Restoration and Management Plan for Schmeeckle Reserve, UW-Stevens Point

Community and student volunteers and staff planted 250 native trees in Schmeeckle Reserve on April 22, 2023, as part of a jack pine forest restoration.

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Schmeeckle Reserve
College of Natural Resources
University of Wisconsin-Stevens Point

Property Description and History

Schmeeckle Reserve, a 280-acre conservancy area, is located at the north end of the main University of Wisconsin-Stevens Point campus. It is a field station of the College of Natural Resources. While the university had been acquiring land for years prior, Schmeeckle Reserve was officially designated in June 1977. Since that time, a collection of donations and land acquisitions have created a significant block of greenspace. A full description of the history of the property can be found at: https://www.uwsp.edu/cnr-ap/schmeeckle/Pages/about/history.aspx

Management Goals

Three main priorities are being addressed in this management plan, which serve as the guiding principles of Schmeeckle Reserve's mission:

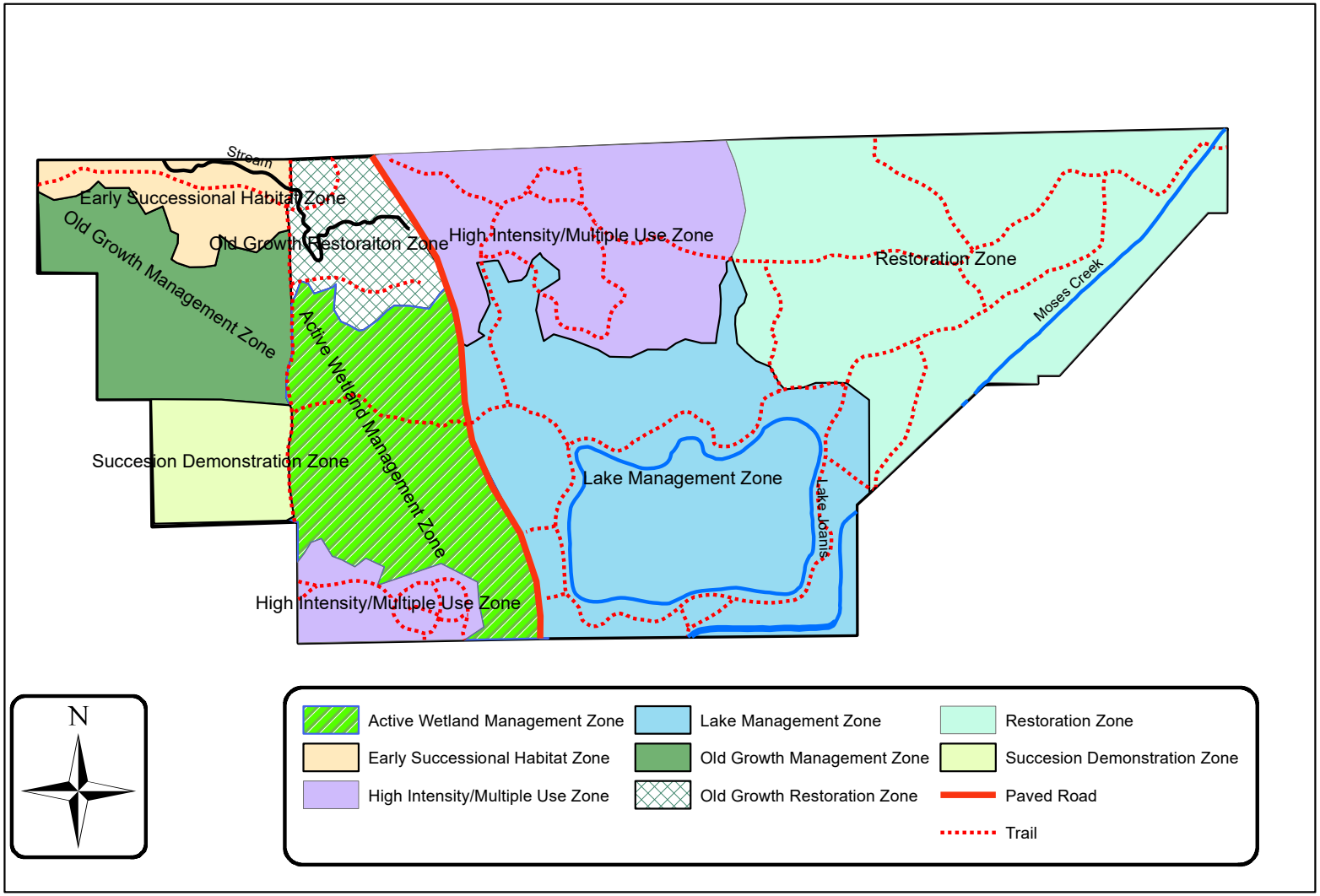
- Refuge: Preserve, maintain, and restore native ecological communities of central Wisconsin.
- Research & Education: Serve as an outdoor laboratory for teaching and research.
- Recreation: Provide recreational opportunities for the campus and the community, when those uses are not in conflict with the first two priorities.

In order to address these priorities, the following specific goals are being applied:

A. Actively manage the Reserve to provide restored examples of various model ecosystems of central Wisconsin. These include:
    - Grasslands/prairies
    - Savannas and oak openings
    - Early successional forest habitat
    - Mid-successional forest habitat
    - Old-growth mixed forest (pine/hardwood forests)
    - Old-growth white pine forest
    - Sedge wetlands
    - Shrub-carr (both early and late successional)
    - Marsh wetlands
    - Wooded wetlands
    - Shoreline/riparian habitat
    - Aquatic habitats
B. Address extensive issues with invasive species
C. Address oak wilt issues in the northeastern portion of the Reserve
D. Address storm damage through the Reserve, especially in areas of heavy trail use.
E. Manage for aesthetics and safety along all trail corridors

