



**Minneapolis  
Park & Recreation Board**



**NATURAL AREAS PLAN – PHASE II\***

**ASSESSMENT AND MANAGEMENT RECOMMENDATIONS: CONDENSED VERSION: EXECUTIVE SUMMARY, MANAGEMENT BRIEFS AND MAPS**

**Consultants:**



AES is excited to be part of RES  
Resource Environmental Solutions, LLC

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*\*Condensed Version: Executive Summary,  
Management Briefs and Maps Version  
Created December 2021*



**MINNEAPOLIS PARK AND RECREATION BOARD  
NATURAL AREAS PLAN - PHASE II\***

**\*CONDENSED VERSION: EXECUTIVE SUMMARY, MANAGEMENT BRIEFS AND MAPS**

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## ACKNOWLEDGEMENTS

### **NATIVE ACKNOWLEDGEMENT**

*We collectively acknowledge that the Minneapolis Park and Recreation Board system is located on the traditional, ancestral, and contemporary lands of Indigenous people. This land holds great historical, spiritual, and personal significance for its original stewards, the Native nations and peoples of this region.*

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## EXECUTIVE SUMMARY

### Why This Plan?

To carry out its mission, the Minneapolis Park and Recreation Board (MPRB) protects and maintains essential habitat for diverse plant and animal communities while providing quality natural areas for park users. Natural areas in this plan are specific locations recognized for their notable natural values—native and semi-natural plant communities, native species, and restored natural communities and habitats. Natural areas are not maintained for intensive human use—rather, nature reigns.

The MPRB recognizes the importance of natural areas for people living in the Metro Region. These natural areas have tremendous value for citizens of Minneapolis and beyond, letting visitors enjoy and interact with ecologically diverse and beautiful landscapes, giving students of all ages a place to learn about the marvelous natural world, and providing a remarkable array of native plants and animals with a permanent and safe home.

### What is the Plan?

This Natural Areas Plan summarizes the park system's natural resources at a high level, lays out methods and strategies to manage natural areas, and describes a strategic approach that embraces holistic, system-wide planning and administration to secure and deploy funds, staff, and equipment.

Below are the major sections of the Natural Areas Plan.

#### **Principles & concepts for planning conservation and long-term management of park natural areas**

- Lays out principles for managing natural areas.
- Introduces conservation concepts directly related to natural areas management.
- Emphasizes the importance of long-term management.

#### **Methods for inventory and assessment of natural areas**

- Describes the information sources and methods to develop the Plan.
- Presents information from a natural areas inventory and ecological assessment at the system-wide scale and also for individual parks.

#### **Management recommendations and management briefs for natural areas**

- Describes ecological restoration and management best practices for the park system.
- Presents management briefs—short vegetation management recommendations for Managed Natural Areas and other upland and wetland communities in the park system.

#### **Costs to improve ecological conditions in park natural areas**

- Gives preliminary cost estimates for ecological restoration and management of natural areas.
- Describes existing Natural Resources Program staffing, budget, partnerships, and other support for managing natural areas.
- Recommends changes to the Natural Resources Program to accelerate natural areas management across the entire park system.

Below are the main messages from each section. Details follow in the main body of the plan.

## **Conserving Natural Areas**

Threats to natural areas come from all quarters: land conversion and habitat loss; edge effects from adjacent inhospitable landscapes; overwhelmingly invasive species; polluted runoff; and climate change, to name a few. To truly conserve natural areas, a land manager must know the science underlying these negative forces and manage to compensate for these harmful effects, and even reverse them.

In this plan there are guidelines for creating core habitat and managing edge effects in the transitions between the developed, high-impact human world and natural areas. Making physical or stepping-stone connections among natural areas prevents species extinctions by giving plants and animals a way to move around and colonize vacant territory. Taking an ecosystem approach to land management ensures that first things are done at lowest cost, and more expensive things are done later if the ecosystem does not respond with greater native biodiversity, more wildlife, and fewer invasive species.

## **Assessing Natural Areas**

Natural areas were assessed systemwide and in fifteen major areas (mostly regional parks). Existing information was gathered, new field data collected, plant communities mapped, and their quality noted. A systemwide view of ecological change over the past 200 years was summarized. In short, major disturbances that maintained ecosystem health and resilience were lost—grazing, fire, soil burrowing, predictable water level change. Savannas and prairies became cropland or forest if not grazed. Wetlands deteriorated with ditching, filling, and seeding of invasive pasture grasses. Non-native plants, fungi, and animals devastated individual species or replaced entire layers of native ecosystems.

The diverse plant and animal life that cushioned ecosystems against drought, flooding, and other disturbances has dwindled, leaving the system without backup species to fill functional voids created when systems are stressed and lose species. Each of the fifteen major areas is described by its plant communities, its Managed Natural Areas, and its characterizing issues, opportunities, and goals.

The systemwide inventory documented 1,168 acres of upland and wetland natural areas and 1,664 acres of open water (2,832 acres of natural areas). About 1,000 acres of natural areas were addressed in this Phase II Plan, and 400 acres are Managed Natural Areas. (By contrast, the entire park system is 6,817 acres and Minneapolis itself 36,790 acres.) Managed Natural Areas harbor several high-quality examples of ecosystems native to east-central Minnesota, but overall are small, scattered, and isolated. Managed Natural Areas could be expanded outward from the high-quality cores to encompass every natural area in the system. This would create a higher value, more functional and resilient natural area network of cores, transitions, and connections.

## **Restoring & Managing Natural Areas**

Restoring and managing targeted native plant communities to a higher quality should increase the variety and abundance of wildlife—especially insects, pollinators, small mammals, reptiles and amphibians, and some species of birds. Ecosystem services—those spin-off benefits of well-functioning natural areas, such as flood control, water and air purification, climate moderation—will expand as well.

Natural areas managers restore vegetation structure and processes using prescribed burning, biocontrol agents, mechanical removal of diseased trees and invasive plants, planting of native species, annual

condition monitoring, and feedback loops in the adaptive management cycle: implement, assess, adapt, implement. Of course, after taking one or two years to restore a plant community, natural areas managers focus on getting the plant life firmly established in the next two to three years. If this short-term management lags, the Board will lose its investment in the more expensive early restoration work.

### **Using Management Briefs**

Management briefs are a tool that field staff and the public can use to understand—in a two-page document—the condition and needed work at different natural areas. The two-pager can be posted online, taken into the field, and mapped boundaries, plant community name, acres, and quality rank all can be viewed in the cloud-based Collector for ArcGIS using a handheld device.

This plan contains management briefs for 19 natural areas in 15 parks, and extra briefs for nine major plant communities—various upland and lowland forests, woodlands, savannas, shrublands, and grasslands. These plant community management briefs can be applied anywhere in the system where that plant community occurs.

### **Restoration & Short-Term Management Costs**

About 400 acres of the MPRB park system consist of Managed Natural Areas—natural areas that have been restored to higher quality ecosystems. The initial restoration phase was the most expensive—several hundred to thousands of dollars per acre—and protecting that investment requires that management immediately follow on the heels of that heavy restoration lift. Short-term management in the two to three years thereafter saves dollars down the road by establishing a solid matrix of native plant roots and above-ground biomass that resists weed invasion and competes vigorously against weeds that remain. Short-term management is a down payment that reduces the long-term costs of maintenance, freeing land managers from serious interventions should a restoration fail to meet expectations.

The ban on glyphosate herbicides for weed control necessarily increases initial restoration and short-term management costs as other methods are not as cost-effective in achieving short-term results. Weed removal during site preparation may require two years rather than one, for instance, and short-term management will require more mechanical work—pulling, cutting, mowing—to weaken the dominance of weeds so that native plants can establish themselves.

### **Long-Term Adaptive Management**

The fire-dependent ecosystems that historically blanketed most of Minneapolis parklands are greatly diminished. The processes that maintained the prairies, savannas, oak woodland, and herbaceous wetlands, however, are still needed to preserve and increase biodiversity, help wildlife populations, and improve ecosystem services. On the other hand, in such small remnants, a prescribed fire every two to four years could damage wildlife populations and even some plant species if not done using a prescribed burn plan, rotational burning, and experienced crews. It will be necessary in many Managed Natural Areas each year to control weeds, overseed damaged or low diversity ground layer, plant native trees and shrubs, and monitor in an adaptive management cycle. On a per-acre basis, the cumulative cost of natural areas management long-term is less than the cost of maintaining mowed turf.

## **Resources for Managing Natural Areas**

The Environmental Management Department's annual budget is \$620,000. The Natural Resources unit that manages natural areas employs two of the 13 Department staff. These two full-time equivalent (FTE) natural resources staff leverage their time using volunteers and private contractors and are helped by staff from the Forestry and Asset Management Departments.

## **Recommended Program Improvements**

### *Staffing*

In the near term, increase the Natural Resources budget to fully fund the long-term management of restored lands in the Managed Natural Areas, and restore funding for Seasonal Environmental Workers at three FTE equivalents.

In three to five years, hire a Natural Resources Technician, a part-time Natural Resource Technician-Volunteer Coordinator, and a part-time Administrative Assistant. With the existing two FTEs, this would increase the staffing total to four FTEs.

In ten years, increase budget and staffing to expand Managed Natural Areas from 400 to 1,168 acres.

### *Training*

Train Natural Resource workers in prescribed burning, state-licensed herbicide application, brush control, seed collection, erosion control, and ecological monitoring. Prescribed burns will be led by contractors with S-130 and S-190 certification.

Monitor ecological conditions using trained individuals in high school or college, other government entities, non-government organizations (NGOs), volunteers, and private contractors. The volunteer coordinator will organize and quality-control this work.

### *Work Space & Equipment*

Establish a sufficiently large, centrally located workspace to store and repair equipment and tools, organize staff and volunteers for field work, and to store seed, flammable liquids, and approved herbicides, with an outdoor plant staging area. A trailer for equipment, deck mower, flail mower, forestry mower, and brush saws are essential missing pieces of equipment.

### *Volunteers*

The part-time Natural Resource Technician-Volunteer Coordinator will leverage cost-savings by deploying and overseeing volunteers doing restoration and management tasks. Tasks are largely physical and simple (seed collection, planting, pulling invasive plants, cutting and dragging invasive brush) and could include some monitoring with training and oversight (frog census, photo points).

### *Private, Professional Ecological Contractors*

Although contractor rates appear more expensive than staff due to the inclusion of overhead, if overhead were factored into MPRB staff time, a contractor may be cheaper for many tasks given their experience, equipment, and learned efficiencies. They can also be held to performance standards under their guarantee. Soliciting and selecting contractors is time-consuming given City of



Minneapolis and State of Minnesota Procurement and Purchasing procedures and, in three to five years, will be handled by one of the four Natural Resource FTEs discussed in Staffing above.

### *Partners*

Partners have and will continue to leverage the Board's resources in restoring natural areas. Relationships exist with a dozen government entities, NGOs, citizen groups, and the University of Minnesota. Going forward, agreements such as Memoranda of Understanding should be put in place to ensure that partners work smoothly with MPRB staff to execute specific projects and activities.

### *Public Outreach & Engagement*

Increase the frequency of events and upgrade existing tools to pique the public's interest in natural areas. Ideas include a bioblitz at a different natural area each year; upgrade the interactive map on the Natural Areas webpage; and install topical signage about natural history, ecosystems, ecological restoration and management practices, wildlife, and ecological stormwater management.

### *Grants*

An increase in Natural Resource staffing to four FTEs in three to five years will allow staff to finally tap into significant grant resources from Hennepin County, the Minnesota Outdoor Heritage Fund, the National Fish and Wildlife foundation, and others. Pursuing and managing grants is time-consuming, but significantly increases the acres that can be restored and managed.

### *Set Priorities for Restoration & Management*

Use a system like the Criteria Based System for MPRB Regional Park and Trail Capital Project Scheduling that considers both community factors and park characteristics. Prioritize management in already restored areas to secure past investments. Consider other ecological and programmatic ways to prioritize: high visibility; a quality plant community; a large natural area; sensitive wildlife present; an easily removed early infestation of invasive plant; a dense, threatening infestation; proximity to another natural area; a project improving downstream water quality. Focus on areas where little or no restoration has occurred, such as the Shingle Creek Corridor.

### *Phasing Projects*

With priorities set, lay out a ten-year budget considering current funding and a future target level of funding by the tenth year. The first years' budget will be dedicated to top priority restoration and ongoing management projects. In subsequent years, additional short-term and long-term management will phase in, reducing the amount of new restoration projects that can be carried out. The next funding cycle out to twenty years follows in similar fashion, with a new set of restoration priorities.

### *Prepare Management Plans*

Two-page management briefs will exist for 19 natural areas. This is good for general planning and budgeting, but to plan and carry out restoration and short-term management for large, complex sites, a Natural Resources Management Plan (NRMP) should be prepared. An NRMP entails a more detailed inventory and assessment and establishes more specific project priorities, tasks, budgets,

and a schedule. Before starting park master plans, an NRMP should be prepared so the natural resource priorities and projects can be integrated into the planning process.

### *Next Steps*

Natural Resources staff will continue as stewards of natural areas by implementing the recommendations of this plan. This Natural Areas Plan will be brought into operating procedures, funding needs will be planned in MPRB annual budgets and capital improvement projects (CIPs), and all other capacity boosting measures advanced—with the goal of bringing 1,168 acres of natural areas into active management.

Specific outreach and engagement activities will be planned and held after the Volunteer Coordinator is hired, with a goal of planning a high-visible restoration project each year, preferably with other MPRB departments and outside partners. In the short term, the online interactive map for Natural Resources will be updated with the newest inventory data.

