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Food webs are complex and each trophic level guides the dynamic stability of the whole food web. As humans cause the loss of piscivores and zooplanktivores from lake food webs, parasitic leeches, such as *Macrobdella decora*, lose potential host organisms. In the absence of a host, it has been suggested *M. decora* will parasitize freshwater snails, but there is a lack of research supporting this. At the University of Notre Dame Environmental Research Center – East, the snail species *Bellamya chinensis* and *Lymnaea stagnalis* have similar niches and are prevalent in the lakes, so they were used as research species. Trials were run to observe the mortality of the two snail species in the presence of leeches. The snail species were tested while in the same tank and different tanks. Leeches did parasitize *B. chinensis*. However, *L. stagnalis* did have a significantly higher average mortality than *B. chinensis* in the same tank (treatment: p-value: 0.022; control: p-value: 0.044) and in different tanks (p-value: 0.001), but leech presence did not significantly (p-value: 0.25) change snail mortality. An exact reason for snail species being the factor that controlled snail mortality could not be determined. However, a possible explanation was due to unfiltered fecal material and copper contamination in the trial tanks. Copper is a lethal metal to most gastropods.

*Key words: aquatic ecology; food webs; trophic levels; leeches (Macrobdella decora); snails (Bellamya chinensis and Lymnaea stagnalis)*