

NEW MAYFLY RECORDS FROM FLORIDA AND A
DESCRIPTION OF A NEW SPECIES¹

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In 1927 Dr. James G. Needham, while collecting mayflies in Florida, picked up some nymphs which were described by Traver (1937) as *Oreianthus* sp. No. 1. At that time Dr. Traver indicated that the differences noted between these nymphs and those of *Oreianthus purpureus* Traver might be generic rather than specific, especially since the nymph of *Neoephemera*, a closely allied genus was not known. Burks (1953), after studying specimens of both *Oreianthus* and *Neoephemera*, concluded that the characters used to separate the two groups were not generic and he synonymized them. At the same time he indicated that the nymphs called *Oreianthus* sp. No. 1 by Traver and by Berner (1950) were *purpureus* and that the species ranged from Florida to North Carolina. I do not, however, agree that Traver's nymph is the same as that of *purpureus*, and the adults which have now been reared bear out my conclusion. The adults are also distinct from those of *Neoephemera bicolor* McDunnough, and I am therefore describing them as a new species.

Although I have collected nymphs of this new species on many occasions, and have transported them from northwest Florida back to Gainesville alive, it was not until 1951 that I was successful in rearing specimens to maturity. Again in 1953, I succeeded in rearing a few additional adults.

The immatures of *Neoephemera youngi* have been described very adequately by Traver and the ecology and habits were treated in "The Mayflies of Florida" (Berner, 1950). There is also an illustration of the nymph in the latter publication.

Neoephemera youngi n. sp.²

(*Oreianthus* sp. no. 1 Traver, 1937)

Adult males of *N. youngi* may be separated from those of *N. bicolor* by the abdominal coloration, the presence of a purplish

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² I take pleasure in naming this species for Dr. Frank N. Young, Indiana University.

band in the distal four-fifths of the femur of *youngi*, and by the annulations on the caudal filaments of *youngi*. From *purpureus*, it may be separated by its smaller size, and by the difference in number of cross veins attaching the first anal vein to the hind margin of the fore wing. *N. youngi* also bears a small, dorsally-projecting, median spine on tergite 2. Neither of the other species appears to show this character.

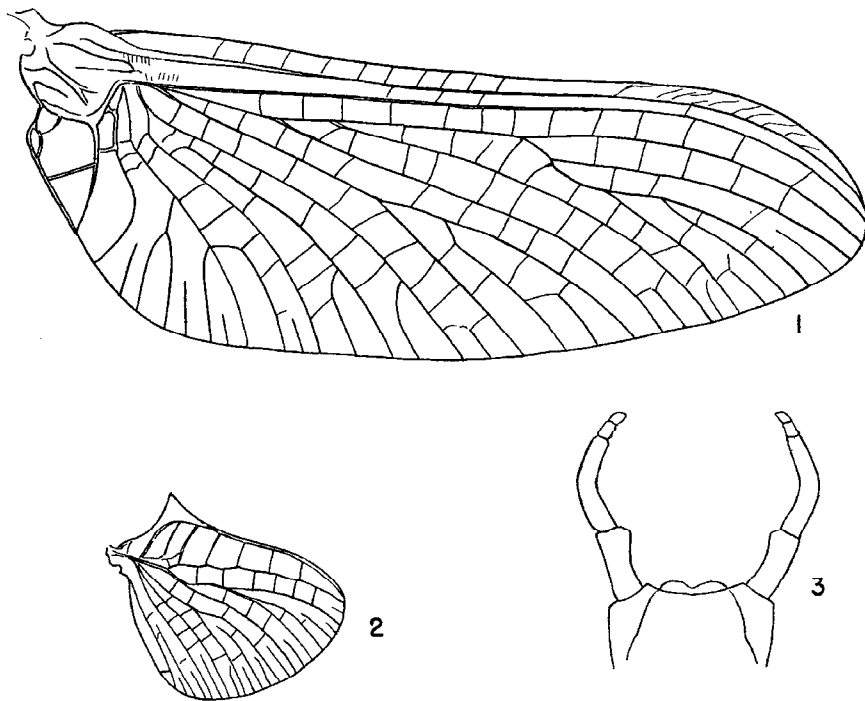
MALE HOLOTYPE: Body length 7.4 mm.; mesothoracic wings 8.1 mm.; outer caudal filaments 8.1 mm.; median caudal filament 8.5 mm.

