

CASSIDY GEBHARDT, ZACHARY LOUGHMAN, Department of Organismal Biology, Ecology, And Zoo Science. West Liberty University, West Liberty WV, 26074, Taxonomic Standing and Genetic Surveillance of the Spiny Scale Crayfish (*Cambarus jezerinaci*) in Southeastern Kentucky

In Southeastern Kentucky a small, cold stream-dwelling crayfish, *Cambarus jezerinaci*, located in the Kentucky and Cumberland River basin may be a part of a species complex. A previous study done in 2008 on the cytochrome oxidase 1 gene (CO1) of *C. jezerinaci* and *Cambarus parvoculus*, a sister species in the region, identified a third genetically distinct lineage most similar to *C. jezerinaci* currently retained as Group B *C. jezerinaci*. Group B is as different from the true species as the true species is to *C. parvoculus*, a total CO1 difference greater than 5%. Morphological characteristics were also compared between *C. jezerinaci* and *C. parvoculus* with only rostral states being significant to species identification. However, in light of new genetic lineages previous research suggested the separation of them before morphological comparisons. In 2022 and 2023 research was conducted on both the genetics and morphological differences of *C. jezerinaci* within two river basins to better understand the taxonomic standing of this crayfish. Determining the true status of *C. jezerinaci* within these two river basins is important to the conservation of these animals. Continuing genetic research helps us to grow our understanding of what it means to be a species in the modern age and also allows us to learn about the biodiversity and speciation process itself. Given the rapidly changing climate, it is imperative to catalog the true diversity of our freshwater streams and develop conservation action plans for endemic species such as *C. jezerinaci*.