A NEW SOUTHEASTERN SPECIES OF *BAETISCA* (EPHEMEROPTERA: BAETISCIDAE)[1]

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There are 11 species in the mayfly genus *Baetisca* presently known from the United States and of these five have been reported as occurring in the Southeast (Berner, 1955). We are presenting the description of another new southeastern form and recording the occurrence of an additional one. Although descriptions of new species of mayflies are normally based on the adult, almost always the male, the nymphs of *Baetisca* are so diverse that this stage provides an easier and more suitable form for differentiation of species.

Baetisca becki, new species[4]

Baetisca becki is closely related to *B. rogersi* Berner but the nymphs can easily be separated on the basis of a number of significant differences. The male nymphs of *becki* are smaller than those of *rogersi* and in lateral view have a distinctly different profile. The thorax of *becki* is more rounded than that of *rogersi* and the lateral projections anterior to the large lateral mesothoracic spines are weak and unlike the prominent ones of *rogersi*. Further, the lateral mesothoracic spines of *becki* are long, smooth, and thin while those of *rogersi* are much heavier and coarser with the margins more strongly dentate. Additionally, *becki* lacks the prominent, blackish tubercles found over the mesothorax of *rogersi*. The mid-dorsal abdominal tubercles, prominent on *rogersi*, are much reduced in *becki*. Other points of departure include the presence of prominent dorsal mesothoracic spines in *becki* and a pattern of ventral spots that is quite different from that of *rogersi*.

HOLOTYPE: Nymph (male). Body length 6.6 mm.; caudal filaments 2.0 mm.

Head: Frontal projections moderately well developed; genal projections prominent, flattened, and rounded, shelf-like. Entire head, except for frontal shelf and eyes mottled with blackish spots.

Thorax: Lateral margins of thorax dentate, but much less so than in *B. rogersi;* dentation more prominent at base of mesothoracic spines along anterior edge. Lateral mesothoracic spines prominent, sharp-tipped. Lateral margin of mesothorax with small expansion just posterior to anterior edge, a second and much larger expansion in front of, and continuous with, mesothoracic spine. A pair of prominent submedian tubercles present in posterior third of mesonotum and on a line with the posterior edge of the lateral spines. Surface of pro- and mesonota, except for lateral projections, covered with blackish mottling. Ventrally with pattern of dark brown spots as follows: large spot on pleurum at base of each leg; single spot on

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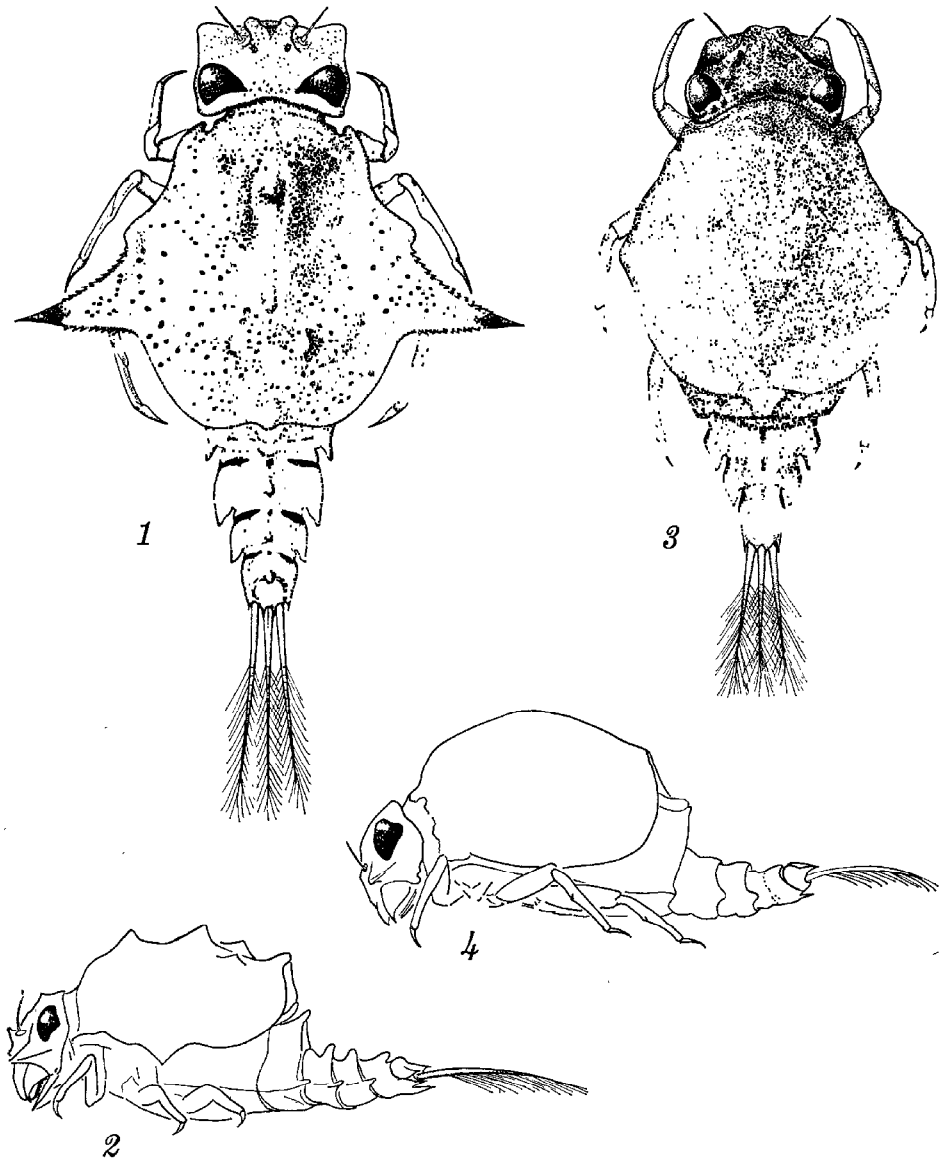
[4] This species is named in honor of William M. Beck, Jr.

