, 11–18 May 1986, 3 males (CAS); Madera County, Lake Hensley, J. Dellavalle, 14 May 1986, 1 male (CAS).

Etymology. *Bogani* is named for Michael Bogan who has collected numerous interesting and new Trichoptera.

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