Use ArcGIS Online, MPRB's VueWorks asset management software, and department documents to track restoration and management activities. Develop a long-term, low-cost way to monitor ecological conditions and report quarterly on progress.

Bring an ecosystem perspective into all land and water management. As needed, update management briefs and at the end of each year, complete a work plan for the coming year.

### **Wrapping Up**

A well-trained MPRB staff—helped by volunteers, partners, and private contractors—will be the keeper and main implementor of this Natural Areas Plan. The plan will be revised every ten years and adapted to changing circumstances and information. The plan is also a tool to inform residents and MPRB leadership about the future of natural areas in Minneapolis. It is more importantly a foundation for bequeathing to future generations healthy ecosystems, diverse wildlife, and greater overall ecological health of the City. The eventual outcome will be healthy, resilient ecosystems, a diverse landscape, clean water, elevated ecosystem services, and better experiences for park users.

## DEFINITIONS AND ACRONYMS

<b>Adaptive Management</b>	Structured decision making in the face of uncertainty, with an aim to reducing uncertainty over time by a cycle of implementation, monitoring, evaluation, and adjustment.
<b>Bioblitz</b>	Typically a 24-hour period when professionals and volunteers document all living species within a given area, such as a public park.
<b>Biocontrol</b>	The use of natural enemies to reduce invasive species populations.
<b>Biodiversity</b>	The variety of life in a particular habitat or ecosystem, including plants and animals.
<b>Bioengineering</b>	Use of natural materials (e.g., dead wood, live stakes/fascines, plants, seeds, etc.), sometimes in combination with more “hard” techniques (e.g., riprap) to stabilize eroding soil along streambanks, shorelines, ravines, etc.
<b>Climate Moderation</b>	A local effect due to massed vegetation and shading of impervious surfaces whereby extremes in temperature and windspeed are reduced.
<b>Conservation Biology</b>	A branch of ecology, informed by population biology, landscape ecology, environmental economics, and anthropological sociology, which seeks holistic solutions to simultaneously conserve the natural world, support economic development, and promote the well-being of people and societies.
<b>Conservation Planning</b>	Using the natural sciences to identify areas and practices that protect and restore biodiversity, healthy ecosystems, and ecosystem services. A conservation plan identifies core and transition areas and describes land and water protection measures to secure those areas in perpetuity.
<b>Cultural Land Cover/Vegetation</b>	Developed or significantly altered land, typically used regularly and/or intensively by people (e.g., buildings, parking lots, roads, crop fields, turf lawns).
<b>Cultural Resource</b>	A historically significant feature, such as Works Progress Administration (WPA) walls.
<b>Ecological Enhancement</b>	Improving an existing natural area, such as adding more native flower species to a prairie or removing an undesirable tree like Boxelder from an oak forest.
<b>Ecological Restoration</b>	As a general term, improving the natural environment by stabilizing and enhancing biodiversity, resilience, and ecosystem services. In contrast to Ecological Enhancement, Ecological Restoration typically refers to converting a non-natural area (e.g., turf grass or cropland) to a native plant community (e.g., prairie or wetland).
<b>Ecological Stewardship</b>	Refers to responsible use and protection of the natural environment through conservation and sustainable practices.
<b>Ecosystem</b>	An interacting assemblage of species, interacting with the environment. An ecosystem can be any size—a tidal pool or the Amazon rainforest.

<b>Ecosystem Approach</b>	An approach to land and water management that considers all interacting factors in an ecosystem and designs management techniques that replicate, at the lowest practical cost, the ecological structures and processes that enable ecosystems to adapt to changing conditions.
<b>Ecosystem Services</b>	The natural outputs of healthy ecosystems that benefit people—air and water purification, flood control, groundwater recharge, fish and wildlife production, soil building, recreation, food and fiber production, and spiritual renewal and recreational pleasure. Ecosystem services are worth trillions of dollars annually worldwide.
<b>Edge Effects</b>	The damaging influences of adjacent, incompatible land and water use which affects natural areas. Edge effects range from warm air blown into a forest from a parking lot to highway noise reducing bird nesting in an adjacent grassland. Edge effects can penetrate several meters to several hundred meters into a natural area.
<b>Establishment Management</b>	The period in a restoration process after a site’s ecosystem structure and processes are restored and before long-term maintenance begins, usually lasting two to three years. It is less expensive than the initial restoration effort but more than the per-acre cost of long-term management. Failure to perform in this period usually results in failure of the restoration project.
<b>Generalist Wildlife Species</b>	Animal species that can live in many different types of environments and have a varied diet and broad habitat requirements.
<b>Geographic Information System (GIS)</b>	A computer-based mapping system designed to capture, store, manipulate, analyze, manage, and present spatial or geographic data.
<b>Habitat</b>	The environment suitable for a species to carry out its entire life cycle. A turtle’s habitat, for instance, includes an overwintering pond bottom, open water and aquatic vegetation for feeding, and sandy, open upland areas to lay eggs.
<b>Habitat Fragmentation</b>	Habitat fragmentation is the process by which habitat loss results in the division of large, continuous habitats into smaller, more isolated remnants.
<b>Integrated Pest Management (IPM)</b>	A pest management strategy that focuses on long-term prevention or suppression of pest problems with minimum impact on human health, the environment and non-target organisms.
<b>Invasive Species</b>	Aggressive plant or animal species whose introduction does or is likely to cause environmental or economic harm.
<b>Landscape</b>	In conservation and the sciences, a landscape is an expanse of land and water, often large, that has a distinctive and relatively homogeneous character. The North Shore of Minnesota, the lakeplain of southeast Michigan, the Cumberland Plateau, and the Northern Rockies are all landscapes. The Cumberland Plateau, Northern Rockies and other vast landscape are often subdivided into smaller landscape areas.
<b>Local Ecotype</b>	Native seed or other plant materials that originated relatively close to the restoration site. This relates to the genetic origin of the seed/stock, not the location of a plant nursery or production field. Generally, the adage “closer is better” applies, but due to limited native seed/stock inventory from various geographies, a 200-mile radius is often specified as acceptably close.
<b>Long-Term Management</b>	The period in a restoration process after the initial restoration work and short-term management are completed. Costs per acre are lowest in long-term management—usually lower than the cost to manage turf.

<b>Managed Natural Area</b>	Term used in MPRB Asset Management software program, VueWorks, to designate the natural areas managed by Environmental Management Natural Resources staff.
<b>Mesic</b>	Moist, typically referring to soil conditions (as opposed to dry or wet).
<b>Native or Natural Vegetation</b>	Plants indigenous to a given area in geologic time. This includes plants that have developed, occur naturally, or existed for many years in an area.
<b>Natural Area</b>	A defined geographic area recognized for its natural values, including natural plant communities, native species, and restorable and restored native plant communities.
<b>Natural Areas Plan</b>	A system-wide natural resources plan, typically addressing multiple sites with a variety of habitats and native/natural vegetation types.
<b>Natural Community</b>	An assemblage of plant, animal, and other species characteristic of a specific environment. Mesic prairie, rich fen, and floodplain forest are examples of natural communities.
<b>Natural Resources Management Plan (NRMP)</b>	A plan that describes a site's existing natural resources, their ecological health, restoration and management goals, and the tasks to be implemented. Often developed for a specific site, such as a park.
<b>Novel Ecosystem</b>	An ecosystem that has been heavily influenced by humans but is not under human management. See also Semi-Natural Vegetation
<b>Plant Community</b>	An assemblage of plant species that characterize a vegetated area (e.g., a forest, savanna, or grassland).
<b>Population Biology</b>	The study of species population change and its causes. Major subareas include population viability, metapopulation dynamics, and extinction.
<b>Remnant Plant Community</b>	A plant community that still contains the same native plant material (i.e., genetics) that existed on the site prior to European settlement.
<b>Semi-Natural Vegetation</b>	In certain land cover/vegetation classifications, a highly disturbed and even human-origin (anthropogenic) assemblage of species that appears able to persist in its environment without human intervention. Young forests establishing in former crop fields, pastures dominated by non-native species, pine plantations—all are semi-natural vegetation types. See also Novel Ecosystem.
<b>Specialist Wildlife Species</b>	Animal species that have specific environmental needs related to habitat, diet, or another environmental factor, without which they cannot sustain their populations.
<b>Species of Greatest Conservation Need</b>	Wildlife species, including state-listed and non-listed species, that are regionally rare or in decline, often as a result of habitat loss.
<b>Spot Herbicide Application</b>	Using targeted application methods (e.g., backpack sprayer with wand or sponge) to apply herbicide to undesirable vegetation, such as invasive plants.

## MPRB NATURAL AREAS PLAN INFORMATION GATHERING AND METHODS

### Review of Existing Data & Plans

Existing data and reports were used to define the geographic extent of the project and to assist with plant community classification, quality assessment, inventory, and mapping. RES/SRF compiled and reviewed numerous plans and datasets, including numerous MPRB plans (e.g., park master plans, Ecological Systems Plan), MPRB GIS data (e.g., park boundaries, managed natural areas, reduced mow areas, stormwater best management practices), and reports and data from other sources. Appendix F provides a list of information reviewed during development of this Natural Areas Plan.

### Field Survey Methods

This Natural Areas Plan is based on the ecological conditions and management needs in MPRB natural areas. Phase I field methods are described in the Natural Areas Plan - Phase I (Phase I) report (AES and SRF 2017). During the 2018 and 2019 growing seasons, RES ecologists conducted field assessments of MPRB natural areas. Desktop mapping was used to create maps for use in the field. The field maps were then used to verify and/or refine plant community classification, plant community boundaries, and ecological quality ranks. (Preliminary ecological quality ranks were assigned to natural areas in Phase I.) Digital photography (georeferenced, using Collector for ArcGIS and ArcGIS Online) was used to document representative plant communities, seeps and springs, erosion features, and other items of note throughout the park system. Desktop refinement of GIS data was conducted after field verification.

### Ecological Quality Ranks

During Phase I, several ecological quality ranking systems were reviewed and considered. Departments of Natural Resources across the country have adopted a standardized ecological ranking system used by State Natural Heritage Programs when conducting inventories of natural areas. In Minnesota, this system was refined by the MNDNR as the Natural Community Element Occurrence Ranking Guidelines (MNDNR 2001). This robust (91-page) methodology provides definitions and criteria for assigning an ecological quality rank to any given native plant community in Minnesota. For more general application of ecological quality ranks, MLCCS (version 5.4) adopted a simplified version of the MNDNR's system, whereby more general guidelines are provided to help the user assign an appropriate quality rank.

Based on the ecological criteria described above, it was decided that the MLCCS ecological quality ranking system would be modified slightly for use in MPRBs urban park system. The following ecological quality ranks are used for natural areas within the MPRB park system.

- **A** = Highest quality natural community, no disturbances, and natural processes intact.
- **B** = Good quality natural community. Has its natural processes intact, but shows signs of past human impacts. Low levels of exotic (i.e., non-native) plants.
- **C** = Moderate condition natural community with obvious past disturbance but still clearly recognizable as a native community. Typically not dominated by weedy species in any layer.
- **D** = Poor condition of a natural community. Includes some native plants, but is dominated by non-natives and/or is widely disturbed and altered.

- **NN** = Altered / non-native plant community. These semi-natural communities and novel ecosystems, by convention, do not receive a natural quality rank. These include plant communities of human origin, such as Altered Forest/Woodland of Green ash and Box elder, Non-Native Grassland dominated by Smooth brome, and others.

Often, a mapped plant community may be somewhat heterogeneous and contain characteristics of multiple quality ranks. For instance, a moderate quality forest (C rank) may have large, dense patches of invasive buckthorn (justifying a D rank). In this case, it would be acceptable to assign multiple ranks to this single plant community (i.e., CD). It is best to limit the number of ranks to two “adjacent” ranks, and if this does not accurately characterize the plant community’s quality, the plant community (polygon) should be split and each portion assigned its appropriate quality rank.

### **GIS Mapping Methods**

As a platform for developing and managing MPRB natural area vegetation data, RES and SRF built an ArcGIS geodatabase. (A geodatabase is a collection of geographic datasets of various types held in a common file system folder or database.) A detailed description of the methods used to develop the geodatabase are provided in the Phase I report (AES and SRF 2017).

