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**A NEW SPECIES OF *ACRONEURIA* FROM VIRGINIA  
(PLECOPTERA: PERLIDAE)**

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*Abstract.*—A new species, *Acroneuria kosztarabi* is described from Tazewell County, Virginia. The new species is distinguished from related species in the male by the penial armature, and in the female by the completely punctate egg and subgenital plate shape.

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The Nearctic species of *Acroneuria* Pictet were revised by Stark and Gaufin (1976). Since that work, two additional new species have been described, one from Kentucky (Kondratieff and Kirchner, 1988) and one from Arkansas and Missouri (Poulton and Stewart, 1991). Also Stark and Brown (1991) provided a new name, *A. frisoni* for the species previously regarded as *A. evoluta* Klapalek (sensu Frison, 1942; Stark and Gaufin, 1976). They considered *A. mela* Frison as a synonym of the true *A. evoluta*.

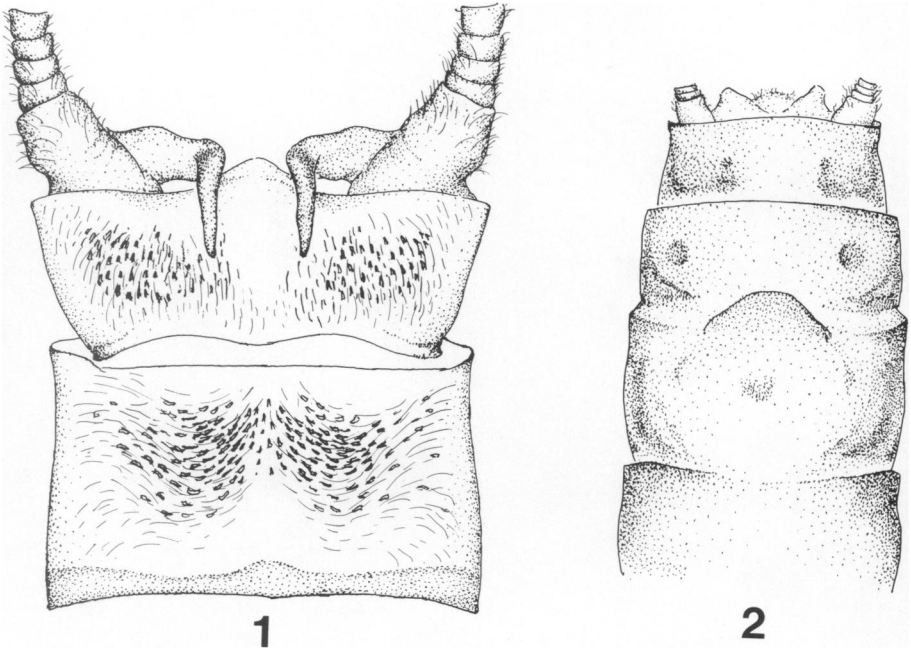
A new species of *Acroneuria* was collected using an ultraviolet light trap along Station Spring Creek in Burkes Garden, Tazewell County, Virginia. Burkes Garden is a rather high (939 m), narrow, "canoe-shaped" anticlinal valley, with the highest point at Beartown Mountain (1,430 m) on the southwestern rim (Hoffman, 1969). This unique region has previously yielded a new stonefly—*Isoperla major* (Nelson and Kondratieff, 1983). The descriptive terminology follows Stark and Gaufin (1976) and Stark and Brown (1991).

***Acroneuria kosztarabi* Kondratieff and Kirchner, new species**  
Figs. 1-6

*Male:* Macropterous. Length of forewings 22 mm; length of body 20 mm. General color pale yellow brown. Head pattern as Fig. 3, prothoracic rugosities not conspicuously darkened (Fig. 3). Wings hyaline, veins light brown. Tergum 9 spinule patch separated and sparse (Fig. 1), tergum 10 spinule patches separated mesally (Fig. 1). Paraprocts slender, finger-like, tips acute (Fig. 1). Aedeagus, dorsally with apical patch of red-brown thick spines expanded, narrowed and connecting basal band (Fig. 4); ventrally apical patch of red brown thick spines cordate and medially interrupted posteriorly (Fig. 5). In lateral view, aedeagus with apical lobe bulbous and elongate tip; basoventral lobe truncate. Basal lobe of aedeagus with short fine hairs.

