

Project Overview

The Iron County Land & Water Conservation Department (LWCD) is devoted to working with private landowners, municipalities, and partner agencies on erosion and water quality concerns throughout the county. Aquatic Invasive Species education, prevention, and control are critical components of protecting the high-quality resource waters in the county. Aquatic Invasive Species (AIS) has been a focus of the Iron County LWCD for the past 15 years with the establishment of an AIS program. Through this program, the county hired an AIS Coordinator who has provided education and outreach as well as assisted with prevention and control of AIS across the county.

On October 3, 2006, Xcel Energy (Licensee) filed an application with the Federal Energy Regulatory Commission (FERC) to amend its license for the Big Falls Hydroelectric Project to include the Turtle-Flambeau Flowage as a project feature. FERC issued an order on October 14, 2008, amending the Big Falls license to include the Turtle Flambeau Project. The amending order stipulated various conditions or additions to the plans and requirements (Article 416) in the WDNR's Water Quality Certification (WQC). One of the plans required the development of an invasive species management plan. In 2009-2010 the Iron County LWCD became involved in the Federal Energy Regulation Commission (FERC) license requirement that Xcel Energy develop an Invasive Species Management Plan for the Turtle Flambeau Flowage in consultation with the resource agencies. The Iron County LWCD, WDNR, Turtle Flambeau Flowage and Trude Lake Property Owners Association (TFFTL POA) and Xcel Energy developed the Invasive Species Management Plan for the Turtle-Flambeau Storage Reservoir. This Invasive Species Management Plan provides annual funding to the Iron County LWCD to subsidize a limited term employment (LTE) position on the Turtle Flambeau Flowage to carry out the invasive species education, monitoring and control efforts outlined in the plan. The funds from Xcel Energy obtained by the Iron County LWCD are matched with LWCD funds to expand funding for a second LTE position and education and prevention activities.

These funds also allow the project to further its monitoring efforts of purple loosestrife through training and providing equipment to volunteers who actively participate in the purple loosestrife surveys and treatment each year. In addition, funding has enabled the expansion of education and outreach to resort owners, TFFTL POA members, visitors, and additional user groups.

Objectives and Activity Update 2021

2021 was a slightly more normal year than 2020. Starting at the end of May, we were able to hire four LTE staff, Hannah Gargrave, Dan Johnson-Schunk, Natalie Erler, and Courtney Popp. The four staff hit the ground running and did an incredible job representing Iron County and implementing our department's goals. From monitoring and management of invasive species, educating the public on the threats posed by invasives, helping build partnerships with landowners, to helping implement conservation projects, the staff greatly contributed to the department's accomplishments.

This year we continued with Monday -Friday work week with a balance of "boots on the ground" work and rotating staff one day a week on office projects. Most of the work focused on invasive monitoring and control work, with an added individual project for each staff member. With a larger staff, we were able to document and treat 205 invasive plant locations throughout the county. From garlic mustard hand pulling in early June, herbicide treatment of wild parsnip, hand pulling curly leaf pondweed at Rice, Pike, and the Turtle River, to pulling purple loosestrife on the Turtle Flambeau Flowage. LTE staff alongside the Conservation Specialist continued to conduct AIS monitoring surveys, AIS control and management, point intercept (PI) aquatic plant

surveys, CBCW boat inspections, and educated the public on the identification of AIS, awareness, prevention, and control methods.

Goal A: Educate the public on AIS and prevention through statewide programs including Clean Boats, Clean Waters and Citizen Lake Monitoring. Develop additional education programs for the public. Target audiences include lake associations, lake recreation users, landowners, local businesses, etc.

Objective A1: Provide regular AIS monitoring and conduct regular watercraft inspections on the TFF and Trude Lake.

Activity 1.1: Hire two limited term employees (LTE) during the summer months to provide AIS education and outreach

2021 Field Season: This year we had additional funding from the WDNR Lake Monitoring and Protection Network (LMPN) which allowed us to hire two addition LTE staff totaling a work crew of four LTE's. They were employed from May 21st through August 21st, 2021.

Activity 1.2: Develop media releases on trainings, current AIS topics, etc.

