



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

Early Detection and Response 3-yr program

AIRR-197-16

Year 3 Final Activity Report

Monitoring survey and handpulling activities 2017

Survey method: On July 13 and Aug 11, 2017, Golden Sands RC&D (Resource Conservation & Development) completed visual surveys for flowering rush on the White River Flowage. Chris Hamerla conducted the July survey. Anna Cisar conducted the August survey. Both surveys were 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.

A meander survey was completed across the upper portion of the flowage from the treatment area to just downstream of the first dock/house on the west shoreline. This is the area where submersed flowering rush has been observed and hand removal efforts have been focused.

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. Attached below are the July map and the August map.

Handpulling methods: On July 13-14, 2017 and August 11, 2017, Golden Sands RC&D led volunteer trainings and work parties on the White River Flowage. 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 too frequently look around and watch for floating bulbils that may have broken off. (These were observed only very rarely, as teams were diligent about careful extraction.)

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

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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 a forklift unloaded the drum 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.

Results: During both surveys, in the chemical treatment area ("ground zero"), plants were green, robust, and thriving. This area is the red and orange polygons at the top of the maps below. The treatment area was not targeted for handpulling. Handpulling efforts instead focused on eliminating the spread of flowering rush in the rest of the flowage. The white line and arrows on the maps indicate the upper boundary for the handpulling work parties.

Although nearly all of the flowering rush plants mapped downstream of ground zero were pulled in July, significant populations were still mapped in August (just one month later). Quiet bays where current would not be likely to spread plants showed very good control in handpulled areas. (Very little regrowth if any.) Conversely, areas where current easily carried plants from upstream showed a re-accumulation of plants around any collection points, such as downed trees or weed mats. This illustrated the importance of eliminating the source population ("ground zero") in order to truly get ahead of the problem.

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.

Water levels were high during both work parties. Crews were instructed to leave any plants that were too deep to reach, rather than risk breaking off leaves by trying. These plants could be better removed later when water levels came down, but not if the leaves were already broken off.

During the July 14th work party, crews finished pulling all the flowering rush that could be found downstream of ground zero and still had work time left, so all crews (staff and volunteers) went to ground zero to reduce spread potential. Pulling focused on 1) floaters, 2) plants on the edge of the channel most likely to come loose and drift with current. Numerous floaters were found snagged on other flowering rush plants or on lily pads. It was unknown why there were so many until pulling in the channel revealed that many plants came loose (roots and all) with only the slightest tug. It became apparent that the current is capable of undermining the roots. All plants in the channel were pulled.

Notable observations

On the August map, the very southern end of the flowage was distinctly devoid of flowering rush plants, thanks to the hard work of a couple of trained volunteers patrolling that area regularly.

Also on the August map, there is a notable gap in the yellow polygons just downstream from ground zero, right around the landowner's dock. He has been regularly monitoring for flowering rush and keeping the area around the dock clear.

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. Downstream, the channel takes a bend to the east, and only a handful of plants were found east of the channel, either rooted or floating on weed mats.

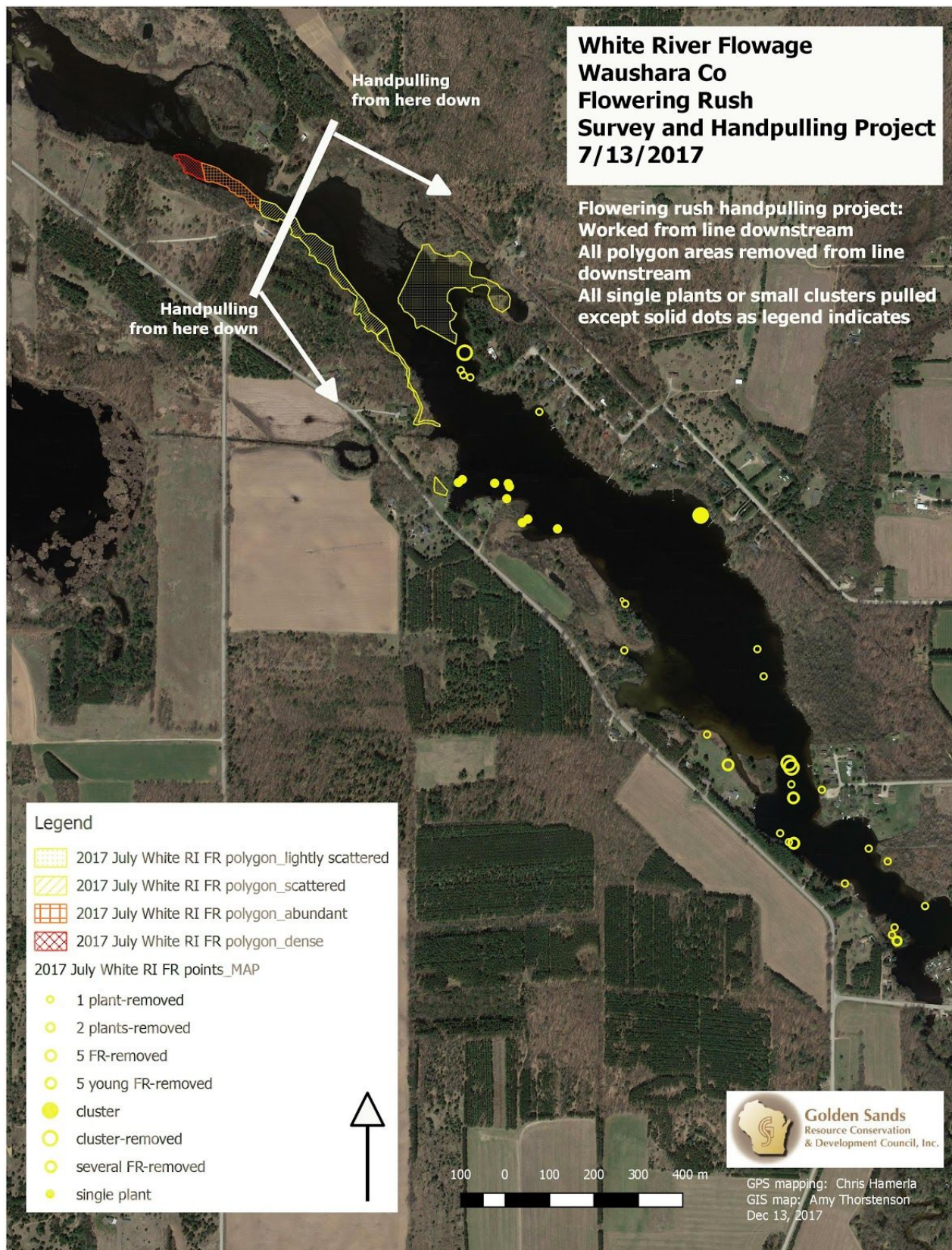
Major spread is from the channel westward. Major locations for monitoring would be at any collection points, such as downed trees and weed beds where drifting plants may get hung up.

