Mayflies of the Southwest: New Species and Records of *Dactylobaetis*

(Ephemeroptera: Baetidae)

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A recent study of mayfly collections from Arizona, New Mexico and Texas has revealed undescribed species, and a new distributional record of *Dactylobaetis* Traver & Edmunds. Types of new species are deposited in the California Academy of Sciences, San Francisco (CAS). In the accounts dealing with the species, collections made by the senior author are indicated by the initials RKA. Abbreviations for collections in which specimens are deposited are as follows: CSULA, California State University, Los Angeles; NTSU, North Texas State University, Denton. We thank Kenneth W. Stewart and William Stark, North Texas State University, for the loan of specimens.

Genus Dactylobaetis

Traver & Edmunds (1968) described and named 13 species from North, Central and South America, and only two were from North America north of Mexico. *Dactylobaetis warreni* is known only from central California, and *D. cepheus* is known from Idaho and Oregon. This report includes names and descriptions of three additional species from Arizona and New Mexico, and a new record of *D. mexicanus* Traver & Edmunds from Texas.

Dactylobaetis navis, new species

Nymph. Length: body 6.0-7.0 mm.; caudal filaments broken. General color pale with brown markings. Head pale; vertex pale. Thoracic nota pale with brown markings; thoracic sterna pale; legs pale with brown markings; femora pale, brown apically; dorsal margin femora with moderately long row setae (Fig. 9); tibiae pale; tarsi pale; tarsal claws brown; tarsal claws *warreni*-type, with 5-8 denticles (Fig. 13). Abdominal terga pale with small inverted U-shaped markings on terga 2-8 and without sublateral oblique brown markings (Fig. 1); abdominal gills pale, gills with faint chitinized band along outer margin and gill trachea pale (Fig. 5); abdominal sterna pale; sterna with posterior sublateral, dark, thin longitudinal markings. Caudal filaments pale, setae pale.

Type. Holotype: mature female nymph, San Juan River at Shiprock, 1500M. (4,965'), San Juan County, New Mexico, 28-VI-64, RKA (CAS).

Remarks. The nymphal stage of *D. navis* is distinguished from all other described species by the following combination of characters: (1) tarsal claws of the *warreni*-type; (2) abdominal terga with small inverted U-shaped markings and without oblique markings; (3) femora with moderately long setae on dorsal margins; and (4) the presence of a faint chitinized band

