

CARLY L. CUNNINGHAM, ZACHARY J. LOUGHMAN, & ERIC TIDMORE, Department of Biological Sciences, West Liberty University. Using Ecological Parameters to Determine Valuable Monitoring Sites for *Cambarus callainus* in Eastern Kentucky, Southwestern Virginia, and Southwestern West Virginia

The Big Sandy crayfish (*Cambarus callainus*) is a federally threatened crayfish in the Big Sandy River Basin (U.S. Fish and Wildlife, 2019). To prevent this crayfish from becoming endangered, or worse extinct, proper habitat protection plans need to be taken. This study evaluates physical habitat and uses statistical analysis to properly determine key monitoring sites for *C. callainus*. Substrate, instream coverage of water (such as woody debris), morphology for the channel, erosion of banks or riparian, flow quality, and elevation of the stream are used to produce a quantitative overall number. Goodness of Fit Test for water basins and ANOVAs between previous studies of Loughman (2015) and Tidmore (2019) were used to create a description of monitoring sites. Loughman's 2015 study showed that physical characteristics, especially slab embeddedness, to be a good indicator of *C. callainus* presence. However, this study still needs more statistical analysis to be performed for proper description of what sites to monitor for *C. callainus*.