



GOLDEN SANDS

RESOURCE CONSERVATION & DEVELOPMENT COUNCIL, INC.

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a 501(c)(3) non-profit conservation organization

Conservation That Works!

White River Flowage Flowering rush Post - Early Detection and Response 3-yr program

Year 5 Activity Report

Monitoring survey and handpulling activities 2019

Survey method: On July 3, 2019, Golden Sands RC&D (Resource Conservation & Development) completed a visual survey for flowering rush on the White River Flowage. Anna Cisar conducted the survey, completed by kayak and covered the entire shoreline starting upstream ([44.038089, -89.272116](#)) of the chemical treatment area ("ground zero", the source population), downstream along the western shore to the dam and back upstream along the eastern shore to the original starting point. All islands, small coves and bays were surveyed as well as shallow areas where native vegetation formed mats on the water surface. These areas historically collect floating rhizomes and young flowering rush plants. All observed flowering rush outside the treatment areas was removed as the surveyor went.

All observed flowering rush locations were recorded using a handheld GPS. The GPS points were added to aerial maps to show the flowering rush distribution. Figure 1 below shows the July map.

Handpulling methods: On July 22-23, 2019 Golden Sands RC&D led volunteer training and work parties on the White River Flowage for local volunteers. We trained or refreshed volunteers on identification of flowering rush, distinguishing it from native bur-reeds and wild rice (also present on the flowage), and proper removal techniques. Volunteers were instructed about the importance of loosening sediments when needed (in firmer sand), and carefully extracting the entire root mass, with care to avoid breaking off bulbils. They were also instructed to frequently look around and watch for floating bulbils that may have broken off.

Volunteers pulled flowering rush from kayaks, loading pulled plants into a bucket, then shuttling the buckets to the mechanical harvester that waited in the channel nearby. To avoid spreading flowering rush through our activities, care was taken to move the harvester up the channel only after the channel had been cleared of flowering rush. Buckets were emptied into 50 gal drums on the harvester. When the drums were full, the harvester shuttled the material to the boat landing, where it was then unloaded onto a trailer. The piles of plants were hauled to a designated site for drying and burning. Equipment (including kayaks) were power washed on shore to remove muck and other debris.

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Handpulling Results: During the survey, in the chemical treatment area (“ground zero”), plants were green, robust, and thriving. This area is the green and orange polygons at the top of the map, see Figure 1 below. The treatment area was the final location targeted for handpulling. Handpulling efforts initially focused on eliminating the spread of flowering rush in the rest of the flowage. The white line and arrows in the figure indicates the area where the volunteers handpulled flowering rush, Cisar scouted the downstream area to ensure no new plants had taken root, removing any that were found.

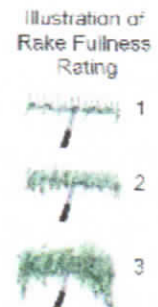
This time of year, the plants were robust and held together very well for handpulling. They pulled easily from the loose muck. In the very few areas where firmer, sandy sediments are present, the roots need to be loosened before pulling.

Following the handpulling conducted on July 22nd and 23rd the only area that had remaining flowering rush was the northern third of ground zero. Lake volunteers went back up to ground zero on August 3rd and pulled the remaining, visible plants. See Figure 1 for notations and Figure 2 for pictures of the work event.

It is important to note that while the two work events had thorough removal of flowering rush there is the potential that a few plants were either missed for the water depth or the brush they were growing in. These areas should be double checked for plant growth.

Sub-Point Intercept Survey method: During the July 23rd work event, a sub-point intercept aquatic plant survey was conducted at and around ground zero. Point intercept (PI) surveys are completed by traveling to predetermined GPS points across the lake. Each PI lake map is based on the area and depth specific to that lake. The maps with GPS coordinates are obtained through the WDNR. White River Flowage contains 249 sample points, this sub-PI focused on the 18 sample points at and around ground zero.

