Lake Ripley Management District

10-Year Preserve Management Plan

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Preserve Mission Statement

Developed by the Lake District Preserve Planning Committee and adopted by the Board in 2007

"To enhance Lake District Preserve wetland function, native habitat quality, and low-impact public access and educational opportunities to (1) protect the health and condition of Lake Ripley, and (2) to promote community awareness of watershed – conservation issues through exploration and interaction with restored natural areas."

Introduction

This 10-year management plan is designed to provide guidance and budgets for tasks associated with the maintenance and development of Lake Ripley Management District Preserve lands. The intent of this plan is to be a standing document that provides guidance using adaptive resource management, but remains a living document, adaptive to changing stewardship and restoration needs, as well as financial and physical limitations. This plan is based on our previous 20-year plan but has been updated and revised according to present 2021 conditions and needs.

Purpose

The purpose of this plan is to provide short- and long-range visions associated with the stewardship needs of the Lake District Preserve. The plan is intended to provide consistent land management guidance, including task guidelines and budget formats, which will guide the work through periods of disconnect such as changes to the Board of Directors or Lake Manager.

This plan is also intended to show that the Lake Ripley Management District is committed to the stewardship of District lands over the long term. Long range planning is very beneficial in scheduling land management tasks and projecting budgets. The demonstrated commitment to long-term management will also aid in the achievement of grant awards.

Long Range Goals

The overall goal of the Lake District Preserve is to protect Lake Ripley and its water quality by conserving critical headwater areas, develop and provide watershed and natural resource education, develop habitat for grassland/woodland/wetland dependent wildlife, and to allow non-intrusive access to the Preserve for low-impact recreation and educational purposes.

Primary Land Management Objective

Land management activities should maximize wetland hydrologic functions, namely, to improve the quality and modulate the volume of water flowing to Lake Ripley. This includes improving the water-absorption/filtration capacity of the wetlands and adjoining upland, prairies, and woodlands. Management of all lands will aid in the reduction of soil loss through the development of dense herbaceous native wetland and upland plant cover for water quality improvements. These water quality improvements on the land will benefit water quality in the lake and inlet stream, improve habitat conditions for fish and other wildlife, and give favor to native aquatic plants.

Complete restoration of habitat types to pristine, pre-settlement conditions is not a District objective due to budget and time constraints, and because that is not our primary mission. Instead, efforts are focused on supporting native species and controlling invasive species to achieve soil stability, rainfall infiltration, and biodiversity in each management zone.

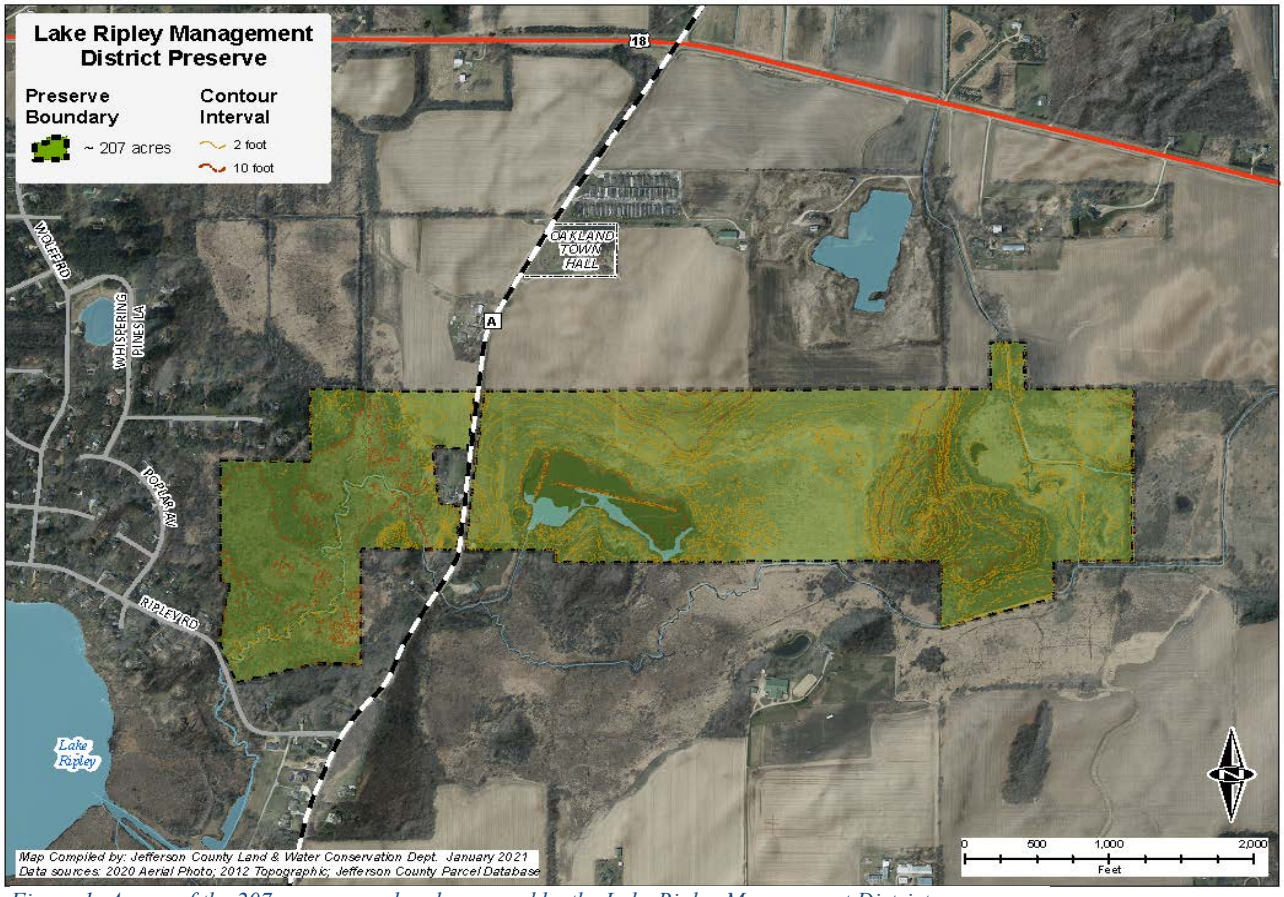

Figure 1: A map of the 207 acres owned and managed by the Lake Ripley Management District

Guiding Principles

Developed by the Lake District Board of Directors and adopted by the Board in 2007

Main Goal of Preserve

To protect Lake Ripley and its water quality by conserving critical headwater areas.

Secondary Goals

- Watershed and natural resource awareness through the use of "soft out-reach", such as educational kiosks and Ripples articles
- Create and protect native habitats, especially for grassland/wetland-dependent wildlife
- Non-intrusive access for low-impact recreational uses (hiking, birding, nature exploration, photography, and enjoyment)

The purchase or acquisition of additional lands deemed strategic to water quality of the lake are based on current economic conditions, budgets, and land availability.

"Encouraged" Uses in the Preserve

- Quiet, trail-based enjoyment and exploration of the Preserve
- Watershed awareness/education
- Volunteer stewardship work
- Scientific research

"Permitted" Uses

- Hunting (grant condition)
- Trapping (grant condition; muskrat only, using in-water traps with dog exclusion design. One trapper only per year, chosen by lottery.)
- Leashed dogs on trails (Board-adopted rule)
- Geocaching (must apply for a permit, and demonstrate site will not disrupt plants or wildlife)

"Discouraged" Uses

- Off-trail use by dogs or people that might unnecessarily disturb nesting wildlife or cause harm to fragile plant communities
- Biking or motorized vehicle use of any kind
- Any loud or disruptive activities

Land Management Zone Descriptions

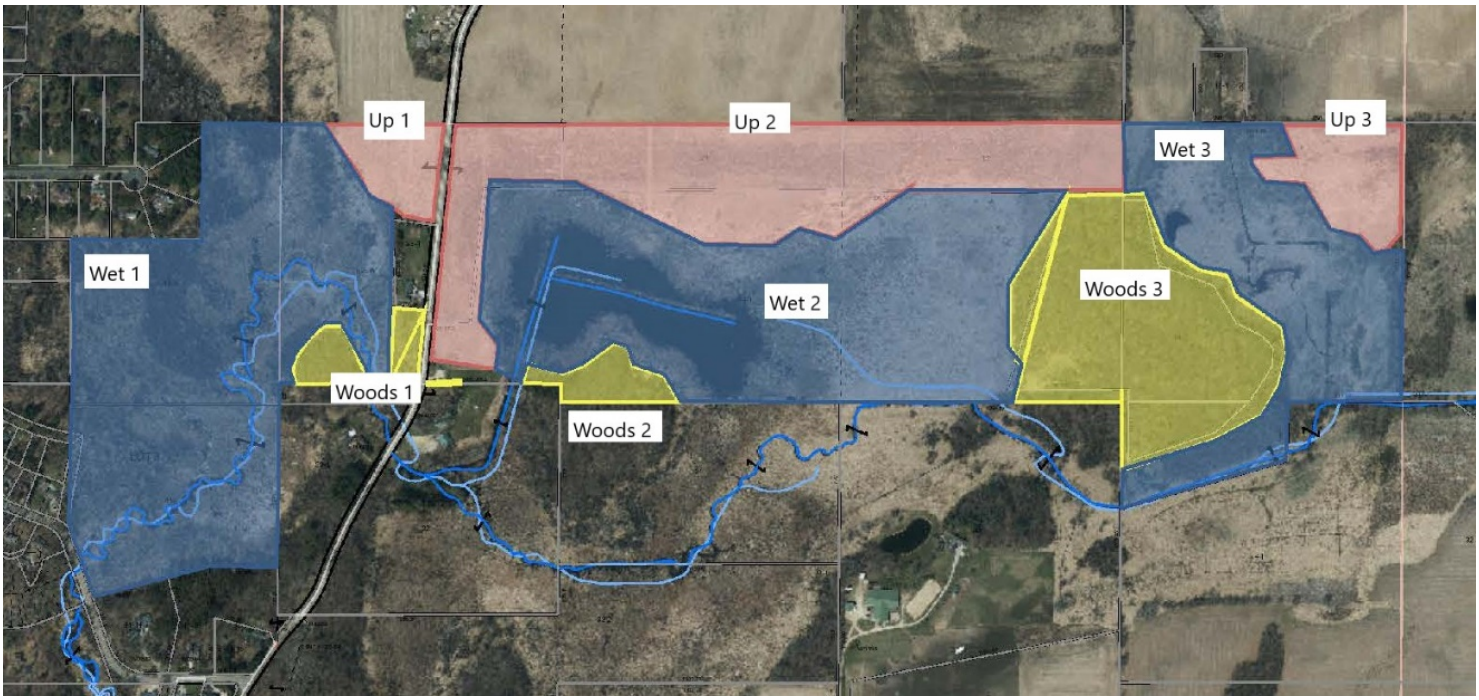

Figure 2: A map of all the land management zones

Upland Prairie Zone 1

Upland Prairie Zone 1 is a small 5-acre prairie located west of County Road A that the District purchased in 2008. Previously, these acres had been cropped with Roundup Ready crops. In 2009 the District seeded the land with "Tall Grass Prairie" native seed mix. The seed mix was 80% grasses and 20% forbs and was seeded at a seeding rate of 63.2 seeds per square foot, which is also 10 pounds per acre. After seeding, the District used new-prairie protocols as the prairie established itself.