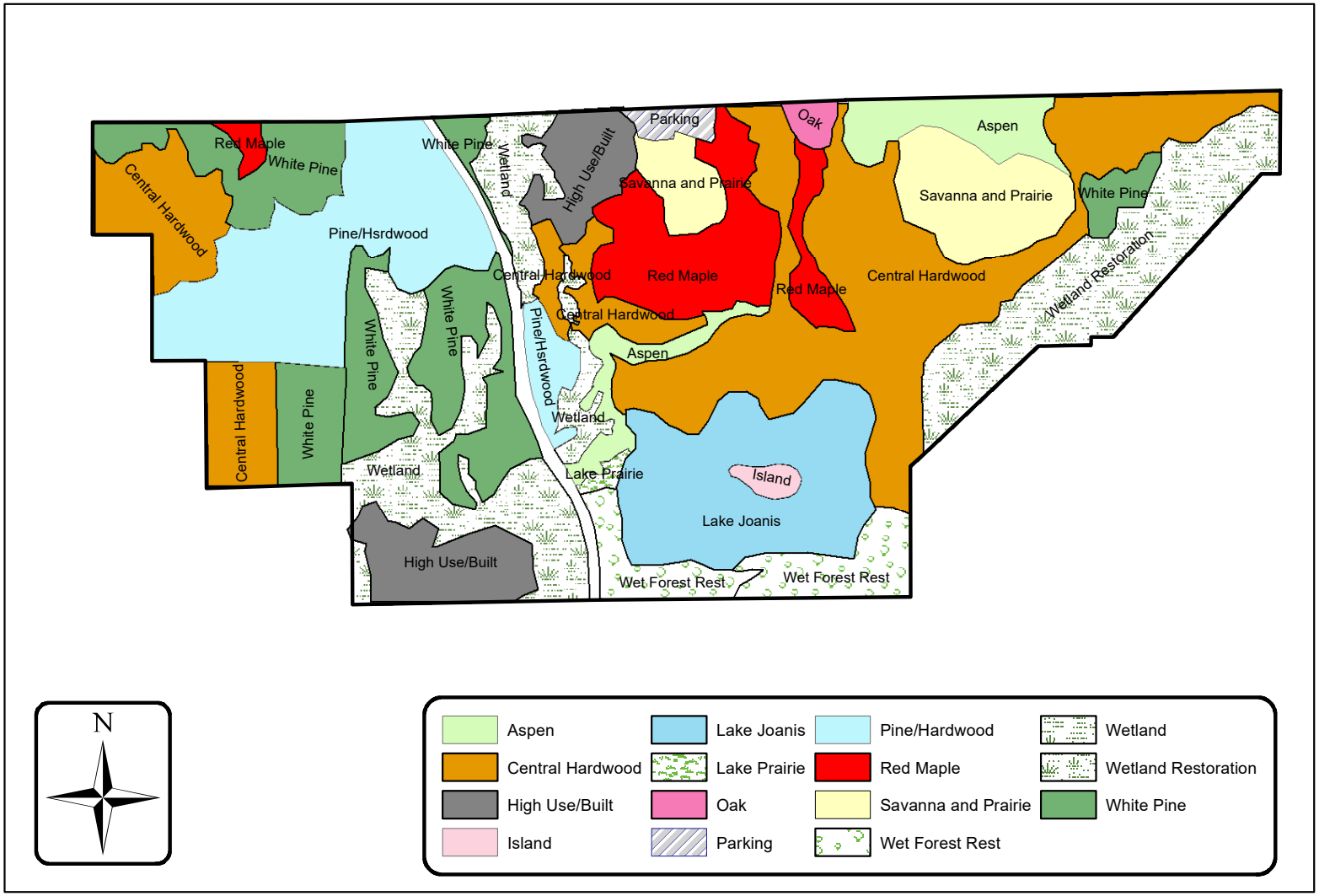
Property Maps

Schmeeckle Management Zones



Map by Mike Demchik
Update 5/19/2020

Schmeeckle Stand Map



Map by Mike Demchik
Update 5/19/2020

Forest Natural Resources Enhancement and Protection

The primary goal of Schmeeckle Reserve is to restore and maintain natural communities of central Wisconsin, so much of the work on this property is targeted at creating model ecosystem conditions that can act as teaching tools for students and can provide for ecological function in the local area.

Protect Special Sites & Social Considerations

The Moses Creek Restoration unit includes a navigable water stream surrounded by a mitigation wetland; continual effort is needed to maintain the structure and function of this wetland. Chilla Woodlot is a developing old growth forest and can be managed to continue to develop old growth habitat elements. Lake Joanis is a resource with significant use by classes and recreationists; infrared counters installed around the lake estimate that about 90,000 people walk the Lake Loop Trail annually. The Berard Oaks area, while being currently impacted by oak wilt, presents a significant opportunity for development as an oak openings/savanna ecosystem. The Zimmerman Prairie is a representative sand prairie that can be expanded in the future. Finally, the matrix of wetlands that comprise a significant amount of the Reserve could be much more actively managed to reach habitat goals.

Air, Water, and Soil Protection

Best Management Practices (BMPs) for Water Quality will be followed. For the Reserve, wetlands and the lake are directly impacted by the watershed to the north. Much of the Moses Creek headwaters is receiving increasing development pressure. The impact of these off-site activities will undoubtedly impact the long-term ecological function of the Reserve. Schmeeckle functions as a stormwater retention area before the water reaches the campus and City of Stevens Point. No wetland plan can be developed without taking into account the water volume and chemicals entering the system. While this is outside the scope of this plan, efforts in the future to model this impact will be welcomed.

Fish, Wildlife and Biodiversity

The main focus for this property will be restoration which includes improvement for wildlife habitat. Specific model ecosystems which will be created or managed include:

- Grasslands/prairies
- Savannas and oak openings
- Early successional forest habitat
- Mid-successional forest habitat
- Old-growth mixed forest (pine/hardwood forests)
- Old-growth white pine forest

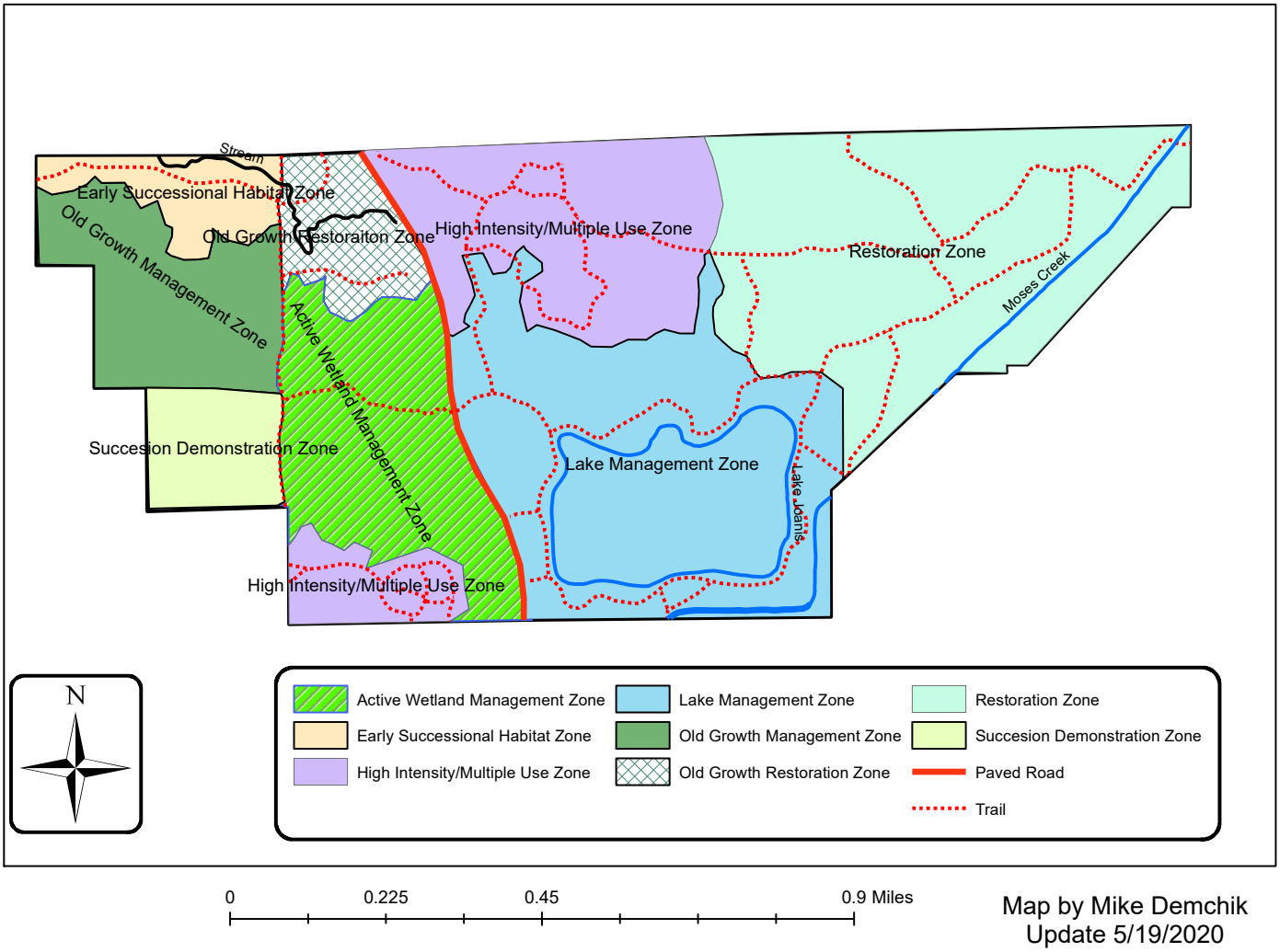
- Sedge wetlands
- Shrub-carr (both early and late successional)
- Marsh wetlands
- Wooded wetlands
- Shoreline/riparian habitat
- Aquatic habitats

For this reason, Schmeeckle is divided into management zones, with the focus of each zone varying based on different needs and opportunities. These zones include:

- Active wetland management zone (34.3 acres)
- High intensity/multiple use zone (44.6 acres)
- Early successional habitat zone (10.0 acres)
- Restoration zone (70.2 acres)
- Lake management zone (68.6 acres)
- Old growth management zone (23.7 acres)
- Old growth restoration zone (12.0 acres)
- Succession demonstration zone (10.6 acres)

Management Zone Information

Schmeeckle Management Zones



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Map by Mike Demchik
Update 5/19/2020

Active Wetland Management Zone (34.3 acres)

Management Objectives

- Preserve, maintain, and restore native ecological communities of central Wisconsin.
- Serve as an outdoor laboratory for teaching and research.
- Provide recreational opportunities for the campus and the community, when those uses are not in conflict with the first two priorities.