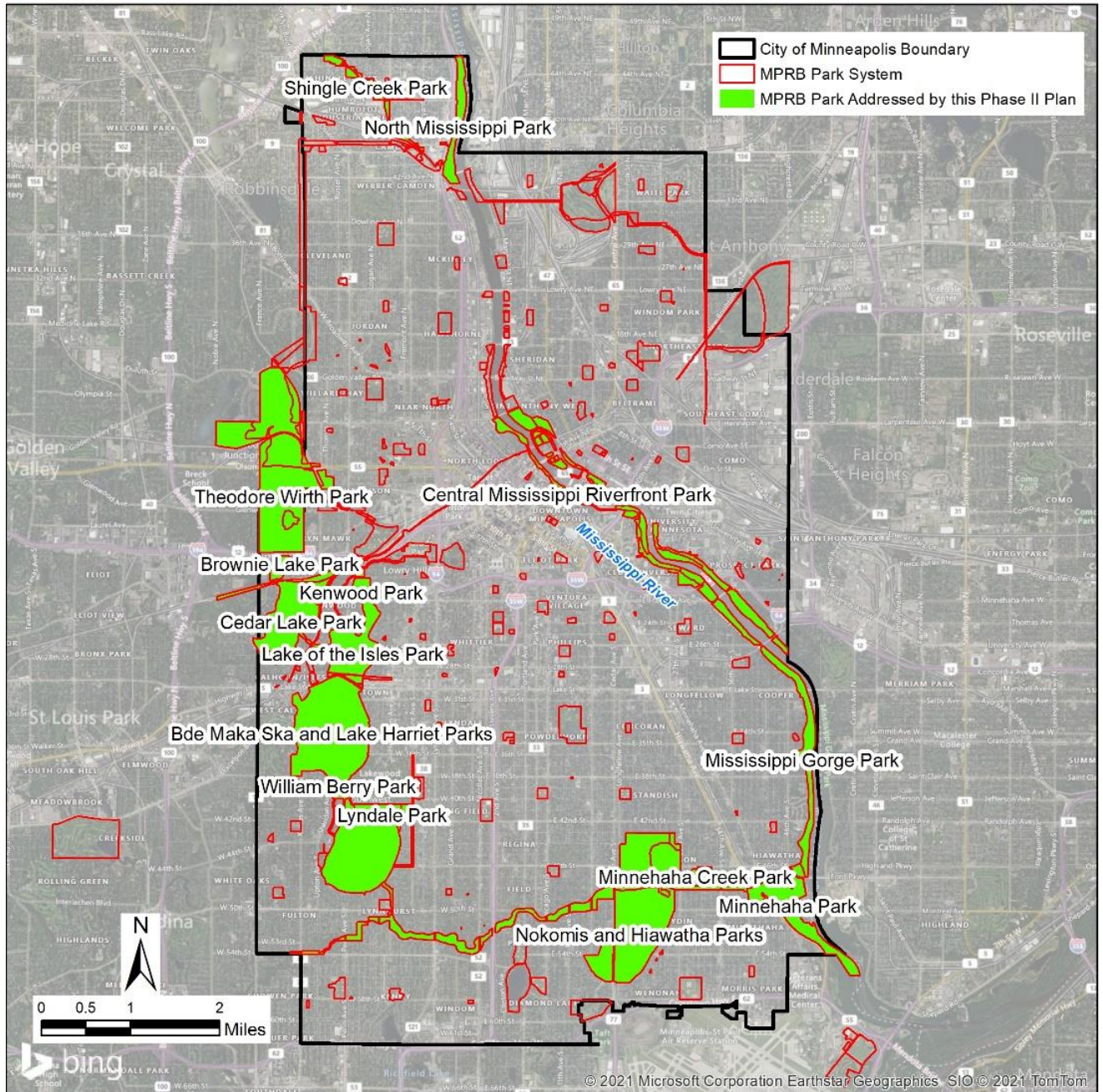
As part of the Phase I and Phase II field efforts (2017 through 2019), ground truthing and field assessment identified areas where land cover classification, plant community boundaries, and/or quality ranks warranted revision; these edits were made to the geodatabase. Attributes (e.g., park names, Managed Natural Area names, VueWorks codes) were added to the geodatabase to provide a more robust dataset. Collector for ArcGIS and ArcGIS Online were used during data collection for field navigation, review of mapping data, and collection of georeferenced field data (e.g., photographs, seeps/springs, erosion features). The final geodatabase is an important deliverable of this project and will serve as a critical tool for the future management of MPRB’s natural areas.

## MPRB PARKS AND MANAGED NATURAL AREAS ADDRESSED BY THIS PLAN

INDIVIDUAL REGIONAL PARKS	CHAIN OF LAKES REGIONAL PARK
<b>1. North Mississippi Park</b>	<b>9. Brownie Lake Park</b>
North Mississippi Prairie	Brownie Lake Prairie
<b>2. Central Mississippi Riverfront Park</b>	<b>10. Cedar Lake Park</b>
<b>3. Mississippi Gorge Park</b>	Cedar Lake Regional Trail Prairie
36th Street Savanna	<b>11. Lake of the Isles Park</b>
44th Street Forest	Mike's Island
Edmund Boulevard Savanna	Raspberry Island
<b>4. Minnehaha Park</b>	<b>12. Bde Maka Ska and Lake Harriet Parks</b>
Black Ash Seepage Swamp	<b>13. William Berry Park</b>
Morley's Prairie	William Berry Forest
Longfellow Gardens Prairie	<b>14. Lyndale Park</b>
<b>5. Minnehaha Creek Park</b>	Roberts Bird Sanctuary
17 <sup>th</sup> Avenue Prairie	<b>NEIGHBORHOOD PARKS</b>
<b>6. Nokomis and Hiawatha Parks</b>	<b>15. Kenwood Park</b>
Nokomis Prairie	Kenwood Prairie
<b>7. Theodore Wirth Park</b>	
Tamarack Bog	
JD Rivers Prairie	
<b>8. Shingle Creek Park</b>	
Shingle Creek Prairie	



# MPRB Parks Addressed in this Phase II Plan



## MANAGEMENT BRIEFS FOR MANAGED NATURAL AREAS AND GENERAL PLANT COMMUNITIES

<b>MANAGED NATURAL AREAS</b>
1. North Mississippi Prairie
2. 36th Street Savanna
3. 44th Street Forest
4. Edmund Boulevard Savanna
5. Black Ash Seepage Swamp
6. Morley's Prairie
7. Longfellow Gardens Prairie
8. 17 <sup>th</sup> Avenue Prairie
9. Nokomis Prairie
10. Tamarack Bog
11. JD Rivers Prairie
12. Shingle Creek Prairie
13. Brownie Lake Prairie
14. Cedar Lake Regional Trail Prairie
15. Mike's Island
16. Raspberry Island
17. William Berry Forest
18. Roberts Bird Sanctuary
19. Kenwood Prairie

<b>GENERAL PLANT COMMUNITIES</b>
1. Dry-Mesic Forest/Woodland
2. Mesic Forest
3. Altered Forest/Woodland
4. Savanna
5. Shrub/Scrub
6. Prairie
7. Non-Native Grassland
8. Floodplain Forest
9. Wet Forest/Swamp

# NORTH MISSISSIPPI PRAIRIE – MANAGEMENT BRIEF



## IDENTIFIERS & BASIC INFORMATION

**MPRB Park:** North Mississippi Park

**MPRB Vegetation:** Prairie, Sav., Non-Nat. Grassl., Lowl. Shrub/Scrub

**Natural Area Acres:** 19.0

**MLCCS Classification:** Dry Prairie

## ASSESSMENT OF CURRENT CONDITIONS

**Site History:** Restoration activities began in 2001, including planted prairie.

**Current Condition (2018):** Dominated by native grasses, with patches and scattered native forbs and invasive species.

**Existing Vegetation, Area & Quality Rank:** Prairie (16.4 ac, mostly CD quality, some C and D quality); Savanna (1.4 ac, C and D quality); Non-Native Grassland (0.7 ac, NN); Lowland Shrub/Scrub (0.4 ac, CD quality)

**Notable Native Plant Species:** None identified

**Notable Animal Species:** None identified

## RESTORATION & MANAGEMENT ISSUES, GOALS & STRATEGIES

### Issues to Date

- Invasive herbaceous species, including Smooth brome, foxtails, Leafy spurge, White sweetclover, Canada thistle, Crown vetch, Birds-foot trefoil, Motherwort, Common burdock, Garlic mustard, Reed canary grass, invasive cattails
- Woody invasion by Common buckthorn, non-native honeysuckle, White mulberry, Black locust, Siberian elm, and native woody species such as Box elder, Eastern cottonwood, Green ash, sumacs, Riverbank grape
- Much of prairie dominated by aggressive native Big bluestem and patches of aggressive native Canada goldenrod

**Restoration Goals** (increase biodiversity and improve ecological quality rank to BC or better by implementing the following)

- Maintain <5% tree and shrub canopy cover in Prairie; maintain <50% tree canopy in Savanna
- Control invasive species, including woody invasion of Prairie and all listed MDA noxious weeds (e.g., Canada thistle)
- Increase cover and diversity of native forbs in Prairie
- Improve biodiversity by increasing abundance and diversity of native plants throughout area

### Management Strategies

- Manually remove invasive vegetation where safe and feasible (as needed)
- Assess if biocontrols are feasible for the site's small populations of Leafy spurge and Purple loosestrife
- Conduct prescribed burn (rotational burn of 1/3 of prairie each year)
- Mow and brush saw as necessary to control woody invasion (burns should limit need for this task)
- Conduct stump and foliar spray treatments with MPRB-approved herbicide (as necessary)
- Overseed to diversify ground layer (as needed)

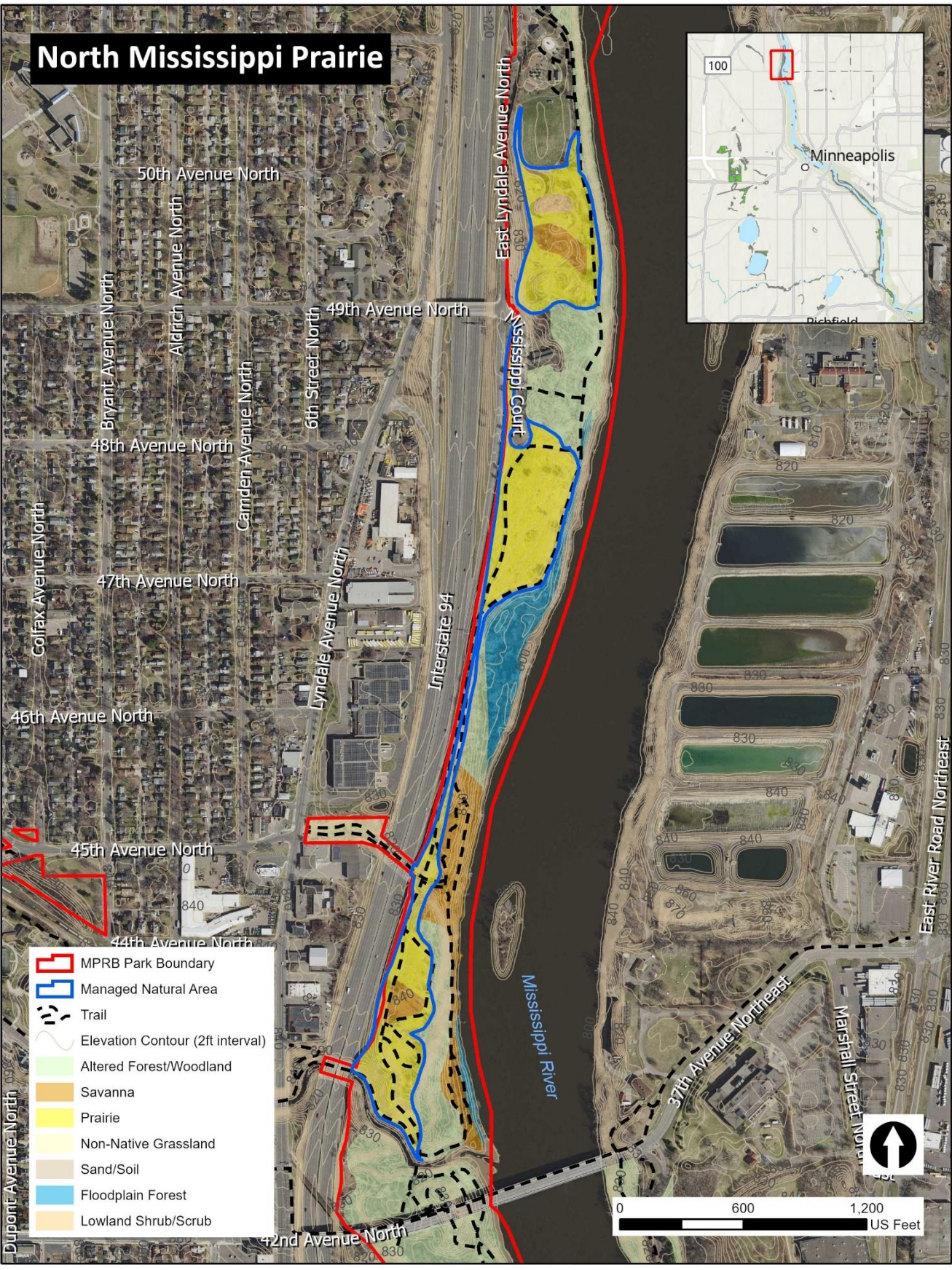
### Native Species to Plant & Perpetuate

See MNDNR's species list for UPs23 (Southern Mesic Prairie).

## MANAGEMENT TASKS & SCHEDULE

Management Task	Occurrence	Season/Month(s) of Activity			
		Spring	Summer	Fall	Winter
Hazard tree inspection and removal (diseased and dead trees, or trees with damaged limbs)	Annual inspection		Jun-Aug	Sep-Oct	Nov-Feb
Invasive/aggressive tree and shrub removal and treatment (specimens >1" caliper)	Ongoing, as needed				Nov-Feb
Monitor overall improvement of biodiversity	Annually		Jun-Aug		
Prescribed burn	Annually burn 1/3 of prairie on rotation, varying spring & fall	Mar-Apr		Sep-Oct	Nov
Foliar treatment of invasive vegetation	Ongoing, as needed	Apr-May	Jun-Aug	Sep-Oct	
Planting and seeding of native herbaceous plants	Ongoing, as needed	Mar-May		Sep-Oct	Nov
Prairie mowing	Annually if burns are not possible		Jun-Aug		
Invasive pulling events (volunteers)	Ongoing, as needed	May	Jun-Aug		

# North Mississippi Prairie



-  MPRB Park Boundary
-  Managed Natural Area
-  Trail
-  Elevation Contour (2ft interval)
-  Altered Forest/Woodland
-  Savanna
-  Prairie
-  Non-Native Grassland
-  Sand/Soil
-  Floodplain Forest
-  Lowland Shrub/Scrub

# 36<sup>TH</sup> ST SAVANNA – MANAGEMENT BRIEF



## IDENTIFIERS & BASIC INFORMATION

**MPRB Park:** Mississippi Gorge Park

**MPRB Vegetation:** Savanna

**Acres:** 3.5

**MLCCS Classification:** Mesic Oak Savanna

## ASSESSMENT OF CURRENT CONDITIONS

**Site History:** Remnant native oak savanna. Significant restoration efforts have occurred since 1998.

**Current Condition (2018):** The area has scattered trees (~50% canopy cover), and the ground layer is predominantly native forbs, grasses and sedges. Raspberries and young woody growth are present.