Since 2009, this prairie area's firebreak/buffer zone has been maintained annually, not just before fires, to control the push of reed canary grass from Wetland 1 into the prairie. This annual firebreak is appreciated by the neighboring property owner to the south.

Spot herbicide applications had occurred early in the establishment of the prairie and have been used in 2019, 2020 and 2021 to control cottonwood and other small tree saplings. There is a large, female cottonwood tree located on the western border of this prairie. It is the source of all cottonwood saplings in the prairie and is scheduled to be removed. Prescribed burning, spot-herbicide applications, and handwork by volunteers will be the primary tools in continuing the effort of woody species removal. The last burn occurred in May 2018, with the next one scheduled for 2023.

Small patches of reed canary grass have been found throughout this prairie since 2020. Reed canary grass is an invasive wetland plant that greatly reduces botanical and biological diversity by homogenizing habitat structure and environmental variability, alters hydrology in wetlands by trapping silt and constricting waterways, and decreases retention time of nutrients and carbon stored in wetlands (WI Reed Canary Grass Management Working Group, 2009). The District will work towards reducing the amount of reed canary grass in the Preserve by using adaptive management, such as regular burning, cutting of seed-heads, digging out small clumps, and spot-herbicide application.

This area has been successfully restored to a dense grassland prairie and is not considered a public access area. Future management practices are expected to continue on an annual basis.

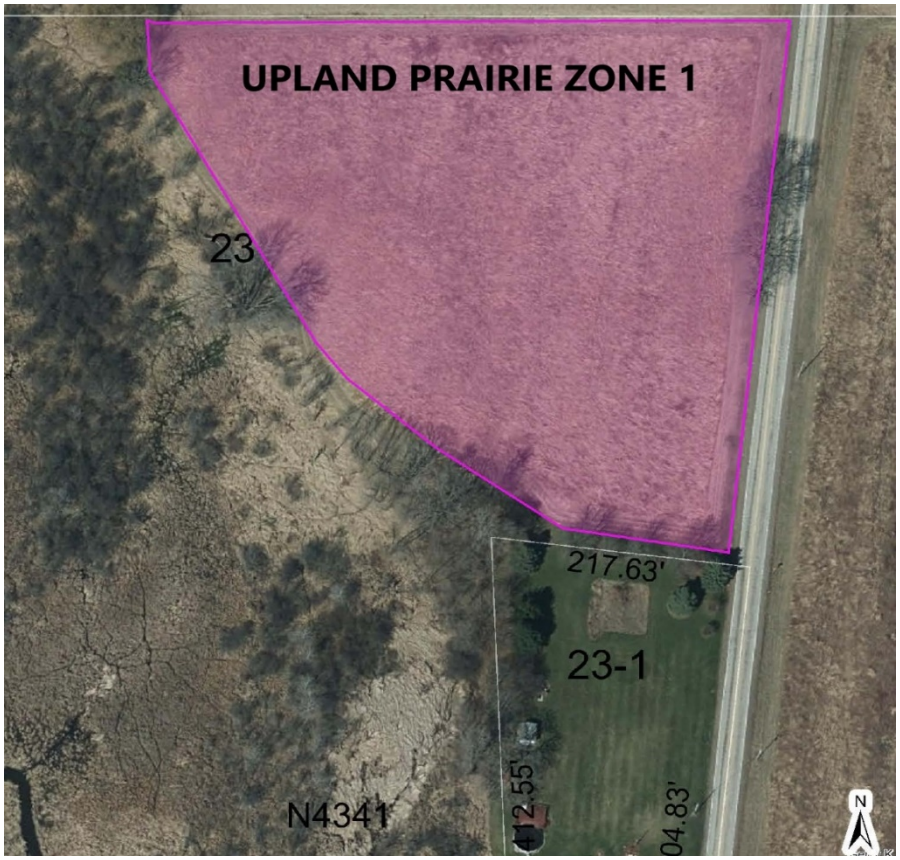

Figure 3: Map of upland prairie zone 1

<u>Management Goal:</u> Maintain this established prairie especially for its soil-holding and rainfall-infiltration capacity. Maintain good grassland habitat for native wildlife.

Intervention Management Action:

1. Fall 2021 cut and herbicide cottonwood saplings.
2. Fall 2021 remove/drop the female cottonwood from the prairie into the wetland. The half that falls into the prairie will be removed. This will remove the source of the saplings and thus reduce future maintenance costs.

Management Actions:

1. Annual meander survey, preferably one in each season. Create and update a species list during these meanders.
2. Annual aggressive fire break mowing schedule to maintain prairie maintenance buffer zone, to control the push of reed canary grass from Wetland 1 into the prairie.
3. Burn on schedule (every 3-4 years unless advised otherwise). Next burn due Spring 2023 (preferably schedule to coincide with the burn of Prairie 3).
4. Especially after a burn, carefully observe for problems such as erosion or woody invasives.

Upland Prairie Zone 2

This upland prairie area was purchased in two parcels; the first parcel was purchased as part of our initial Preserve in 1998, and the second parcel with the remaining 21-acres was purchased in 2008. From 2008-2010, these 21 acres were kept in Roundup Ready crops. In late winter/early spring of 2011, the area was seeded with a "Tall Grass Prairie" native seed mix. The 21-acres were converted from agricultural field conditions to native prairie by utilizing agricultural practices that suppressed weed growth to prepare the soil for native seed application. The agricultural practices used planting with Roundup Ready corn in 2009, then planting with Roundup Ready soybeans in 2010, with the seeding occurring before the growing season in 2011.

In 2010, the District noticed a gully in the prairie located approximately 650 feet east of County Road A. This gully ran for 500 feet, north to south, through the newly seeded prairie. Due to the large amount of runoff collecting in this gully, the District installed erosion control measures, including the installation of a biodegradable erosion control blanket. This area should remain stable due to the combination of the erosion control blanket and the native prairie.

The erosion began in the cropped field to the north of our prairie. In 2010, at the same time the erosion control measures were installed in the prairie, a grassy swale was installed in the cropland. The District paid for this, with the farmer's agreement to keep it in place. This grassy swale should be included in the annual observation of the prairie.

This prairie planting is now considered established and is maintained through the use of prescribed burning and handwork by volunteers. The last burn occurred in April 2021, with Burn Units B and C being burned. The next burn for this prairie zone is scheduled for 2024 in Burn Unit A. Future management practices are expected to continue on an annual basis. This prairie is one of our most important public access areas.

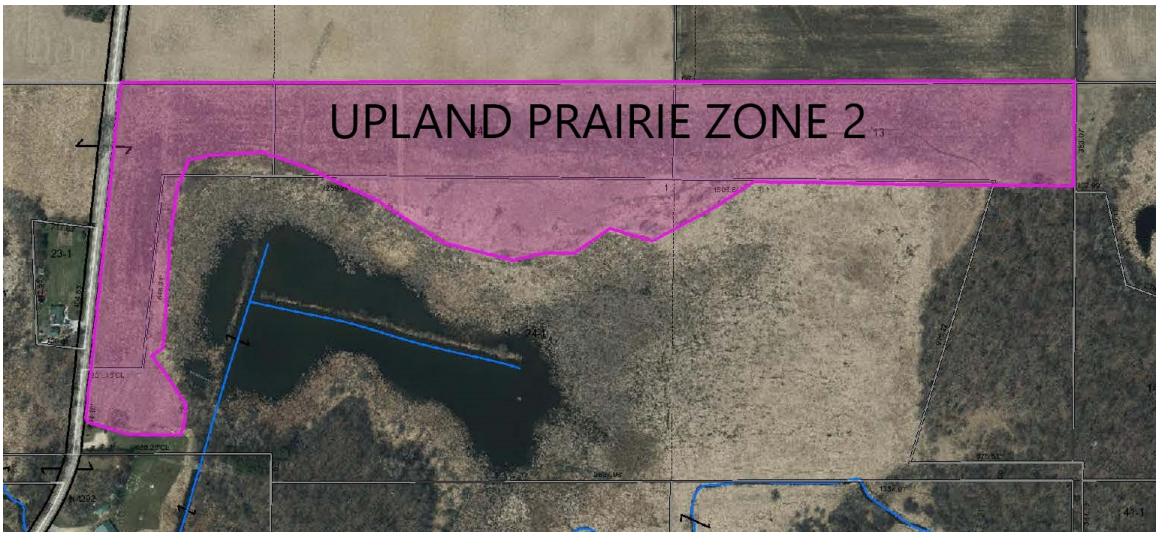

Figure 4: Map of upland prairie zone 2

Management Goal: Maintain this established prairie especially for its soil holding abilities and water infiltration capabilities. Maintain good grassland habitat and public access.

Intervention Management Actions:

1. Early summer 2021 flag small tree saplings.
2. Fall 2022 cut and spot-herbicide the saplings as well as the larger trees.
3. Manage RCG through different management actions including but not limited to: removing seed-heads, digging out, burning, mowing, and herbicide treatments, as the annual budget and volunteer participation allows.

Management Actions:

1. Annual meander survey, preferably one in each season. Create and update a species list during these meanders.
2. Annually inspect grassy swale in adjacent farm field to the north.
3. Conduct prescribed burns in Burn Zones A, B, and C once every 3-4 years with adjacent Wetland 2 areas.
4. After burns, take advantage of visibility to look for signs of erosion and remove saplings.
5. Trail mowing for public access and stewardship work.
6. Fall firebreak mowing where we anticipate a burn the following spring.

Annual Fall Volunteer Chores:

1. Clean out tree swallow nest boxes along trail.
2. Collect seed (Indian grass, big bluestem grass, Canadian wild rye, etc.) along trail and sow elsewhere.
3. When the ground is firm, clean out wood duck nest boxes.

Public Education/Awareness Actions

1. Kiosk images need replacing roughly every 10 years (replaced most recently in 2020 and 2021).
2. Observation deck - the deck was installed in 2006 and replaced with longer-lasting composite in spring 2021.

