

A CONFIRMED RECORD OF THE EPHEMEROPTERA GENUS
BAETISCA FROM WEST OF THE CONTINENTAL DIVIDE
AND AN ANNOTATED LIST OF THE MAYFLIES
OF THE HUMBOLDT RIVER, NEVADA

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ABSTRACT.—The mayfly *Baetisca lacustris* is reported from the Humboldt River, Nevada, based on 3 relatively mature nymphs collected in 1997 and 2000. An annotated list of the mayfly fauna of the Humboldt River is given, which includes the section from Elko to Winnemucca.

Key words: mayflies, Ephemeroptera, *Baetisca*, Humboldt River, Nevada.

In their recent revision of the genus *Baetisca*, Pescador and Berner (1981) indicate that they were unable to verify the presence of the genus at any locality west of the Continental Divide. Although *B. columbiana* Edmunds was described from the Columbia River near Pasco, Washington (Edmunds 1960), the type, which is at the California Academy of Sciences, is the only known specimen and has not been recollected. An old historical record for California (Eaton 1883–1888) also has not been confirmed.

Recently, 3 relatively mature *Baetisca* nymphs were found in some benthic samples taken in the Humboldt River in north central Nevada. Two of these nymphs were examined by M.L. Pescador and verified as *Baetisca lacustris* McDunnough. This species is widespread in North America, and the nearest known record is from the Laramie River in Albany County, Wyoming, east of the Continental Divide. Consequently, it now seems possible that *Baetisca* may occur in the far west at several localities.

Over the last 10 years much collecting of aquatic insects has occurred in Nevada. A study on the stonefly (Plecoptera) fauna by R.W. Baumann and A.L. Sheldon is nearing completion, and several studies on the benthic fauna of the Humboldt River drainage are being conducted. The mayfly fauna of the state is poorly known, and even though the potential mayfly fauna was addressed (Allen

and Murvosh 1991), few published records exist. Thus, it was deemed useful to produce a list of the species that have been verified from the Humboldt River to date.

The Humboldt River has its headwaters in the Jarbridge, Ruby, and nearby mountain ranges in northeast–north central Nevada. However, our list is limited to the mainstream of the Humboldt River from just below the confluence of the North Fork, east of Elko, to the junction of Rose Creek, immediately west of Winnemucca. Although most records are based on nymphs, some also have been collected as adults, and 1 species, *Siphonurus occidentalis* (Eaton), is known only from a large series of adults found on the Dunphy bridge.

LIST OF MAYFLIES FROM THE
HUMBOLDT RIVER, NEVADA

BAETIDAE

Acentrella insignificans (McDunnough)

Baetis tricaudatus Dodds

Camelobaetidius warreni (Traver and Edmunds)

Centroptilum bifurcatum McDunnough

Fallceon quilleri (Dodds)

Since the important study of *Baetis* larvae of North America (Moriyama and McCafferty 1979), several closely related genera have been recognized that were formerly included under the genus *Baetis*. The 5 species recorded

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belong to 5 different genera and represent the present classification (Lugo-Ortiz and McCafferty 1998). These species are widespread in western North America and are relatively common in the Humboldt River drainage.

EPHEMERELLIDAE

Ephemerella inermis Eaton

Widely distributed in the Intermountain West, this species extends east to Nebraska and south to Texas, and so its presence in the river would be expected (Allen and Edmunds 1965).

EPHEMERIDAE

Ephemera simulans Walker
Hexagenia limbata (Serville)

These 2 burrowing mayflies are widely distributed in western North America (McCafferty 1994), but because actual records are few, the following Humboldt River sites are noted.

Ephemera simulans: Elko Co., Carlin; Eureka Co., above Barth and below Harney.

Hexagenia limbata: Elko Co., Carlin; Eureka Co., Dunphy and Shoshone; Lander Co., Argenta, Blue House Slough, and above Rock Creek.

HEPTAGENIIDAE

Heptagenia elegantula (Eaton)
Rhithrogena undulata Banks
Stenonema terminatum (Walsh)

These species are present in warmer rivers of the West (Bednarik and McCafferty 1979, Bednarik and Edmunds 1980). *Heptagenia elegantula* was collected only occasionally, but the other 2 species were commonly found wherever suitable habitats existed.

LEPTOPHLEBIIDAE

Choroterpes albiannulata McDunnough
Paraleptophlebia debilis (Walker)
Traverella albertana McDunnough

The *Choroterpes* and *Traverella* species are commonly found in larger, warmer rivers of western North America (Jensen 1966). However, *P. debilis* appears more sensitive to environmental perturbation and has been found only at 3 localities: Eureka Co., Dunphy; Humboldt Co., 26 Ranch near Mote and Christiansen Dam bridge.