median line of prosternum; submedian spots on mesosternum near anterior margin just anterior to leg base; metasternum with spots similar to those of mesosternum and with a geminate median spot.

Legs: Metathoracic femora with a few spots arranged linearly; tibiae with brown area at base. Claws of meso- and metathoracic legs subequal to tibiae of those legs; claw of prothoracic leg approximately ¾ length of tibia.



Figures 1-2. Dorsal and profile views of half-grown nymph of *Baetisca rogersi* for comparison with mature nymph of *B. becki*, Fig. 5. [5]
Figures 3-4. Dorsal and profile views of young nymph of *B. callosa*.

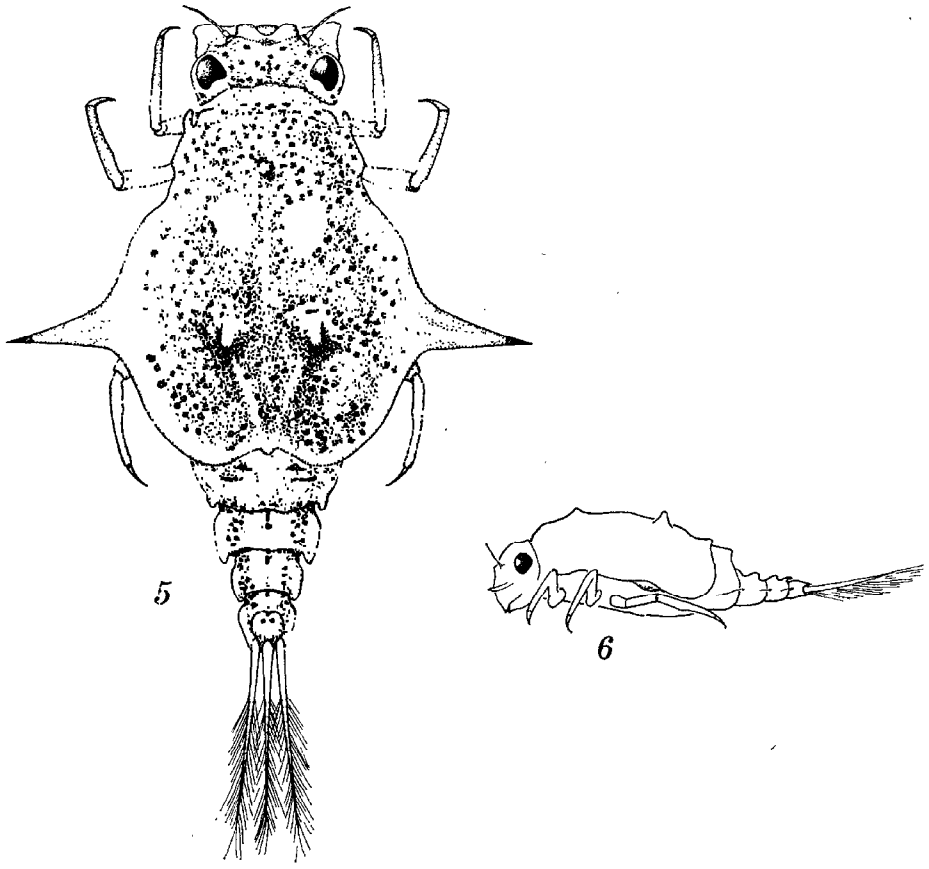
[5] Drawings made by Mr. Paul Laessle, Staff Artist, Department of Biology, University of Florida.