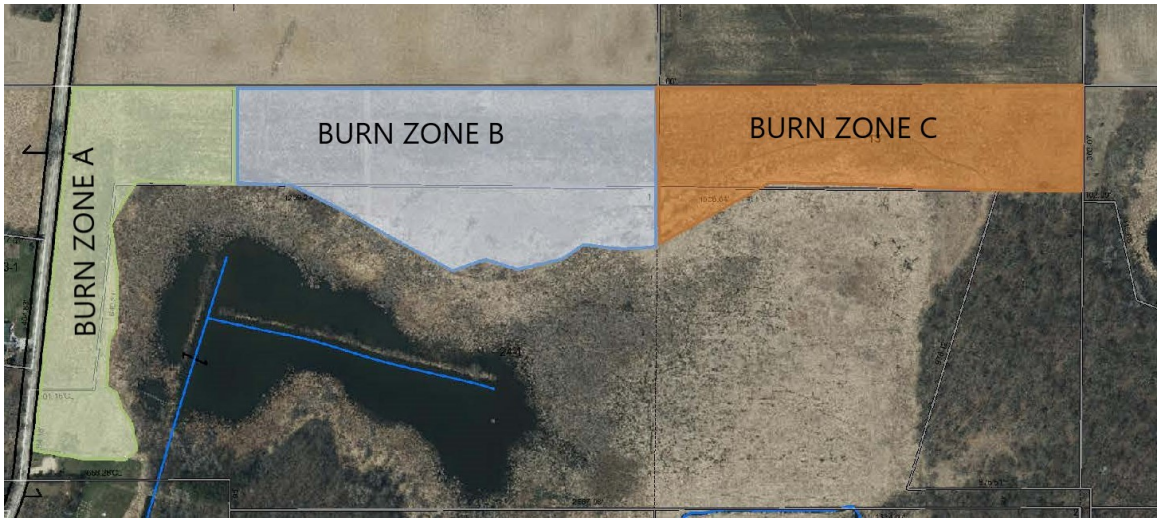

Figure 5: Three burn zones within the upland prairie 2 management zone

Upland Prairie Zone 3

This 6-acre prairie area is part of the original Preserve. Early on it was restored to native prairie but due to the difficult access to this prairie, this area has not received maintenance since 1998. In spite of the lack of management, this prairie is thriving with dense, native prairie plants. Establishing access to this prairie is expected to happen in 2022. Once access is created, this area will receive attention to remove invasive species and to maintain a covering of herbaceous grasses.

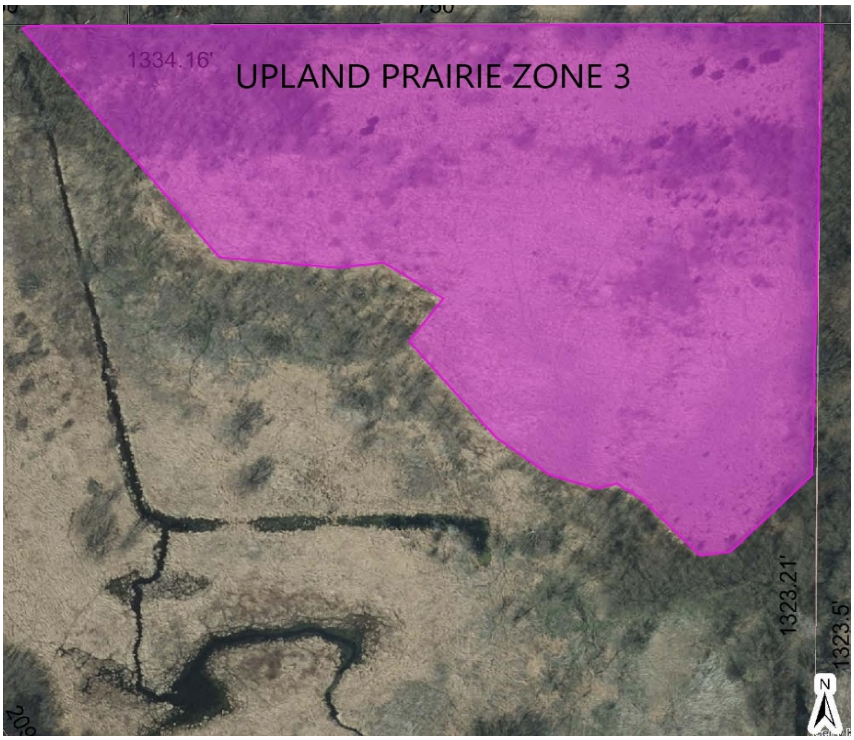

Figure 6: Upland prairie zone 3

Management Goal: Remove invasive and woody species to maintain dense grassland cover to maximize soil holding abilities.

Intervention Management Actions:

1. Summer/fall 2022 create access to Upland Prairie 3. This work is expected to require major brush removal and will include replacing an old steel culvert with an eco-friendly plastic culvert.
2. Fall 2023/24 major removal of woody brush (boxelder and buckthorn) and herbicide treatment of stumps.
3. Spring 2024 prescribed burn.

Management Actions:

1. Annual meander survey, preferably one in each season. Create and update a species list during these meanders.
2. Prescribed burn every 3-4 years, same schedule as Prairie 1.
3. After burns, take advantage of visibility to look for signs of erosion and remove saplings.
4. Maintain access to this prairie through a more aggressive mowing schedule.
5. Fall firebreak mowing when we anticipate a spring burn.

Annual Fall Volunteer Chores:

1. Replace and clean out tree swallow nest boxes.
2. Collect seed (Indian grass, big bluestem grass, Canadian wild rye, etc.) and sow elsewhere.

Wetland Zone 1

The eastern portion of this wetland zone was purchased in 2008, with an additional 44 acres to the west, purchased from the DNR in 2017. This wetland is located west of County Highway A and north of Ripley Road. Currently, the wetland consists of reed canary grass, hybrid cattail, buckthorn, sandbar willow, dogwood, cottonwood, and boxelder. Although there are invasive species on this site, it is currently achieving water quality goals due to the dense reed canary grass covering currently in place. The DNR had no restoration plan for this wetland and did not do any restoration work in it.

Management should prevent the population of woody species from becoming dense. In an effort to maintain a strong grass cover, it is recommended to hand-remove large woody species and burn this area periodically to ensure that the dense canopy created by woody brush does not shade out the grass species below. Burning will not control the reed canary grass or the hybrid cattail, but it will control the young woody vegetation. As this area has high-water levels present, it is expected that this work will be completed in the winter months, while frozen conditions are present. A burn may have to be carried out when specific conditions arise, when snow load is low and there is enough frozen substrate to allow the area to be traversed.

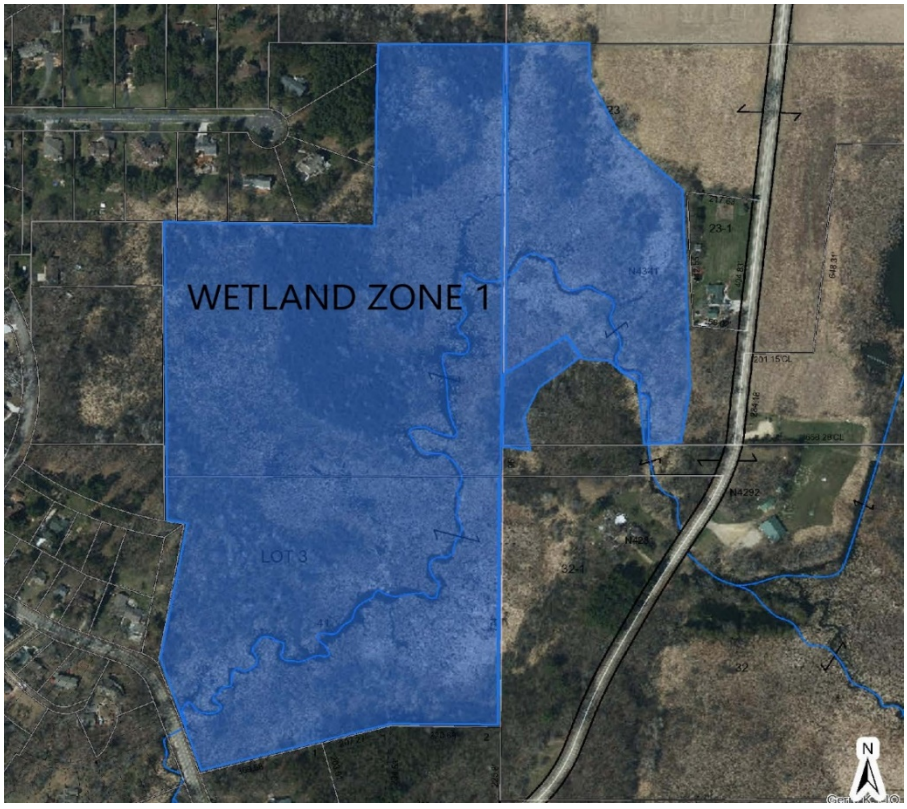

Figure 7: Wetland zone 1

<u>Management Goal:</u> Keep invasive species and woody canopies to a minimum to maintain dense grassland cover maximizing soil holding and sediment trapping abilities.

Intervention Management Actions:

1. Cut and herbicide large buckthorn during fall/winter 2022-23.

Management Actions:

1. Annual meander survey, preferably one in each season. Create and update a species list during these meanders.
2. Periodic burns to control woody invasive species.
3. Periodically cut and herbicide large woody invasives as needed.

Wetland Zone 2

This wetland and wet prairie have been the focal point of the Preserve since the beginning of the Preserve's existence, with wetland characteristics returning due to ditch plugs installed in 1998. About 45-acres of native prairie was first planted in June 1998 to take advantage of the existing soybean cover, absence of aggressive weeds, and friable soil condition. Roundup was sprayed to kill weeds that germinated prior to planting. Approximately 35-acres of mesic prairie was planted using a seed drill, while the other 10-acres of wet prairie was planted by hand broadcasting native seed.

The "Mesic Prairie 45 Acre Preserve" seed mix contained the following species: big bluestem, Indian grass, switch grass, black-eyed Susan, purple coneflower, and purple prairie clover. In addition, the WDNR provided 90 PLS (pure live seed) pounds of seed to supplement the mix. The "Wet Prairie 10 Acre Preserve" seed mix included the following species: bluejoint grass, cord grass, stiff goldenrod, big bluestem, switchgrass, New England aster, Culver's root, prairie blazing star, rosinweed, and bergamot. Due to the wetness of the ground, this seed was planted entirely by hand broadcasting.

Planted areas were mowed in August 1998, during the initial growing season. Mower blades were set at eight inches to cut the taller weeds and allow sunlight to reach the sprouting prairie vegetation. Planted areas were mowed again during the spring of 1999. At that time, mower blades were set at six inches.

The northern edge of the wet prairie area has experienced an encroachment of native willow species over the past several years. The advancement of willow colonies into this area could cause a decrease in the ability of herbaceous grasses to grow and protect the soil. This area is part of the 'Woody Invasive RFP', which was activated in late fall of 2012 and winter of 2013. Since this effort was made, hand removal of willow and burning in this area has been the method of maintenance. Young willows intruding close to the trail have been hand-pruned annually.

Reed canary grass was first noticed in this wetland in 2008 when the land was purchased. At the time there was no reasonable way of managing it that wouldn't cause other ecological problems. Since then, frequent burning of reed canary grass has proven to reduce reed canary grass and promote native forbs which compete with the invasive. In 2021, the District burned Wetland Zone 2 to reduce the biomass and seed development of

reed canary grass. After the fire we observed an abundance of native wetland and prairie plants flourishing in the place where reed canary grass had dominated. Due to the apparent reduction of reed canary grass, the District is planning to use frequent fire in this area.

Since 1998, this wetland zone has been maintained by periodic burning, mowing and hand pulling of invasive species. The western part of the wetland, including deep into the cattails surrounding the wetland scrape with the boardwalk, was burned in 2019 simultaneously with the adjoining prairie area. The eastern part of Wetland 2 was burned in 2021 simultaneously with Upland Prairie 2.