2021 Field Season: Presentations were given at the Turtle Flambeau Flowage and Pike Lake Neighbors annual meeting. Four educational field trips were led through Fe University and the Natural Resource Foundation. A Pike Lake curly leaf pondweed update and training was done over zoom in May with 20 participants. We identified the challenge of reaching our goals and the physical limitations for our outreach program due to Covid restrictions, so we did a series of video trainings and Facebook educational posts. Facebook post data shows that 9,424 people were reached and 1,329 were engaged. Six newspaper releases were sent to the area papers to advertise program offerings, trainings, and current AIS topics, these included: citizen lake monitoring network training, lake association presentation, education and awareness invasive species fliers, and other learning opportunities. The area papers included: Ironwood Daily Globe, Lakeland Times, Turtle Flambeau Flowage POA newsletters, Gile Flowage FOG newsletter, Iron County Miner and the Northwoods Review. Please see [Appendix A](#) for examples of press releases.

Objective A2: *Provide education presentations and activities on AIS.*

Activity 1.1: Develop program for TFFTL POA meetings.

2021 Field Season: LWCD Conservation Specialist attend the annual meeting, wrote two newsletter articles and updated the flowage president and committee members on AIS, shoreline restoration, terrestrial invasive species work, citizen lake monitoring network (CLMN) volunteers and the point intercept survey efforts. In addition, a purple loosestrife workday was also scheduled through the association.

Activity 1.2: Coordinate the citizen lake monitoring network program and conduct Clean Boats/Clean Waters boat inspections on the Turtle Flambeau Flowage / Trude Lake

2021 Field Season: Citizen Lake Monitoring Network: The LWCD staff continued to coordinate and provide resources for the seven-citizen lake monitoring network volunteer stations. Individual trainings and consultation were done on a one-on-one bases with equipment and supplies mailed to volunteers. In addition, volunteers were encouraged to continue collecting temperature, secchi, and general water quality observations. Water quality sampling is conducted each month starting in May and ending in August. Other presentations, trainings, and AIS educational efforts encouraging participation with the citizen lake monitoring network was provided to Pine, Pike, Long, Island, Grand Portage, Upper Springstead, Echo, Spider, Wilson, Weber, Cedar,

Fisher, Catherine, Rice, Charnley, and the Gile Flowage Lake Association. The Conservation Specialist communicates and works bimonthly with 37 different stations throughout Iron County during the monitoring season.

Clean Boats Clean Waters: The staff implemented the clean boats clean waters program this year on the Turtle Flambeau Flowage/Trude Lake as well as the Gile Flowage and Saxon Harbor. 552 people were contacted, and 286 boats inspected. The four staff each covered a boat landing on day a week conducting inspections. The Iron County LWCD has a long-standing partnership with the Northwoods Cooperative Weed Management Association and thanks to additional funding from the Forest Service we were about to add an additional CBCW boat inspections for the Gile and Saxon Harbor. 63 boaters were contacted, and 22 boats were washed with a boat decontamination unit.

Objective A4: *Monitor and maintain signage at boat landings at TFF and Trude Lake Landings.*

Activity 4.1: Coordinate with DNR to replace small signs at landings.

2021 Field Season: Several boat landing signs throughout the county were inspected and reported in good condition. The Turtle Flambeau Flowage and Trude Lake boat landing signs were also in good working condition and reported in the SWIMS database. New AIS signs were added at Fox Lake and the Turtle River near Pike Lake. The LWCD does encourage the public to contact the department when signs are needed or missing at boat landings.

Goal B: Monitor and document invasive species locations on the TFF and Trude Lake and conduct boat inspections. Monitor shoreland for sites that require habitat restoration, and report sites to Iron County LWCD.

Objective B.1: *Coordinate LTE's and volunteers to monitor for AIS and conduct watercraft inspections to education recreationists on preventing the spread of AIS.*

Activity 1.1: Conduct weekly WQ sampling and identify aquatic plants throughout summer.

2021 Field Season: LWCD staff and volunteers took monthly water quality samples at six locations on the TFF and one site on Trude Lake. Many of these volunteers take secchi (water clarity) readings bi-weekly in addition to their monthly WQ sampling. These volunteers are trained to monitor for basic AIS and have been asked to monitor for AIS while they are conducting their water quality testing. Starting in 2017, funds at 4 of the 7-water quality CLMN sites were no longer supported by WDNR. To continue the good work done by volunteers collecting water samples for phosphorus and chlorophyll analysis, the TFFTL POA funded the sites. Todd and Becky Jirous have taken over the role of coordinating mailing labels and funding instructions.

An end of the season report was created and shared with the TFFTL POA and was also included in their annual newsletter.