Head: Eyes large, separated dorsally by a distance about equal to one-half the width of one of the compound eyes. Vertex light in color, white bordering the eyes, orange brown in median section. Ocelli large, surrounded by a dark-brown band which runs between and around the ocelli and meets the median side of the compound eyes. Compound eyes purplish brown, the lower section blackish; upper section very large. Basal segment of antenna brown, flagellum brownish.

Thorax: Reddish brown. Pronotum yellowish brown in median area; dark, purplish-brown border along lateral margins and extending along the posterior border for a short distance medially. Mesonotum tan in color with indication of a fine, mid-dorsal, brownish line. Metanotum rather dark. Pleura darker brown than notum, with some reddish-brown coloration posterior to the middle legs. Sternum brownish; prosternum purplish brown between bases of fore legs. Anterior part of mesosternum with a large, blackish, median area, remainder somewhat splotched in coloration. Metasternum with blackish coloration in mid-line and similar speckled appearance of the mesosternum. Legs: Yellowish. Fore femur without markings except in distal portion where there is a purplish band in the outer four-fifths; tibia smoky, tarsus also smoky but somewhat darker than tibia; 1st tarsal segment relatively small, 2nd and 3rd approximately equal; tibia and tarsus nearly equal in length. Coxae of middle and hind legs with a purplish-brown spot near base on the outer side; femora colored same as fore leg with purplish band in distal four-fifths, tibiae and tarsi smoky. Wings: Main veins of costal border with purplish shading, other veins colorless. No distinctive markings in wings. Single cross vein attaching 1st anal vein to hind margin of wing (figure 1). Hind wings with very acute angle at the costal margin (figure 2).

Abdomen: Yellowish in mid-section of dorsum. Abdominal segments 1, 3, 4, and 5 with triangles in the postero-lateral corners of each tergite. The triangles begin at the antero-lateral portion of each segment, cover the entire lateral portions and extend inward along the posterior border almost to the median line. On segments 6-9, the purplish-brown areas become somewhat larger and more rectangular-shaped with the brownish coloration extending somewhat medially along the anterior margin of the tergite giving the rectangular appearance. Tergite 10 mostly yellowish with small brownish areas on the lateral borders. Tergite 2 almost completely yellow with only a faint indication of a dark mark at the postero-lateral corner. Small, dorsally-projecting, median spine at the posterior margin of tergite 2. In general, dorsal abdominal coloration shows an extensive pale color with the postero-lateral triangular areas gradually

encroaching upon the pale areas posteriorly. Sternites pale with a median, reddish-brown line extending from the anterior border almost to the posterior margin. This is a continuation of the median dark stripe present on the metasternum. Sternites 2-7 have a small black spot at the mid-posterior margin; 2-9 with a dark brown streak at the antero-lateral margins. Sternite 9 with a light orange coloration at the postero-lateral margin extending medially about half way to the mid line. Lateral margins of abdominal segments flanged, the flanges on segments 3-8 reflexed ventrally. Flanges of segment 9 much more pronounced than on other segments; purplish-brown, postero-lateral angles are produced to the posterior margin of segment 10. Genitalia pale and as shown in figure 3. Caudal filaments pale with purplish-brown annulations at alternate joinings.



Neophemera youngi n. sp.

Figure 1. Fore wing of male.

Figure 2. Hind wing.

Figure 3. Male genitalia.

FEMALE ALLOTYPE: Body length 8.5 mm.; mesothoracic wings 9.8 mm.; outer caudal filaments 7.7 mm.; median caudal filament 9.3 mm.

Head: Eyes small, widely separated; ocelli large. Posterior margin, except in median area, bordered with a blackish-brown line. Median line of vertex with a thin, blackish stripe extending from posterior border about half way to front margin. Antennae brownish.

Thorax: Pronotum purplish brown with the margins heavily bordered with darker coloration; purplish median line. Mesonotum light brown with purplish shading laterally; fine, median line extending full length

of mesonotum. Metanotum rather dark in color. Sternum of thorax brownish; metasternum with some yellowish markings laterally. Legs: Fore legs rather short; coloration as in holotype; middle legs missing; hind legs colored as in holotype. Wings as in holotype.