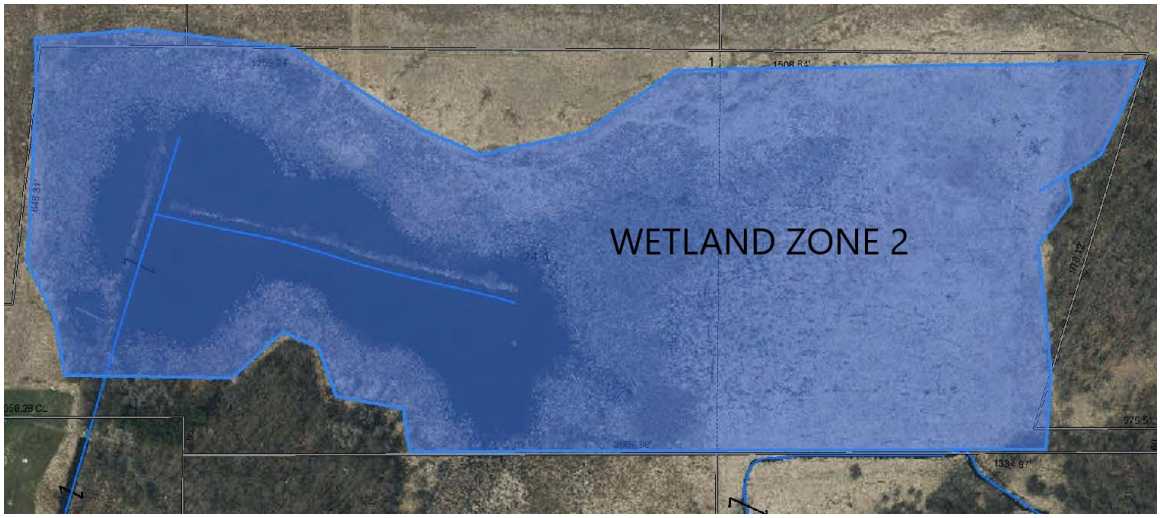

Figure 8: Wetland zone 2

Management Goal: Maintain and improve the wetland's function of protecting the inlet creek.

Intervention Management Actions:

1. Manage reed canary grass through different management actions including but not limited to: removing seed-heads, digging out, burning, mowing, shading out, and herbicide treatments, as the annual budget and volunteer participation allows.

Management Actions:

1. Annual meander survey, preferably one in each season. Create and update a species list during these meanders.
2. Annual control of sandbar willow by hand-removal of oldest, tallest willows so that the sunshine can penetrate to the ground, allowing grassy cover to stabilize the soil, as well as hand-removal of small willows encroaching on trail.
3. Burn with Prairie 2; burn zones A, B, and C in turn, every 3-5 years.
4. In 2022, conduct an aquatic plant survey of the wetland scrape within Wetland 2 to monitor for invasive species.
5. Participate in the Wisconsin Frog and Toad Survey to assess the status of our anuran population.

Public Access Actions:

1. Boardwalk – This boardwalk was installed in 2003 and repaired in 2019. It will eventually need to be replaced.
2. Kiosk images need replacing roughly every 10 years (replaced most recently in 2020).

Wetland Zone 3

This 20-acre wetland has been part of the Preserve since the summer of 1998. It lies east of Prairie 2 and Woodland 3. Due to access issues and previously existing priorities, this wetland complex has not received much attention beyond the original work completed in 1998. The work included the installation of a ditch plug and the creation of two wetland scrapes. During the winter of 2019, a failing ditch plug was repaired.

Although the scrapes are not considered "true" wetland restorations, these features provide excellent spring wildlife habitat and can help trap sediment from upland runoff during periods of high water. The two scrapes were excavated to a depth of 12"- 24" in the middle, with spoils placed on the adjacent uplands. Wetland vegetation was not planted since it was assumed that there was still a viable seed bank present in the soil.

The current landscape contains an encroaching shrub layer as well as stands of reed canary grass and giant ragweed. Of special concern is the boxelder thicket covering the slope between Prairie 2 and Wetland 3 and extending across the north edge of Wetland 3. This thicket is so dense that no herbaceous cover can survive, leaving bare soil that could erode into the wetland.

Figure 9: Wetland zone 3

Management Goal: Keep invasive species and woody canopies to a minimum to maintain dense herbaceous cover maximizing soil holding and sediment trapping abilities.

Intervention Management Actions:

1. Summers 2022/2023 mow and/or hand-pull giant ragweed infestation.
2. Removal of dense boxelder thicket on slope at west and north edges. Cut the trees and herbicide the stumps. Remove all debris, by hauling to the Town of Oakland's burn pile. Establish herbaceous cover on this slope to prevent soil erosion.

Management Actions:

1. Annual meander survey, preferably one in each season. Create and update a species list during these meanders.
2. Annual inspection of ditch plugs.
3. Annual aggressive firebreak mowing schedule to keep reed canary grass from encroaching upon Prairie 2.
4. Maintain herbaceous cover on slope between Prairie 2C and Wetland 3.
5. In 2022, conduct an aquatic plant survey of the wetland pond within Wetland 3 to monitor for invasive species.
6. Participate in the Wisconsin Frog and Toad Survey to assess the status of our anuran population.

Woodland Zone 1

Woodland Zone 1-A was purchased in 2008 as part of the 66-acre Johnson acquisition. It is believed that this 1.2-acre woodlot, closest to County Road A, was an oak savannah ecosystem prior to European settlement. This woodlot is rather small but does contain good native tree species, including bur oak, white oak, shagbark hickory, and black oak. Along with the desirable species there was a strong population of invasive woody species including buckthorn and honeysuckle, which were removed in the winter of 2012 by forestry mowing (same time as forestry mowing in Woodland 3).

At this time, undesirable species have been greatly reduced and the native herbaceous and shrub layers are beginning to respond. Buckthorn was removed by hand in fall 2020 by volunteers and seeded with herbaceous species from site. This work will continue in fall of 2021 and beyond. It is recommended that the restoration activities in the woodland continue. Due to the small size of this woodlot, it is possible that this area could be restored through volunteer efforts and occasional prescribed fire operations.

As this woodlot is small, it is influenced by neighboring woodlands of similar make up, which contain invasives. It is important for the District to communicate with the neighboring property owners to forge a working relationship in restoring these woodlands.

Woodland Zone 1-B is across the inlet creek from the woods just described. This 1.6-acre area is an oak knoll, an island-like hill surrounded by Wetland 1. This knoll has been explored only in winter when ice cover makes it more accessible. Large old oaks predominate, with an understory of buckthorn. It is not yet known if the forest floor has a good cover of herbaceous species. This would be especially important because the land slopes on all sides to the wetlands below.

Figure 10: Woodland Zone 1A and 1B

Management Goal: Maintain these small woodlots by eradicating invasive species and promoting the natural recovery of native herbaceous and shrub species.

Intervention Management Actions:

1. Continue the buckthorn removal effort during summer/fall 2021 and 2022.
2. Cut and herbicide buckthorn in Woodland Zone 1-A during fall 2023.

Management Actions:

1. Annual meander survey, preferably one in each season. Create and update a species list during these meanders.
2. Continue young, woody invasive removal.
3. Continue improving herbaceous cover by seeding.

Woodland Zone 2

This 2.8-acre woodland was part of the original Preserve purchase in 1998 and is located south of Wetland 2 and north of Oakland Conservation Club property. This woodlot contains small numbers of native trees including green ash, black oak, and hickory. Also present are populations of buckthorn, honeysuckle, and garlic mustard. As this is such a

small woodland directly connected to a larger invasives-infested woodland owned by the Oakland Conservation Club, extensive restoration efforts are not recommended for this site. As was discussed in Woodland 1, this area is a good location for volunteer restoration efforts. Collaborations with the Oakland Conservation Club would be advisable.

Figure 11: Woodland Zone 2

Management Goal: Maintain by keeping invasive species to a minimum and herbaceous cover to a maximum to maintain soil holding capacity.

Management Actions:

1. Annual meander survey, preferably one in each season. Create and update a species list during these meanders.
2. Consider collaboration with Oakland Conservation Club for invasive species removal.

Woodland Zone 3

This 24-acre woodland is the largest contiguous woodland within the Preserve and is located along the south property line, east of Wetland 2 and south of Upland Prairie 2. This woodland was part of the additional Preserve land purchase in 2008.

Prior to European settlement of this area the landscape was a mixture of oak savanna and oak dominated forest. These ecosystems were maintained over several thousand years by regularly occurring wildfires. The east side of Woodland 3 has been converting to more of a central hardwood ecosystem largely because of fire suppression, associated with settlement. The dominant tree species in this eastern part of the woodland are currently red maple, American elm, white oak, black oak, bur oak, basswood, shagbark and

bitternut hickory, black cherry, aspen, boxelder, white mulberry, and hop-hornbeam. The predominant invasive species found on this site include buckthorn, honeysuckle, garlic mustard, dame's rocket, burning bush, barberry, gooseberry, and multi-flora rose. The forest floor contains a good cover of native wildflower and sedge species.

There is a remnant skid trail system found throughout this woodlot. This remnant trail has become part of the official Preserve trail system. Improvements to this trail system will be achieved during woody invasive species control processes taking place over time. This trail system acts as a firebreak system when restoration burning efforts are taking place. This area is also a good location for a firewood collection program, in order to reduce the amount of downed timber on the property. The existing trail system will aid in the facilitation of this process.

This area received a major woody invasive species control effort in December of 2012 and the fall/winter of 2013 through extensive forestry mowing. The restoration included intense removal of primarily buckthorn, honeysuckle, barberry, and boxelder. Approximately two years after the forestry mowing restoration activities, the woodlot was burned. The objective of this procedure was to not only remove woody invasive species but to aid in the eradication of garlic mustard and dame's rocket.

Five separate work zones have been created in this woodland. Each sub-unit (A, B, C, D, E) will have management tasks associated with their specific needs. This entire woodland will require continuous eradication of invasive species for some time. Hand-removal of young woody species, fall cutting and spot-herbiciding of larger buckthorn, and occasional prescribed burning are all highly recommended maintenance tools for this area. As restoration activities continue, inter-seeding of native species will greatly enhance this site.