**Existing Vegetation, Area & Quality Rank:** Savanna (3.5 acres, B quality)

### Notable Native Plant Species

- Dominant trees: mature Bur oak, 24-32" dbh (estimated)
- Other species: Glade mallow – state threatened; likely planted

**Notable Animal Species:** None identified

## RESTORATION & MANAGEMENT ISSUES, GOALS & STRATEGIES

### Issues to Date

- Park patrons use area as off-leash area spreading seeds of invasive plants and creating network of informal paths
- Poison ivy heavy in areas and concern during management, especially prescribed burning (smoke is hazardous)
- Oriental bittersweet and invasive honeysuckle are present

**Restoration Goals** (increase biodiversity and maintain ecological quality rank of B or better by implementing the following)

- Maintain <50% canopy cover
- Control invasive species, including Oriental bittersweet and Poison ivy, both listed by MDA as noxious weeds
- Increase abundance and diversity of native flora and fauna
- Abandon select trails; install signage or barriers (e.g., shrubs) to discourage trail creation and off-leash dogs
- Improve biodiversity by increasing abundance and diversity of native plants throughout area

### Management Strategies

- Manually remove invasive vegetation where safe and feasible (as needed)
- Control Oriental bittersweet and Poison ivy near trails and larger patches in the savanna interior (annual)
- Conduct prescribed burn (rotational burn of ½ of savanna each time, such that each unit is burned every 3-4 years)
- Mow and brush saw as necessary to control woody invasion (burns should limit need for this task)
- Conduct stump and foliar spray treatments with MPRB-approved herbicide (as necessary)
- Manually remove invasive woody species where cannot mow due to rocks and cement footings (as necessary)
- Overseed to diversify ground layer (as needed)

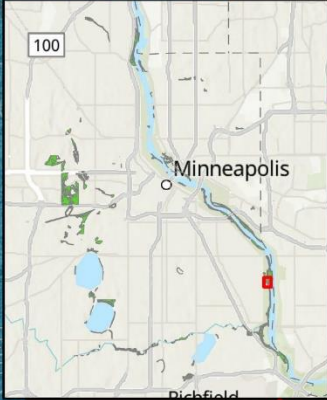
### Native Species to Plant & Perpetuate

See MNDNR's narrative description for UPs24 (Southern Mesic Savanna) and species lists for UPs23 (understory species generally appropriate for mesic savannas). Appropriate tree species include Bur oak and Northern pin oak.

## MANAGEMENT TASKS & SCHEDULE

Management Task	Occurrence	Season/Month(s) of Activity			
		Spring	Summer	Fall	Winter
Hazard tree inspection and removal (diseased and dead trees, or trees with damaged limbs)	Annual inspection		Jun-Aug	Sep-Oct	Nov-Feb
Invasive/aggressive tree and shrub removal and treatment (specimens >1" caliper)	Ongoing, as needed				Nov-Feb
Oriental bittersweet cut and treatment	Ongoing, as needed	Mar	Jul-Aug	Sep-Oct	Nov-Feb
Poison ivy foliar treatment in prescribed burn areas	Ongoing, as needed	May	Jun-Aug	Sep	
Monitor overall improvement of biodiversity	Annually		Jun-Aug		
Prescribed burn (vary spring & fall when feasible)	Every year or two (rotational), varying spring & fall	Mar-Apr		Sep-Oct	Nov
Foliar treatment of invasive vegetation	Ongoing, as needed	Apr-May	Jun-Aug	Sep-Oct	
Planting and seeding of native woody and herbaceous vegetation	Ongoing, as needed	Mar-May		Sep-Oct	Nov
Invasive pulling events (volunteers)	Ongoing, as needed	May	Jun-Aug		

# 36th Street Savanna



- MPRB Park Boundary
- Managed Natural Area
- Trail
- Elevation Contour (2ft interval)
- Mesic Forest
- Savanna
- Floodplain Forest

0 150 300 US Feet



# 44<sup>TH</sup> ST MESIC FOREST – MANAGEMENT BRIEF



## IDENTIFIERS & BASIC INFORMATION

**MPRB Park:** Mississippi Gorge Park  
**Acres:** 6.2

**MPRB Vegetation:** Mesic Forest  
**MLCCS Classification:** Oak Forest Mesic Subtype

## ASSESSMENT OF CURRENT CONDITIONS

**Site History:** Remnant mesic oak forest. Significant restoration efforts have occurred since 2002.

**Current Condition (2018):** The area has scattered native trees and shrubs, and the ground layer is predominantly native forbs, grasses and sedges (moderate to high diversity).

**Existing Vegetation, Area & Quality Rank:** Mesic oak forest transitioning to maple-basswood forest (6.2 acres, B quality in northern portion to D quality in ravine)

### Notable Native Plant Species

- Dominant trees: Mature Red oak, Sugar maple and Bur oak
- Other species: Bladdernut – native, but somewhat aggressive

**Notable Animal Species:** None identified

## RESTORATION & MANAGEMENT ISSUES, GOALS & STRATEGIES

### Issues to Date

- Invasive herbaceous species, including Day lily and Garlic mustard
- Woody invasion by Common buckthorn (most dense E and S of observation area) and Norway Maple (mostly in and near ravine)

**Restoration Goals** (increase biodiversity and maintain or improve ecological quality rank to C or better by implementing the following)

- Maintain >90% canopy cover
- Control invasive species, including those listed above
- Improve biodiversity by increasing abundance and diversity of native plants throughout area

### Management Strategies

- Manually remove invasive vegetation where safe and feasible (as needed)
- Conduct stump and foliar spray treatments with MPRB-approved herbicide (as necessary)
- Install native shrubs, live plant plugs and seed to diversify ground layer and shrub stratum

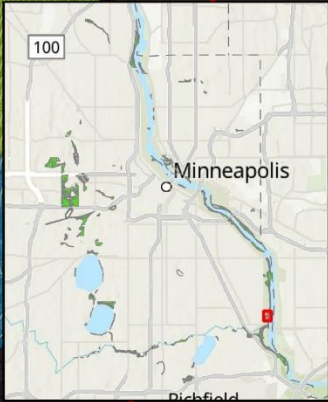
### Native Species to Plant & Perpetuate







See MNDNR’s species lists for MHs37 (Southern Dry-Mesic Oak Forest), MHs38 (Southern Mesic Oak-Basswood Forest), and MHs39 (Southern Mesic Maple-Basswood Forest).

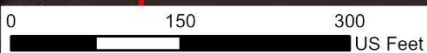
## MANAGEMENT TASKS & SCHEDULE

Management Task	Occurrence	Season/Month(s) of Activity			
		Spring	Summer	Fall	Winter
Hazard tree inspection and removal (diseased and dead trees, or trees with damaged limbs)	Annual inspection		Jun-Aug	Sep-Oct	Nov-Feb
Removal of large Norway maples	As soon as resources available				Nov-Feb
Invasive/aggressive tree and shrub removal and treatment (specimens >1” caliper)	Ongoing, as needed				Nov-Feb
Monitor overall improvement of biodiversity	Annually		Jun-Aug		
Foliar treatment of invasive vegetation	Ongoing, as needed	Apr-May	Jun-Aug	Sep-Oct	
Planting and seeding of native woody and herbaceous vegetation	Ongoing, as needed	Mar-May		Sep-Oct	Nov
Invasive pulling events (volunteers)	Ongoing, as needed	May	Jun-Aug		

# 44th Street Forest



-  MPRB Park Boundary
-  Managed Natural Area
-  Trail
-  Elevation Contour (2ft interval)
-  Mesic Forest
-  Floodplain Forest





# EDMUND BLVD SAVANNA – MANAGEMENT BRIEF



## IDENTIFIERS & BASIC INFORMATION

**MPRB Park:** Mississippi Gorge Park

**MPRB Vegetation:** Savanna

**Natural Area Acres:** 1.1

**MLCCS Classification:** Short grasses with sparse tree cover on upland soils

## ASSESSMENT OF CURRENT CONDITIONS

**Site History:** Former native oak savanna. The southern portion of this area was seeded with natives and managed as savanna.

**Current Condition (2018):** The area has scattered trees (~50% canopy cover), and the ground layer is a mixture of native and non-native herbaceous species with oak seedlings (southern half) and predominantly turf grass (northern half).

**Existing Vegetation, Area & Quality Rank:** Savanna (1.1 acres, NN quality – not a natural community)

**Notable Native Plant Species:** Dominant trees: Mature Bur oak and numerous Bur oak seedlings

**Notable Animal Species:** None identified

## RESTORATION & MANAGEMENT ISSUES, GOALS & STRATEGIES

### Issues to Date

- Historical seeding to turf grass and regular mowing has compromised the southern portion, and mowing continues in the northern portion.
- Variety of non-native and weedy species present throughout (mostly in northern half, e.g., Kentucky bluegrass and Dandelion)

**Restoration Goals** (increase biodiversity and improve ecological quality rank to C or better by implementing the following)

- Maintain <50% canopy cover
- Replace non-native and weedy groundcover in northern portion with native savanna herbaceous vegetation; manage southern portion to facilitate savanna restoration
- Control invasive species, including those listed above
- Improve biodiversity by increasing abundance and diversity of native plants throughout area

### Management Strategies

- Manually remove invasive vegetation where safe and feasible (as needed)
- Selectively treat turf grass and spot spray with MPRB-approved herbicide (as necessary)
- Conduct prescribed burn (rotational burn of ½ of savanna each time, such that each unit is burned every 3-4 years), protecting oak seedlings and saplings
- Mow and brush saw as necessary to control woody invasion (burns should limit need for this task)
- Conduct stump and foliar spray treatments with MPRB-approved herbicide (as necessary)
- Overseed to diversify ground layer (as needed)

### Native Species to Plant & Perpetuate

See MNDNR’s narrative description for UPS24 (Southern Mesic Savanna) and species list for UPS23 (understory species generally appropriate for mesic savannas). Appropriate tree species include Bur oak and Northern Pin Oak.

## MANAGEMENT TASKS & SCHEDULE

Management Task	Occurrence	Season/Month(s) of Activity			
		Spring	Summer	Fall	Winter
Hazard tree inspection and removal (diseased and dead trees, or trees with damaged limbs)	Annual inspection		Jun-Aug	Sep-Oct	Nov-Feb
Monitor overall improvement of biodiversity	Annually		Jun-Aug		
Prescribed burn	Every year or two (rotational), varying spring & fall	Mar-Apr		Sep-Oct	Nov
Foliar treatment of invasive vegetation	Ongoing, as needed	Apr-May	Jun-Aug	Sep-Oct	
Planting and seeding of native herbaceous plants	Ongoing, as needed	Mar-May		Sep-Oct	Nov
Invasive pulling events (volunteers)	Ongoing, as needed	May	Jun-Aug		

# Edmund Boulevard Savanna



- MPRB Park Boundary
- Managed Natural Area
- Trail
- Elevation Contour (2ft interval)
- Mesic Forest
- Savanna
- Non-Native Grassland
- Floodplain Forest
- Lowland Shrub/Scrub



# BLACK ASH SEEPAGE SWAMP – MANAGEMENT BRIEF



## IDENTIFIERS & BASIC INFORMATION

**MPRB Park:** Minnehaha Park

**MPRB Vegetation:** Wet Forest/Swamp

**Natural Area Acres:** 1.4

**MLCCS Classification:** Black Ash Swamp Seepage

## ASSESSMENT OF CURRENT CONDITIONS

**Site History:** Remnant native seepage swamp. Limited restoration efforts have occurred, but Black ash trees were removed by MPRB Forestry in 2019 due to Emerald ash borer.

**Current Condition (2019):** The area has scattered native trees and shrubs, and the ground layer is predominantly native forbs, grasses and sedges (moderate diversity). A boardwalk provides public access to this wetland.