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<sup>3</sup> The views of the author do not purport to reflect the position of the Department of the Army or the Department of Defense.



Figs. 1–2. *Acroneuria kosztarabi*. 1. Male terminalia, dorsal view, 2. Female terminalia, ventral view.

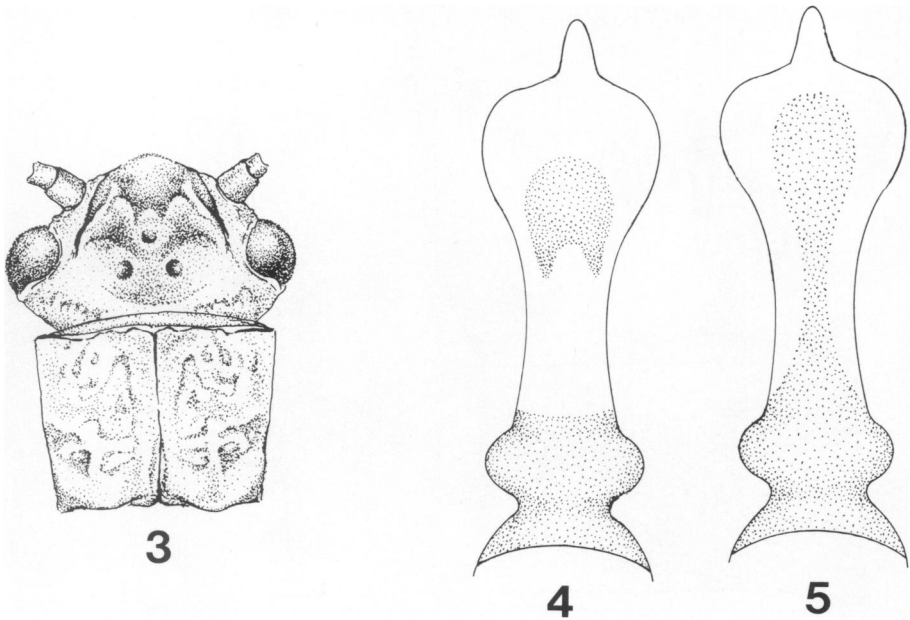
**Female:** Macropterous. Length of forewing 28–29 mm; length of body 25–27 mm. Color similar to male. Subgenital plate produced over a third or more of sternum 9, anterior outline variable (Fig. 2). Ova pear shaped, cross section circular. Collar buttonlike. Chorion entirely punctate (Fig. 6).

**Types:** HOLOTYPE male and allotype female, Virginia: Tazewell County, Burkes Garden, UV, 2330 hr, 17 August 1987, V. M. Dalton; Paratypes, Burkes Garden, Flatwoods, 5 July 1987, V. M. Dalton, 1 female; same but (site 1) UV 2200 pm, 6 July 1987, 1 female, same but (site 2) 6 July 1987, 1 female.

The holotype, allotype and a paratype female will be deposited in the National Museum of Natural History. The other paratypes will be deposited in the C. P. Gillette Arthropod Biodiversity Museum, Colorado State University and the Virginia Natural History Museum.

**Etymology:** The species is named in honor of Dr. Michael Kosztarab, Professor Emeritus, Virginia Polytechnic Institute and State University, for his many contributions to the study of Virginia insects.