Figure 12: Woodland zone 3

Figure 14: Woodland Zone 3 walking trail

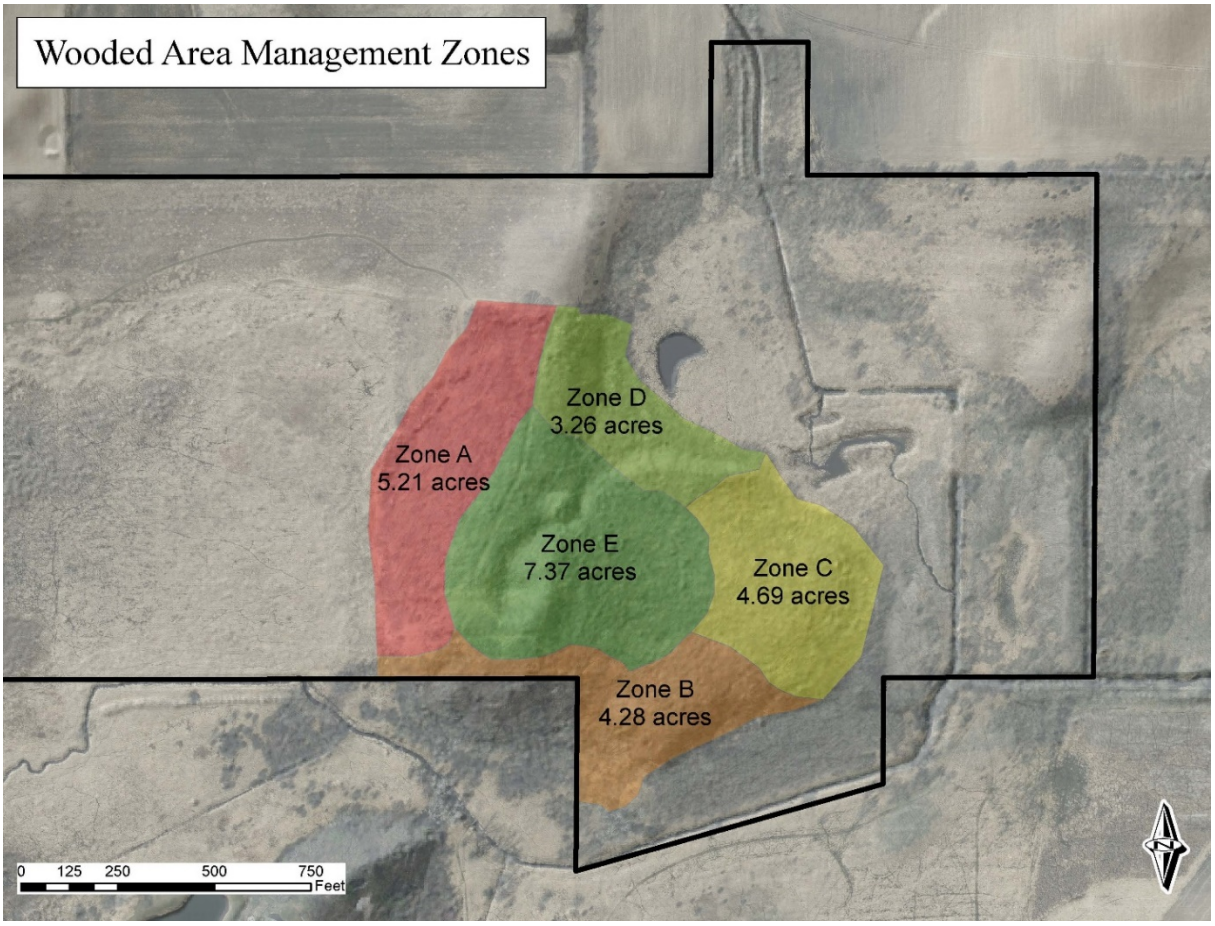

Figure 13: A map of the zones within Woodland 3. Map courtesy of Gerry Kokkonen-Jefferson County LWCD

Management Goal: Maintain an herbaceous forest floor cover to keep soils in place, especially on slopes, improve rainfall infiltration, and improve habitat for woodland wildlife through improved biodiversity, and maintain and improve its public access features.

Intervention Management Actions:

1. Hand removal of garlic mustard, Dame's rocket, gooseberry, and small buckthorn.
2. Cut and haul downed wood to the burn pile when firewood harvests are insufficient.

Management Actions:

1. Annual meander survey, preferably one in each season. Create and update a species list during these meanders.
2. Annual mowing of trail (2-3 times per growing season to maintain pleasant public access experience and easy stewardship access).
3. Annual work to be focused on one sub-unit, but with an eye to unexpected undesirable invasive problems in the woodland as a whole. It is expected that some of this work can be accomplished by volunteer efforts and summer interns.
4. Each year choose a sub-unit work zone to cut and haul downed wood to the burn pile.
5. Thin out the least-desirable trees to open up the canopy.
6. Annual or biannual cutting of dead/dangerous trees near trail by a professional.
7. Firewood collection events every Fall to remove trees cut down.

FEMA Property – Sleepy Hollow Road

On May 18, 2013, the District Board voted to approve the acceptance of an ownership transfer of a flood-mitigation property located at N4214 Sleepy Hollow Road from Jefferson County in Wisconsin. The board is aware of all FEMA requirements associated with this parcel and have fully complied with those restrictions. Once the cottage was removed, the native seed bank was able to flourish with a nice variety of wet-prairie forbs and grasses. The parcel has been maintained and improved as a wet prairie/wetland since our acquisition. A swamp white oak was planted close to the southern boundary. The undeveloped shoreline at this site is part of our Critical Habitat Areas. In 2021, the land was surveyed by Combs and Associates; boundary markers and signage were installed on the parcel. As this parcel has demonstrated it is self-sustaining as a wet prairie/wetland, management will be largely to monitor this parcel for invasives, and for encroachment activities by neighbors.

Management Goal: Maintain wetland function by monitoring and removing invasive species.

Management Actions:

1. Annual meander survey, preferably one in each season. Create and update a species list during these meanders.

2. Ongoing inspections to prevent any mowing practices and to ensure no vehicles are parked on the property.
3. Every three years write a report detailing the status of the parcel. This report should be sent to Zoning Department at Jefferson County. The most current report was sent to Jefferson County in October 2021.

Figure 15: FEMA Property on the west side of Lake Ripley

Raingarden at the Oakland Town Hall

In June 2005, a $1,500 grant was obtained to install a 3,200 square foot rain garden at the Oakland Town Hall. The rain garden was built to show how a building site can be landscaped to control runoff. The rain garden was planted with native prairie grasses and wildflowers, and it is designed to trap and absorb excess rainwater. A Memorandum of Agreement was signed with the Town to authorize the work. The District has agreed to manage the rain garden by annually pulling weeds and conducting a burn every 3-5 years, with the most recent burn having been conducted in 2021. In 2017 the District added 2-3 flats of prairie plugs to make the planting more dense. This has greatly reduced any weed invasion. A kiosk describes the value of raingardens.

Management Goal: Maintain the integrity of the raingarden through periodic burns and hand-pulling of weeds throughout every growing season, as needed.

Management Actions:

1. Regular inspections by knowledgeable volunteer(s) throughout growing season to hand-pull any weeds as needed.
2. Periodic burns (usually by professionals burning a Preserve prairie).
3. Periodic replacement of kiosk image (last done in 2021; the images last about 10 years).

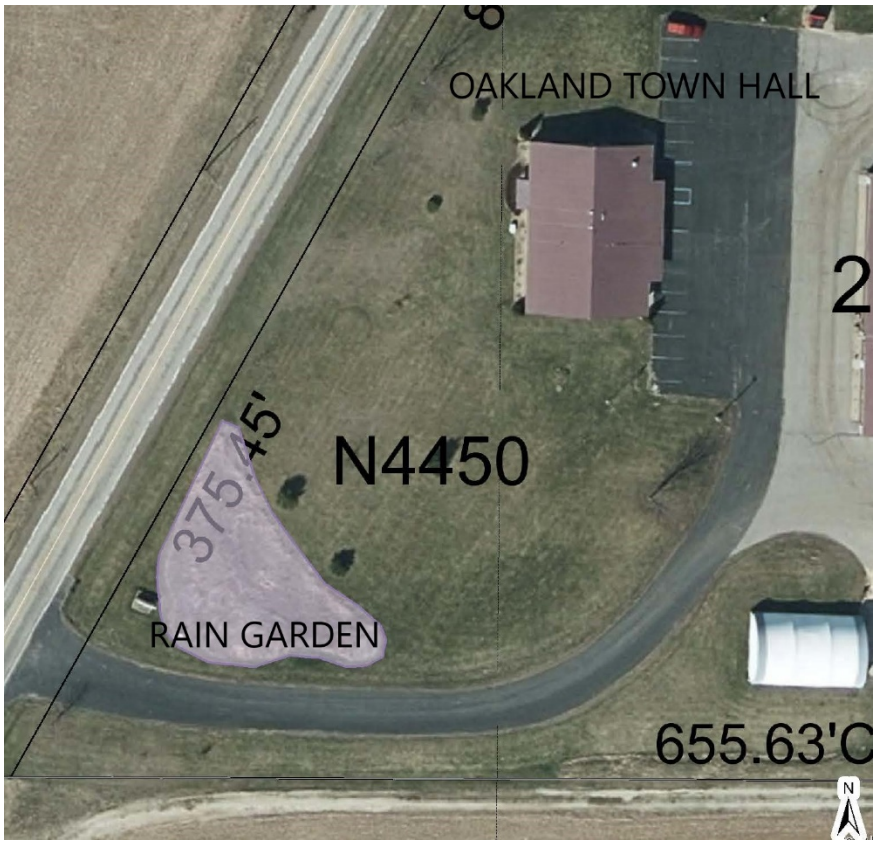

Figure 16: Raingarden at Oakland Town Hall

Raingarden at the Oakland Town Pier

In 2013 the Lake District partnered with the Town of Oakland to plant a raingarden at the Town's new public pier along Ripley Road. This raingarden was planted as a very public demonstration of how a native planting could improve water quality in the lake by reducing soil erosion and run-off on a steep lakeshore slope. District volunteers have maintained it since. A kiosk explains the value of raingardens to everyone visiting the pier.

The plant mix in this garden included too many tall aggressive species, notably cup-plant. Since 2015, cup-plant has been hand-removed annually, as well as invasive species and many tree seedlings. In 2015 and 2018 additional native plants were added to make the planting more dense. This work in ongoing and attempts to improve its appearance as well as its soil-holding capability are important in this very public spot.

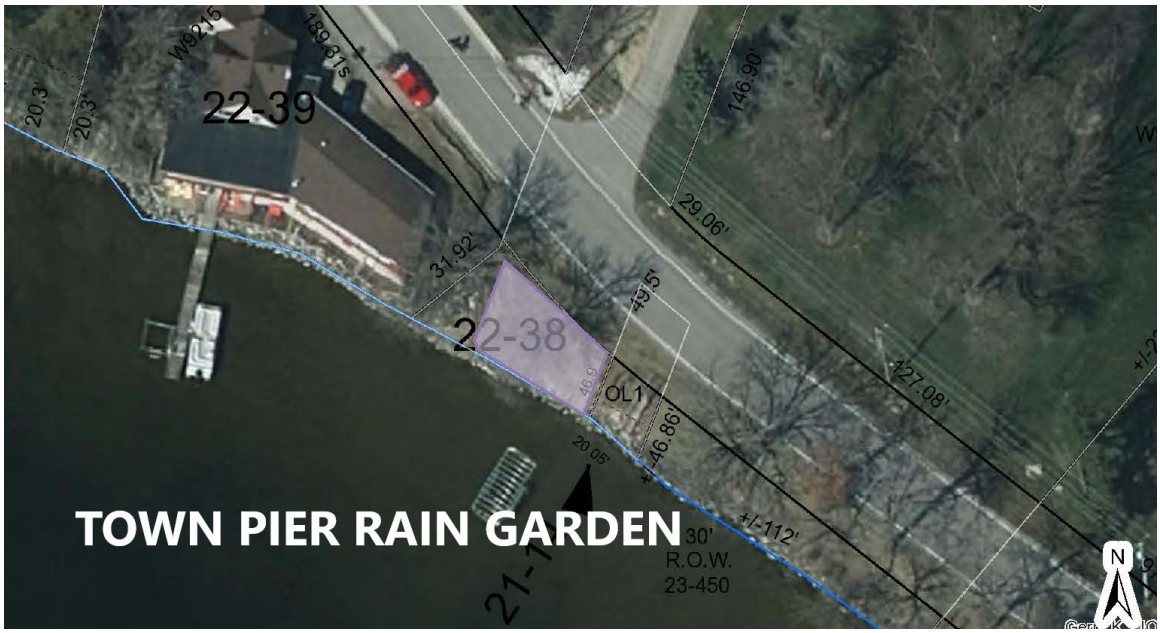

Figure 17: Rain garden at the town pier

Management Goal: High-quality maintenance is needed every growing season to remove invasive plants and trash.