SIPHONURIDAE

Siphonurus occidentalis (Eaton)

Nymphs were not collected even though benthic samples were taken from numerous stations over a 10-yr period. A large series of adults was obtained on a bridge at the following locality: Eureka Co., Dunphy, 7 June 2000.

Nymphs are good swimmers and spend much of their life in the more lentic areas along the river margins.

LEPTOHYPHIDAE

Tricorythodes minutus Traver

This species is very common throughout the entire drainage and ranges throughout western North America and to the Northeast (McCafferty 1999).

POLYMITARCIDAE

Ephoron album (Say)

This common western and midwestern species (McCafferty 1994) is the most abundant burrowing mayfly in the drainage. It occurs from Elko County to Lander County.

CAENIDAE

Caenis latipennis Banks

Provonsa's (1990) revision of the *Caenis* of North America does not list any species from Nevada. However, *C. latipennis* was described from Washington and it is widely distributed. It is found at the following localities in the Humboldt River: Eureka Co., Palisade Canyon, Shoshone; Lander Co., Rock Creek confluence; Humboldt Co., 26 Ranch near Mote, Comas Gauging Station above Golconda.

BAETISCIDAE

Baetisca lacustris McDunnough

This taxon is recorded for the first time in Nevada from the following localities: Nevada, Eureka Co., Humboldt River at Shoshone, 13 November 1997, 2 nymphs; Eureka Co., Humboldt River at Dunphy, 3 March 2000, 1 nymph.

Although this list of species known to occur in the Humboldt River might not be complete, the addition of 19 species, many of which are new state records from Nevada, is

useful. Additional collecting in the North Fork and some of the major tributaries of the Humboldt River may increase the list. Specimens are deposited at the Monte L. Bean Life Science Museum, Brigham Young University, Provo, Utah, and C.P. Gillette Museum, Colorado State University, Fort Collins, Colorado.

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LITERATURE CITED

- ALLEN, R.K., AND G.F. EDMUNDS, JR. 1965. A revision of the genus *Ephemerella* (Ephemeroptera, Ephemerellidae) VIII. The subgenus *Ephemerella* in North America. *Miscellaneous Publications of the Entomological Society of America* 4:243–282.
- ALLEN, R.K., AND C.M. MURVOSH. 1991. A biogeographically based assessment of the potential mayfly fauna of Nevada. *Pan-Pacific Entomologist* 67:206–215.
- BEDNARIK, A.F., AND G.F. EDMUNDS, JR. 1980. Descriptions of larval *Heptagenia* from the Rocky Mountain region (Ephemeroptera: Heptageniidae). *Pan-Pacific Entomologist* 56:51–62.
- BEDNARIK, A.F., AND W.P. MCCAFFERTY. 1979. Biosystematic revision of the genus *Stenonema* (Ephemeroptera: Heptageniidae). *Canadian Bulletin of Fisheries and Aquatic Sciences* 201:1–73.
- EATON, A.E. 1883–1888. A revisional monograph of recent Ephemeridae or mayflies. *Transactions of the Linnaean Society of London, Second Series Zoology* 3:1–352.
- EDMUNDS, G.F., JR. 1960. The mayfly genus *Baetisca* in western North America. *Pan-Pacific Entomologist* 36:102–104.
- JENSEN, S.L. 1966. The mayflies of Idaho (Ephemeroptera). Doctoral dissertation, University of Utah, Salt Lake City. 367 pp.
- LUGO-ORTIZ, C.R., AND W.P. MCCAFFERTY. 1998. A new North American genus of Baetidae (Ephemeroptera) and key to *Baetis* complex genera. *Entomological News* 109:345–353.
- MCCAFFERTY, W.P. 1994. Distributional and classificatory supplement to the burrowing mayflies (Ephemeroptera: Ephemerioidea) of the United States. *Entomological News* 105:1–13.
- _____. 1999. The mayflies of North America. <http://www.entm.purdue.edu/entomology/research/mayfly/species.html>.
- MORIHARA, D.K., AND W.P. MCCAFFERTY. 1979. The *Baetis* larvae of North America (Ephemeroptera: Baetidae). *Transactions of the American Entomological Society* 105:139–221.
- PESCADOR, M.L., AND L. BERNER. 1981. The mayfly family Baetiscidae (Ephemeroptera). Part II. Biosystematics of the genus *Baetisca*. *Transactions of the American Entomological Society* 107:163–228.
- PROVONSHA, A.V. 1990. A revision of the genus *Caenis* in North America (Ephemeroptera: Caenidae). *Transactions of the American Entomological Society* 116:801–884.

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