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 in the brickyard where the channel opens up and water slows down

Below: Abundant “floaters” observed in July at ground zero hung up on other flowering rush plants or on lily pads. On the 2nd day of the work party, all plants downstream of ground zero had been pulled, with time left over, so efforts turned to collecting floaters from ground zero and removing any plants in the channel, as these were the likely source of these floaters.

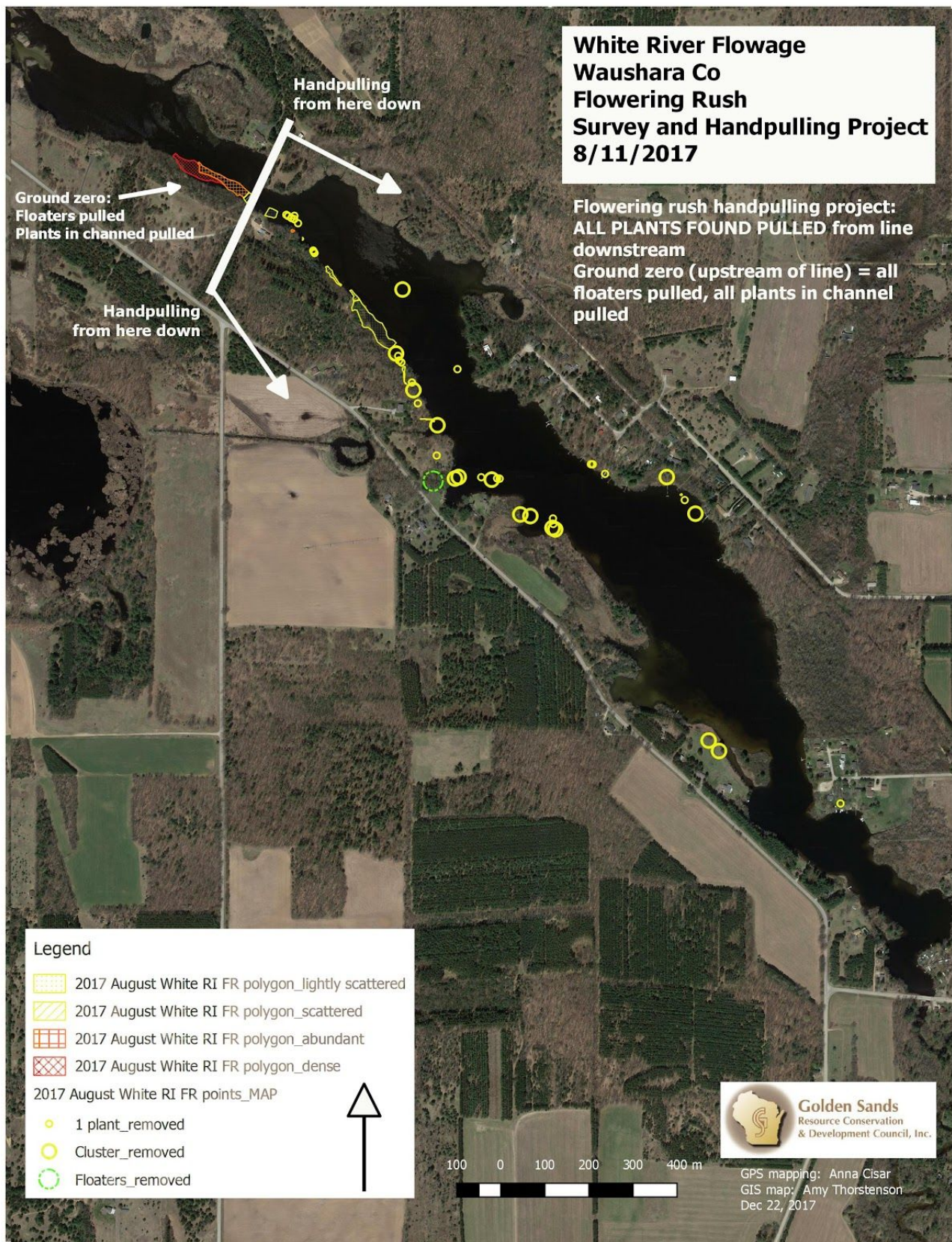




Note: Due to an unresolvable bug in creating the PDF and JPG files, polygons and points appear slightly shifted on this map.

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