Current Conditions

Because the Reserve is underlain by Wolf River Batholith covered with a relatively thin layer of soil, the water table is extremely high. For that reason, the Reserve has a strong matrix of wetlands that include: sedge wetlands, shrub-carr and wooded wetlands. For management purposes, the Moses Creek Wetland Restoration is not included in this zone, as it is subject to different regulatory constraints (it is arbitrarily included in the Restoration Zone). The Active Wetland Management matrix has some incredible elements that include a strong diversity of wetland plants and wildlife use. However, these wetlands are also subject to intense invasion by glossy buckthorn, non-native Phragmites, narrow-leaved cattails, and hybrid cattail. While there are additional wetlands throughout the Reserve that will be managed under a largely similar prescription, the management in this zone is focused on restoring structure and function of this wetland matrix as a functioning unit. In the future, additional wetland areas across the Reserve may also be included, as time and resources permit.

Desired Future Condition

Due to the heavy presence of buckthorn and Phragmites in these wetlands, many normal functions (especially in the shrub-carr and sedge wetlands) have been disrupted. Removal of buckthorn and Phragmites is an imperative for restoration of function. For restoration of structure, many of the shrub-carrs are late successional (i.e. overgrown and declining mix of native and non-native shrubs). In itself, this is a desirable habitat for a number of species; however, this lacks the structural diversity that allow for a variety of wildlife species use.

Management Activities

For these wetlands, buckthorn control, Phragmites control, return of natural burn cycles and augmentation of structural diversity are the main management actions proposed. For this reason, annually, a portion of these wetlands should have all of the shrub species (both native and non-native) cut and piled. Included in this area are large pockets of mature pine, oak and other trees. These are intended to be preserved as ecological reserves (an important component of a wetland complex). Where user safety and aesthetics allows, these should be allowed to naturally age and die onsite to provide function as snags and eventually coarse woody debris for habitat purposes. The cut areas could amount to 2 acres per year for the next 10 years. The non-native stumps should be treated with a labeled herbicide (triclopyr amine would be the current recommendation) and the native shrubs allowed to resprout. One year later (during later growing season), the non-native stems should again be treated with herbicide.

Non-native Phragmites is also a major issue in the southern portion of this zone, including the Student Memorial Ponds and north of the UWSP Maintenance and Materials Building. Here, dense stands of Phragmites crowd out all other wetland species and impact the hydrology of the wetland. Efforts have been made to control Phragmites over the past several years through manual pulling and selective herbicide applications, but work needs to continue. A planned, multi-year, large-scale herbicide application is recommended to control the dense stands of Phragmites, followed up by selective manual and herbicide control where the invasive remerges. Native aquatic and emergent vegetation should be planted in areas where dense stands have been removed.

Non-native narrow-leaved and hybrid cattail are also forming dense stands over several areas of wetland. Since they provide structure, cover, and food to many wildlife species, control of invasive cattails is of a lower priority, but still should be considered in any wetland restoration efforts. Winter prescribed burns of dense cattail areas can reduce dead vegetation and increase open water. Manual removal of cattails is also being conducted in select areas, such as the Student Memorial Ponds.

High Intensity/Multiple Use Zone (44.6 acres)

Management Objectives

- Provide recreational opportunities for the campus and the community

Current Conditions

This management zone is composed of three areas: the area surrounding the visitor center along North Point Drive, the area surrounding the Parkway Shelter along Maria Drive, and the area surrounding the Student Memorial and Ross Amphitheater along Maria Drive These areas have existing and planned developments to enhance the recreational and educational experience of visitors.

Desired Future Condition

Aesthetically pleasing, park-like surroundings that are comfortable environments for a diversity of people to recreate in. These areas serve as a transition between urban landscapes and more natural habitats. A matrix of well-maintained open woods, oak savanna, prairie, and native plantings will enhance aesthetics and provide a comfortable setting for visitors, while attracting a variety of wildlife species.

Management Activities

While trail safety, aesthetics and invasive control are a primary focus of management for the entirety of the Reserve, in this area these are the sole focus of management. Together with the Lake Management Zone, these areas are among the most heavily utilized by external stakeholders. Annual individual tree risk assessments are already conducted for trees along the trails in the Reserve; however, efforts to incorporate this into forestry classes should be considered to reduce the time commitments needed by the already heavily over-extended Reserve staff. Trees which are determined to be a hazard to trail users will be removed, as is currently the practice of the Reserve. Where practical, these tree removals should be incorporated into coursework on campus as training opportunities.

Additionally, this area should be the focus of initial invasive species control. These high use areas are seen regularly but they are also the most disturbed through use, and, therefore are important control points for invasive species. Management should focus on creating comfortable habitats (mixture of open woods, oak savanna, and grasslands) that serve as a transition from urban landscapes to the more natural environment of other zones. This will include more aggressive landscaping, native plantings, and natural elements. Wildlife landscaping is especially important in this area, providing an opportunity for visitors to see birds, butterflies, and other animals up-close. Backyard habitat areas, pollinator gardens, waterscape features, bird feeders, wildlife houses, and native wildlife-friendly plantings will be emphasized.

Due to their high use, these zones are also ideal for educational opportunities. Durable signage should be developed and installed to interpret site-based management activities and natural history topics of interest to visitors.

Early Successional Habitat Zone (10.0 acres)

Management Objectives

- Preserve, maintain, and restore native ecological communities of central Wisconsin.
- Serve as an outdoor laboratory for teaching and research.
- Provide recreational opportunities for the campus and the community, when those uses are not in conflict with the first two priorities.

Current Conditions

This zone is an area composed of significant mortality as well as young (and largely successful) regeneration of white pine to the east. Invasive species are a dominating influence in parts of this area, especially those disturbed by windstorms over the past decade. The Green Circle Trail runs through this zone, providing an opportunity to showcase restoration. This area also includes some large, mature pines on the north side of the trail (along the stream). Pockets of ecological reserves are often a component of early successional habitat and should be preserved in this area.

Desired Future Condition

A mix of trees, grasses and shrubs (typical early successional habitat in central Wisconsin).

Management Activities

This area has been the focus of effort to control invasives and address the mortality already. Multiple coarse fuel clearing activities, buckthorn treatments, as well as a prescribed burn have been completed on this unit. During the spring or fall of 2023, a final prescribed burn will be completed and hand collected seed as well as tree seedlings planted on the site.

Restoration Zone (70.2 acres)

Management Objectives

- Preserve, maintain, and restore native ecological communities of central Wisconsin.
- Serve as an outdoor laboratory for teaching and research.
- Provide recreational opportunities for the campus and the community, when those uses are not in conflict with the first two priorities.

Current Conditions

This area includes the Moses Creek Restoration, the Berard Oaks oak savanna, and adjacent stands. The Moses Creek Restoration, completed in 2010 as a mitigation project by the Wisconsin Department of Transportation, is an amazing resource and is in good condition. The Berard Oaks area has an actively expanding infestation of oak wilt. Much of the area has low to moderate infestation with buckthorn.

Desired Future Condition

The Green Circle Trail passes through this area, along with several other trails through the Moses Creek wetland and connecting to the lake. This zone is a mix of several cover types that include: Moses Creek Restoration, oak, aspen, central hardwood and white pine. Each of these cover types could be optimized for both horizontal and vertical structural diversity. Specific measurable criteria would include:

- High variability in crown cover across the whole area (from 0-100% crown cover, depending on area)
- Variability in age structure (currently most of the stand is one or two ages)
- Improved grass and forb diversity in the savanna area
- Reduced or contained oak wilt
- Reduction in buckthorn to a low/background reinvasion level

Management Activities

The Berard Oaks area was subjected to significant oak wilt infestation. Over the course of multiple years with the involvement of a wide collection of student organizations, volunteers and student workers, this site was treated for oak wilt. S212 Wildland Fire Chainsaw was held in this unit during 2019 and 2022 in an effort to cut oak wilt infected or soon to be infected trees. Partial funding for this restoration work (herbicide applications and seeding) was acquired through the US Fish and Wildlife Service, Partners for Fish and Wildlife Program in 2020 and the site was treated in 2021 and seeded that fall. Continue oak wilt treatment in this unit using 1) a combination of chainsaw cutting during S-212 Wildland Power Saws weekend trainings and volunteer cutting, 2) regular application of prescribed fire using the UWSP Fire Crew, 3) annual spot sprays with herbicide to control reinvasion by buckthorn, 4) as time and resources allow, some planting of trees and shrubs may be considered, where they do not interfere with the application of prescribed fire The area to the east of Berard Oaks is composed of birch and

maple, and, is less suited to savanna expansion. Only invasive species control and risk mitigation will be practices in that portion of the stand.