**Existing Vegetation, Area & Quality Rank:** Wet Forest/Swamp (1.4 acres, C quality)

### Notable Native Plant Species

- Dominant trees: Black ash, Black willow and American elm
- Other species: Marsh marigold, Skunk cabbage, various sedges

**Notable Animal Species:** None identified

## RESTORATION & MANAGEMENT ISSUES, GOALS & STRATEGIES

### Issues to Date

- Invasive herbaceous species, including Reed canary grass, True forget-me-not, and Narrow-leaf bittercress
- Woody invasion by Common buckthorn and Glossy buckthorn

**Restoration Goals** (increase biodiversity and improve ecological quality rank to BC or better by implementing the following)

- Maintain >50% canopy cover
- Control invasive species, including those listed above
- Improve biodiversity by increasing abundance and diversity of native plants throughout area

### Management Strategies

- Install native trees (e.g., Black willow, Dutch elm disease-resistant American elm, Red maple) to replace the Black ash canopy that was removed
- Manually remove invasive vegetation where safe and feasible (as needed)
- Conduct stump and foliar spray treatments with MPRB-approved herbicide (as necessary)
- Overseed to diversify ground layer (as needed)

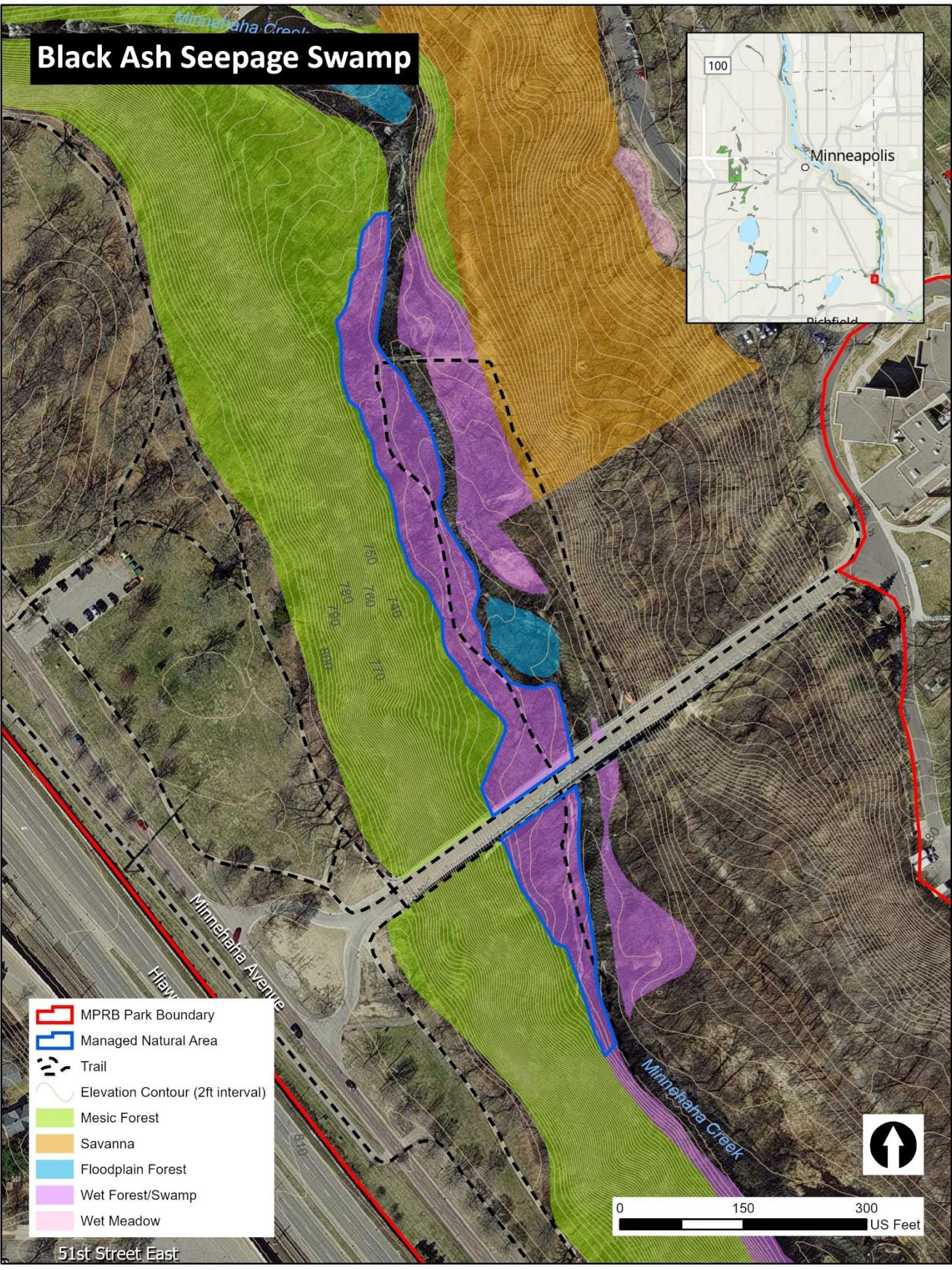
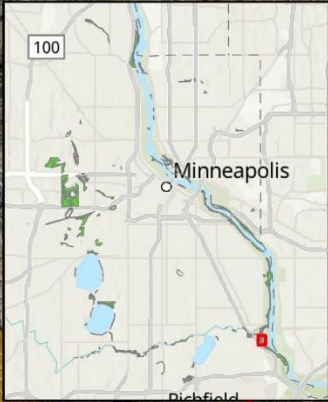
### Native Species to Plant & Perpetuate

See MNDNR's species list for WFs57 (Southern Wet Ash Swamp).

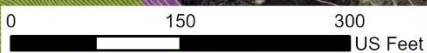
## MANAGEMENT TASKS & SCHEDULE

Management Task	Occurrence	Season/Month(s) of Activity			
		Spring	Summer	Fall	Winter
Hazard tree inspection and removal (diseased and dead trees, or trees with damaged limbs)	Annual inspection		Jun-Aug	Sep-Oct	Nov-Feb
Invasive/aggressive tree and shrub removal and treatment (specimens >1" caliper)	Ongoing, as needed				Nov-Feb
Monitor overall improvement of biodiversity	Annually		Jun-Aug		
Foliar treatment of invasive vegetation	Ongoing, as needed	Apr-May	Jun-Aug	Sep-Oct	
Planting and seeding of native woody and herbaceous plants	Ongoing, as needed	Mar-May		Sep-Oct	Nov
Invasive pulling events (volunteers)	Ongoing, as needed	May	Jun-Aug		

# Black Ash Seepage Swamp



- MPRB Park Boundary
- Managed Natural Area
- Trail
- Elevation Contour (2ft interval)
- Mesic Forest
- Savanna
- Floodplain Forest
- Wet Forest/Swamp
- Wet Meadow



51st Street East

# MORLEY'S PRAIRIE – MANAGEMENT BRIEF



## IDENTIFIERS & BASIC INFORMATION

**MPRB Park Unit:** Minnehaha Park

**MPRB Vegetation:** Prairie

**Natural Area Acres:** 1.4

**MLCCS Classification:** Mesic Prairie

## ASSESSMENT OF CURRENT CONDITIONS

**Site History:** Remnant native prairie.

**Current Condition (2019):** Lack of management had led to brush encroachment; however, brushing was conducted in 2020.

**Existing Vegetation, Area & Quality Rank:** Prairie (1.4 acres, D quality), but quality assessed before recent brushing

**Notable Native Plant Species:** Dominant trees: Eastern cottonwood and Northern pin oak scattered in Prairie

**Notable Animal Species:** None identified

## RESTORATION & MANAGEMENT ISSUES, GOALS & STRATEGIES

### Issues to Date

- Lack of regular prescribed fire led to significant woody encroachment and shading of native prairie vegetation; much of this invasive woody vegetation was recently removed
- Invasive herbaceous species, including Common burdock, Canada thistle, Motherwort, Curly dock, White campion, Catnip
- Woody invasion (much recently removed) consisted of Common buckthorn, non-native honeysuckle, Oriental bittersweet, and native woody species such as Box elder, Gray dogwood, Eastern cottonwood, Green ash, Smooth sumac, Staghorn sumac, and Poison ivy
- Low native plant diversity

**Restoration Goals** (increase biodiversity and improve ecological quality rank to BC or better by implementing the following)

- Maintain <5% tree and shrub canopy cover
- Control invasive species, including those listed above and all listed MDA noxious weeds (e.g., Canada thistle)
- Improve biodiversity by increasing abundance and diversity of native plants throughout area

### Management Strategies

- Manually remove invasive vegetation where safe and feasible (as needed)
- Conduct prescribed burn (rotational burn of ½ of prairie each time, such that each unit is burned every 3-4 years)
- Mow and brush saw as necessary to control woody invasion (burns should limit need for this task)
- Conduct stump and foliar spray treatments with MPRB-approved herbicide (as necessary)
- Overseed to diversify ground layer (as needed)

### Native Species to Plant & Perpetuate

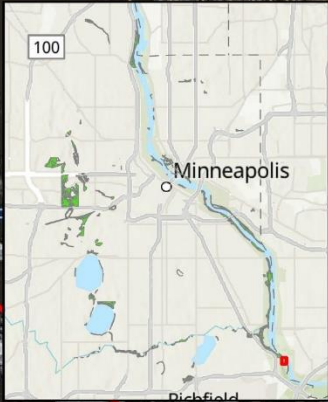
See MNDNR's species list for UPs23 (Southern Mesic Prairie).

## MANAGEMENT TASKS & SCHEDULE

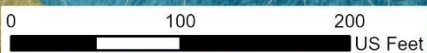
Management Task	Occurrence	Season/Month(s) of Activity			
		Spring	Summer	Fall	Winter
Hazard tree inspection and removal (diseased and dead trees, or trees with damaged limbs)	Annual inspection		Jun-Aug	Sep-Oct	Nov-Feb
Invasive/aggressive tree and shrub removal and treatment (specimens >1" caliper)	Ongoing, as needed				Nov-Feb
Monitor overall improvement of biodiversity	Annually		Jun-Aug		
Prescribed burn	Every year or two (rotational), varying spring & fall	Mar-Apr		Sep-Oct	Nov
Foliar treatment of invasive vegetation	Ongoing, as needed	Apr-May	Jun-Aug	Sep-Oct	
Planting and seeding of native herbaceous plants	Ongoing, as needed	Mar-May		Sep-Oct	Nov
Prairie mowing	Annually if burns are not possible		Jun-Aug		
Invasive pulling events (volunteers)	Ongoing, as needed	May	Jun-Aug		

# Morley's Prairie

Mississippi River



-  MPRB Park Boundary
-  Managed Natural Area
-  Elevation Contour (2ft interval)
-  Dry-Mesic Forest/Woodland
-  Mesic Forest
-  Shrub/Scrub
-  Prairie
-  Floodplain Forest



# LONGFELLOW GARDENS PRAIRIE – MANAGEMENT BRIEF



## IDENTIFIERS & BASIC INFORMATION

**MPRB Park Unit:** Minnehaha Park

**MPRB Vegetation:** Prairie

**Natural Area Acres:** 3.4

**MLCCS Classification:** Mesic Prairie

## ASSESSMENT OF CURRENT CONDITIONS

**Site History:** Planted prairie, established as part of park renovation in 2005.

**Current Condition (2019):** Dominated by low diversity of native forbs, grasses and sedges. Metropolitan Council utility work during 2020 affected portions of the Prairie.

**Existing Vegetation, Area & Quality Rank:** Prairie (3.4 acres, D quality)

**Notable Native Plant Species:** None identified

**Notable Animal Species:** None identified

## RESTORATION & MANAGEMENT ISSUES, GOALS & STRATEGIES

### Issues to Date

- Disturbance to Prairie from utility work (which Metropolitan Council will restore with native vegetation)
- Invasive herbaceous species, including Hoary alyssum, Smooth brome, Birdsfoot trefoil, Black medick, Alfalfa, Yellow sweet clover, Reed canary grass, Kentucky bluegrass and Common mullein
- Woody invasion by Siberian elm and White mulberry
- Low native plant cover and diversity

**Restoration Goals** (increase biodiversity and improve ecological quality rank to BC or better by implementing the following)

- Maintain <5% tree and shrub canopy cover
- Control invasive species, including those listed above
- Improve biodiversity by increasing abundance and diversity of native plants throughout area

### Management Strategies

- Manually remove invasive vegetation where safe and feasible (as needed)
- Conduct prescribed burn (rotational burn of ½ of prairie each time, such that each unit is burned every 3-4 years)
- Mow and brush saw as necessary to control woody invasion (burns should limit need for this task)
- Conduct stump and foliar spray treatments with MPRB-approved herbicide (as necessary)
- Overseed to diversify ground layer (as needed)

