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***Cambarus (Puncticambarus) callainus*, a new species of crayfish (Decapoda: Cambaridae) from the Big Sandy River basin in Kentucky, Virginia, and West Virginia, USA**

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Abstract

Cambarus (Puncticambarus) callainus, new species, is a stream-dwelling crayfish endemic to the Big Sandy River basin in Kentucky, Virginia, and West Virginia. Within the basin, *C. callainus* occurs in the Levisa, Tug, and Russell fork watersheds. The new species is morphologically and genetically most similar to *Cambarus veteranus*, which is endemic to the Upper Guyandotte River basin of West Virginia. The new species can be differentiated from *C. veteranus* by its more lanceolate rostrum (width less than 50% length), slightly more obtuse suborbital angle, and less well-defined lateral impression at the base of the chelae.

Key words: *Cambarus*, Decapoda, Big Sandy River, conservation status, new species

Introduction

In 1914, Walter Faxon described *Cambarus veteranus* from specimens collected in 1900 by W. P. Hay from the Guyandotte River basin (Faxon 1914). Later, Arnold Ortmann (1931), in his description of crayfishes of the Cumberland Plateau, extended the range of *C. veteranus* to include the Elk and Greenbrier Rivers of the Kanawha River basin, and four streams in the Tennessee River basin in Anderson, Blount, Monroe, and Polk counties. It is likely Ortmann's extralimital records were members of the subgenus *Hiaticambarus* as currently understood. Ortmann (1931:113) stated, "... all of my specimens have the outer finger of the chelae bearded on the inner base ...", a character state commonly found in the members of *Hiaticambarus* (Hobbs 1969). Horton H. Hobbs Jr. (1989) was the first to report *C. veteranus* from the Big Sandy basin (these latter populations are now considered the species herein described), and also stated the "limits of [its] range [are] very indefinite and poorly known." That same year Ray Jezerinac was completing a statewide survey of West Virginia crayfishes. In the publication that followed, Jezerinac *et al.* (1995) did not document *C. veteranus* in the Big Sandy River basin of West Virginia, but did procure 49 specimens of *C. veteranus* from 17 sites in the state. Jezerinac *et al.* (1995) ultimately concluded that extractive industries were causing *C. veteranus* to decline across its range in West Virginia, and restricted the species distribution to the Guyandotte River and Crane Creek (Bluestone River) in Wyoming, Logan, and Mercer counties, West Virginia and Russell Fork (Big Sandy basin) in Buchanan and Dickenson counties, Virginia. Finally, Taylor & Schuster (2004), in their statewide treatment of Kentucky crayfishes, indicated the distribution of *C. veteranus* to be the Guyandotte and Bluestone basins of West Virginia, and the upper portions of the Big Sandy basin in Kentucky and Virginia.

Survey work for *C. veteranus* conducted in Virginia (Thoma 2009) and Kentucky (Thoma 2010) found several disjunct populations and range-wide declines in both states. At the onset of this work, it was assumed that *C. veteranus* had been extirpated in West Virginia (e.g., Jones *et al.* 2010). While completing a statewide treatment of West Virginia's crayfish, Z. J. Loughman and S. A. Welsh rediscovered *C. veteranus* in the Guyandotte River basin,

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