Using a GPS, staff traveled by kayak to each of the GPS points. At each point a two-sided rake was used to sample roughly a one foot area of the lake bottom. Sediment type (sand, rock or muck), water depth in half foot increments and the aquatic plant community was recorded. Once the rake is brought to the surface the amount of plant material on the rake is assessed and recorded. The overall fullness of plants on the rake is rated a one, two or three (see illustration to the left). Then the individual species are ranked using a one, two or three. All data is recorded on the PI worksheet. Plants seen within six feet of the sample point are recorded as a “visual”. (Figure 3 shows map with survey points and flowering rush locations.) To learn more about PI sampling methods and how data is collected please visit:



<http://www.uwsp.edu/cnr-ap/UWEXLakes/Documents/ecology/Aquatic%20Plants/PL-Protocol-2010.pdf>

Notable observations: The current appears to create a boundary the plants do not spread beyond easily. At ground zero, no flowering rush was observed east of the channel. Major spread is from the channel westward. Major locations for monitoring would be at any collection points, such as downed trees and weed beds where drifting plants may get hung up.

Focus for volunteers: Monitoring and handpulling efforts should focus on spread downstream from ground zero. Major collection points include:

- 1) From channel westward
- 2) Downed trees where plants may snag
- 3) Weed beds immediately downstream
- 4) Small floaters on weed mats