Activity 1.2: AIS monitoring

2021 Field Season: The Turtle Flambeau Flowage AIS shoreline monitoring surveys continue to be a monumental task, mostly due to the dark stained water and the over 100 miles of shoreline. During the 2021 field season, the LTE staff along with the Conservation Specialist conducted about 200 hours of purple loosestrife monitoring and control. Multiple workdays are needed annually to combat the purple loosestrife

infestation and with the help of our partners (Association, WDNR-Wildlife, WDNR-Fishery) about 28 days were spent on the purple loosestrife. Randy Payne is the AIS coordinator for the Association and works closely with the Iron County Conservation Specialist in reporting, data collection, and organization of volunteers. Three additional days of purple loosestrife monitoring and management were conducted mainly in the Turtle inlet, Manitowish River and Murray's landing areas of the flowage where infestations are most prevalent. Meandering surveys concentrated on high use areas such as boat landings, resorts, and developed shorelines. Meandering protocol suggests throwing out a rake every 100-200 meters and more intense surveys near high-risk areas. In addition to PI surveys and the AIS meandering surveys a spiny water flea tow was also conducted in the Baraboo Lake deep hole. Samples were collected and sent to the state lab and we are still waiting to hear the results.

Activity 1.3: Develop a project report for the partnership.

2021 Field Season: Each year a copy of the report is provided to all members and financial partners, these include; DNR Lakes Coordinator, Turtle Flambeau Flowage Property Manager, TFFTL POA, Iron County Land & Water Conservation Committee, and Xcel Energy. This report is discussed at the annual partnership meeting, during that time the partnership provides feedback to improve or make changes to the program.

Activity 1.4: Document findings in Surface Water Intergraded Monitoring System (SWIMS).

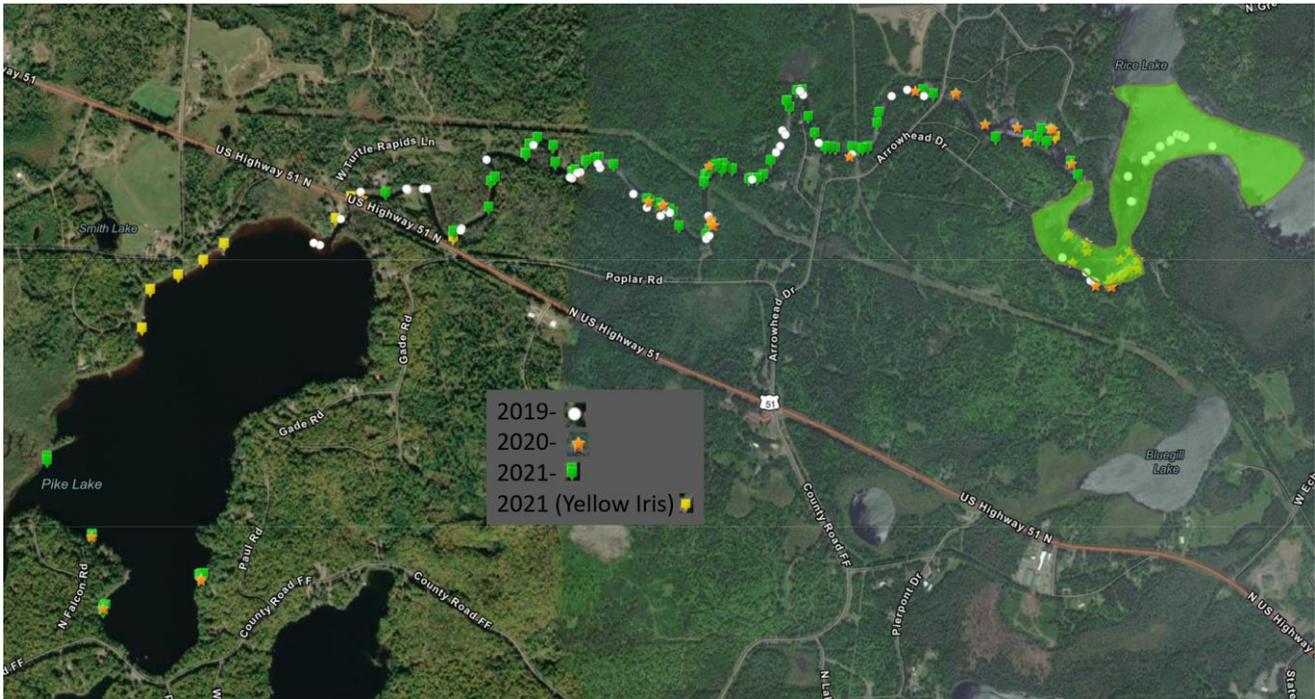
2021 Field Season: Data was put into SWIMS database during and at the end of each field season, all 2021 data has been submitted.