From 2010 to 2022, the Wisconsin Department of Transportation funded all management of the 17-acre Moses Creek Restoration area, which included monitoring, invasive species control, and prescribed burns (along the upland edges). As of 2023, management of the area has been transferred to Schmeeckle Reserve. The area should be monitored biannually to identify any new populations of invasive species so they can be controlled early. Non-native cattail control may be necessary in some of the pond areas.

Lake Management Zone (68.6 acres)

Management Objectives

- Preserve, maintain, and restore native ecological communities of central Wisconsin.
- Serve as an outdoor laboratory for teaching and research.
- Provide recreational opportunities for the campus and the community, when those uses are not in conflict with the first two priorities.

Current Conditions

This area includes a matrix of wetlands, a pine/hardwood stand, aspen stands, central hardwood stands, and Lake Joanis. Lake Joanis itself is the focus of a management plan that is viewable at https://www.co.portage.wi.us/department/planning-zoning/land-and-water-conservation/lakes-study/Lake-Joanis.

The trail around Lake Joanis is the heaviest used in the entire Reserve, with an estimated 90,000 counts annually. This area has pockets of some of the highest levels of buckthorn invasion on the Reserve. In 2017-2018, restoration began on a 4-acre plot of windstorm damaged area along the southwest side of Lake Joanis. About 250 trees have been planted, and the area is continually monitored for invasive species. Windstorm damage has also been cleared by volunteers and WisCorps crews along the southeast and east sides of the lake.

Desired Future Condition

As the most popular area in the Reserve, aesthetics, viewsheds, and safety are priorities of management. Several of the stands (aspen and the pine/hardwood stand) are early successional types which are generally underrepresented in Schmeeckle; however, many trees are nearing the end of their lifespan and are in severe decline. Allowing for regeneration of these stand conditions while enhancing aesthetics in this area will be a strong challenge.

Management Activities

The initial imperative in this area is control of buckthorn. In this zone, all buckthorn within 50 feet of the lake have been cut and treated. With this initial effort, the cutting for the buckthorn has been expanded to include nearly all of the Lake Management Zone (this is in progress at the time of writing for the plan); however, much still needs to be chemically treated. In addition, high risk trees along the trail have been removed for user safety. The portion of the unit northwest of the lake was treated for buckthorn and seeded in late fall 2022. In April 2023, volunteers and staff planted 250 native tree seedlings with cages for protection in the central eastern portion of the site (a declining jack pine stand). If possible, any portion of this area that is not already seeded should be rotary seeded with a mix of aggressive native grasses and wildflowers adapted to high water table.

Old Growth Management Zone (23.7 acres)

Management Objectives

- Preserve, maintain, and restore native ecological communities of central Wisconsin.
- Serve as an outdoor laboratory for teaching and research.

Current Conditions

This zone includes the Chilla Woodlot, a mature forest that is in quite good condition. The main elements of old growth forest conditions are:

- Presence of some very large, old trees
- Development of cavity trees and standing dead wood
- Accumulation of down wood (coarse woody debris)
- Strong horizontal and vertical structural diversity
- Enough regeneration to replace the stand

Desired Future Condition

For the main elements of old growth forests, this area is deficient in two: it has limited structural diversity and it lacks desirable regeneration. The structural diversity will develop naturally through time; however, it is very unlikely that this site will successfully regenerate due to an overpopulation of deer.

Management Activities

The main issue in this stand is the invasion of buckthorn. This should be targeted now (with spot spraying) while the invasion is still relatively new. This stand should, otherwise, be passively managed (i.e. allowed to continue to develop). There is currently limited successful regeneration of tree seedlings in this area. Long-term this presents a significant problem which will need to be addressed. In the short-term, as time and budgets allow, individual trees with wire shelters can be planted in natural openings that develop. This is not a priority focus in the short-term, however.

Old Growth Restoration Zone (12.0 acres)

Management Objectives

- Preserve, maintain, and restore native ecological communities of central Wisconsin.
- Serve as an outdoor laboratory for teaching and research.
- Provide recreational opportunities for the campus and the community, when those uses are not in conflict with the first two priorities.

Current Conditions

This zone is a mixed pine/hardwood stand. It is predominantly single aged with limited structural diversity. The Green Circle Trail runs through this area, offering an opportunity to showcase restoration efforts on campus.

Desired Future Condition

The desired future condition for this stand is to develop the full characteristics of an old-growth forest. See description for previous management zone.

Management Activities

Currently, the main old-growth habitat elements lacking in this stand are horizontal and vertical structural diversity and regeneration to replace the stand. These two conditions should be actively developed. To this end, selection and release of individual crop trees will help promote high-vigor future monarch trees. Removal of buckthorn, where present, and planting (with protection) desirable native tree species will assist in diversifying structure. For the immediate future, removal of buckthorn, where present, is the primary goal for this zone.

Succession Demonstration Zone (10.6 acres)

Management Objectives

- Preserve, maintain, and restore native ecological communities of central Wisconsin.
- Serve as an outdoor laboratory for teaching and research.

Current Conditions

This zone is composed of two stands: a hardwood cutover and a pine stand (old-field). As with much of the rest of the Reserve, buckthorn is present in this stand.

Desired Future Condition

Allow the stands to naturally develop. This site is used by many classes (especially NRES 151) to demonstrate stage of succession.

