

The Discovery and Ecology of a Member of the *Cambarus Acuminatus* Complex (Decapoda: Cambaridae) in Valley Creek, Southeastern Pennsylvania.

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Abstract

The *Cambarus acuminatus* complex is a poorly known group of crayfish species whose range has traditionally been assumed to extend from the Patapsco River drainage in Maryland southward to the Saluda River basin in South Carolina. During a recent crayfish survey of southeastern Pennsylvania, we collected a member of the *C. acuminatus* complex [*Cambarus (Puncticambarus)* sp.] from Valley Creek. Collections were made from several habitats [pools, riffles, shallow lateral areas (SL), main-channel areas (MC)], and dominant substrate classes, current velocity, and depth were recorded in each sampling area. These collections represent a new crayfish record for Pennsylvania and the first documented occurrence of the *C. acuminatus* complex north of the Patapsco drainage. Life history characteristics of the population of *C. (P.)* sp. inhabiting Valley Creek are provided and their variation among habitats and seasons is discussed. In pools, *C. (P.)* sp. density was negatively related to current velocity, depth, and % sand, and positively related to % silt. In riffles, *C. (P.)* sp. density was negatively related to current velocity. Comparisons among habitats indicated that *C. (P.)* sp. was abundant in SL but was scarce in MC. Although MC tended to have faster current, greater depth, more sand, and less silt than SL, other factors could have been responsible for the relative scarcity of *C. (P.)* sp. in MC. More conclusively, there was a positive relationship between *C. (P.)* sp. density and % cobble in MC of pools, suggesting that activities such as urbanization that result in sediment deposition and burial of rocky substrates may have a negative effect on density in MC. Since MC are important for large, reproductive individuals, reduced density in these

areas may affect the reproductive potential of the population. These findings indicate that Valley Creek supports an unusual and potentially threatened crayfish population that requires further study and highlight the need for additional fieldwork in the region.

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