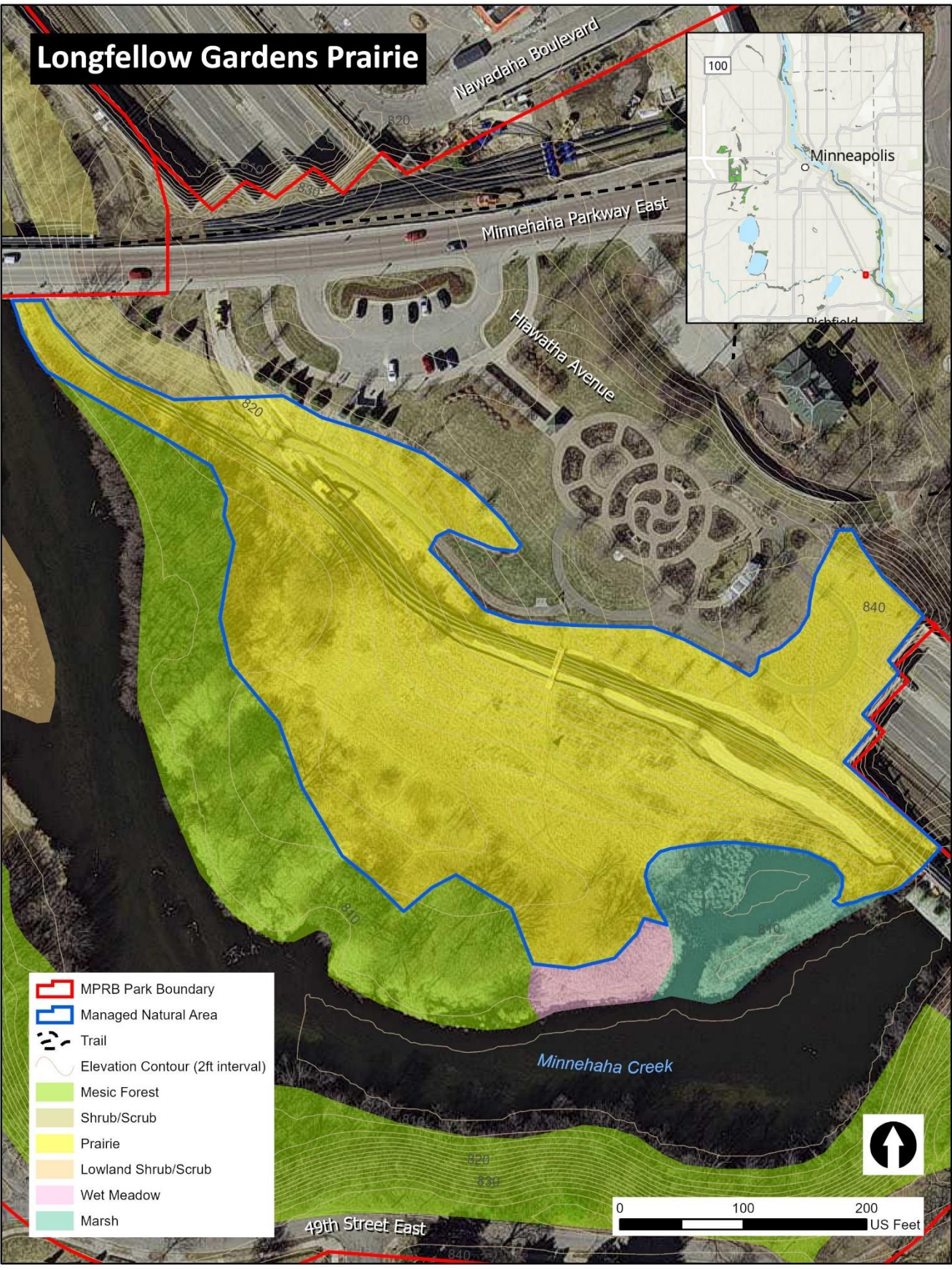
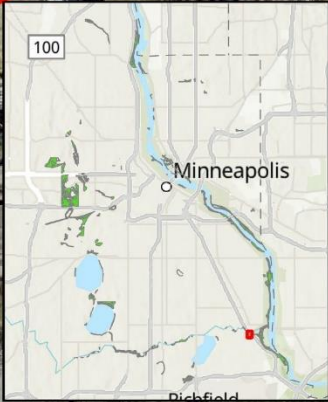
### Native Species to Plant & Perpetuate

See MNDNR's species list for UPs23 (Southern Mesic Prairie).

## MANAGEMENT TASKS & SCHEDULE

Management Task	Occurrence	Season/Month(s) of Activity			
		Spring	Summer	Fall	Winter
Hazard tree inspection and removal (diseased and dead trees, or trees with damaged limbs)	Annual inspection		Jun-Aug	Sep-Oct	Nov-Feb
Invasive/aggressive tree and shrub removal and treatment (specimens >1" caliper)	Ongoing, as needed				Nov-Feb
Monitor overall improvement of biodiversity	Annually		Jun-Aug		
Prescribed burn	Every year or two (rotational), varying spring & fall	Mar-Apr		Sep-Oct	Nov
Foliar treatment of invasive vegetation	Ongoing, as needed	Apr-May	Jun-Aug	Sep-Oct	
Planting and seeding of native herbaceous plants	Ongoing, as needed	Mar-May		Sep-Oct	Nov
Prairie mowing	Annually if burns are not possible		Jun-Aug		
Invasive pulling events (volunteers)	Ongoing, as needed	May	Jun-Aug		

# Longfellow Gardens Prairie



- MPRB Park Boundary
- Managed Natural Area
- Trail
- Elevation Contour (2ft interval)
- Mesic Forest
- Shrub/Scrub
- Prairie
- Lowland Shrub/Scrub
- Wet Meadow
- Marsh





# 17<sup>TH</sup> AVE PRAIRIE – MANAGEMENT BRIEF



## IDENTIFIERS & BASIC INFORMATION

**MPRB Park Unit:** Minnehaha Creek Park

**MPRB Vegetation:** Prairie

**Natural Area Acres:** 0.6

**MLCCS Classification:** Mesic Prairie

## ASSESSMENT OF CURRENT CONDITIONS

**Site History:** Planted prairie, established in 1997.

**Current Condition (2019):** Dominated by native forbs, grasses and sedges.

**Existing Vegetation, Area & Quality Rank:** Prairie (0.6 acres, C quality)

**Notable Native Plant Species:** Dense patch of Cup plant at bottom of hill

**Notable Animal Species:** None identified

## RESTORATION & MANAGEMENT ISSUES, GOALS & STRATEGIES

### Issues to Date

- Park patrons use the prairie slope for sledding in the winter; however, damage was not apparent
- Invasive herbaceous species, including Smooth brome, Reed canary grass, and Kentucky bluegrass
- Relatively low native plant cover and diversity
- Much of lower area dominated by aggressive native Cup plant

**Restoration Goals** (increase biodiversity and improve ecological quality rank to BC or better by implementing the following)

- Maintain <5% tree and shrub canopy cover
- Control invasive species, including those listed above
- Improve biodiversity by increasing abundance and diversity of native plants throughout area

### Management Strategies

- Manually remove invasive vegetation where safe and feasible (as needed)
- Conduct prescribed burn (rotational burn of ½ of prairie each time, such that each unit is burned every 3-4 years)
- Mow and brush saw as necessary to control woody invasion (burns should limit need for this task)
- Conduct stump and foliar spray treatments with MPRB-approved herbicide (as necessary)
- Overseed to diversify ground layer (as needed)

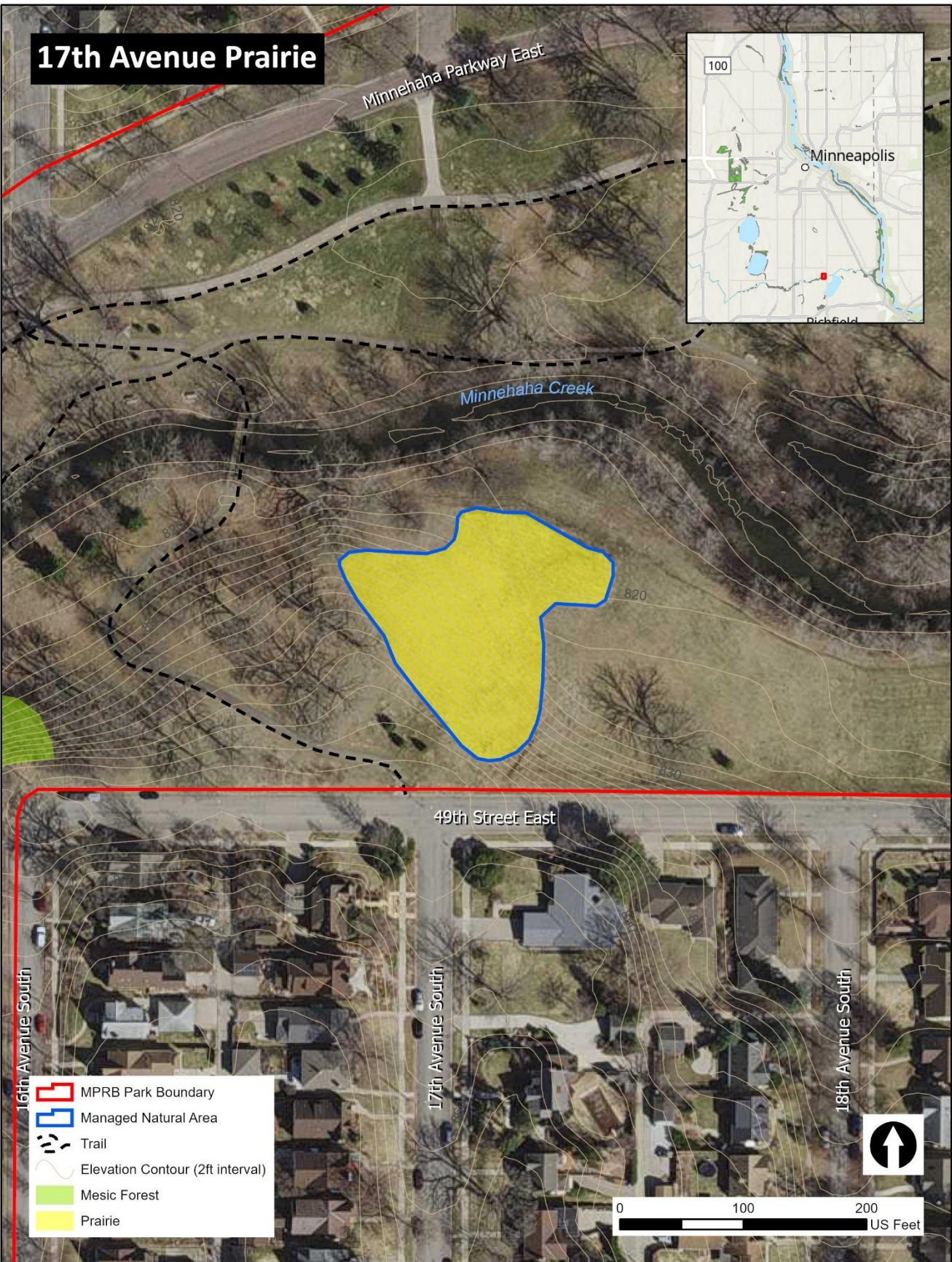
### Native Species to Plant & Perpetuate







See MNDNR's species list for UPs23 (Southern Mesic Prairie).

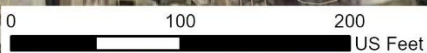
## MANAGEMENT TASKS & SCHEDULE

Management Task	Occurrence	Season/Month(s) of Activity			
		Spring	Summer	Fall	Winter
Hazard tree inspection and removal (diseased and dead trees, or trees with damaged limbs)	Annual inspection		Jun-Aug	Sep-Oct	Nov-Feb
Invasive/aggressive tree and shrub removal and treatment (specimens >1" caliper)	Ongoing, as needed				Nov-Feb
Monitor overall improvement of biodiversity	Annually		Jun-Aug		
Prescribed burn	Every year or two (rotational), varying spring & fall	Mar-Apr		Sep-Oct	Nov
Foliar treatment of invasive vegetation	Ongoing, as needed	Apr-May	Jun-Aug	Sep-Oct	
Planting and seeding of native herbaceous plants	Ongoing, as needed	Mar-May		Sep-Oct	Nov
Prairie mowing	Annually if burns are not possible		Jun-Aug		
Invasive pulling events (volunteers)	Ongoing, as needed	May	Jun-Aug		

# 17th Avenue Prairie



-  MPRB Park Boundary
-  Managed Natural Area
-  Trail
-  Elevation Contour (2ft interval)
-  Mesic Forest
-  Prairie



# NOKOMIS PRAIRIE – MANAGEMENT BRIEF



## IDENTIFIERS & BASIC INFORMATION

**MPRB Park Unit:** Nokomis and Hiawatha Parks  
**Natural Area Acres:** 1.9

**MPRB Vegetation:** Prairie  
**MLCCS Classification:** Mesic Prairie

## ASSESSMENT OF CURRENT CONDITIONS

**Site History:** Planted prairie, established in 2002.

**Current Condition (2019):** The ground layer is predominantly native forbs, grasses and sedges

**Existing Vegetation, Area & Quality Rank:** Prairie (1.9 acres, CD quality)

**Notable Native Plant Species:** None identified

**Notable Animal Species:** None identified

## RESTORATION & MANAGEMENT ISSUES, GOALS & STRATEGIES

### Issues to Date

- Invasive herbaceous species, including Canada thistle and cool-season (turf) grasses
- Woody invasion by native trees such as Green ash, native shrubs, and non-native woody species

**Restoration Goals** (increase biodiversity and improve ecological quality rank to C or better by implementing the following)

- Maintain <5% tree and shrub canopy cover
- Control invasive species, including woody invasion of Prairie and all listed MDA noxious weeds (e.g., Canada thistle)
- Improve biodiversity by increasing abundance and diversity of native plants throughout area

### Management Strategies

- Manually remove invasive vegetation where safe and feasible (as needed)
- Conduct prescribed burn (rotational burn of ½ of prairie each time, such that each unit is burned every 3-4 years)
- Mow and brush saw as necessary to control woody invasion (burns should limit need for this task)
- Conduct stump and foliar spray treatments with MPRB-approved herbicide (as necessary)
- Overseed to diversify ground layer (as needed)

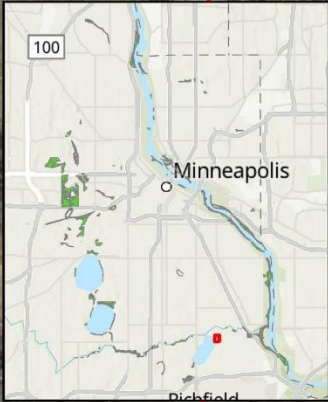
### Native Species to Plant & Perpetuate:

See MNDNR’s species list for UPs23 (Southern Mesic Prairie).