Management Actions:

1. Annual growing season maintenance weeding to hand-remove invasive species, tree seedlings, cup-plant, and trash.
2. Additional short, blooming native wildflowers should be added to improve appearance. Little bluestem plants should be added to improve soil-holding capability on this steep slope.
3. The kiosk image should be replaced as needed.

Public Access Improvements

A small, gravel parking lot was installed east and adjacent to County Highway A in 1998. The parking area provides safe access to and from the Preserve and allows enough room for school bus parking. In 1998, a welcome sign and information kiosk were first erected near the parking area at the main entrance. The welcome sign identified the site and acknowledged major project donors at the time. This sign was replaced with a new sign in 2009, following a successful expansion of the Preserve. The trailhead kiosk is positioned at the east end of the parking lot and currently includes a site map, user rules, and some basic background information about the Preserve. Interpretive kiosks were installed along the only currently existing nature trail in 2011, through the prairie and near the wetland boardwalk, mainly to enhance the educational value of the site. The 18x24 inch, pedestal-style, kiosks feature pictures, information about prairie and wetland ecology, and call attention to the different types of plants and animals that inhabit the

Preserve. In 2020 and 2021 these images were replaced due to weathering. One or two woodland kiosks are in the planning stages for 2022/2023.

A split rail fence demarcates the parking area and precludes vehicle access to the Preserve lands below, as well as the Preserve's natural areas. The half-acre of land east of the fence is owned by the District but is currently being leased by the Oakland Conservation Club. The Oakland Conservation Club holds a lease to park vehicles on the site during two to three annual fundraising events.

Other access amenities include an elevated boardwalk that spans a wetland scrape and connects to a gravel loop trail located at the west ditch plug. The wooden boardwalk and gravel trail were constructed in 2003, and link to a five-foot wide, ¾ mile long grass walking trail. Currently, the boardwalk is in a state of decline. Repair work was accomplished in 2019, to improve the existing boardwalk. The grass trail was established in 1999, and currently extends to Woodland 3. The trail was originally planted with a mix of sideoats grama, hairy grama and Pennsylvania sedge. Before reaching the woodlot, the trail leads visitors to a hillside nature-viewing observation deck, constructed in 2007, and replaced in 2021, overlooking the marsh (Wetland 2). Re-routing of the trail to higher ground was accomplished in 2011 after the adjoining uplands were acquired. The route of the new trail location is included on the overall site map associated with this document.

Tree swallow and wood duck nesting boxes are currently in place. Additional signage may be placed in strategic locations to take advantage of what the landscape has to offer. All trails were located on 0-5% slopes and constructed according to Wisconsin DNR trail construction guidelines.

Management Goal: Maintain and improve public access and educational signage.

Any land acquisition decisions would be based on current economic conditions, budgets, and land availability in strategic locations with potential positive impacts on water quality in the lake.

Grant or Funding Opportunities

This list of grant and funding opportunities should continually grow over the years and continuous additions to this list should be made as new funding sources are recognized.

- Cambridge Foundation
- WEEB and C.D. Besadny Grants for public school stewardship activities and projects
- U.S. Fish and Wildlife Service
- Ducks Unlimited
- Pheasants Forever
- DNR Stewardship Development Grants
- Jefferson County
- Alliant Energy
- Enbridge
- WHIP Funding

Other Considerations

Annual Field Review of Property by Board of Directors

It is recommended that the District Board members will visit the Preserve lands in person at least once per year. This tour should coincide with a monthly board meeting. The objective of this field review is to give the board members a firsthand look at each management unit to review work that had been completed in each unit during the previous year, as well as work that is to be completed during the upcoming year.

Marking of Property Boundaries

As soon as budget allows, and especially prior to maintenance or restoration activities taking place near neighboring lands, all boundaries of the Lake District Preserve should be surveyed and adequately marked. Marking of the property boundary should be done in a similar fashion to what has been done on the north property line along the north boundary of Upland Prairie #1 and Upland Prairie #2 or similar. The objective of this process is to avoid conflict with neighboring landowners, prevent restoration efforts from disturbing neighboring lands and to ensure that district boundaries will not be encroached upon as time passes. A high-quality marking barrier should be installed in an effort to reduce continued maintenance over time and to ensure that property lines are not moved or changed by others.

Appendix A – Descriptions of Restoration and Management Tools

Professionally Achieved Tasks

Prescribed Burning

Prescribed burning should be carried out by a trained and experienced crew of professionals. As there is a reason and a method to burning it is best to follow the judgment of the burn crew when considering timelines and methods. These people have been involved with many of these operations and their careers are dependent upon the success they achieve.

As burns are carried out on different lands, it is important to understand that different ecosystems may require different methods and timelines for burning and that decision is based upon present field conditions. Creating a timeline for burns is very important, as it is not favorable to burn too much of the Preserve in any one season. It is important to always leave areas of nesting cover, as well as cover used by hibernating pollinators. It is good to carry out burns on a 3–7-year cycle, depending on the needs of the landscape.

Mowing of Newly Established Prairies

Prairie mowing is an operation designed to control the spread of annual weed species in a new prairie. The purpose of mowing prairie plantings is to cut the seed heads produced by annual weeds to prevent annual weeds from producing viable seed. Newly established prairies should be mowed to control those weeds as needed, which is often two or three times per growing season for the first two seasons. Once initial control of annual weeds is established, annual weed establishment will occur from time to time and in this situation, spot mowing or cutting with a handheld trimmer can be utilized where and when needed. This spot mowing operation is often determined to be needed by meander surveys of the property. Mowing of newly seeded prairie areas also allows additional light to contact young prairie plants thus giving them an advantage while the recently mowed weeds recover from the shock sustained from mowing operations.

Mowing operations are usually not needed beyond year two of a new prairie seeding unless determined necessary by a professional meander survey. It is always good to prevent unwanted annual species from going to seed through the use of mowing or hand cutting or weeding.

Trail and Firebreak Mowing

Mowing of fire breaks and trails is a multifaceted task and through proper timing and design, can achieve multiple goals associated with Preserve goals. Fire breaks and trails are essentially one and the same when it comes to mowing operations. In trail situations the path is mowed to maintain green grass suitable for walking on a regular basis.

Achieving the desirable conditions for walking trails may require mowing on a weekly or biweekly basis. Fire breaks are intended to be green as well, but do not have to live up to the walking trail conditions as mentioned above. Fire breaks should be mowed at least three times each season.

Forestry Mowing – Control of Woody Invasive Species

Forestry mowing operations consist of the utilization of a device capable of cutting or grinding down woody vegetation to the ground. It is desirable for this machine to have the capability of grinding the plant into small pieces which can be dispersed across the forest floor. This machine is often carried upon a vehicle such as a skid loader. It is strongly recommended that this machine travel on tracks and that forestry mowing work be accomplished in the winter months.

For guidance associated with forestry mowing, see RFP; Invasive Woody Species Eradication RFP Dated March 2012 for greater detail associated with this task.

Spot Herbicide Applications

Spot herbicide applications are herbicide applications targeted at specific, non-desirable species. Herbicides used for this process are specifically chosen based upon the targeted species, surrounding desirable species and location within the landscape. Spot herbicide applications should be carried out by trained personnel who are capable of quickly identifying plant species and are certified by Wisconsin Department of Agriculture, Trade and Consumer Protection (WDATCP) for herbicide applications in the state of Wisconsin. Knowledgeable District staff can also accomplish specific spot-herbicide tasks.

Spot herbicide applications should occur when appropriate to gain the greatest amount of control of the targeted species. This timeline will be decided based upon meander surveys and general land management oversite.

Ditch Plugging

Potential ditch plugging options are still present within Lake District Preserve lands. As funding sources arise, or interest in plugging the ditch in another location gains interest, it will be important to be prepared to fund and understand the requirements associated with development of a ditch plugging operation. Ditch plugging operations will include a hydrologic analysis as well as engineering services to design a plug that will perform to a set standard and reduce the number of unknowns associated with projects of this nature. Hydrologic analysis, topographical survey and engineering services will cost approximately $8,000.00.

Professional Project Oversite

Professional oversite involves the hiring of an experienced professional to oversee a project or projects being carried out on District lands. This person is expected to visit the active work site often enough to ensure that tasks are depicted upon bid documents, RFP and/or work orders are being followed and completed in a satisfactory manner. This person will also field questions from the contractor about any concerns they may have about expected accomplishments and facilitate change orders if necessary.

This person will also be aware of and confirm all invoicing submitted by the contractor.

Development of Restoration Plan

As recently restored lands are stabilized, the District may want to restore additional management zones within the Preserve boundaries. The restoration planning process can be carried out by LRMD personnel, outside consultants, or a combination of both. The timeline for the restoration of additional lands can be based upon available funds or funding sources. Having a plan in place will allow you to apply for this funding and take advantage of the fundraising power that a developed restoration plan possesses. The restoration plan should entail the following components:

- Existing Conditions
- Restoration Area Map
- Restoration Plan
- Restoration Timeline
- Associated Budget

Removal of Standing Dead Wood

Removal of deadwood from woodlots is not something that must happen every year and the forest floor does not have to be kept clean of deadwood. However, removal of standing deadwood is an important task necessary because it removes vertical fuel. The District hires a professional to down standing dead and/or dangerous trees near the trail in Woods 3, usually every other year.

Since 2016, the District has held firewood gathering events in Woods 3 almost annually. These events control the removal of wood to specific times when the District staff is present.

Tasks Achievable by Staff and Volunteers

Hand Removal of Herbaceous Invasives

Herbaceous invasives control can be achieved in a number of different ways. As the landscape is monitored through professional meander surveys, the best method of eradication will be recommended based upon need. The various methods of eradication include:

1. Hand Pulling- hand pulling of visible plants is a very low-impact way of controlling garlic mustard and is a good project for volunteer participation. If seed heads are present, it is recommended to put all debris in tubs before moving from the spot the plant was pulled from. Debris must be hauled to the burn pile at the Oakland Town Hall nearby.

