

ZACHARY W. DILLARD, KATIE SCOTT, and ZACHARY J. LOUGHMAN, Dept. of Organismal Biology, Ecology, and Zoo Science, West Liberty University, West Liberty, WV, 26074. Investigation of crayfish abundance in proximity to bridges, with emphasis on the Threatened Big Sandy crayfish (*C. callainus*).

The Big Sandy Crayfish, *Cambarus callainus*, is a large-bodied crustacean which inhabits third order streams within the Levisa, Tug, and Russel Fork basins throughout the conjunction of West Virginia, Virginia, and Kentucky. In 2016, *C. callainus* was federally designated as Threatened under the Endangered Species Act (ESA), which ushered in long-needed attention and protection for the species. ESA benefits are broad in scope and highly beneficial to the species persistence and recovery. However, such broad levels of protection necessitate intense levels of scrutiny and regulation for development projects transpiring near confirmed or expected occurrences of protected species. West Virginia as a whole needs updated infrastructure, and this is especially true for the southern coalfields where *C. callainus* persists. Due to recent surges of funding through the Infrastructure Investment and Jobs Act, West Virginia is set to receive \$3.7 billion dollars designated specifically for the repair or replacement of bridges and highways. Many bridges on the docket for maintenance/reconstruction cross streams within *C. callainus* distribution. Herein, I propose a *C. callainus* crayfish survey and habitat modeling project to determine whether this species exhibits preference, avoidance, or indifference to those bridge crossings in most dire need of repair or replacement. This project will enable private and public infrastructure entities to more efficiently generate mitigation and harm-reduction protocols, and will reduce unexpected expenditures related to ESA protections.