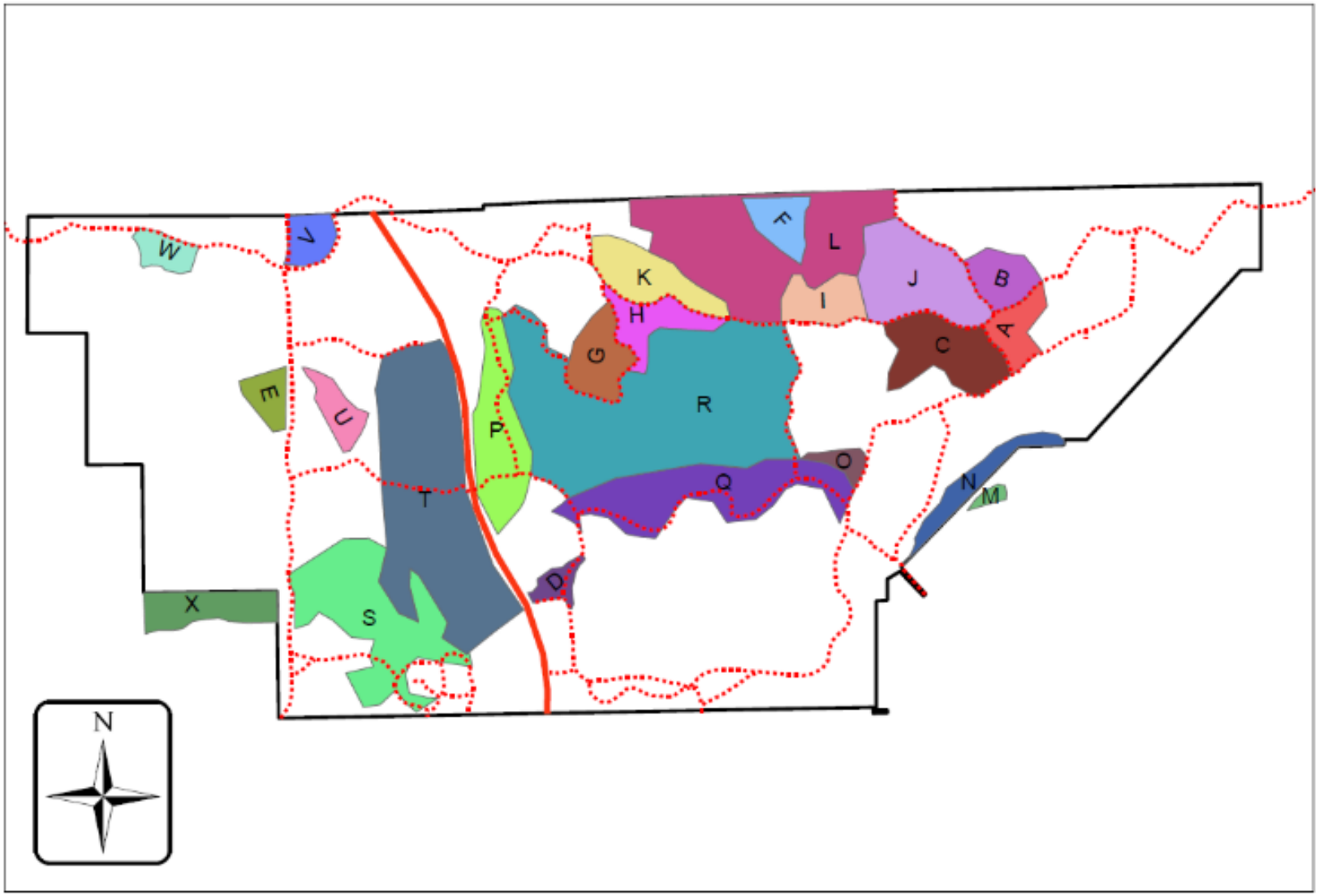
Management Activities

The main management activity needed in this stand is a broadcast application of herbicide to kill the buckthorn seedlings. This is still in a stage where herbicide treatment without stem cutting will address the majority of the needs of this zone. After the initial treatment, the area will need to be monitored on an annual basis to prevent further buckthorn spread.

Focal Management Units: 2023-2026

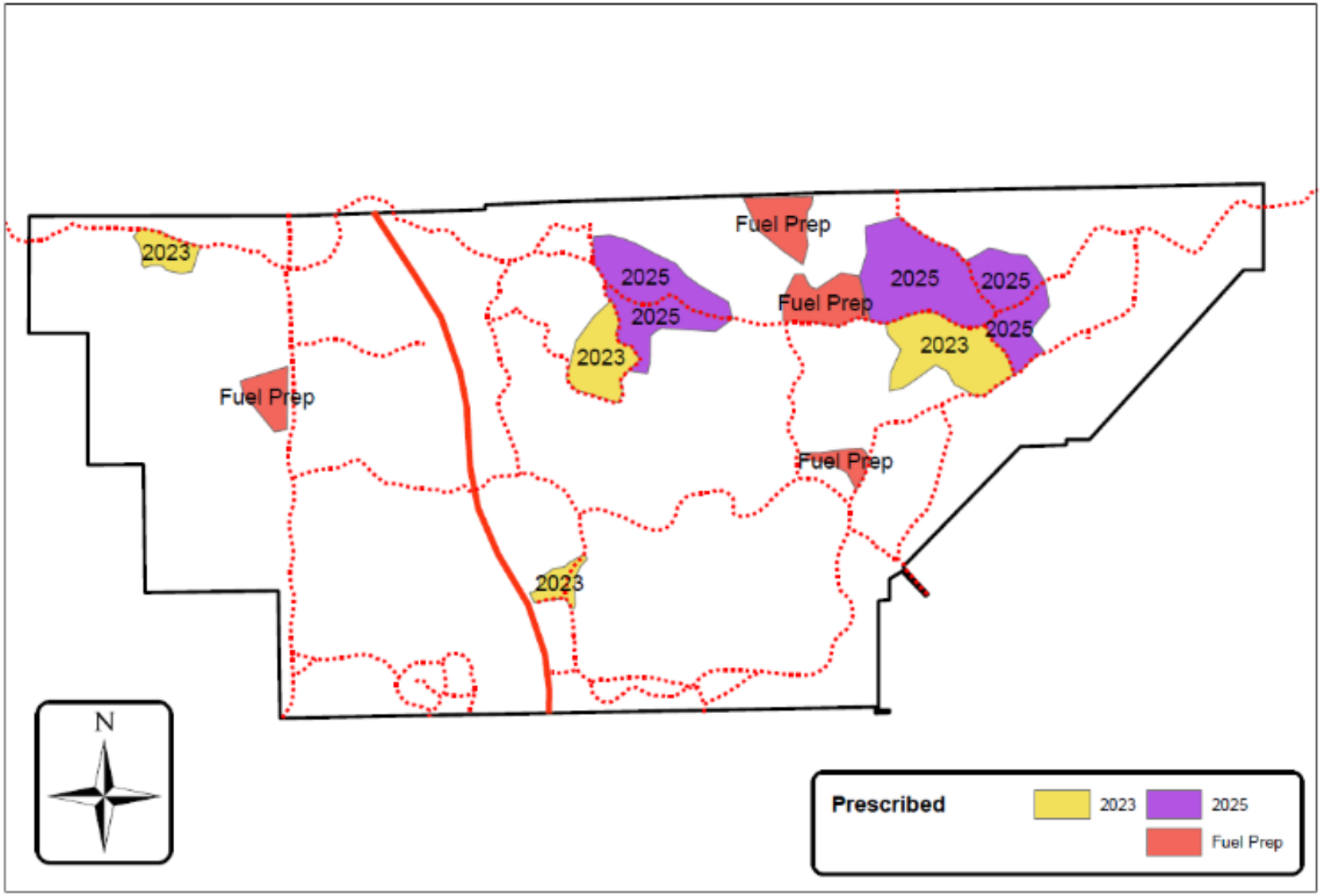
Units Where Prescribed Burning Plays a Significant Role

Schmeeckle Focal Units



Map by Mike Demchik
Update 3/20/23

Schmeeckle Prescribed Burn Units



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Map by Mike Demchik
Update 3/20/23

Units Where Prescribed Burning Plays a Significant Role

Units A, B, C, G, H, I, J, K

History: Unit K is composed of the Zimmerman Prairie and an additional area of new savanna. Zimmerman Prairie was planted in 1986. In the future, both the prairie and savanna should be managed as a single unit for convenience. The savanna unit was cut during spring 2020 as part of the S212 Wildland Fire Chainsaw Course and residual materials were addressed by the Schmeeckle Crew. Afterwards, that unit and unit H were prescribed burned during 2021. The new portion of both units were treated with herbicide and rotary seeded in fall 2021. Additional plugs (butterfly weed and rattlesnake master) were added during spring 2022. The Zimmerman Prairie was prescribed burned in fall 2022 and then rotary seeded to a mix of forbs and legumes in an effort to diversify the plant materials in the grassland. All of the remaining units were treated for oak wilt over the course of several years, with work completed in Spring 2021 on A, B and J. For Unit J, this was the site of an older attempt at producing a savanna shortly after it was acquired in 1998. Smaller trees were cut in 1998-2000 to release large red/pin oaks as part of savanna restoration. Only a small area of savanna was planted with prairie on the east side. Due to significant invasion of invasive species, all three of these units were treated with herbicide during 2021 growing season by US Fish and Wildlife (with areas of high value forbs and grasses flagged out of the spray units) and seeded with savanna plant species during Fall 2021. Unit C was partially treated for oak wilt during 2020 and 2021 and was partially seeded in 2021. For Unit G, the Trail of Reflections was opened in 1988. The forested area has slowly been encroached by thick stands of Glossy Buckthorn. Wisconsin River Academy students (SPASH) pulled and stacked buckthorn in this area in 2018 and 2019. This area has been the focus of a significant amount of buckthorn control efforts. Unit G was prepared for a prescribed burn during fall of 2022 with volunteers from Society for Ecological Restoration and UWSP Fire Crew (as well as Schmeeckle staff). In fall 2022, the S212 course was used to prepare the site for a prescribed burn (with target of Fall 2023). Unit I was partially treated for oak wilt during the same S212 course.

Current Status: Units A, B, H, K and J have entered a “maintenance stage”. The only regular maintenance should be regular prescribed burning. Unit C and G are ready for a prescribed burn and rotary seeding. Unit I is only partially treated for coarse fuel.

Management Needs: Units A, B and J should be prescribed burned in 2025. Units C and G should be burned in fall 2023 and rotary seeded either that fall or spring 2024. Unit I will be the focus of the Fall 2023 S212 course.

Unit F, L

History: These units are in the zone of expansion of oak wilt. During Fall 2021 and 2022, individual trees were cut as part of the For 432 class and as part of S212 in an effort to release white oak and white pine (trees that are resistant to oak wilt).

Current Status: Expanding oak wilt front.

