Report:

Woody Invasive Species Removal from the Banks of the Kinnickinnic River: River Hills Park, River Falls, WI

January – June 2023

This Report describes work done by volunteers of The Prairie Enthusiasts (TPE), St. Croix Valley Chapter, along the Kinnickinnic River in River Hills Park in River Falls, Wisconsin, in the winter and spring of 2023, with the financial and logistical support of the City of River Falls. The purpose of this effort is to restore areas along the river to riparian, savanna, and nearby steeply sloped deciduous forest. In the process, our aim is to create a pollinator corridor linking the Rocky Branch Prairie to the Foster Cemetery Conservation Park. We thank the City and TPE volunteers for making this effort possible. Removal of woody invasives by volunteers in the fall of 2022 from Larson Park and along the east shore of Lake George, both in River Falls, paved the way for this restoration work in River Hills Park.

Specifically, we cleared two locations (Site 1 and Site 2) along the Kinnickinnic River in River Hills Park, starting January 7, and going through May 19. The areas of the two are approximately 740 and 950 m^2, respectively. Both locations are bounded on one side by Trail 11, and on the opposite side by the Kinnickinnic River. Site 1 narrows at its south end to where the trail meets the river and is bounded on the north by uncut invaded forest. Site 2 is separated from Site 1 by 60 m of uncut invaded forest. More uncut invaded forest occurs at the north end of Site 2 (see map). Thus, our efforts have led to two cleared, experimental locations, each paired with an uncut control location (see photos).

Two sites were cleared rather than one large one to:

1) create an experimental design, with replication
2) reduce the amount of canopy opening, with the goal of reducing buckthorn seed germination
3) avoid adverse effects of any catastrophic flooding similar to that which occurred in June of 2020

Almost exclusively, the invasives removed were buckthorn (*Rhamnus cathartica*) and honeysuckle (*Lonicera tartarica*), the former dominating in biomass. Removing these two species left clear views from the trail to the river, whereas prior to clearing, the river could not be seen. Cut plants were stacked along the trail for later chipping and removal by the City.

There are a few large bur oaks, cherries, basswoods, box elders, and cottonwoods that form an open canopy over the two sites. The understory is now growing up in

both locations. Site 1 is ahead of Site 2 in this regard, probably because of the extended time required to remove cut brush in Site 2 (see below). No buckthorn seedlings had appeared at the time of this writing, nor has there been any sign of garlic mustard (*Alliaria petiolata*). We are in the process of removing by hand dame's rocket (*Hesparis matronalis*) from both plots. This latter species is the only obvious herbaceous invasive at this time.

The oldest buckthorn cut, approximately 30 cm in diameter, is a minimum 32 years in age, based on ring counts. The center of the tree was rotten, so perhaps it was an additional 10 years in age. All other stumps have fewer ring counts. This suggests that invasion of the location began in the 1990s, according well with the observation that there was little buckthorn invasion in the Kinnickinnic watershed in 1999 (W. Huhnke, pers. comm.).

Resource Deployment

Volunteers from the St. Croix Valley Chapter invested approximately 200 person hours.

The process of removal involved 1-3 sawyers per work party, with the rest of the volunteers dragging and stacking cut brush (12-foot maximum or so). Work parties consisted of 2-10 people on any given day. Stumps were cut at ground level on the first workday, Jan. 7, and were treated with triclopyr 4. After that the snow was too deep to allow easy cutting at ground level, so the sawyers left behind stumps cut to 1.0-1.5 m tall. These stumps were not treated until they were cut to ground level in April and May, after the snow had melted.

One important lesson learned is that there should be 2-3 three persons for every chainsaw. This will prevent a large backlog of brush removal. Site 2 was initially cut on one day, with three sawyers, but there were only three haulers. Thus, much brush was left on the ground, which we then did not clear until April and May. This resulted in some damage to sprouting vegetation.

At the time of this writing, sprouting has occurred from the base of some buckthorn stumps. These sprouts will be cut and treated. The location and size of all stumps will be recorded and whether they produced sprouts to determine whether there is a relationship between the height/time of cutting and subsequent sprouting.

Added Vegetation

An annual rye grass mix was sown on snow just prior to a coming snowfall, on March 9. Another mix of annual rye grass and understory perennial herb seeds was sown on March 18, again prior to a snowfall. The goal was to both provide fuel for a fall burning (after the grasses had died) and to replenish the seed bank for the native perennials. On April 4, there were still patches of snow on the ground, and rye seeds could be seen scattered across the litter (they had not been washed away

by any flooding). As of this writing, there has been no obvious germination of grass seed.

Public Response

Many park users passed by the sites while work parties were in action. Everyone to the person was positive. One person in particular stood out. He said he had been fishing the Kinnickinnic and Rush Rivers for 40 years. He remembers large emergences of mayflies and caddisflies from the Kinnickinnic but has not seen such events in any recent time.

Future Efforts

The St. Croix Chapter has the following goals for this area for the coming year (June 2023-May 2024).

1. Monitor Site 1 and Site 2 for buckthorn seedling emergence, remove any small buckthorn missed, and remove any herbaceous non-natives. Dame's rocket is the most abundant at the moment. Cut and treat sprouts from stumps.
2. Monitor butterfly and bee abundance in cleared vs. uncleared sites during the summer of 2023.
3. In the summer of 2023, place a sign in each of the cleared sites to educate the public about the project.
4. In the summer of 2023, plant native shrubs along the riverbank.
5. Burn the two cut sites in the fall of 2023.
6. Remove female buckthorn trees in adjacent uncut areas along the river prior to berry ripening during the fall 2023. We would then wait 3-9 years to allow the seed bank to be depleted before doing any additional clearing on the scale already accomplished. Move cut brush to the trailside to reduce the impact on native vegetation.
7. Map out boundaries of the nearby overgrown savanna prairie for clearing during one or more upcoming fall/winter periods.

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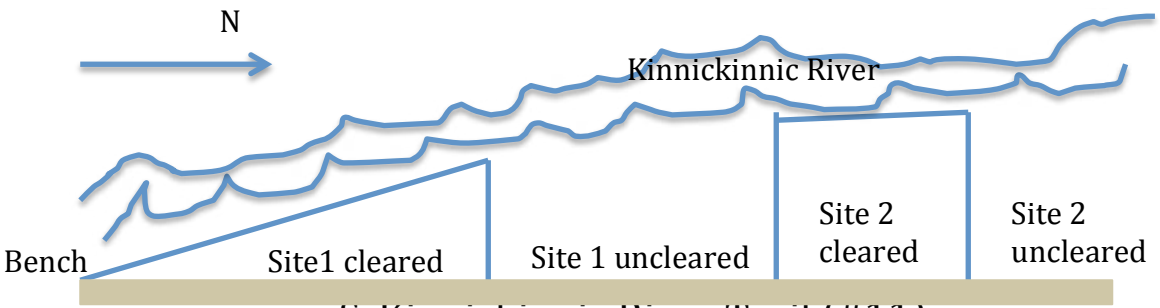

S. Kinnickinnic River Trail (#11)

Site 1 cleared.

Uncleared area adjacent to Site 1.

Site 2 cleared.

Uncleared area adjacent to Site 2.