Objective B2: *Monitor and address new & existing infestations of invasive species immediately.*

Activity 1.1: LTE's & volunteers report monitoring results on DNR SWIMS database as well as voucher specimens through WDNR.

2021 Field Season: In 2019, the Iron County Land and Water Conservation Department vouchered new curly leaf pondweed (CLP) populations on Pike Lake and the Turtle River. These new populations indicate that the aquatic invasive species (AIS) has moved downstream from the source population at Rice Lake. With the support of concerned citizens from Pike, Rice, and the Iron County Lakes and River Alliance, a group of individuals joined and organized an aquatic invasive species response team. Through the Wisconsin Surface Water Grant program, the group wrote a grant for \$20,000, over 3 years, to address the curly leaf pondweed threat. During the spring of 2020 the Wisconsin DNR awarded the grant to the Rice Lake Association (a sponsored qualified lake group). Rice Lake sponsored Pike Lake and signed an Early Detection and Response grant agreement for work done on Pike Lake and the Turtle River. A private contractor (White Water and Associates) was hired to conduct AIS surveys, pre and post treatment, and point intercept surveys (aquatic plant surveys). During the first week of June 2021, White Water and Associates conducted AIS surveys for the second year and reported locations to a volunteer working group trained in curly leaf pondweed identification and removal. During the second and third weeks of June, volunteers along with the Iron County Land and Water Conservation Department, visited CLP sites and hand pulled all visible plants at said locations. One additional location was identified in Pike Lake near the outlet which feeds directly downstream to Lake of the Falls. This site was recorded, and multiple hand pulling efforts were conducted. This new site is a difficult site to hand pull due to water depth and mucky substrate. Further monitoring took place in 2021 down the Turtle River to Lake of the Falls. No additional CLP were documented. Volunteers also joined in on the Rice Lake

CLP hand pulling efforts and spent two days pulling in the “South Bay” of Rice Lake/Turtle River. In total, about 12 full garbage bags of CLP from the Turtle River and 5 bags on Rice Lake south bay were removed. All other small patches of plants on Pike Lake were also pulled by volunteers. During the last week in June, White Water and Associates conducted post treatment surveys. Post treatment survey indicated effectiveness in volunteer hand pulling efforts and identified areas where follow up control efforts were needed. In early June of 2021, Rice Lake Association conducted a massive effort to remove curly leaf pondweed from Rice Lake. With the financial support of a grant from the WDNR, 44 tons of CLP was removed from the lake.



Web based map showing locations pre and post treatment. <https://arcg.is/1Kiyfv>

Goal C: Aide coordinated partners to organize and carry out control efforts. Document all infestations with GPS to show locations of AIS and extent of infestations. Develop maps for annual reports on the locations and extent of any AIS on the TFF, Trude Lake and the tributaries.

Objective C1: Assist DNR, TFFTL POA and other partners in control efforts of invasive species.

Activity 1.1: Conduct Purple loosestrife surveys, map infestations and map treatment efforts.

2021 Field Season: Each year the Turtle Flambeau Flowage & Trude Lake Property Owners Association (TFFTL POA) conducts an inquiry of individuals interested in helping monitor and manage AIS. A list of volunteers is created, and a section of the flowage is assigned to an individual or group of individuals. Volunteers survey their section noting any location of loosestrife on a map, fills out a data sheet with location, number of plants, succession of plant growth, document bio-control beetle damage, and what kind of treatment is needed. Often flagging is placed at the site as a quick visual reference. See [Appendix B](#) for a map of these sections and infestations. In cases where there are only one or two plants found, or if the plant is easy to pull, teams are encouraged to pull plants to minimize the use of herbicide. Once the section has been monitored, the

data sheets are given to the LWCD Conservation Specialist or Flowage AIS coordinator (Randy Payne) who then maps the locations and formulates a report and strategic plan. Once the data is compiled a workday(s) is organized typically made up of TFFTL POA members, DNR and LWCD staff. A team of volunteers in boats were assigned a section to monitor, cut flower heads, pull plants, or treat with herbicide.