Management Needs: During fall of 2023 and 2024, this site will host the S212 course as well as the For 432 course. Unit F will be prepared as an additional burn unit. Desired first burn should occur during Fall 2025. After prescribed burning, the site should be rotary seeded with seed collected by the Society for Ecological Restoration's Trick or Seed Event.

Unit W

History: Large pine forested area flattened during July 2011 storm, providing open areas for invasives. Area was invaded by thick stands of Glossy Buckthorn. A major effort to control buckthorn was made in 2017-2018. This site has been repeatedly treated for coarse fuels by Society for Ecological Restoration, the Friends of Schmeeckle volunteer crew, UWSP Fire Crew and Schmeeckle staff. The buckthorn was cut by Schmeeckle staff, Society for Ecological Restoration and others. This was treated during the summers of 2020 and 2021. The unit was prescribed burned in April 2021 and April 2023.

Current Status: Ready for tree planting and continued buckthorn management.

Management Needs: Tree and shrub planting, at which point the site will be in maintenance stage.

Unit E

History: This is an upland area of mature forest in the Chilla Woodlot.

Current Status: This area is composed of an open oak overstory with a understory of Pennsylvania sedge. It is slowly being invaded by buckthorn seedlings. The incorporation of a burn cycle followed by seeding with native grasses and forbs will help reduce invasion by buckthorn and restore some ecological functions.

Management Needs: Fuel reduction, fire line installation and prescribed burning. Likely timeline is 2026 for fuel preparation and burning after that time.

Unit D

History: This unit includes the Lake Prairie and some additional adjacent wetland. This unit has had significant buckthorn control efforts and coarse fuel removal efforts.

Current Status: This lake prairie is a small grassland planted with native prairie vegetation and the wetland is composed of sparse aspen tree cover with sedges and grasses. The prairie was prescribed burned in April 2023.

Management Needs: To maintain the prairie area, prescribed burns should be conducted every 2-3 years. Another prescribed fire during spring of 2025 or 2026 would be preferred.

Unit O

History: This stand had significant storm damage in 2017 and again in 2019.

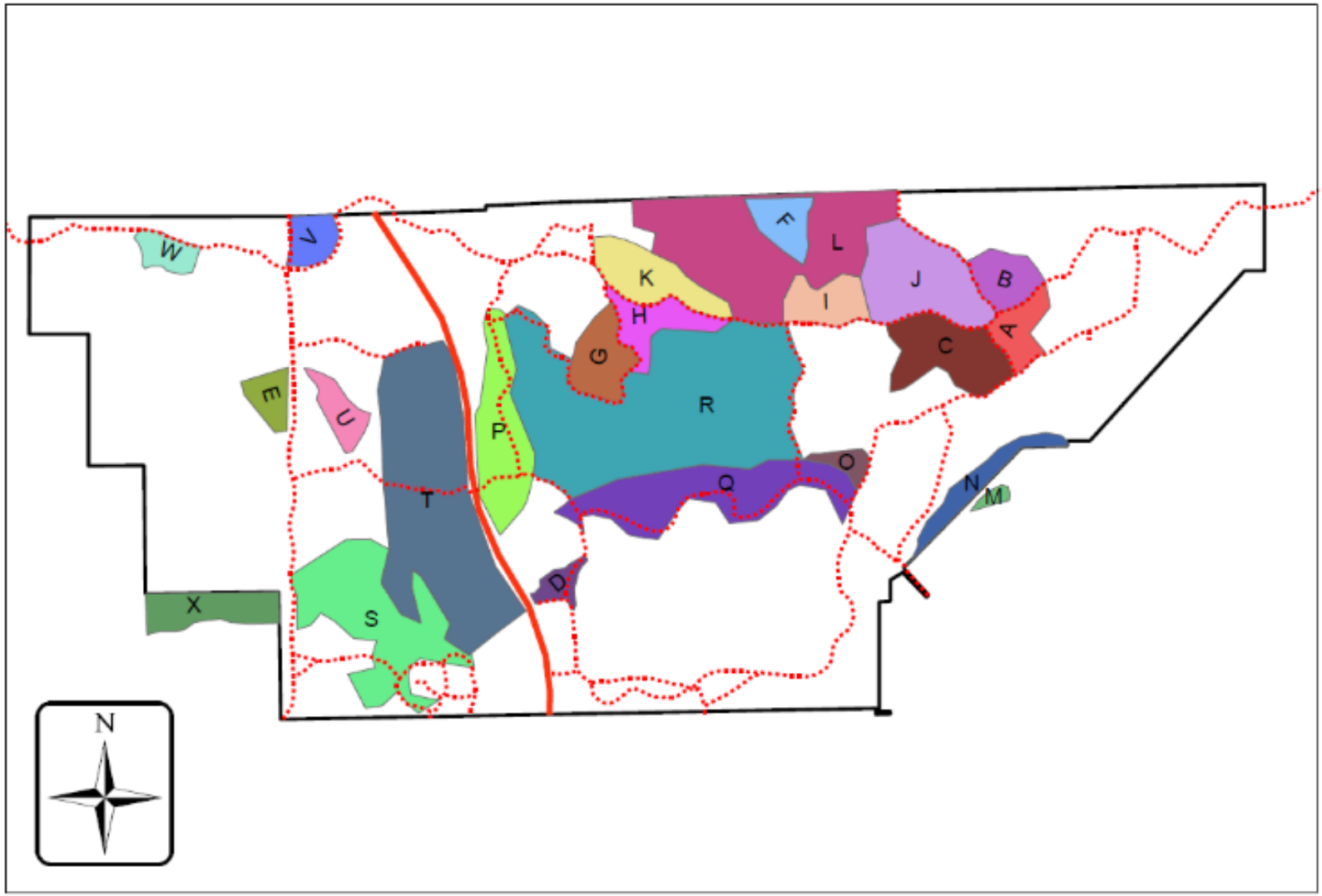
Current Status: This stand is composed of some standing pines but with significant storm damage. Invasion by buckthorn is beginning with the newly exposed soil and treatment of the buckthorn is difficult due to the dead and downed materials.

Management Needs: Fuel reduction, fire line installation and prescribed burning. Likely timeline is 2026 for fuel preparation and burning after that time.

