

## PARASITE-MEDIATED INVASION OF FRESHWATER CRAYFISH

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Parasite release may be a key factor that allows invasive species to outcompete native species, reach high densities, and have strong ecological impacts. However, we know little about the role of parasitism in most freshwater invasions. Crustaceans, especially crayfish, are among the most common and impactful freshwater invasive species. Here we describe our research focused on the role of parasites in two crayfish invasions, the invasion of rusty crayfish (*Faxonius rusticus*) in Wisconsin lakes and the invasion of white tubercled crayfish (*Procambarus spiculifer*) in Florida streams. Both invasions result in the extirpation of native crayfish species. In each region, we collected crayfish from lakes or streams and examined symbiont abundance and community composition in invasive and co-occurring native crayfish. We also used laboratory experiments to investigate the impacts of common parasites on crayfish survival, growth, and behavior. In each case, some parasite taxa (e.g., trematodes, microsporidians) were shared between the native and invasive crayfish. In Wisconsin, rusty crayfish had lower symbiont richness (per crayfish) than the co-occurring native crayfish species, and the native species had higher symbiont richness in invaded lakes than uninvaded lakes. Some parasites had substantial impacts on crayfish survival, growth, and behavior. For example, in Wisconsin, trematode parasites reduced crayfish antipredator behavior, and microsporidian parasites reduced crayfish activity level and condition. In Florida, microsporidian parasites reduced crayfish condition and survival. Overall, our findings suggest that parasites are often shared between native and invasive crayfish species and that parasites can have strong effects on crayfish traits and mortality rates. Therefore, parasites may play an important role in crayfish invasions by modifying the traits, abundance, and/or impacts of invasive species.

PRESENTER BIO: I am a freshwater community ecologist, and my research program focuses on using invasive species to answer ecological and evolutionary questions. I am particularly interested in how evolution over short timescales alters the traits of species and their ecological impacts. I also study interactions between native and invasive species, especially interactions between parasites and their hosts.