Hand Removal of Woody Invasive Species

As with any weed species, it is possible to hand pull or dig woody invasive species, such as buckthorn and honeysuckle. This process is possible when plants are small and do not have substantial root systems. As this process does disturb soil, it may be necessary to tamp or step on the area from which the plant was pulled to give some stabilization back to the soils. Should there be large areas of disturbance created during hand pulling operations, it may be necessary to seed a fast-germinating annual cover crop over the area to insure soil stabilization. “ReGreen” is a good species for this application as it does not require mowing to prevent the crop from self-seeding. Best practice also includes seeding disturbed areas with species suitable to the area.

Hand removal of woody species may also involve the cutting of larger specimens which are too large to be pulled out or dug out by hand. In this situation it is important to treat any cut stumps with Garlon-4 at the time of cutting. This stump treatment will kill the roots of the species and prevent the stump from re-sprouting. The brush created by this process should be hauled to the Oakland burn pile.

Hand removal of woody species is a good project for volunteers. This is a very rewarding task and substantial areas of invasive species can be controlled by a decent crew of volunteers.

Inter-seeding

Inter-seeding is an operation that is sometimes needed to enhance an existing planting. This may be seen in a prairie planting that has a substantial area of non-desirable weed species present in one area and drastic control measures are needed where all of one type of species such as grasses or forbs are eradicated from the planting area. There may also be situations where restored areas are simply lacking in the number of native species present in a particular area or possibly throughout a planting.

In most native restorations where herbaceous native species are being restored, it is common to expect to see 70% vegetative cover by native species. Inter-seeding usually occurs following a spring burn; the missing species or a group of species are seeded into the area is recommended. Hand broadcast seeding is warranted in our Preserve.

Seed Gathering

Seed gathering along the public access trail in Prairie 2 is a regular fall chore. The seed is sown elsewhere within the Preserve, where it is most needed. Forbs could also be collected and put in places where they would be beneficial.

Nesting Structure Maintenance, Repair, Replacement or Additions

The Preserve is designed to attract wildlife and with that in mind it is important to provide nesting structures for the wildlife attracted to the area. Currently the Preserve has an array of nesting structures which are maintained annually each fall/early winter. As this Preserve progresses over the years, it is possible that additional nesting structures will be added. As structures are added it is important to understand that additional maintenance will be required.

The tasks associated with this should be considered great volunteer projects and effort should be made to bring education into this process as well.

It is important to note that the cleaning of nesting structures must be accomplished at some time outside of the nesting season. If structures are erected upon posts that are higher than a person can reach from the ground or ice, they should be constructed with a break down system which allows the nesting structure to be tipped to the ground for cleaning and or maintenance, such as our wood duck nest boxes.

Trail Cameras

The District owns two trail cameras and is loaned a third as part of the DNR's "Snapshot Program". The trail cameras are checked every three months to collect the photos. The cameras are located throughout the Preserve, with their exact location kept private for safety reasons. These-cameras capture photos of the wildlife that live in or around the Preserve and contribute to our knowledge of wildlife biodiversity in the Preserve.

Removal of Downed Wood for Firewood

The District hosts several firewood collection events, usually during the fall/early winter for any District resident wanting to collect free firewood. These are planned events that only happen when organized by the District. Volunteers must bring their own equipment and a way to haul the firewood out of the woods. A volunteer waiver must be signed before collecting any firewood from the woods.

Litter and Debris Clean Up

Litter and debris cleanup is something that should be accomplished at least once per growing season to keep the Preserve lands healthy and void of trash and any item that is not wildlife friendly.

As there was such a large amount of vehicle-related debris located in Woodland 3, it is recommended that this area is thoroughly reviewed every spring as debris can be brought to the soil surface with freezing and thawing action for some time to come.

The Preserve should be walked by volunteers on an annual basis in effort to collect trash. This is also a good time to look for invasive species such as garlic mustard and dame's rocket as well as woody invasive species.

Meander Survey by Knowledgeable Staff

A meander survey is a walking survey carried out by a trained professional, a knowledgeable volunteer, or District personnel. The purpose of the meander survey is to monitor the land through the observations. The meander survey should be carried out in a way that ensures that the land is transected in a somewhat orderly fashion to facilitate the viewing of all areas of the landscape being surveyed.

This survey is usually carried out in early spring when woody invasive species and herbaceous species such as garlic mustard and dame's rocket are being reviewed. Otherwise, the survey should occur during the growing season to ensure that a good growth of herbaceous species is present. It is recommended that two or even three surveys are conducted throughout a growing season, or one in every season annually.

Upon completion of the physical review of the landscape, a written documentation of the survey is completed and kept on file for future reference. This document will contain the language describing the overall health of the landscape, as well as provide guidance for any maintenance activities that should occur to keep the landscape in good overall health. Following the direction created by this meander survey will keep maintenance tasks manageable and reduce the size and complexity of maintenance activities over time.

Appendix B - Public Access Tasks

Public Access Development and Maintenance

Public access improvement and maintenance consists of tasks associated with making the Preserve safe, educational, and accessible. Tasks associated with this include the following:

- Maintenance of existing boardwalk (maintenance accomplished in 2019)
- Replacing faded and worn signage (last accomplished in 2020 and 2021)
- Parking lot improvements such as adding gravel, snow plowing in the winter and repairing or replacing the split rail fence that separates the parking lot from the Preserve
- Repair and care for the observation deck (replaced in 2021 with composite decking)
- Care and recurring refurbishment of welcome sign (last accomplished in 2019)
- Care of information kiosk signage (last accomplished in 2020 and 2021)

Much of this work can be accomplished by volunteers or District staff.

Trail Maintenance

Trail maintenance includes those tasks that go beyond mowing. Tasks include items such as:

- Pruning of encroaching brush.
- Pruning of low hanging branches.
- Removal of fallen trees.
- Repair of any ruts or soil disturbance that could lead to soil erosion or trip hazards.

These tasks are very good projects for volunteers and District personnel as they are often quite small and need attention at random times, which makes hiring contractors sometimes difficult.

Appendix C – Descriptions of Invasives in our Preserve

Buckthorn

Name: Common Buckthorn (*Rhamnus cathartica*)

Description: Buckthorn are small trees or large shrubs that can reach a height of 20-25 feet. Buckthorn most often grows as a shrub, where it may send out several shoots. The outer bark is dark gray or brown, and when cut the inner bark is brown, red, or orange. Buckthorn has separate male and female plants; the latter are often easy to recognize because they produce copious amounts of deep purple berries. It is especially important to remove the berry-producing plants because they will otherwise be a constant source of infection for the area. Seeds are spread by birds who eat the berries. Their dropped leaves suppress the mycorrhizal fungi which keeps trees alive and also suppresses growth of seedling oaks and hickories.

Photo:

Figure 18: Photo courtesy of lcinvasives.org

Status: It is the third most invasive plant species in the state of Wisconsin. It has the capability to infest tree lines and small wood lots and is considered a strong invader of oak and hickory savannas.

Action Recommended: Eradication is recommended. There are multiple methods of removing this species. If the plants are small enough, physical removal is a good method of removal but the soils which are disturbed during removal must be put back into place to reduce the amount of disturbance and subsequent non-desirable seed germination. For the larger plants, it is recommended to cut and remove brush from the area and treating the stumps with Triclopyr in the fall, for best results.

Boxelder

Name: Boxelder (*Acer negundo*)

Description: The leaves are compound and opposite and are often composed of 5 leaflets. Less prosperous trees often have 3 leaflets, in which case they may be mistaken for poison ivy, the leaves of which are alternate. The twigs of boxelder are usually purplish or green, with at least a tinge of purple and when young are heavily glaucus. As the twigs age, this glaucus covering is lost and the area covered may be inconspicuous late in the growing season and on trees for which the annual growth increment is small. The winter buds are covered by a dense growth of whitish hairs. Trees are highly prone to sprouting along the trunk where damaged, and the stumps of cut trees re-sprout vigorously resulting in multiple-stemmed growth habit.

Photo:

Figure 19: Photo courtesy of mdc.mo.gov

Status: Box elder is a native species in Wisconsin and was apparently largely restricted to wet, deciduous forests in the southern portion of the state before European settlement. It is still very common there, perhaps more so because it is well adapted to the many highly disturbed forests presently found in such sites in Wisconsin. It has also become a common invader of a wide variety of disturbed upland sites, including abandoned fields, open ground in cities, rights-of-way, and fence rows.

Action Recommended: This species is a food source for many birds and mammals, which eat its seeds. Also, its wood is soft enough for small woodpeckers to excavate nest-holes. However, if it becomes aggressive it may shade out desirable understory species, opening up the soil to erosion, so mechanical removal is recommended in the Fall. Once cut, the stump should be treated with Triclopyr or Glyphosate.

Honeysuckle

Name: Honeysuckle (*Lonicera tatarica*)

Description: Exotic bush honeysuckles are dense, upright deciduous shrubs (3 to 10 feet in height) with shallow roots. They have opposite, simple, and oval or oblong leaves with yellow, orange, or red berries. Tartarian honeysuckle has smooth, hairless, bluish-green leaves. Morrow's honeysuckle has downy leaves, while Bell's honeysuckle is a hybrid between the Tartarian and Morrow's varieties. The shaggy-barked older stems and branches of the shrubs are often hollow. Flowering occurs during May and June, and produces fragrant, tubular flowers arranged in pairs. Flowers of the Tartarian honeysuckle are generally pink to crimson in color. Flowers of the other bush honeysuckle species are white and become yellow as they age.
Photo:

Figure 20: Photo courtesy of www.minnesotawildflowers.info

Status: Within the top 10 invasive plant species in the state and is considered a major threat to Wisconsin woodlands.

Action Recommended: Bush honeysuckles can be controlled by cutting the stems at the base with forestry mowers, chain saws or other tools. After cutting, stumps should be treated immediately with a 20% active ingredient glyphosate solution using a low-pressure, hand-held sprayer, sponge applicator, or contact solution bottles. As these shrubs have shallow roots, hand-removal is feasible.

Gooseberry

Name: Gooseberry (*Ribes spp.)*

Description: Gooseberry is a low, thorny, native shrub which can behave aggressively, in a woods, forming dense clusters which exclude herbaceous species. They are very shallow rooted, so they are most easily removed by pulling out by hand. Birds spread their seeds by eating their berries. But they also spread by the ability of ground-touching branches to root themselves, forming a new shrub, connected to the old. Heavy gloves are needed when removing gooseberry.

Photo:

Figure 21: Photo courtesy of Gary Fewless

Status: This shrub is a native plant that can become aggressive if not managed.

Action Recommended: Hand removal is recommended.

Garlic Mustard

Name: Garlic mustard (*Alliaria petiolata*)

Description: Triangular/heart shaped leaves which are sharply toothed, 1-2' tall with a distinct garlic odor. Clusters of white, four-petaled flowers are attractive. It is an herbaceous biennial in the mustard family.

Photo:

Figure 22: Photo courtesy of https://florence.extension.wisc.edu

Status: This is the second most invasive plant in the state and is considered a major threat to Wisconsin woodlands.