Focal Management Units: 2023-2026

Units Where Invasive Species Play an Important Role

Schmeeckle Focal Units



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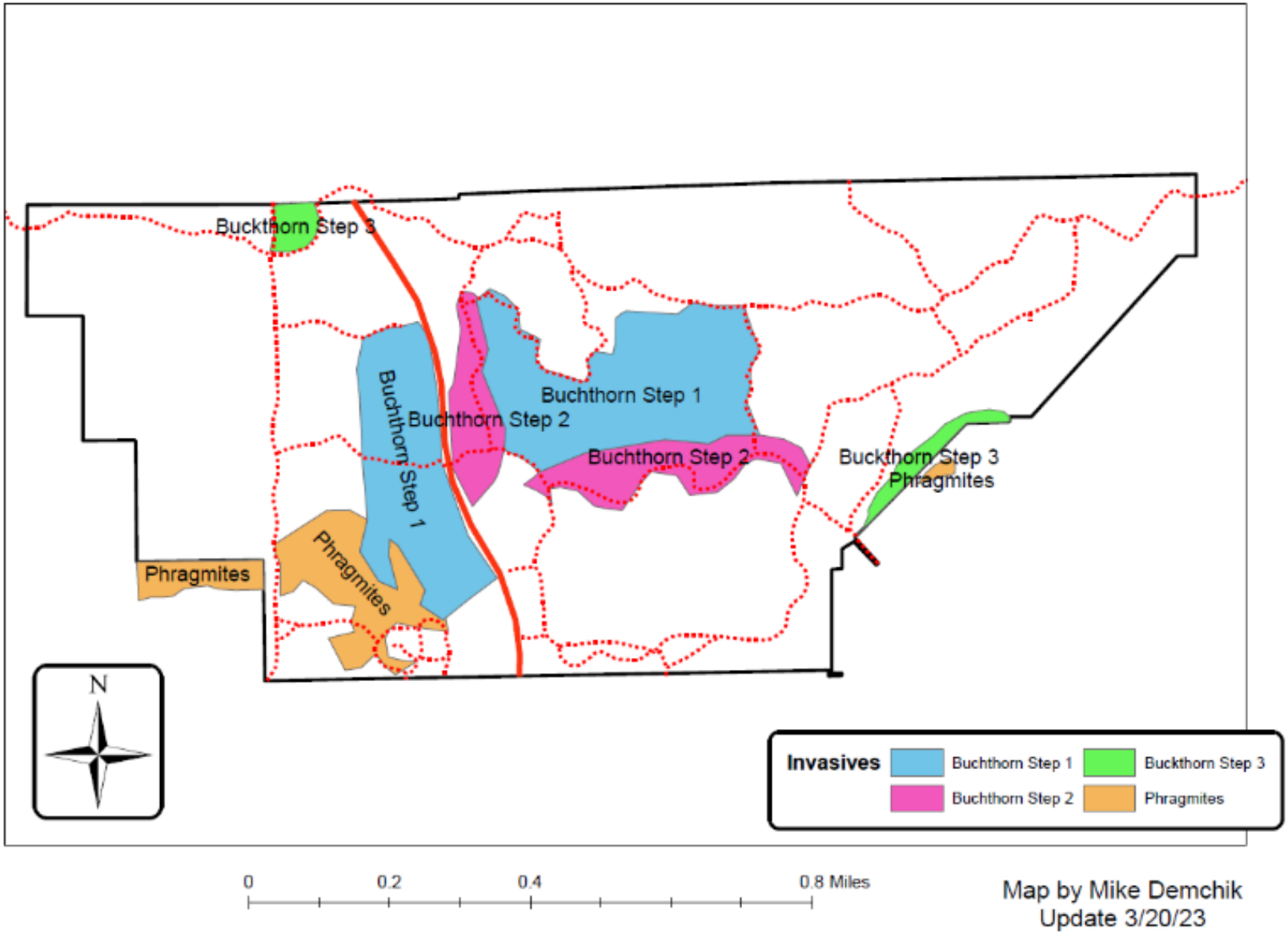
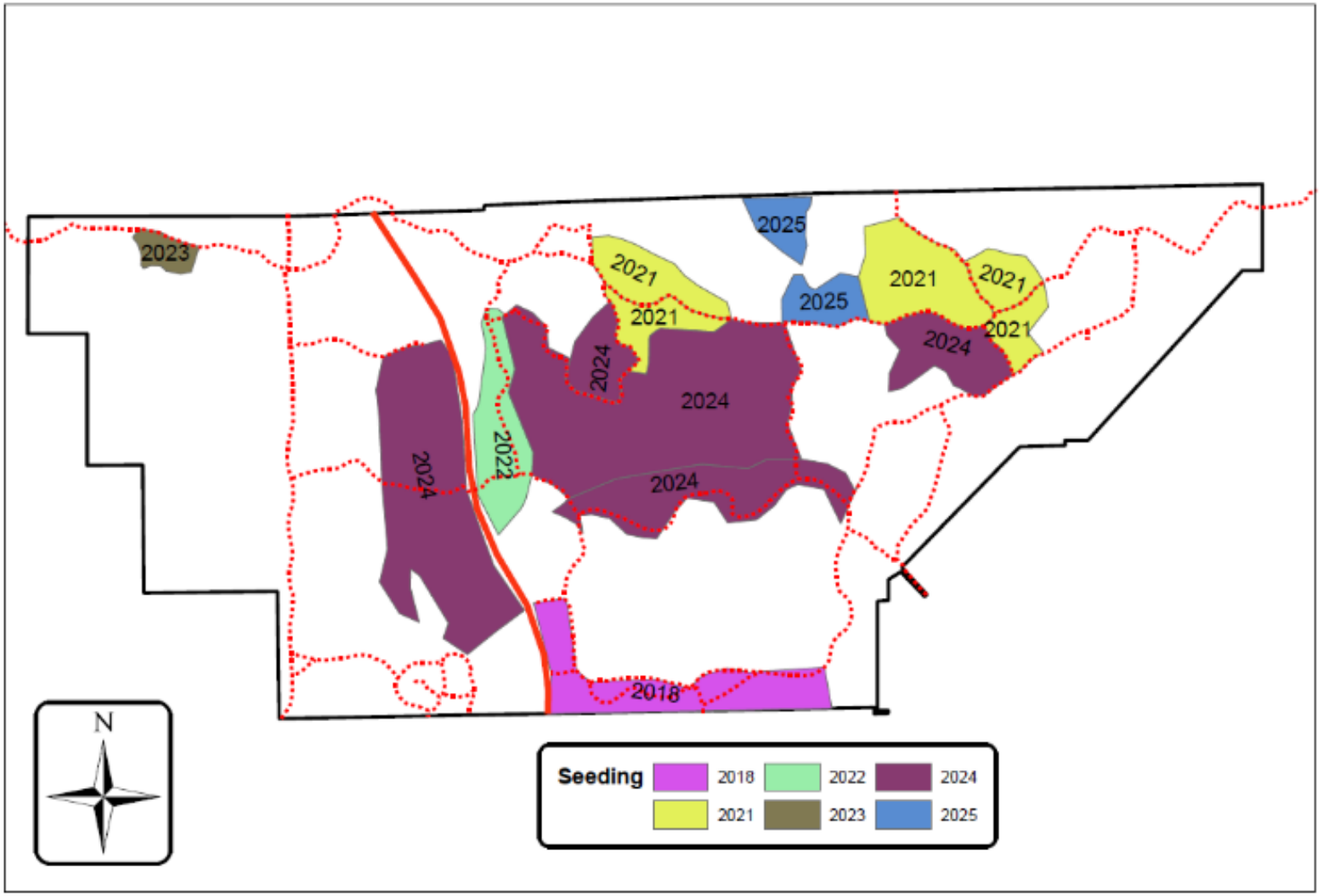
Map by Mike Demchik
Update 3/20/23

Schmeeckle Invasive Species Treatment Units



Map by Mike Demchik
Update 3/20/23

Schmeeckle Seeding Map



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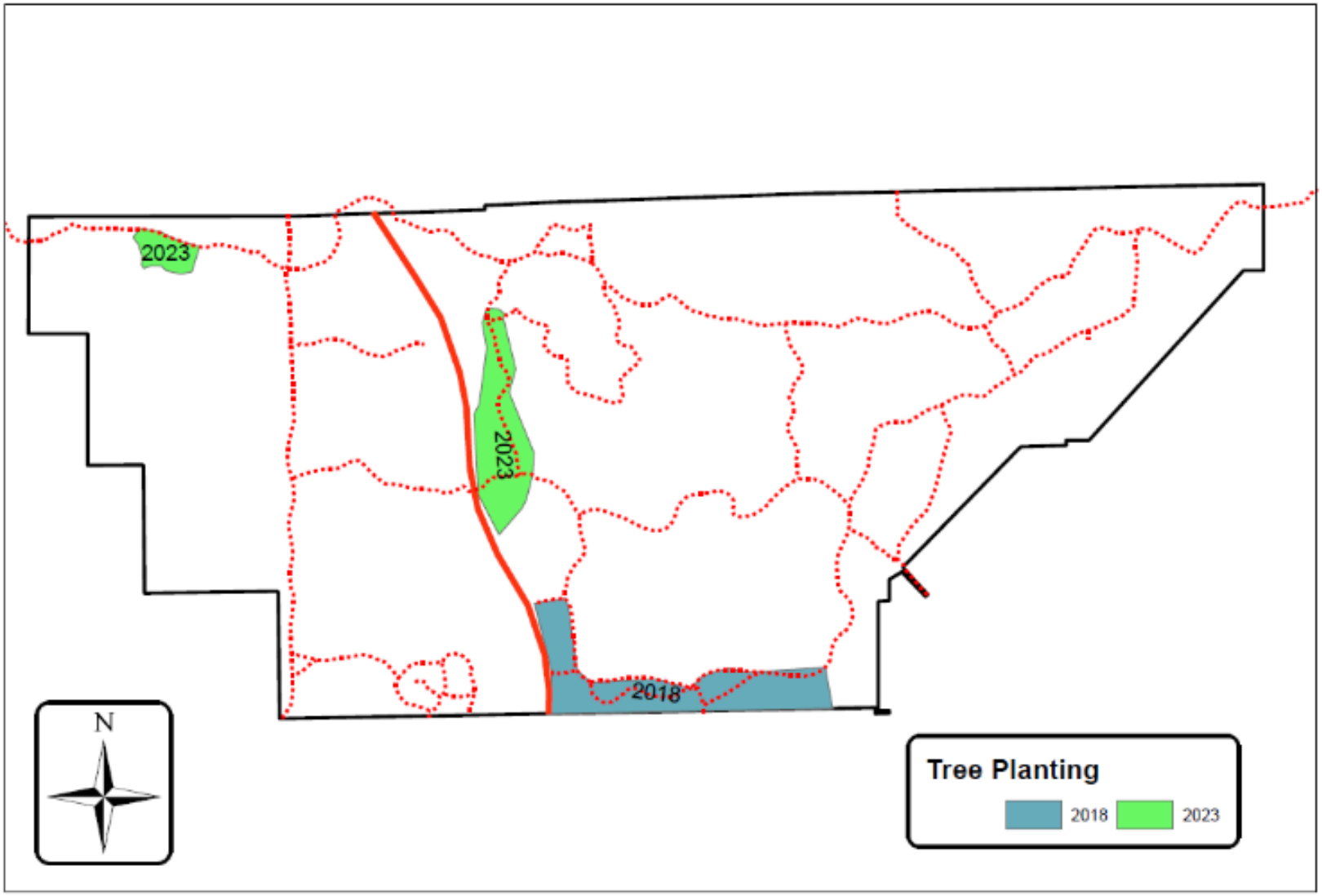
Map by Mike Demchik
Update 3/20/23