## MANAGEMENT TASKS & SCHEDULE

Management Task	Occurrence	Season/Month(s) of Activity			
		Spring	Summer	Fall	Winter
Hazard tree inspection and removal (diseased and dead trees, or trees with damaged limbs)	Annual inspection		Jun-Aug	Sep-Oct	Nov-Feb
Invasive/aggressive tree and shrub removal and treatment (specimens >1” caliper)	Ongoing, as needed				Nov-Feb
Monitor overall improvement of biodiversity	Annually	Mar-May	Jun-Aug	Sep-Oct	Nov-Feb
Prescribed burn	Every year or two (rotational), varying spring & fall	Mar-Apr		Sep-Oct	Nov
Foliar treatment of invasive vegetation	Ongoing, as needed	Apr-May	Jun-Aug	Sep-Oct	
Planting and seeding of native herbaceous plants	Ongoing, as needed	Mar-May		Sep-Oct	Nov
Prairie mowing	Annually if burns are not possible		Jun-Aug		
Invasive pulling events (volunteers)	Ongoing, as needed	May	Jun-Aug		

# Nokomis Prairie



-  MPRB Park Boundary
-  Managed Natural Area
-  Trail
-  Elevation Contour (2ft interval)
-  Prairie

50th Street East



0 100 200 US Feet

# TAMARACK BOG – MANAGEMENT BRIEF



## IDENTIFIERS & BASIC INFORMATION

**MPRB Park:** Theodore Wirth Park

**MPRB Vegetation:** Forested Peatland

**Natural Area Acres:** 2.9

**MLCCS Classification:** Tamarack Swamp Sphagnum Subtype

## ASSESSMENT OF CURRENT CONDITIONS

**Site History:** Remnant native tamarack bog. Intermittent restoration efforts have occurred since the 1990s.

**Current Condition (2020):** Recent Glossy buckthorn removal efforts have improved quality of bog.

**Existing Vegetation, Area & Quality Rank:** Forested Peatland (2.9 ac, BC quality)

### Notable Native Plant Species

- Dominant trees: Tamarack
- Other species: Leather-leaf, Wild calla, numerous sedges, Sphagnum moss

**Notable Animal Species:** None identified

## RESTORATION & MANAGEMENT ISSUES, GOALS & STRATEGIES

### Issues to Date

- Woody invasion by Glossy buckthorn and native maple and birch
- Invasive herbaceous species, including Purple loosestrife and Blue cattail

**Restoration Goals** (increase biodiversity and improve ecological quality rank to B or better by implementing the following)

- Maintain >75% canopy cover (mostly by Tamarack)
- Control invasive species, including those listed above
- Improve biodiversity by increasing abundance and diversity of native plants throughout area

### Management Strategies

- Manually remove invasive vegetation where safe and feasible (as needed)
- Conduct stump and foliar spray treatments with MPRB-approved herbicide (as necessary)
- Install Tamarack seedlings or saplings

### Native Species to Plant & Perpetuate

See MNDNR's species list for FPs63 (Southern Rich Conifer Swamp).

## MANAGEMENT TASKS & SCHEDULE

Management Task	Occurrence	Season/Month(s) of Activity			
		Spring	Summer	Fall	Winter
Hazard tree inspection and removal (diseased and dead trees, or trees with damaged limbs)	Annual inspection		Jun-Aug	Sep-Oct	Nov-Feb
Invasive/aggressive tree and shrub removal and treatment (specimens >1" caliper)	Ongoing, as needed				Nov-Feb
Monitor overall improvement of biodiversity	Annually	Mar-May	Jun-Aug	Sep-Oct	Nov-Feb
Foliar treatment of invasive vegetation	Ongoing, as needed	Apr-May	Jun-Aug	Sep-Oct	
Invasive pulling events (volunteers)	Ongoing, as needed	May	Jun-Aug		

# Tamarack Bog



Parkview Terrace

-  MPRB Park Boundary
-  Managed Natural Area
-  Trail
-  Elevation Contour (2ft interval)
-  Dry-Mesic Forest/Woodland
-  Mesic Forest
-  Altered Forest/Woodland
-  Forested Peatland



# JD RIVERS PRAIRIE – MANAGEMENT BRIEF



## IDENTIFIERS & BASIC INFORMATION

**MPRB Park:** Theodore Wirth Park

**MPRB Vegetation:** Prairie

**Natural Area Acres:** 0.8

**MLCCS Classification:** Other vegetable and truck crops

## ASSESSMENT OF CURRENT CONDITIONS

**Site History:** Former park garden was planted into prairie in 1997.

**Current Condition (2019):** Dominated by native grasses, with patches and scattered native forbs and a few invasive species.

**Existing Vegetation, Area & Quality Rank:** Prairie (0.8 ac, B quality)

**Notable Native Plant Species:** None identified

**Notable Animal Species:** None identified

## RESTORATION & MANAGEMENT ISSUES, GOALS & STRATEGIES

### Issues to Date

- Invasive herbaceous species, including Curly dock, Purple loosestrife, Canada thistle and Birdsfoot trefoil
- Woody invasion by native Staghorn sumac

**Restoration Goals** (increase biodiversity and maintain ecological quality rank of B or better by implementing the following)

- Maintain <5% tree and shrub canopy cover
- Control invasive species, including those listed above and all listed by MDA as noxious weeds (e.g., Canada thistle and Purple loosestrife)
- Improve biodiversity by increasing abundance and diversity of native plants throughout area

### Management Strategies

- Manually remove invasive vegetation where safe and feasible (as needed)
- Conduct prescribed burn (rotational burn of ½ of prairie each time, such that each unit is burned every 3-4 years)
- Mow and brush saw as necessary to control woody invasion (burns should limit need for this task)
- Conduct stump and foliar spray treatments with MPRB-approved herbicide (as necessary)
- Overseed to diversify ground layer (as needed)

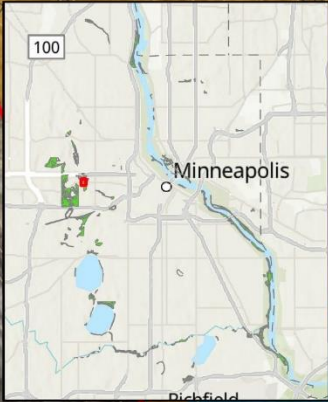
### Native Species to Plant & Perpetuate

See MNDNR's species list for UPs23 (Southern Mesic Prairie).

## MANAGEMENT TASKS & SCHEDULE

Management Task	Occurrence	Season/Month(s) of Activity			
		Spring	Summer	Fall	Winter
Hazard tree inspection and removal (diseased and dead trees, or trees with damaged limbs)	Annual inspection		Jun-Aug	Sep-Oct	Nov-Feb
Invasive/aggressive tree and shrub removal and treatment (specimens >1" caliper)	Ongoing, as needed				Nov-Feb
Monitor overall improvement of biodiversity	Annually	Mar-May	Jun-Aug	Sep-Oct	Nov-Feb
Prescribed burn	Every year or two (rotational), varying spring & fall	Mar-Apr		Sep-Oct	Nov
Foliar treatment of invasive vegetation	Ongoing, as needed	Apr-May	Jun-Aug	Sep-Oct	
Planting and seeding of native herbaceous plants	Ongoing, as needed	Mar-May		Sep-Oct	Nov
Prairie mowing	Annually if burns are not possible		Jun-Aug		
Invasive pulling events (volunteers)	Ongoing, as needed	May	Jun-Aug		

# JD Rivers Prairie



- MPRB Park Boundary
- Managed Natural Area
- Trail
- Elevation Contour (2ft interval)
- Mesic Forest
- Altered Forest/Woodland
- Savanna
- Shrub/Scrub
- Prairie
- Sand/Soil
- Floodplain Forest

0 100 200 US Feet



# SHINGLE CREEK PRAIRIE – MANAGEMENT BRIEF



## IDENTIFIERS & BASIC INFORMATION

**MPRB Park:** Shingle Creek Park

**MPRB Vegetation:** Prairie

**Natural Area Acres:** 1.1

**MLCCS Classification:** Mesic Prairie

## ASSESSMENT OF CURRENT CONDITIONS

**Site History:** Planted prairie, established in 1996.

**Current Condition (2018):** Dominated by native grasses, with patches and scattered native forbs and invasive species.

**Existing Land Cover, Area & Quality Rank:** Prairie (1.1 acres, C quality)

**Notable Native Plant Species:** None identified

**Notable Animal Species:** None identified

## RESTORATION & MANAGEMENT ISSUES, GOALS & STRATEGIES

### Issues to Date

- Invasive herbaceous species, including Kentucky bluegrass, Common mullein, Curly dock, Quackgrass, Butter and eggs
- Woody invasion by Siberian elm
- Relatively low native plant cover and diversity

**Restoration Goals** (increase biodiversity and improve ecological quality rank to B or better by implementing the following)

- Maintain <5% tree and shrub canopy cover
- Control invasive species, including those listed above and woody invasion, as well as all listed MDA noxious weeds (e.g., Canada thistle)
- Improve biodiversity by increasing abundance and diversity of native plants throughout area

### Management Strategies

- Manually remove invasive vegetation where safe and feasible (as needed)
- Conduct prescribed burn (rotational burn of ½ of prairie each time, such that each unit is burned every 3-4 years)
- Mow and brush saw as necessary to control woody invasion (burns should limit need for this task)
- Conduct stump and foliar spray treatments with MPRB-approved herbicide (as necessary)
- Overseed to diversify ground layer (as needed)

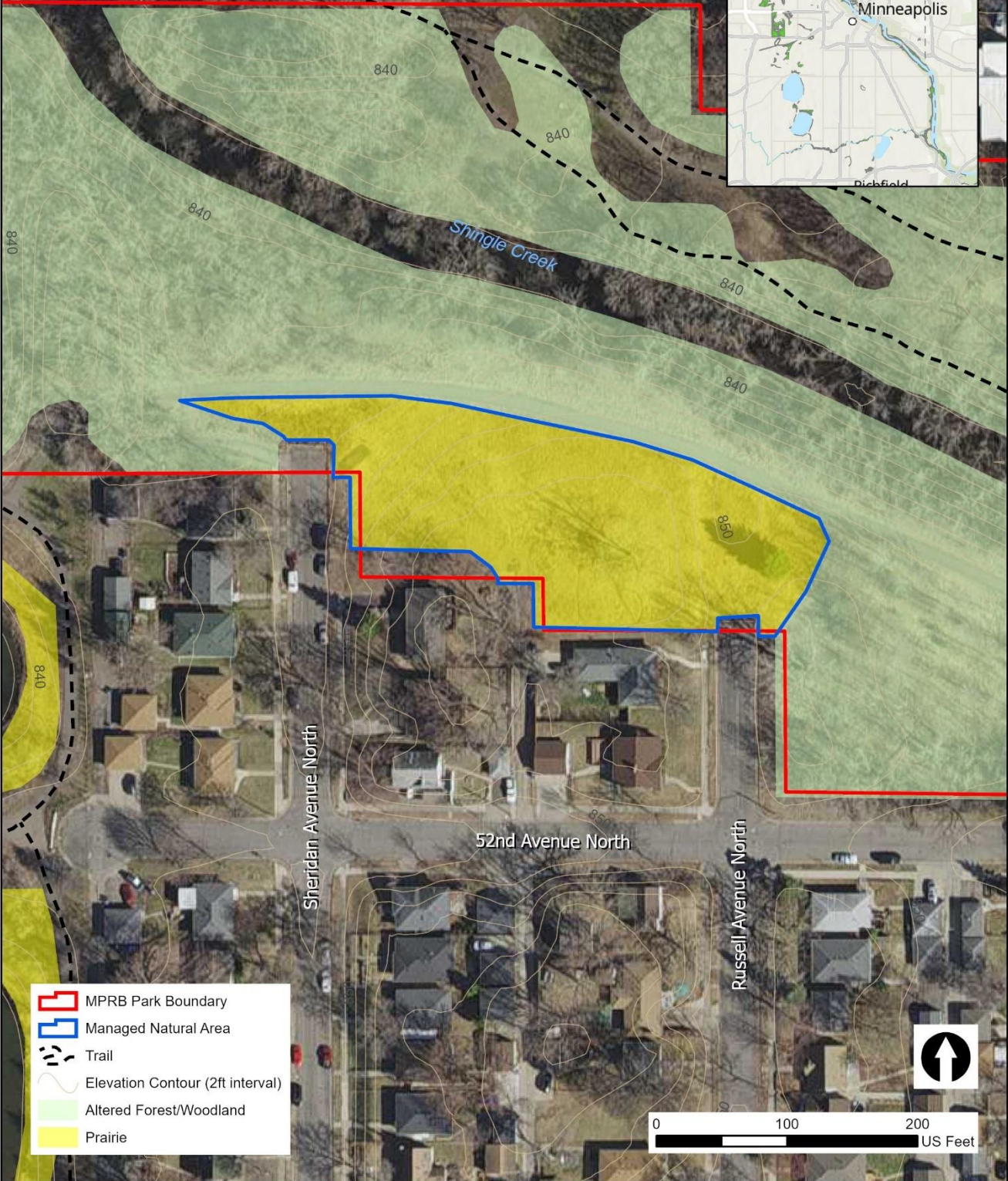
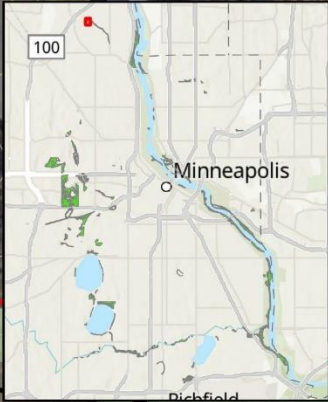
### Native Species to Plant & Perpetuate:

See MNDNR's species list for UPs23 (Southern Mesic Prairie).

