

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

For the Period Ending June 30, 2025

SUBPROJECT TITLE: MAISRC Subproject 47: Starry stonewort and wild rice: assessment and response

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SUBPROJECT BUDGET AMOUNT: \$342,436

AMOUNT SPENT: \$334,797

AMOUNT REMAINING: \$7,639

Sound bite of Project Outcomes and Results

This project advanced our understanding of the ecology of starry stonewort in its invaded range and assessed its threat to wild rice and the effectiveness of DASH and other mechanical removal techniques. It also deepened our working relationship with the Leech Lake Band of Ojibwe in pursuit of greater AIS response capacity.

Overall Subproject Outcome and Results

Starry stonewort (SSW) has become a major concern for natural-resource managers in recent years, with its potential to dominate aquatic ecosystems and displace native aquatic plant communities. Starry stonewort (SSW) and wild rice occupy similar habitats, which creates the potential for SSW to invade, displace and reduce the productivity of natural stands of wild rice and other native macrophytes. SSW was first confirmed in Minnesota inland waters in 2015, and to date there just over 30 SSW-infested waterbodies per the MN DNR, including two sites that are adjacent to wild rice stands. The objectives of this project were to: improve surveillance for starry stonewort (SSW); assess the impacts of SSW and its management on wild rice; and provide research and extension support for SSW surveillance and management. Surveys on 51 public boat accesses on the Leech Lake Reservation were conducted for SSW detection and testing of risk assessment models developed to guide surveillance efforts. We monitored wild rice beds that have been invaded by SSW and evaluated the responses of wild rice and other native plants to SSW presence. Permanent quadrats were established to monitor the expansion of SSW and high-resolution plots, centered on the invasion front between SSW and wild rice, were monitored to evaluate the impact of SSW on wild rice and other native macrophytes. Preliminary results indicate that while the invasion front is moving slowly it does have a measurable negative effect on native macrophytes. Data are being analyzed to assess effects on the growth and productivity of wild rice and continuing research is underway. These activities have contributed to our understanding of the ecology of SSW in its invaded range and the threat posed to wild rice by SSW. Project outcomes will inform the AIS management efforts of the Leech Lake Band of Ojibwe and other aquatic resource managers in Minnesota.

Subproject Results Use and Dissemination

This project has resulted in numerous dissemination activities to target various audiences.

- Data from our monitoring is shared directly with our tribal partners for them to use in future analysis of continued monitoring that they will undertake.
- Creation of an AIS reporting tool and story map for use by the Leech Lake Band of Ojibwe Division of Resource Management, targeted at lake users in tribal waters. The tool can be found here: reportaisllbo.com
- Results of our targeted surveillance have been shared with state, Tribal, and county AIS managers, and have led to increased monitoring at a lake with a new sighting record, and Tribal coordination with the US Army Corps of Engineers at a site where a dredging project was planned to reduce the risk of spread.
- Information from experimental time lapse cameras will shed new light on the phenology of starry stonewort as it relates to wild rice growth; information that can be used by our Tribal partners to use the DASH removal method more effectively.
- Presence at community events like Leech Lake Days (2024 and 2025), and the Deer River Wild Rice Festival (2025) has directly connected with hundreds of local lake users to raise awareness of starry stonewort and the importance of reducing AIS risk in wild rice habitat. At these outreach events, we shared a one-page handout about the project (attached) and a card with a QR code that directed participants to reportaisllbo.com

Public presentations at the MAISRC showcase, upcoming UMN Extension webinar, and classroom talks have shared our project with college students, researchers, and resource managers from across the state.

Select Presentations

- February 25, 2025: PhD student Steve Smith and Raining White, LLBO DRM presented virtually to the MN DNR AIS group. An overview and progress of the project was presented, including challenges with DASH. The presentation was well received with an engaging question and discussion session.
- February 26, 2025: Smith met with the Leech Lake Natural Resource Advisory Committee to provide an update on the project and discuss possible future activities.
- June 3, 2025: Smith presented to the UMN Ecology class at the Cedar Creek Research Station. The presentation included an overview of this project as well as how TEK relates to Ojibwe views and WR to illustrate different approaches in ecology and conservation.