NEW SYNONYMS FOR THREE NORTH AMERICAN EPHEMEROPTERA SPECIES

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Our studies on the biodiversity and faunistics of North American Ephemeroptera species led to the recognition of the specific synonyms noted below. In each case, coloration, which was used to denote species in the absence of morphological differences, is shown to be intraspecifically variable. All material examined is deposited in the Purdue University Entomological Research Collection, West Lafayette, Indiana, U.S.A.

Callibaetis pictus (Eaton), 1871 [=Callibaetis centrals Peters, 1959] N. SYN.

Callibaetis centrals was described based upon adult specimens collected from a single location in Douglas County, Kansas (Peters, 1959). Peters (1959) noted that the species was "closely allied to C. pictus," with the two species differing only slightly in color, size, and wing venation. We examined specimens of C. pictus from the United States and Mexico, which included specimens reared from larvae. Based upon individual variability we observed, we consider C. centrals a variant of C. pictus. This species previously was shown to be highly variable by Lugo-Ortiz and McCafferty (1996), and in general, populations of species in the genus Callibaetis Eaton often exhibit considerable geographic variation (McCafferty and Waltz, 1990). Janice G. Peters (pers. comm.) confirmed that the late W. L. Peters also considered C. centrals to be conspecific with C. pictus, based on a comparison of type material done in 1982, but which was never published. Type specimens of C. centrals are now deposited at Florida A&M University, Tallahassee, Florida, U.S.A.


Nice criddlei (McDunnough), 1927 [=Nice salvini (Kimmins), 1934; =Nice rosea (Traver), 1935] N. SYNS.

Edmunds and Allen (1957) placed N. rubroventris (Traver) as a synonym of N. rosea, because specimens from a single California population of N. rosea ranged through the color differences of the two species (Bednarkin and Edmunds, 1980). Traver (1935) used similar color differences to separate N. rosea and N. criddlei. Bednarkin and Edmunds (1980) noted that N. rosea might be synonymous with the Mexican species N. salvini. We examined individual series of N. criddlei adults that varied in abdominal coloration. The range of variation included the characteristics that historically have been attributed to N. salvini and N. rosea (Kimmins; 1934; Traver, 1935).

Material examined: Two male adults, one female adult, one female subimago, one set subimagal exuviae, Arizona, Coconino Co., Oak Cr., Oak Creek Canyon S. of Flagstaff at Banjos Bill Campgrounds, 8-V-1969, R. W. Koss, A. Y. Provovska; 49 male adults, one female adult, Colorado, Montrose Co., Crystal Cr. at Hwy 92, 11-VII-1962, D. W. Argyle; one male adult, Montana, Glacier National Park, 5-VIII-1947, F. C. Hardman.


Allen and Chao (1978) described two new species of Rhithrogaena Eaton from Arizona that differed slightly in size and abdominal coloration, and both new species were collected together in at least one location. Series

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of larvae collected from single populations, listed below, show gradations in size and color pattern that encompass the original descriptions of *R. plana* and *R. vitia*.


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**Literature Cited**