Abdomen: Purplish-brown with a mid-dorsal, fine, pale line extending from tergites 1-7; 1-6 with heavy purplish markings laterally shading off into lighter coloration medially; tergites 1 and 2 darker than 3-6; 7-9 with about same coloration as 1 and 2. Tergites 3-5 have a heavy purplish-brown shading near the antero-median margin bordering the pale line, which becomes obsolescent on tergites 4 and 5. Median line on tergite 6 enlarges into a yellowish blotch; two large, lateral, pale areas extend anteriorly from posterior margin almost to the anterior margin. Tergites 1-9 with purplish-brown, posterior border, becoming rather intense on tergites 4-8. Tergite 2 with a large pale area extending from posterior border anteriorly almost to anterior margin; 1, 3-5 have smaller pale lateral spots. Tergites 7-9 somewhat blotched, 10 somewhat paler. Tergite 2 with a small, distinct, pale spine projecting postero-dorsally from the median line; spine approximately one-third the length of the tergite. Sternites purplish-brown; 2-8 with a purplish-brown dot at the mid-anterior margin. At the anterior margin there is a loop-like purplish pattern on either side of mid line. Lateral flanges present on segments 1-9, folded under at the postero-lateral corners of all segments except 9 where they extend posteriorly and are as long as segment 10. Caudal filaments as in holotype.

VARIATION IN MALE PARATYPES: Purplish margin around pronotum complete; heaviest on lateral edges and postero-lateral angles. Abdominal tergite 2 with the purplish triangle at the postero-lateral corner somewhat more extensive than in holotype. Tergite 1 extensively colored with purplish brown leaving only small pale area at mid-line. Markings on tergites 7 and 8 may be more definitely triangular than in holotype. Sternites may have purplish cast; black streak at antero-lateral angles may extend to posterior margin. Loop-like markings on sternites of allotype may be seen on some males. Wing length 8-8.5 mm.

VARIATIONS IN FEMALE PARATYPES: Whitish markings on pleura. Postero-lateral white marks on tergites 3-5 present, as well as indications of a median pale line which is particularly well marked on tergites 1, 2, 5-8. Wing length 9.5-10.6 mm.

HOLOTYPE: Male imago (reared) preserved in alcohol. Decatur Co., Georgia, Mosquito Creek, April 5, 1953. Collected by L. Berner. In collection of Florida State Museum, University of Florida.

ALLOTYPE: Female imago (reared) preserved in alcohol. Liberty Co., Florida, Sweetwater Creek, April 14, 1951. Collected by L. Berner. In collection of Florida State Museum, University of Florida.

PARATYPES: 6 males, 5 females (reared). All specimens in collection of Florida State Museum, University of Florida. Decatur Co., Georgia, April 5, 1953, Berner (2 males, 1 female); Liberty Co., Florida, Sweetwater Creek, April 14, 1951, Berner (4 males, 4 females). Other distributional records from immatures are listed in *The Mayflies of Florida* (Berner, 1950).

Heptagenia flavescens Walsh

The capture of a single adult male of this species constitutes the first record of the genus in Florida. While collecting at light in the town of Chattahoochee on the night of April 4, 1953, this specimen was taken along with a number of adults of *Stenonema exiguum* and *S. smithae*. It was a warm evening with little wind and the town was brightly lighted. The specimen of *H. flavescens* was collected at 8:45 p.m.

Previously, *H. flavescens* had been collected no farther south than Atlanta, Georgia, located on the Chattahoochee River, about 250 miles north of the point of capture of this specimen (Needham et al., 1935). The Chattahoochee River joins the Flint River to form the Apalachicola about one mile from the town of Chattahoochee.

Baetisca sp.

A single young nymph of what appears to be a new species of this interesting genus was collected by Mr. William M. Beck, Biologist, Florida State Board of Health, at Black Creek, Clay County, Florida. The specimen was taken on November 26, 1951, from rather swift flowing, deep water where it was attached to an anchored log.

The nymph resembles that of *B. rogersi* Berner, but lacks the serrations on the margins of the mesonotal shield, the lateral projections anterior to the lateral mesonotal spines, and the mid-dorsal tubercles on the posterior abdominal segments.

Baetisca obesa (Say)

On January 15, 1952, Mr. Beck captured some young nymphs of *Baetisca* which proved to be a new record for Florida. Although the specimens are decidedly immature, they closely resemble *B. obesa* and I am placing them in that species. The nymphs were collected from the Withlacoochee River at the Florida state line north of Madison, Madison County. The river is deep here and the current has a moderate flow. The specimens were found clinging to vegetation that had fallen into the water at the edge of the stream.

Needham et al. (1935) record *B. obesa* from Sandy Creek, Georgia, Michigan, Indiana, and New Hampshire. In addition, Burks (1953) lists the species from Illinois, Manitoba, and Wisconsin, and notes that it develops in cool, fairly rapid streams, certainly very different in character from the Florida river from which the nymphs were taken.

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