

Within ecosystems, organisms engage biological interactions that are intraspecific (same species) and interspecific (different species). When these interactions establish long-term associations of living life together these interactions are symbiotic. One such interspecific symbiotic interaction is among crayfish, snails, and trematodes. While the natural histories of each of these local freshwater organisms have been explored, details specific to local trematode abundance and prevalence are lacking in relation to the crayfish and snail hosts. This study seeks to use local populations of crayfish and snails and the associated trematode parasites to 1) identify local crayfish and snail species and abundance, 2) identify trematode abundance in both crayfish and snails and 3) apply molecular techniques to positively identify species. Once the molecular identification is supported, this project intends to sample additional Central Virginia streams to construct a model of crayfish/snail/trematode prevalence and abundance. Models like this are significant because they enable qualitative assessments to be made about the overall health of an ecosystem. For example, future studies following this one can focus on the side effects lower snail density (either because of infection or just naturally low abundance) has on water quality, crayfish, and perhaps even the microbiota of the creek the host organism inhabits. These findings could then be applied to public health and conservation of freshwater ecosystems.