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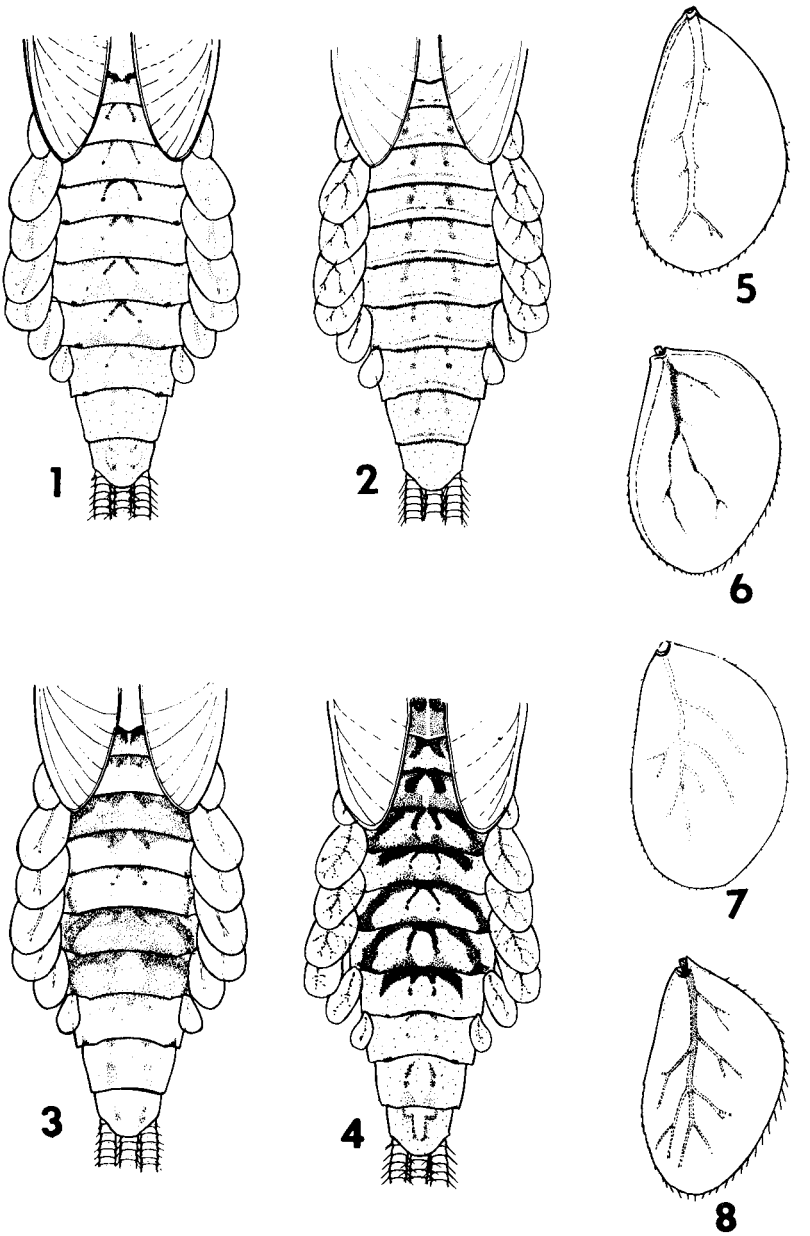


Figs. 1-4. Abdomens, dorsal view, of *Dactylobaetis* nymphs: Fig. 1, *D. navis;* Fig. 2, *D. salinus;* Fig. 3, *D. mexicanus;* Fig. 4, *D. trivialis.* Figs. 5-8. Fourth gill of *Dactylobaetis* nymphs: Fig. 5, *D. navis;* Fig. 6, *D. salinus;* Fig. 7, *D. mexicanus;* Fig. 8, *D. trivialis.*

along outer margin of gills, and trachea pale. Traver & Edmunds (1968) report nymphs of *Dactylobaetis* from the Virgin River, Washington Co., Utah, as possible allies to *D. cepheus* Traver & Edmunds. On the basis of distribution these nymphs are tentatively assigned as *D. navis*.

Dactylobaetis salinus, new species

Nymph. Length: body 5.5-6.5 mm.; caudal filaments 1.0-2.0 mm. General color pale with brown to dark brown markings. Head pale; vertex pale. Thoracic nota pale with faint brown markings; thoracic sterna pale; legs pale with brown markings; femora pale, brown apically; dorsal margin femora with row long setae (Fig. 10); tibiae pale, brown apically, tarsi pale, brown apically; tarsal claws brown; tarsal claws *musseri*-type, with 30-40 denticles (Fig. 14). Abdominal terga pale with dark brown submedian parallel longitudinal lines (Fig. 2); abdominal gills pale, trachea dark; gills with chitinized band along outer margin (Fig. 6); abdominal sterna pale with fine dark markings; abdominal sterna 7-9 with thin transverse anterior markings; sterna with posterior sublateral markings. Caudal filaments pale, setae pale.

