

Midwest Partners in Amphibian and Reptile Conservation (MWPARC) Student Travel Grant Report 2024

Awardee: Luke Tonsfeldt

Professional association: University of Minnesota-Twin Cities

In one or two paragraphs, describe the work you participated in that was facilitated by this award.

I spent the summer 2024 field season collecting water samples from lakes, rivers, and ponds where invasive American bullfrogs (*Lithobates catesbianus*) and red-eared sliders (*Trachemys scripta elegans*) have been reported in Minnesota. All of the field sites were identified using citizen science observations, Bell Museum records, management agency data, and trusted anecdotal sightings. There were more frog sites than turtle sites, and while the frog sites covered a fairly wide swath of southern MN the turtle sites were localized in major metro areas, such as the Twin Cities, Rochester, and Winona. Each water sample was also paired with a frog call survey or visual survey for basking turtles, and we identified both species at multiple locations within the state.



The water samples I collected will be used to test for the presence of target species' DNA within the water body, a method called eDNA (which stands for environmental DNA) sampling. To my knowledge, this is the first time eDNA methods have been used to test for the presence of either species in Minnesota waterways, and one of the goals of my research is to understand how feasible it would be to use these methods to test for novel invasive populations. My advisor and I will also use the data we collected to build a predictive model to highlight regions in Minnesota that are particularly susceptible to future invasions of these species.

How has this work aided you in achieving your career goals?

As someone who grew up loving reptiles and amphibians, simply getting to paid to work with herpetofauna has been a dream come true! On a more practical note, though, this work will be incredibly beneficial for my career beyond grad school. The project I'm working on gives me valuable experience doing field surveys as well as lab work, and getting trained on eDNA extraction and collection techniques will serve me well on future genetics projects, especially because eDNA work is a growing field in conservation science. It's also been a great opportunity to work on all aspects of a research project, from site selection and permitting to data analysis and writing. Finally, this project is incredibly collaborative, and it's allowed me to make connections with researchers and managers working on herpetile conservation projects across Minnesota.

Image description: Two emydid turtles basking on a log, a Red-eared Slider on the left and a Painted Turtle on the right.