Action Recommended: Small infestations can be readily controlled by pulling second year plants by hand. The best time to pull plants is when they have just started flowering, but before any seeds have been made. The debris must be burned.

Dames Rocket

Name: Dames Rocket (*Hesperis matronalis)*

Description: Dames rocket invades moist and mesic woodlands, woodland edges, along roadsides and in open areas. It is an herbaceous biennial or perennial in the mustard family that can grow up to 3 feet high. The leaves are oblong, sharply toothed, and alternately arranged. The pink, magenta, or white flowers have large loose, fragrant clusters of flowers with four petals that bloom May to June. (Note: native woodland phlox has similar appearance! But the native phlox has five petals.)

Photo:

Figure 23: Photo courtesy of dnr.wi.gov

Status: Native to Eurasia, Dame's Rocket was introduced to North America in the 1600s. A lot of the seeds are produced in long, narrow pods. Their seeds are spread mechanically once the pods open. They are also eaten and dispersed by ground-foraging birds. Dame's rocket is common throughout southeastern Wisconsin.

Action Recommended: The best way to prevent the spread of dame's rocket is to locate and remove any plants while blooming but before seed sets. Hand pull the plants in early spring; plants in bloom should be bagged and disposed of in a landfill or put on the burn pile at Oakland Town Hall.

Japanese Hedge Parsley

Name: Japanese Hedge Parsley (*Torillis japonica*)

Description: This plant slightly resembles Queen Anne's Lace, with attractive fern-like leaves and its umbel of tiny white flowers that bloom in July. It has a small carrot-like taproot that allows it to be easily removed. This plant's shape, unlike Queen Anne's Lace, has a striking zig-zag architecture, with multiple sub-stems.

Status: This invasive is a newcomer in 2021 to Woodland 3, and a relative newcomer to the DNR's NR40 list. In this part of Wisconsin, it is classified as a "restricted" plant.

Photo:

Figure 24: Photo courtesy of invasive.org

Action Recommended: This species should be hand-pulled and put on the Town Hall burn pile.

Giant Ragweed

Name: Giant Ragweed (*Ambrosia trifida*)

Description: An annual plant in the aster family, native throughout much of North America. Its flowers are green and are pollinated by wind rather than by insects, and the pollen is one of the main causes of late summer hay fever. Flowers are borne from midsummer through early fall. This species can grow to over 9' tall.

Photo:

Figure 25: Photo courtesy of mdc.mo.gov

Status: Giant ragweed is one of the most competitive weeds found in North America. This species, when allowed to flower, is considered an allergy causing species.

Action Recommended: It is very difficult to control giant ragweed through herbicides. It is fairly easy to pull out by the root, and it does not tolerate mowing. Mowing or clipping the plants to or near the ground will eventually eradicate the stand. Monitoring the area over a number of years is imperative, as this species will germinate from the existing seed bank over a period of years.

Reed Canary Grass

Name: Reed canary grass (*Phalaris arundinacea* - RCG)

Description: A perennial, cool-season, rhizomatous plant in the grass family (Poaceae/Gramineae) that grows successfully in northern latitudes. Its creeping rhizomes often form a thick sod layer which can exclude all other plants.

Photo:

Figure 26: Photo courtesy of www.nwcb.wa.gov

Status: The number one invasive plant in Wisconsin

Action Recommended: Burning the existing colonies of reed canary grass is recommended, after spring growth has commenced. This will allow the native herbaceous layer to have space and sunshine.

Summary of Approved Herbicides

The table below summarizes the characteristics of seven herbicides commonly used for the control of invasive plants and noxious weeds in prairie restoration activities.

Herbicide	Trade names	Target species	Unaffected species	Environmental characteristics	Label Info
2,4-D	Generic	Broadleaf herbaceous plants	Most monocots, including grasses	Half-life in soil 7-10 days; safe for aquatic uses	AgriSolutions, PDF file
Glyphosate	Generic	Nonselective; grasses, forbs, vines, trees, shrubs	None	Half-life in soil several weeks; is inactivated by soil particles	Generic-glyphosate, PDF file
Sethoxydim	Vantage	Grasses	Broadleaf herbs, sedges, woody plants	Half-life in soil 4-5 days	
Triclopyr	Garlon	Broadleaf herbs and woody plants	Most monocots, including grasses	Half-life in soil 30 days	Dow AgroSciences, PDF file
Clopyralid	Transline	Broadleaf weeds	Grasses	Half-life in soil 40 days	Dow AgroSciences, PDF file
Fosamine	Krenite	Woody plants	Herbaceous plants less affected	Rapid degradation and high binding to soil particles	
Imazapyr	Plateau	Grasses; some broadleaf species	Many broadleaf species	Half-life in soil several months	USDA, PDF file

Figure 27: Common herbicides used in restoration.

*** For all herbicides, the label should be read and followed!*

It should be emphasized that herbicide use should be used as part of a total management system. As the table shows, none of these herbicides are completely specific. Care must be taken to ensure that sensitive, non-target species are not treated.

Procedures for Herbicide Use

1. Herbicide label directions must be carefully followed.
2. Protective gear should be worn as per the label directions.
3. Herbicides must be labeled and stored appropriately and used containers must be disposed of properly.
4. Empty containers should be rinsed at least three times with clean water and the rinse water must be disposed of per Environmental Protection Agency (EPA) guidelines.
5. If an herbicide is used in a public area, notices must be posted near all treated areas.
6. Livestock should not be permitted in treated areas until the herbicide has dissipated.
7. Wind speeds must be less than 10 mph to minimize herbicide drift.
8. Areas to be treated should be surveyed first to ensure protection of non-target species. Only spot applications should be used in areas containing sensitive plant species.
9. Personnel who function as commercial herbicide contractors must be certified.

Wisconsin DNR web page on herbicide use and certification:
http://dnr.wi.gov/forestry/FH/weeds/herbicides.htm

Appendix D – Native Seed Mixes

Native Seed Mixes

Please see the attached native seed mixes used in previous restoration efforts.

Tall Grass Prairie - Common - SetterTech		
Common Name	**Genus Species**	**%of Mix**
Grasses		
Big Bluestem	Andropogon gerardii	24.00%
Prairie Brome	Bromus Kalmii	12.00%
Switchgrass	Panicum virgatum	4.00%
Little Bluestem	Schizachyrium scoparium	20.00%
Indiangrass	Sorghastrum nutans	20.00%
	Total Percent Grasses	80.00%
Forbs		
Lead Plant	Amorpha canescens	0.80%
Sky Blue Aster	Aster azureus	1.40%
Smooth Blue Aster	Aster leavis	0.80%
White Wild Indigo	Baptisia albe	1.60%
Prairie Coreopsis	Coreopsis palmata	0.40%
White Prairie Clover	Dalea candidum	2.40%
Purple Prairie Clover	Dalea purpurea	2.40%
Rattlesnake Master	Eryngium vuccifolium	1.00%
Ox-eye Sunflower	Heliosis helianthoides	0.60%
Wild Bergamot	Monarda fistulosa	1.00%
Spotted Bee Balm	Monarda punctata	0.40%
Foxglove Beardtounge	Penstemon digitalis	0.60%
Yellow Coneflower	Ratibida pinnata	2.40%
Black-eyed Susan	Rudbeckia hirta	2.40%
Compass Plant	Silphium laciniatum	0.40%
Stiff Goldenrod	Solidago rigida	0.40%
Hoary Vervain	Verbena stricta	1.00%
	Total Percent Forbs	20.00%
This seed mix was used to seed the 5 Acre prairie which was seeded in spring of 2009		
		SetterTech
	10 PLS Pounds Per Acre	

Art Kitchen Native Grass Prairie - SetterTech

Common Name	Genus Species	LBS / Oz per Acre
Grasses		
Big Bluestem	Andropogon gerardii	1 lbs
Canada Wild Rye	Elymus Canadensis	1 lbs
Switchgrass	Panicum virgatum	.5 lbs
Little Bluestem	Schizachyrium scoparium	.73 lbs
	Total Pounds per Acre	3.23 Lbs
Forbs		
Canada Milk Vetch	Astragalus canadensis	1.00 oz
Bergamot	Monarda fistulosa	.73 oz
False Sunflower	Heliopsis helianthoides	1.00 oz
Pale Purple Coneflower	Echinacea pallida	1.00 oz
Yellow-headed Coneflower	Ratibida pinnata	1.00 oz
Brown-eyed Susan	Rudbeckia triloba	.39 oz
Black-eyed Susan	Rudbeckia hirta	.73 oz
Rattlesnake Master	Eryngium yuccifolium	.73 oz
Golden Alexander	Zizia Aurea	1.00 oz
Spiderwort	Tradescantia ohioensis	1.00 oz
Evening Primrose	Oenothera biennis	.39 oz
Purple Prairie Clover	Dalea purpurea	1.00 oz
Stiff Goldenrod	Solidago rigida	.50 oz
Round-headed Bushclover	Lespediza capitata	.39 oz
Pale Indian Plantain	Cacalia Atriplicifolia	.73 oz
Hoary Vervain	Verbena stricta	.73 oz
Prairie Coreopsis	Coreopsis palmata	.73 oz
Prairie Cinquefoil	Potentilla arguta	.39 oz
Sky-blue Aster	Aster asureus	.73 oz
Cup Plant	Silphium perfoliatum	.50 oz
Large Flower Penstemon	Penstemon grandiflorus	.50 oz
	Total Ounces per Acre	15.67 oz
This seed mix was used to seed the 26 Acre prairie which was seeded in late winter of 2011		
		SetterTech
	4.21 Lbs per Acre	

Mesic Prairie 45 Acre Preserve - SetterTech

Common Name	Genus Species	Amount
Grasses		
Big Bluestem	Andropogon gerardii	3 lbs / Acre
Indiangrass	Sorghastrum nutans	2 lbs / Acre
Switchgrass	Panicum virgatum	1 lbs / Acre
Forbs		
Black-eyed Susan	Elymus canadensis	2 oz / Acre
Purple Coneflower	Elymus virginicus	2 oz / Acre
Purple Prairie Clover	Sporobolus aspera	2 oz / Acre
	Total before DNR additional seed	6 lbs 6 oz / Acre
22 Different Native Species provided by DNR in a quantity of 90 PLS pounds to aid in seeding the 45 Acre Area		
		SetterTech

Wet Prairie 10 Acre Preserve - SetterTech

Common Name	Genus Species	Amount
Grasses		
Big Bluestem	Andropogon gerardii	Unknown
Blue Joint Grass	Calamagrostis canadensis	Unknown
Switchgrass	Panicum virgatum	Unknown
Prairie Cordgrass	Spartina pectinata	Unknown
Forbs		
New England Aster	Aster novae-angliae	Unknown
Culver's Root	Veronicastrum virginicum	Unknown
Prairie Blazing Star	Liatris pycnostachya	Unknown
Rosinweed	Silphium integrifolium	Unknown
Bergamot	Monarda fistulosa	Unknown
	Total	Unknown
		SetterTech

Work Cited

1. Wisconsin Reed Canary Grass Management Working Group. 2009. Reed Canary Grass (*Phalaris arundinacea*) Management Guide: Recommendations for Landowners and Restoration Professionals.