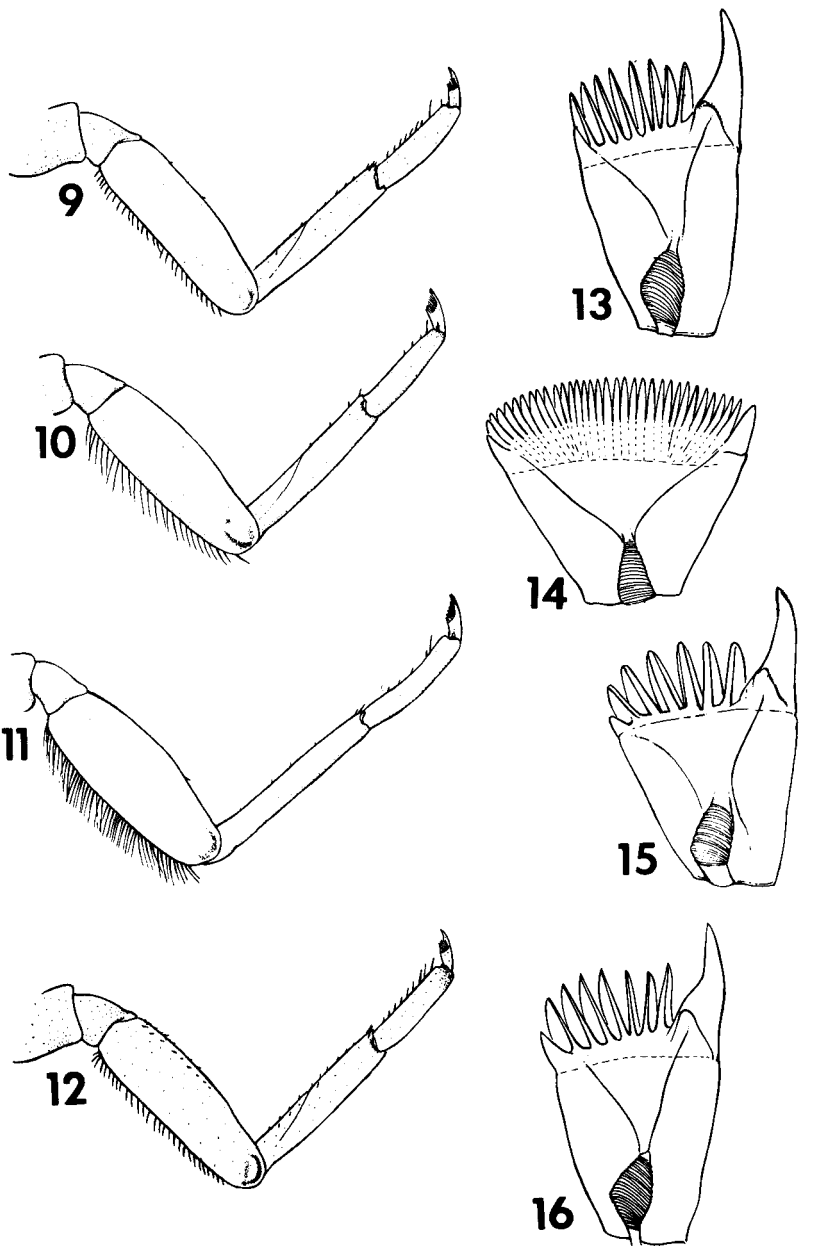
Types. Holotype: mature female nymph, Salt River on Highway 288, 825 m. (2,700'), Gila County, Arizona, 20-VII-70, RKA (CAS). Paratopotype: 1 female nymph, same data as holotype (CSULA).

Remarks. The nymph of *D. salinus* is distinguished from all other North American *Dactylobaetis* by the following combination of characters: (1) tarsal claws of the *musseri*-type; (2) abdominal terga with submedian parallel longitudinal lines; (3) the presence of long setae on dorsal margins of femora; and (4) the presence of a well defined chitinized band along outer margin of gills, and with dark trachea.

Dactylobaetis trivialis, new species

Nymph. Length: body 5.5-6.5 mm.; caudal filaments 1.5-2.5 mm. General color pale with brown to dark brown markings. Head pale with brown markings; vertex usually brown, and brown marking between ocelli. Thoracic nota pale with complex dark brown pattern; thoracic sterna pale; legs pale with brown markings; femora pale, brown apically; dorsal margin femora with moderately long row setae (Fig. 12); tibiae pale, with faint brown marking at each apex; tarsi pale, brown apically; tarsal claws brown; tarsal claws *warreni*-type, with 5-8 denticles (Fig. 16). Abdominal terga pale with submedian oblique dark brown markings; abdominal terga 1-7 with transverse inverted U-shaped dark brown markings (Fig. 4); abdominal gills pale, trachea dark; gills without chitinized band along outer margin (Fig. 8); abdominal sterna pale, often with fine dark markings; abdominal sterna 3-9 often with thin transverse anterior markings; sterna often with posterior sublateral thin longitudinal marking. Caudal filaments pale, setae brown.

