Short-term Survival of Zoo-raised and Released Eastern Hellbenders in Central TN and Future Research Goals

The eastern hellbender *(Cryptobranchus alleganiensis alleganiensis)* is a large-bodied, fully aquatic salamander that occupies streams and rivers throughout the eastern United States. However, due to habitat fragmentation, sedimentation, increased water temperatures, and other factors, there has been a drastic decline and extirpation of some populations throughout their range. To supplement the current population of eastern hellbenders in central Tennessee, zoo-raised individuals have been released and are being radio-tracked to assess movement and survival once translocated. A total of 23 individuals were released between two sites (n=18 and n=6) in Big Swan Creek, which is in the Interior Plateau ecoregion of middle Tennessee. We estimated survival by treatment of terbinafine, sex, and overall. Total survival was, with increased survival after application of a terbinafine antifungal implant (no treatment = 50%; with treatment = 75%). There were no notable differences in survival between the sexes or by site. We will continue to track long-term survival over multiple seasons after release, as well as estimate home-range and habitat use. The health and ability for hellbenders to persist directly ties to the health and stability of our watersheds for other aquatic species and human health. We suggest continuing research that evaluates why declines may be happening so adequate restoration can be implemented to increase watershed health. In addition, we will begin a capture-mark-recapture effort using multiple capture methods, which will include rock turning, trapping, bank searching, and opportunistic spotlighting efforts. Establishing accurate population estimate will better inform conservation efforts, including translocation efforts.