

M.L. 2021 Minnesota Aquatic Invasive Species Research Center Subproject Abstract

For the Period Ending June 30, 2025

SUBPROJECT TITLE: MAISRC Subproject 46: Effective rusty crayfish removals to protect wild rice

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FUNDING SOURCE: Environment and Natural Resources Trust Fund (ENRTF)

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SUBPROJECT BUDGET AMOUNT: \$155,445

AMOUNT SPENT: \$155,445

AMOUNT REMAINING: \$0

Sound bite of Project Outcomes and Results

We used methods any stakeholder in the state of Minnesota can use to remove rusty crayfish. Our findings serve as a guide for those looking to reduce the impact of rusty crayfish on sensitive vegetation.

Overall Subproject Outcome and Results

Rusty crayfish are an aquatic invasive species that is harmful to sensitive vegetation, such as wild rice. Wild rice, which is culturally and ecologically important in Minnesota, is most vulnerable to rusty crayfish grazing during the early summer, before it reaches its emergent life stage. Currently, the best way to control rusty crayfish populations without harming other native species is to remove enough individuals through trapping. We tested different trap and bait types for removing rusty crayfish near sensitive vegetation. We also tracked rusty crayfish movement through a mark and recapture process to evaluate the feasibility of localized invasive crayfish reductions near sensitive vegetation. In 2023 and 2024, we visited 3 lakes in NE Minnesota, once in early summer and again in late summer. In the early summer, we marked and released rusty crayfish for recapture and tested different trap and bait types near sensitive vegetation. In the late summer, we continued to test different bait and trap types near sensitive vegetation while recording movement data from recaptured crayfish. Baited wire-mesh minnow traps reported an average catch rate ca. 50-fold higher than unbaited refuge shelters. Bait types performed similarly, but we suggest using hot dogs because they are effective, inexpensive, readily available, and easy to use. Rusty crayfish are capable of moving long distances in a short amount of time, with one individual traveling 438 meters overnight. Trapping close to sensitive vegetation is more protective against rusty crayfish because their ability to travel makes localized reductions difficult. We used methods any stakeholder in the state of Minnesota can use to remove rusty crayfish. Our findings serve as a guide for those looking to reduce the impact of rusty crayfish on sensitive vegetation.

Subproject Results Use and Dissemination

The primary product of this research was the development of a free guide of best practices for trapping rusty crayfish in Minnesota (attached). The guide provides information on crayfish identification and procedures materials needed for effective trapping. The guide was developed so that anyone can use the guide's resources,

not just natural resource managers, and is available on the MAISRC website at <https://maisrc.umn.edu/research/46>.

Extensive dissemination of information for from project was conducted by all project partners, with a selected list of presentations and media coverage below.

Presentations

- Brennan Pederson, Senior Laboratory Technician at NRRI, presented this project at the 2024 MAISRC Showcase on September 25, 2024.
- Brennan Pederson, Senior Laboratory Technician at NRRI, presented this project at the 2024 North American Invasive Species Management Association (NAISMA) conference in Missoula, Montana on October 3, 2024.
- Paul Jeffrey, Senior Laboratory Technician at NRRI, presented this project at the 2024 North American Lake Management Society conference in South Lake Tahoe, Nevada on November 6, 2024.
- Brennan Pederson, Senior Laboratory Technician at NRRI, presented this project at the 2024 Upper Midwest Invasive Species Conference (UMISC) in Duluth, Minnesota on November 13, 2024.
- Brennan Pederson, Senior Laboratory Technician at NRRI, presented this project in-house to other NRRI employees as a part of a web-series highlighting research projects at NRRI on January 17, 2025.
- Brennan Pederson, Senior Laboratory Technician for the Natural Resources Research Institute (NRRI), presented a project poster at the St. Louis River Summit poster session; NRRI Staff poster session; and the Twin Ports Freshwater Folk 2024 poster session.
- Valerie Brady, project PI and Interim Water Research Program Leader; Tyler Kaspar, project co-PI and environmental biologist for the 1854 Treaty Authority; and Brennan Pederson, NRRI field and laboratory technician; gave a presentation to MN Department of Natural Resources Aquatic Invasive Species staff on January 16, 2024.
- Liz Anderson, a project partner and Aquatic Invasive Species Coordinator with the Lake County Soil and Water Conservation District, discussed the project with attendees at the Ely Folk School's first annual Swedish Crayfish Party on August 12, 2023.
- Matt Santo, project partner and invasive species specialist with the 1854 Treaty Authority, gave a presentation at the 2023 Great Lakes Regional Native American Fish and Wildlife Society (NAFWS) Conference.
- Amanda Weberg, project partner and Aquatic Invasive Species Program Supervisor with the Cook County Soil and Water Conservation District (SWCD), presented this project in detail to the Cook County SWCD AIS advisory committee; the SWCD board; the Caribou Lake Association; and the Mid Trail Lake Association.
- Liz Anderson, a project partner and Aquatic Invasive Species Coordinator with the Lake County Soil and Water Conservation District, presented an overview of this project to the White Iron Chain of Lakes Association (WICOLA) board of directors. Garden Lake (part of WICOLA) was selected for sampling in 2023.

Select Media Coverage

- Valerie Brady, project PI and Senior Research Associate at NRRI, interviewed with Cindy Dorn from the *Prairie Sportsman* on Wednesday, August 7 to help create a segment for *Prairie Sportsman* titled "Warrior Walleyes and Invasive Rusties" which aired in February 2025. View the segment at <https://z.umn.edu/PSrusties>
- Along with Matt Santo, Liz Anderson discussed the project on the US Forest Service "Forest North" podcast. Available at <https://www.ely.org/plan/podcast/>.

- Ross, Brett (Host). (2024, June 11). *Summer's arrival in the Northwoods and the fight against Aquatic Invasive Species* (Ep. No. 11) [Audio Podcast Episode]. In *Forest North*. Ely Tourism Bureau, in partnership with the USDA Forest Service- Superior National Forest. Available at <https://www.ely.org/plan/podcast/>.
- Josh Dumke was interviewed by Brian Mozey for an article titled: "Are invasive rusty crayfish a threat to wild rice across Minnesota?". That article was published on May 25, 2023 at Outdoornews.com and can be viewed at <https://www.outdoornews.com/2023/05/25/are-invasive-rusty-crayfish-a-threat-to-wild-rice-beds-across-minnesota/>
- Liz Anderson, a project partner and Aquatic Invasive Species Coordinator with the Lake County Soil and Water Conservation District, was interviewed about this project on May 12, 2023 by Two Harbors Community Radio station KTWH (99.5 FM).