**Diagnosis:** The male of *A. kosztarabi* can be distinguished from similar species with slender finger-like paraprocts (*A. evoluta*, *A. frisoni*, *A. filicis* Frison, *A. hitchcocki* Kondratieff and Kirchner, *A. internata* (Walker), *A. ozarkensis* Poulton and Stewart, *A. perplexa* Frison and *A. petersi* Stark and Gaufin) by the penial armature. It is most similar to *A. filicis*, but the basal band completely encircles the aedeagus, and in ventral view it is expanded apically (Figs. 4, 5). The completely punctate egg chorion



Figs. 3–5. *Acroneuria kosztarabi*. 3. Adult head and pronotum, 4. Aedeagus, dorsal, 5. Aedeagus, ventral.

of *A. kosztarabi* (Fig. 6) is similar to *A. flinti* Stark and Gaufin, known from a single female from Fairfax County, Virginia and *A. ozarkensis*, recently described from Arkansas and Missouri. The shape of the subgenital plate of *A. kosztarabi* (Fig. 2) will distinguish it from these two species (apical margin triangularly notched in *A. flinti*; oval shaped and evenly rounded in *A. ozarkensis*). The subgenital plate of the female is similar to *A. filicis*, but the chorion of the latter species is only punctate in the apical third (see Stark and Gaufin, fig. 57).

Stark and Gaufin (1976) divided *Acroneuria* into seven groups based primarily on penial armature and egg characteristics. Based only on penial armature, *A. kosztarabi* could be included in the *perplexa* group, however, using egg characteristics, this species fits the *flinti* group. Poulton and Stewart (1991) suggested that *A. ozarkensis* may also be a member of the *flinti* group based on the egg and dark color (body color of the holotype of *A. flinti* is yellow brown). The pattern of the penial armature of *A. ozarkensis* is similar to *A. perplexa*.

**Remarks:** With the description of *A. kosztarabi*, eight species of *Acroneuria* have been recorded from Virginia (Kondratieff and Kirchner, 1987). Virginia records of *A. evoluta* should now be considered to be *A. frisoni*. Station Spring Creek, the type locality, is rich in Perlidae, supporting large populations of *Acroneuria carolinensis* (Banks), *Paragnetina media* (Walker) and *Agetina capitata* (Pictet).

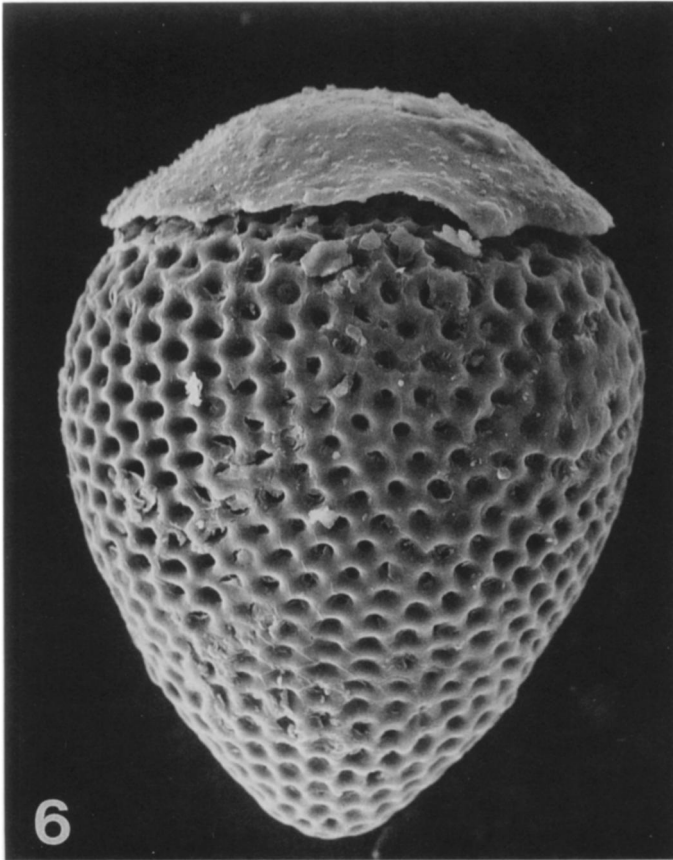


Fig. 6. *Acroneuria kosztarabi*. Ovum,  $1.94 \times 10^2$ .

#### ACKNOWLEDGMENTS

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