Figure 1. Flowering Rush Survey and Handpulling Efforts

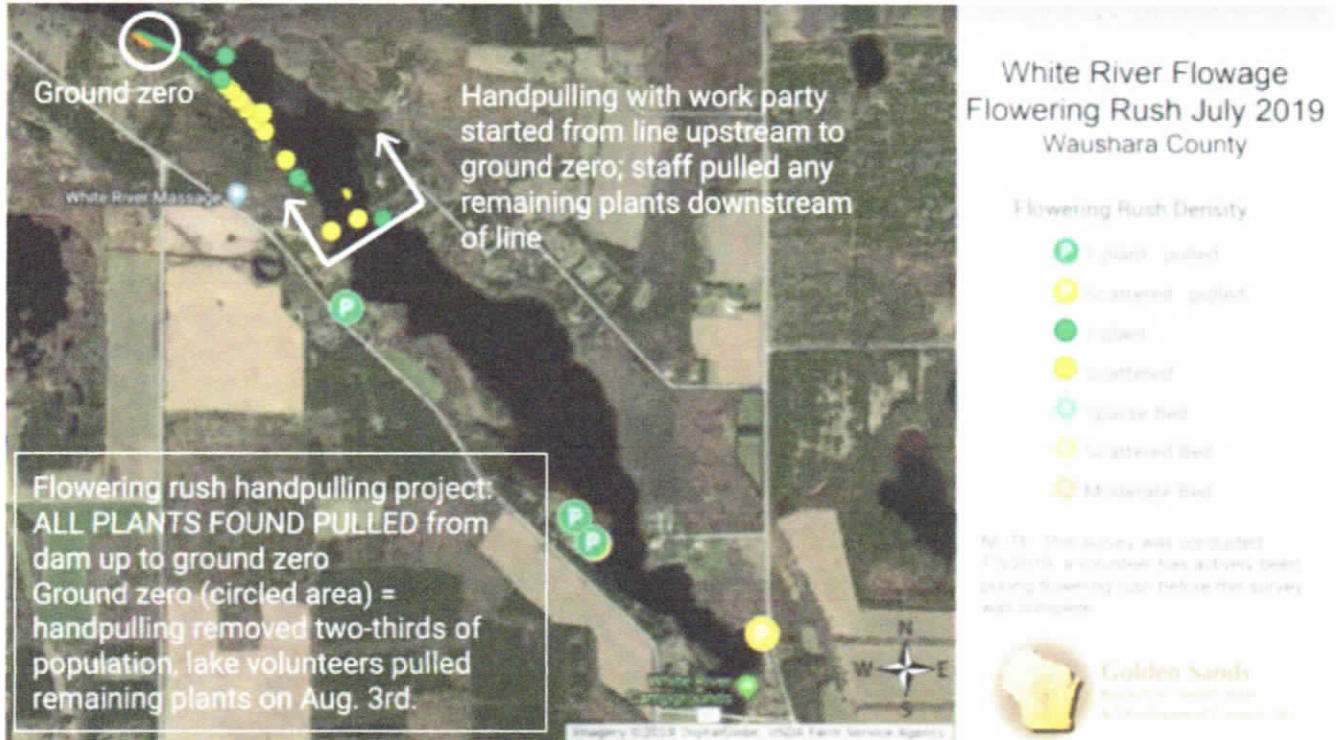


Figure 2. Pictures from the Work Event



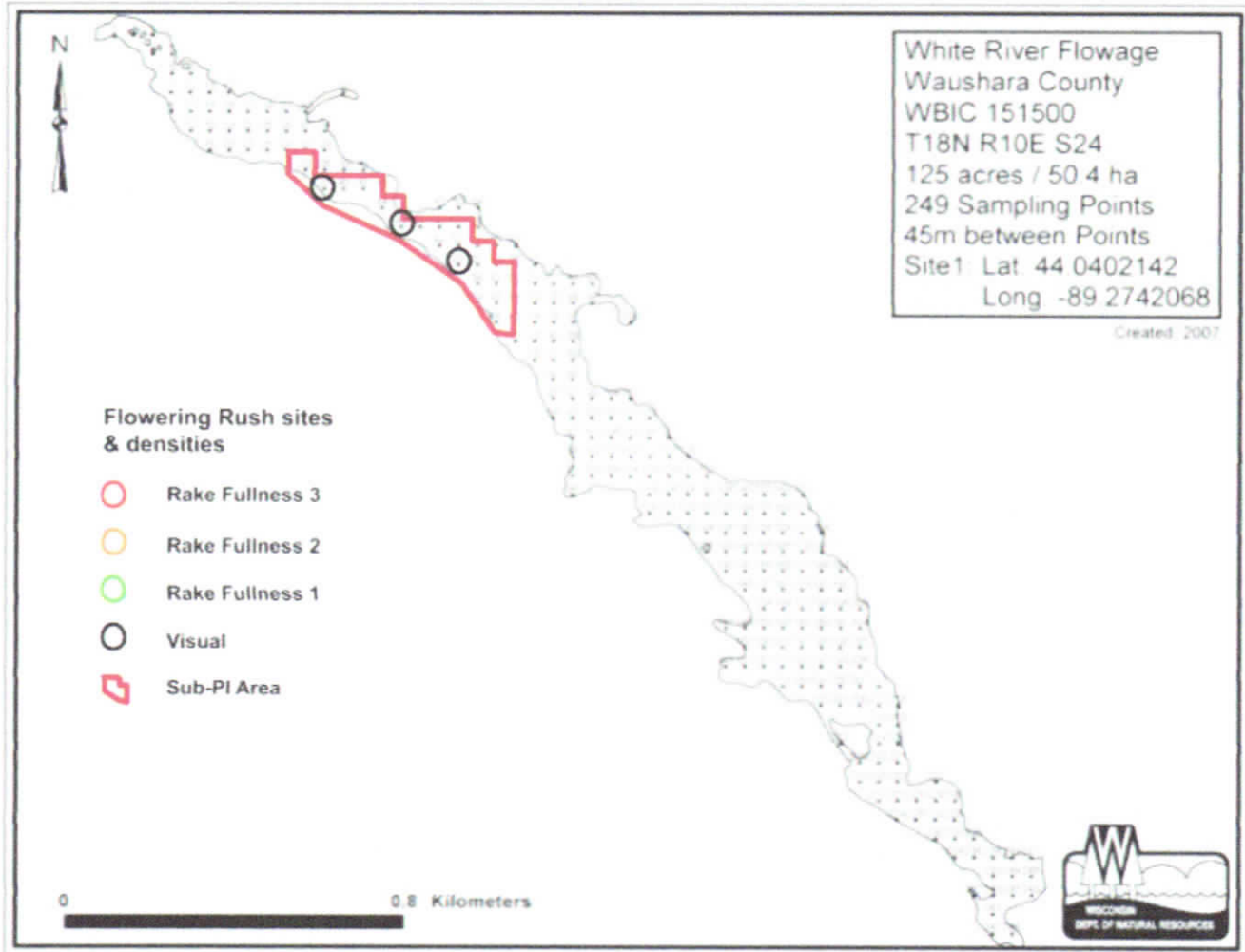
Top Left: Austin working in ground zero, pulling flowering rush.

Bottom Left: Dean, in chest waders, got into the water at ground zero to fill a canoe full of flowering rush at a time.

Top Right: Ground zero on July 23rd, the before picture taken at the beginning of the work day and the after picture showing all that remained of ground zero upon the completion of Golden Sands led volunteer work events.

Bottom Right: Ground zero on August 3rd, the third handpulling day led by lake volunteers. Photo credit: Lynn Bockenbauer

Figure 3. Sub-PI Survey: Flowering Rush Locations & Density



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