Schmeeckle Tree Planting Map



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Map by Mike Demchik
Update 3/20/23

Invasive Species in Schmeeckle Reserve

As an urban natural area, Schmeeckle Reserve is especially susceptible to a variety of invasive species that threaten healthy, native habitats. A significant amount of management time and effort is focused on controlling invasives and restoring more ecologically diverse landscapes. Schmeeckle land managers follow and use the best practices available to manage existing invasive species, along with any new species that are identified in the future. The primary invasive species that are targeted for control include:

- **Glossy Buckthorn, *Frangula alnus* (and to a lesser degree Common Buckthorn, *Rhamnus cathartica*):** This understory shrub grows in dense stands and continues to spread throughout the natural area, especially in forested areas where the canopy has been disturbed (through natural or human causes) and in the transition areas between forests and wetlands. The majority of Schmeeckle's land base has populations of invasive buckthorn, and neighboring properties support additional populations that serve as a source for reintroduction. The dense stands shade out all other vegetation, creating a monoculture. The berries are eaten and spread by birds. Significant efforts have been made over the past 20 years to control buckthorn through hand-pulling, prescribed burns, and herbicide treatment (Triclopyr). Efforts have been especially successful where annual monitoring and spot treatments occur.
- **Non-native Phragmites, *Phragmites australis*:** This tall wetland grass was planted in several ponds in the southern portion of Schmeeckle in the early 1980s. It has spread since that time into adjacent wetlands, and now makes up the dominant vegetation in about 10 acres of the Reserve. A neighboring plot on the southeast side of Schmeeckle also threatens to spread into the Moses Creek restored wetland. The dense stands of grass shade out other vegetation and can change the hydrology of wetlands. A largescale herbicide application was completed by a professional contractor in 2015, followed by manual removal and spot herbicide treatments (Imazapyr). However, these efforts have been largely unsuccessful.
- **Eurasian Watermilfoil, *Myriophyllum spicatum*:** First verified in Lake Joanis in 2004, the invasive watermilfoil spread quickly, creating dense tangled mats around the shoreline bays and island. By 2008, 14.65 acres of the 23-acre lake had EWM populations. The aquatic plant outcompetes native plants and negatively impacts recreational activities. Hand-pulling was attempted early on when the population was still low but had limited success. In 2008, Amy Thorstenson began introducing weevils for biological control of EWM, which has continued annually to the present. This has been successful, with the relative frequency of EWM declining and the density of weevils increasing over the years.
- **Garlic Mustard, *Alliaria petiolata*:** Garlic mustard was first identified on the boundary of Schmeeckle in 2006, south of Lake Joanis where apartment owners were depositing brush in a wooded area. Schmeeckle received permission from the owners to treat the invasive with herbicide (glyphosate). While that population is largely under control,

garlic mustard has since been verified in other areas, including the Lake Restoration Area (south of the lake), around the visitor center area, and in the Berard Oaks Savanna. Since the population is still small, control is of the upmost importance. Populations are treated with glyphosate as soon as they are identified, and then monitored several times during the growing season in subsequent years.

Units Where Invasive Species Play an Important Role

Unit B (Invasive Buckthorn focus)

History: Many trees were blown down in June 2017 storm, providing open areas for buckthorn growth

Current status: Tangle of downed trees; thick stands of Glossy Buckthorn have taken over the site; challenge to manage as this is an island surrounded by wetland and boardwalks

Management needed: Cleanup, remove, and spray buckthorn

Units N, P, Q, R, V (Invasive Buckthorn focus)

History: From 2020-2023, a great deal of effort has been made to remove buckthorn on these sites, including UWSP SER, Schmeeckle staff, the Friends of Schmeeckle volunteers, For 434 students, and others. This area has been the focus of two Restoration Celebration Events with UWSP SER and Fire Crew (Fall of 2022 and Spring 2023). It has also been a focal area for SER Site Stewards. Unit P was cleared of buckthorn and had declining jack pine marked for removal. Those trees were removed as part of a collection of trainings and with the assistance of volunteers. The site was rotary seeded by SER using hand collected seed during fall 2022. Unit Q was treated during 2019 and 2020 with additional follow up treatments after that time. Unit R is mostly cut, but not yet treated with herbicide.

Current Status: Invasive buckthorn treatment for these sites is conducted based on the following steps:

- Step 1: Cutting of larger buckthorn stems. If weather conditions allow, the stumps are treated with Triclopyr. Stems are piled and either chipped (for aesthetics) or left onsite (for habitat). Buckthorn stems with berries are placed into plastic bags and sealed before disposal, to reduce new spread.
- Step 2: Foliar treatment of small buckthorn (up to 2-feet) and resprouts from the initial cutting using Triclopyr. This step is repeated throughout the growing season until resprouting ceases.
- Step 3: Follow up foliar spot treatment of sprouts and seedlings using Triclopyr.

Units P and Q have had Step 1 and 2 completed and are moving to Step 3. Unit R has nearly had Step 1 completed. Unit T will be beginning Step 1 shortly. Unit P was planted with 250 native tree seedlings in April 2023.

Management Needs: Unit R needs to have buckthorn cutting completed and then herbicide applied to the resprouts. Once control is gained, Units Q and R should be rotary seeded to a mix of aggressive grasses and wildflowers. Unit P is now in a maintenance phase. Unit T will be the next focal unit in this area for initial cutting of buckthorn.

Units M, S and X (Non-native Phragmites focus)

History: These units are invaded with non-native Phragmites. Various approaches to treatment have been used in the past. For Unit S, several ponds were excavated in 1980 as part of the original Schmeeckle Reserve development. This was the site of a fitness trail. Phragmites was planted in the pond areas, before it was considered an invasive species. Over time, it completely overtook the ponds and wetlands in this area. In 2015, Paul Skawinski coordinated a large-scale herbicide treatment of Phragmites utilizing a grant through the DNR. In 2016, the dead Phragmites stems were removed from the pond areas, and ponds were planted with plugs of native wetland and aquatic vegetation. Hand control of Phragmites and selective herbicide spraying (Imazapyr) has continued since 2016 by Schmeeckle staff, but the Phragmites population has returned and continues to spread.

Current Status: The majority of these units are still covered with dense stands of non-native Phragmites. The Student Memorial Pond areas are being controlled by mechanical removal and selective herbicide treatment (wick and sponge applications).

Management Needs: Due to the nature of this infestation, including the quickly spreading rhizomes and challenge of access in the wetlands, Phragmites control is currently outside of the ability for Schmeeckle to treat using existing staff and volunteers. Professional contractors should be hired to apply herbicide over several years and reduce the population to a point where follow-up spot treatments by Schmeeckle staff can be effective. Unit X is in the area adjacent to the campus parking areas and Maintenance and Materials building on the north side of campus. Unit M is in the Schmeeckle Trails subdivision private property, but presents a significant risk for invasion of the Moses Creek Restoration. Unit S is the area around and including the Student Memorial Ponds.