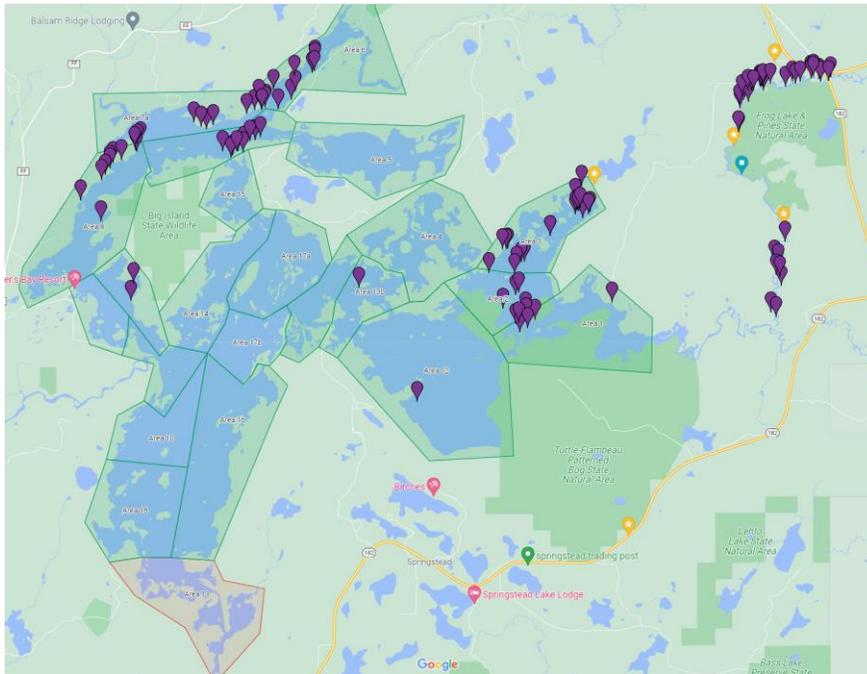
(Purple Loosestrife Team- WDNR, Lake Association Members and Iron County LWCD Staff)

Activity 1:2: Aide DNR in treatment of terrestrial and wetland species on TFFTL

2021 Field season: Great strides have been made to eliminate or manage purple loosestrife infestations on the TFFTL. Volunteers reported that they are starting to see an overall reduction in plant abundance and distribution. Some areas have seen major reductions in abundance and others have seen an increase. Overall, data shows that the ongoing treatment has been effective, and further monitoring and control efforts are necessary to control purple loosestrife. In 2021, we are happy to report the no herbicide was used on the TFFTL or on the Manitowish River. All treatments were hand pulling efforts. Locations are then recorded and mapped in an open-source data collecting app called Kobo collect which aide managers in future monitoring efforts and will help document spread, abundance, and/or elimination in certain areas. The google mapping application also allows volunteers to use their cellphone to find locations. This year, staff took a more organized approach and with the added resources, were able to do more purple loosestrife management than in years past. In addition to paid staff time, a total of 90.25 volunteer hours (19 individuals) were dedicated to surveying and the management of purple loosestrife by the TFFTL-Association. Due to another late growing season the purple loosestrife bloomed from July through September. With older plants blooming earlier and younger plants later. Multiple efforts to monitoring and manage purple loosestrife was made on the Manitowish River from the wayside on Highway 51 to Murray’s Landing near the flowage. Thanks to an increased effort by the WDNR- wildlife staff, the Manitowish River received more monitoring and control efforts than in years past. For the first time in many years the entire length of the Manitowish River from the Hwy 51 wayside to

Murray's landing was completely surveyed and purple loosestrife plants were either pulled or documented in all, but one small section of the river.

The greatest problem areas continue to be the north side of the flowage (The Hideaway down to Pink Rock), with 5 sites of infestation of over 50 plants, and one over 100. Most other sites are scattered and have less than 5 plants. Other than the Hideaway to Pink Rock area, the flowage remains relatively free of Purple Loosestrife, apart from the Bonies Mound area, which is showing a moderate number of small infestations.



Google maps Purple Loosestrife Locations and Control Areas TFFTL 2021

2021 Field Season: Each year reimbursement requests, and project reports are provided to the DNR, Lake Association, and Excel Energy.

Activity 1.3: Report accomplishments to Iron County LCC.

2021 Field Season: Each LCC meeting the Conservation Specialist provides a program update with highlights from the AIS program. The LCC meets 3-4 times a year, receiving these updates each meeting. At the end of each year at the November-December meeting the LCC receives the same TFF end of the year report that the partnership does.

APPENDICES