Types: Holotype: mature female nymph, Verde River at Camp Verde, Yavapai County, Arizona, 18-VII-70, RKA (CAS). Paratopotypes: 1 male and 4 female nymphs, same data as holotype (CSULA). Paratypes: 1 female nymph, Oak Cr. nr. Cornville, Yavapai Co., Arizona, 18-VII-70, RKA; 2 male and 6 female nymphs, Oak Cr. at Red Rock Crossing, Yavapai Co., Arizona, 17/18-VII-70, RKA; 1 male and 3 female nymphs, Ft. Apache Ind. Res., N. Fk. White Riv., Navajo Co., Arizona, 5-VII-64, RKA; 8 male and 13 female nymphs, Salt Riv. on Hwy. 288, Gila Co., Arizona, 20-VII-70, RKA; 1 male and 1 female nymphs, E. Verde Riv. on Hwy. 87, Gila Co., Arizona, 18/19-VII-70, RKA; 1 female nymph, Gila Riv. nr. Cliff on Hwy. 180, Grant Co., New Mexico, 21-VII-70, RKA; 1 male nymph, Cimarron Riv. at Cimarron, Colfax Co., New Mexico, 23-VIII-70, RKA; 2 male and 4 female nymphs, E. Fk. Gila Riv. on Hwy. 527, Grant Co., New Mexico, 21-VII-70, RKA; above paratypes in collection (CSULA).



Figs. 9-12. Fore legs, anterior view, of *Dactylobaetis* nymphs: Fig. 9, *D. navis;* Fig. 10, *D. salinus;* Fig. 11, *D. mexicanus; Fig. 12, D. trivialis.* Figs. 13-16. Tarsal claws of *Dactylobaetis* nymphs: Fig. 13, *D. navis;* Fig. 14, *D. salinus;* Fig. 15, *D. mexicanus;* Fig. 16, *D. trivialis.*

Biology. Nymphs were collected during the months of July and August from streams between 825m-2075m (2,700-6,800 feet) elevation and with water temperature ranges between 20-28°C (68-62°F).

Remarks. The nymphs of *D. trivialis* can be distinguished from all described species of North American *Dactylobaetis* by the following combination of characters: (1) tarsal claws of the *warreni*-type; (2) abdominal terga with dark oblique markings and small median U-shaped markings; (3) with moderately long setae on dorsal margin of femora; and (4) the absence of a chitinized band along outer margin of gills, and with dark trachea.

Dactylobaetis mexicanus Traver & Edmunds

Nymph. Length: body 5.0-6.0 mm.; caudal filaments 1.0-2.0 mm. General color pale with brown markings. Head pale with brown markings; vertex usually brown. Thoracic nota pale with brown markings; thoracic sterna pale; legs pale with brown markings; femora pale, brown apically; dorsal margin femora with long setae (Fig. 11); tibiae pale; tarsi pale, brown apically; tarsal claws brown; tarsal claws *warreni*-type, with 5-8 denticles (Fig. 15). Abdominal terga pale with submedian oblique markings; abdominal terga 1-3 and 6-7 with transverse inverted U-shaped markings (Fig. 3); abdominal gills pale, trachea faint; gills without chitinized band along outer margin (Fig. 7); abdominal sterna pale. Caudal filaments pale, setae brown.

New Record: TEXAS: *Palo Pinto County*. Brazos River, 23-VII-71, W. Stark (NTSU).

Literature Cited

Traver, J. R. & G. F. Edmunds, Jr. 1968. A revision of the Baetidae with spatulate-clawed nymphs (Ephemeroptera). Pacific Insects 10:629-677.