Abdomen: Lateral margins of segments 6-9 dentate; expanded and produced posteriorly. Posterior margin of tergite 6 hirsute. Tergites 7-9 with heavy, brown, median line extending from anterior margin beyond middle of tergite; laterally each of these segments heavily mottled with dark brown. Postero-median elevation present on tergites 7-9, not kneeled and strongly produced as in *B. rogersi.* Pattern of heavy brown spots on venter. Caudal filaments pale.

Holotype: Nymph (male) preserved in alcohol. Florida, Escambia County, Perdido River, May 5, 1961; collected by Robert F. Schneider. In the University of Florida Collections.

Paratypes: 2 nymphs. One specimen in University of Florida Collections, the second in the Florida State Board of Health Collections. Florida, Santa Rosa County, Sweetwater Creek, March 9, 1960; Robert F. Schneider, collector.

Baetisca becki has been collected only in extreme northwestern Florida. The two nymphs from Sweetwater Creek were taken from the sandy bottom under six to ten inches of water. Since the initial collection, the creek has been carefully examined six times, yet no other *becki* nymphs were collected. The holotype nymph was found on a sand bar covered by a thin layer of organic detritus.



Figures 5-6. Dorsal and profile views of *B. becki.*

A year later, May 3, 1962, 13 additional nymphs were collected from the Perdido River and returned alive to the laboratory at Pensacola in an attempt to rear them. Some lived as long as June 6, but none was able to emerge. To date no adults have been reared nor is this stage known.

The two streams from which the nymphs were collected are very similar, both being swiftly flowing, clear, shallow, and sandbottomed. The pH is almost constant at 5.4 and dissolved oxygen remains near saturation throughout the year. Water temperature was 13°C. during the March collections in Sweetwater Creek and 17 to 19°C. during the May collections in the Perdido River.

Baetisca becki is quite similar to most of the known *Baetisca* species in being an inhabitant of sandbottomed, swiftly-flowing streams.

Baetisca callosa Traver

A series of young nymphs, some half grown, are being referred to this species. Comparison with photographs of the holotype and paratypes of *B. callosa* show no differences which would justify describing these specimens as a new species, although for some time one of us (Berner) considered them to be undescribed. Perhaps when mature nymphs from the type locality in West Virginia and from the newly reported collecting area in Mississippi are available, the validity of the assignment to *callosa* can be ascertained.

Baetisca callosa, if correctly identified by all concerned, would have a wide distribution. The type locality, a tributary of the Potamac River, is in West Virginia. Traver (*in* Needham et al., 1935) further reports the occurrence of the species in the northern part of New York state and McDunnough (1932) records *callosa* from Kazubazua, Quebec.

The description of *B. columbiana* by Edmunds (1960) of a form closely similar to *B. callosa* is of some interest as it shows that the thoracic conformation of the *callosa* type is more widespread than previously supposed. Other known *Baetisca* species have much better development of the lateral mesothoracic spines than *callosa*. The only other species in which there is a deviation from the sharp-spined mesothorax is *B. gibbera* Berner in which the processes are short and blunt.

Daggy (1941), in his discussion of *B. laurentina*, states (p. 241) "A series of 31 immature naiads collected from the Churchill River, 20 miles south of Churchill, Manitoba, August 5, 1937 (RHD), are tentatively placed here. They do not have the dorsal and lateral spines developed more than as rounded tubercles. In size they correspond to two *B. callosa* Traver paratypes kindly given the writer by Dr. Traver.

"From examination of immature naiads of *B. laurentina* and other *Baetisca* species, it seems to the writers that *callosa* Traver merely represents a very young stage of some species probably already described—perhaps *carolina* Traver. The particular species and the synonymy involved will have to be worked out by careful rearings from the type locality in West Virginia."

We do not agree with Dr. Daggy's suggestion that *callosa* is a young stage of *carolina*. One of us (Berner) has collected *B. carolina* nymphs in several stages of development and there is no suggestion that the thoracic spines are not well developed in young nymphs. Further the spines of

young nymphs of *B. rogersi* are often better developed than in mature specimens. The same observations have been made with respect to the nymphs of *B. obesa,* and *B. escambiensis.*

Generally the streams from which our specimens were collected had a moderate to swift flow, were 30-50 feet in width, and ranged in depth up to several feet. Most had gravel beds interspersed with sand. *B. callosa* nymphs were collected from among the pebbles where the water was swiftly flowing and about one foot deep.

All specimens of *callosa* were recorded from Mississippi and all were collected by Dr. C. Dennis Hynes. The sites are as follows: Monroe Co., 2.6 miles east of the junction of Hwys. 8 and 278, July 24, 1954; Itawamba Co., Bull Mountain Creek, Hwy. 25, July 24, 1954; Smith Co., Leaf River at Hwy. 20, August 15, 1954; Covington Co., Leaf River at Hwy. 84, August 15, 1954; Lawrence Co., Silver Creek near Hwy. 84, August 15, 1954.

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