## MANAGEMENT TASKS & SCHEDULE

Management Task	Occurrence	Season/Month(s) of Activity			
		Spring	Summer	Fall	Winter
Hazard tree inspection and removal (diseased and dead trees, or trees with damaged limbs)	Annual inspection		Jun-Aug	Sep-Oct	Nov-Feb
Invasive/aggressive tree and shrub removal and treatment (specimens >1" caliper)	Ongoing, as needed				Nov-Feb
Monitor overall improvement of biodiversity	Annually	Mar-May	Jun-Aug	Sep-Oct	Nov-Feb
Prescribed burn	Every year or two (rotational), varying spring & fall	Mar-Apr		Sep-Oct	Nov
Foliar treatment of invasive vegetation	Ongoing, as needed	Apr-May	Jun-Aug	Sep-Oct	
Planting and seeding of native herbaceous plants	Ongoing, as needed	Mar-May		Sep-Oct	Nov
Prairie mowing	Annually if burns are not possible		Jun-Aug		
Invasive pulling events (volunteers)	Ongoing, as needed	May	Jun-Aug		

# Shingle Creek Prairie



- MPRB Park Boundary
- Managed Natural Area
- Trail
- Elevation Contour (2ft interval)
- Altered Forest/Woodland
- Prairie

0 100 200 US Feet

# BROWNIE LAKE PRAIRIE – MANAGEMENT BRIEF



## IDENTIFIERS & BASIC INFORMATION

**MPRB Park:** Brownie Lake Park

**MPRB Vegetation:** Prairie

**Natural Area Acres:** 2.9

**MLCCS Classification:** Medium-tall grass altered/non-native dominated grassland

## ASSESSMENT OF CURRENT CONDITIONS

**Site History:** Planted prairie, established in 1995.

**Current Condition (2019):** Dominated by native forbs and grasses, with patches of invasive species.

**Existing Land Cover, Area & Quality Rank:** Prairie (2.9 acres, C-CD quality)

**Notable Native Plant Species:** None identified

**Notable Animal Species:** None identified

## RESTORATION & MANAGEMENT ISSUES, GOALS & STRATEGIES

### Issues to Date

- Park patrons use prairie as off-leash dog run, spreading seeds of invasive plants and creating network of informal paths
- Park patrons use the prairie slope for sledding in the winter; however, damage was not apparent
- Invasive herbaceous species, including Reed canary grass, Birdsfoot trefoil, Crown vetch, Absinthe wormwood, Leafy spurge, Smooth brome and Kentucky bluegrass
- Patches of aggressive native Canada goldenrod
- Woody invasion by native species such as Smooth sumac and Boxelder

### Restoration Goals (increase biodiversity and improve ecological quality rank to BC or better by implementing the following)

- Abandon select trails; install signage or barriers (e.g., shrubs) to discourage trail creation and off-leash dogs
- Maintain <5% tree and shrub canopy cover
- Control invasive species, including those listed above
- Improve biodiversity by increasing abundance and diversity of native plants throughout area

### Management Strategies

- Manually remove invasive vegetation where safe and feasible (as needed)
- Conduct prescribed burn (rotational burn of ½ of prairie each time, such that each unit is burned every 3-4 years)
- Mow and brush saw as necessary to control woody invasion (burns should limit need for this task)
- Conduct stump and foliar spray treatments with MPRB-approved herbicide (as necessary)
- Overseed to diversify ground layer (as needed)

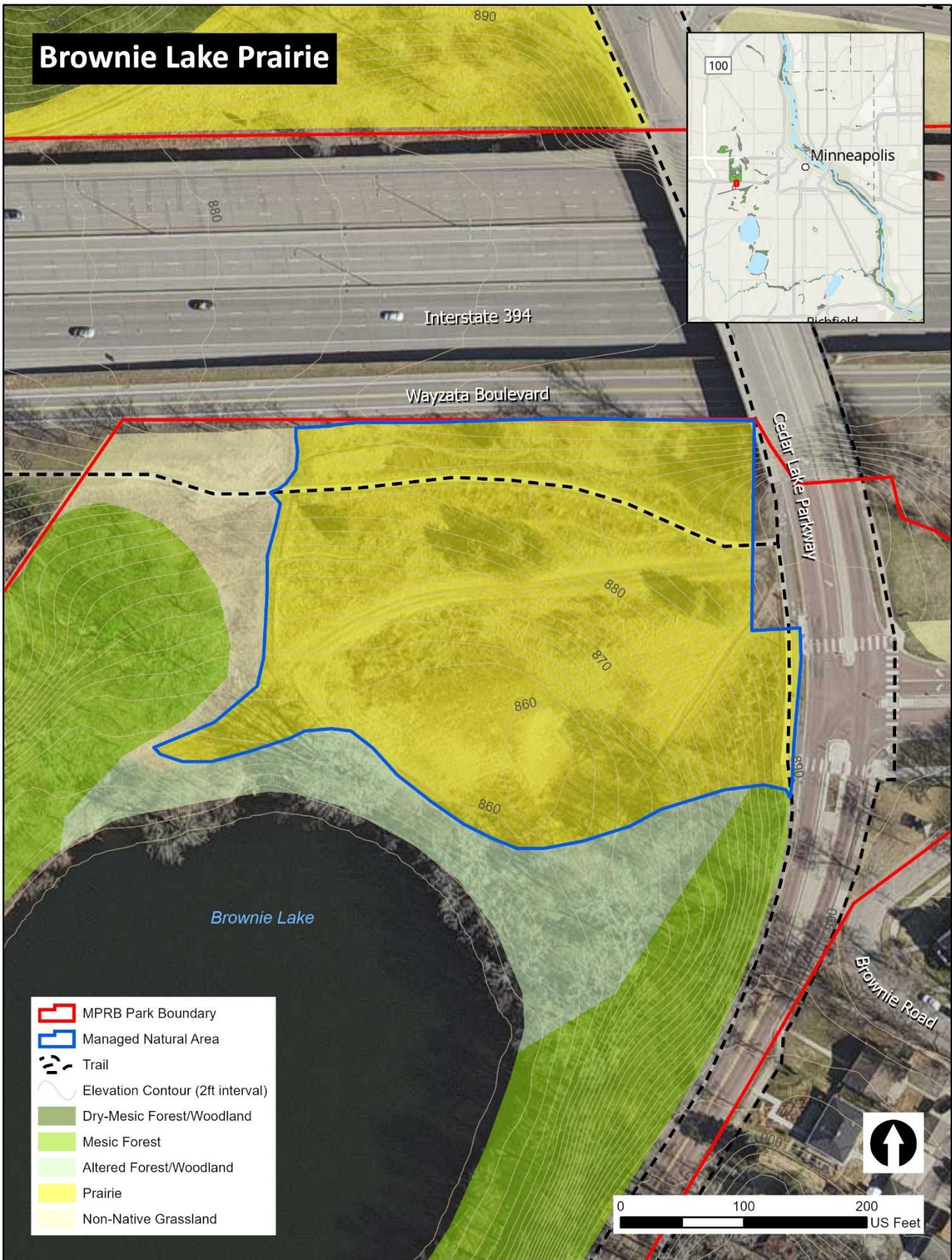
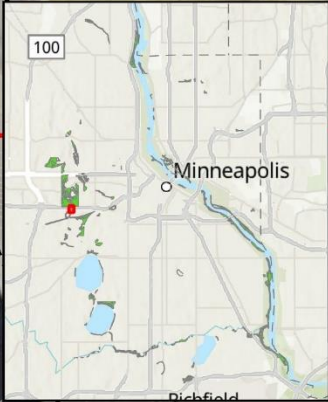
### Native Species to Plant & Perpetuate

See MNDNR's narrative description and species lists for UPs23 (Southern Mesic Prairie).

## MANAGEMENT TASKS & SCHEDULE

Management Task	Occurrence	Season/Month(s) of Activity			
		Spring	Summer	Fall	Winter
Hazard tree inspection and removal (diseased and dead trees, or trees with damaged limbs)	Annual inspection		Jun-Aug	Sep-Oct	Nov-Feb
Invasive/aggressive tree and shrub removal and treatment (specimens >1" caliper)	Ongoing, as needed				Nov-Feb
Monitor overall improvement of biodiversity	Annually	Mar-May	Jun-Aug	Sep-Oct	Nov-Feb
Prescribed burn	Every year or two (rotational), varying spring & fall	Mar-Apr		Sep-Oct	Nov
Foliar treatment of invasive vegetation	Ongoing, as needed	Apr-May	Jun-Aug	Sep-Oct	
Planting and seeding of native herbaceous plants	Ongoing, as needed	Mar-May		Sep-Oct	Nov
Prairie mowing	Annually if burns are not possible		Jun-Aug		
Invasive pulling events (volunteers)	Ongoing, as needed	May	Jun-Aug		

# Brownie Lake Prairie



-  MPRB Park Boundary
-  Managed Natural Area
-  Trail
-  Elevation Contour (2ft interval)
-  Dry-Mesic Forest/Woodland
-  Mesic Forest
-  Altered Forest/Woodland
-  Prairie
-  Non-Native Grassland

0 100 200 US Feet

# CEDAR LAKE REGIONAL TRAIL PRAIRIE – MANAGEMENT BRIEF



## IDENTIFIERS & BASIC INFORMATION

**MPRB Park:** Cedar Lake Park  
**Natural Area Acres:** 28.2

**MPRB Vegetation:** Prairie, Shrub/Scrub  
**MLCCS Classification:** Mesic Prairie

## ASSESSMENT OF CURRENT CONDITIONS

**General History:** Planted prairie, established in 1995.

**General Conditions (2019):** Prairie exhibits a variety of quality ranks, with patches and scattered invasive species.

**Existing Vegetation, Area & Quality Rank Range:** Planted Prairie (26.3 acres, BC-C quality); Shrub/Scrub (1.9 acres, CD quality)

**Notable Native Plant Species:** None identified

**Notable Animal Species:** None identified

## RESTORATION & MANAGEMENT ISSUES, GOALS & STRATEGIES

### Issues to Date

- Invasive herbaceous species, including Smooth brome, Kentucky bluegrass, Leafy spurge, Spotted knapweed, Crown vetch, Yellow & White sweet clover
- Woody invasion by sumac, willows, and Gray dogwood

**Restoration Goals** (increase biodiversity and maintain or improve ecological quality rank to BC or better by implementing the following)

- Maintain <5% tree and shrub canopy cover
- Control invasive species, including those listed above
- Improve biodiversity by increasing abundance and diversity of native plants throughout area

### Management Strategies

- Manually remove invasive trees and shrubs (except Oak species)
- Assess effectiveness of biological controls (in place since 2003) to control Leafy spurge and Spotted knapweed
- Conduct prescribed burn (rotational burn of 1/3 of prairie each year)
- Mow and brush saw as necessary to control woody invasion (burns should limit need for this task)
- Conduct stump and foliar spray treatments with MPRB-approved herbicide (as necessary)
- Overseed to diversify ground layer (as needed)

### Native Species to Plant & Perpetuate

See MNDNR's species list for UPs23 (Southern Mesic Prairie).

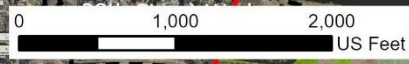
## MANAGEMENT TASKS & SCHEDULE

Management Task	Occurrence	Season/Month(s) of Activity			
		Spring	Summer	Fall	Winter
Hazard tree inspection and removal (diseased and dead trees, or trees with damaged limbs)	Annual inspection		Jun-Aug	Sep-Oct	Nov-Feb
Invasive/aggressive tree and shrub removal and treatment (specimens >1" caliper)	Ongoing, as needed				Nov-Feb
Monitor overall improvement of biodiversity	Annually		Jun-Aug		
Prescribed burn	Annually burn 1/3 of prairie on rotation, varying spring & fall	Mar-Apr		Sep-Oct	Nov
Foliar treatment of invasive vegetation	Ongoing, as needed	Apr-May	Jun-Aug	Sep-Oct	
Planting and seeding of native herbaceous plants	Ongoing, as needed	Mar-May		Sep-Oct	Nov
Prairie mowing	Annually if burns are not possible		Jun-Aug		
Invasive pulling events (volunteers)	Ongoing, as needed	May	Jun-Aug		

# Cedar Lake Regional Trail Prairie



- MPRB Park Boundary
- Managed Natural Area
- Trail
- Dry-Mesic Forest/Woodland
- Mesic Forest
- Altered Forest/Woodland
- Savanna
- Shrub/Scrub
- Prairie
- Non-Native Grassland
- Sand/Soil
- Floodplain Forest
- Wet Forest/Swamp
- Forested Peatland
- Lowland Shrub/Scrub
- Wet Meadow
- Marsh



# MIKE'S ISLAND – MANAGEMENT BRIEF



## IDENTIFIERS & BASIC INFORMATION

**MPRB Park:** Lake of the Isles Park

**MPRB Vegetation:** Mesic Forest

**Natural Area Acres:** 3.8

**MLCCS Classification:** Altered/non-native deciduous woodland

## ASSESSMENT OF CURRENT CONDITIONS

**Site History:** The smaller of the Lake's two constructed islands; consists of historical upland forest and forested dredge spoils from construction of the lake; the island is a wildlife refuge.

**Current Condition (2019):** The island has scattered native trees and shrubs, with patches of native ground cover (forbs, grasses and sedges).

**Existing Vegetation, Area & Quality Rank:** Mesic Forest (3.8 ac, D quality)

**Notable Native Plant Species:** Dominant trees: Green ash, Common hackberry and Bur oak (22"-28" dbh)

**Notable Animal Species:** Eastern kingbird

## RESTORATION & MANAGEMENT ISSUES, GOALS & STRATEGIES

### Issues to Date

- Invasive herbaceous species, including Lily of the valley, Purple loosestrife
- Woody invasion by Common buckthorn, non-native honeysuckle and White mulberry
- Sparse understory and ground layer in areas, presumably due to non-native earthworms, sheet erosion, etc.

**Restoration Goals** (increase biodiversity and improve ecological quality rank to C or better by implementing the following)

- Maintain >90% canopy cover
- Control invasive species, including those listed above
- Improve biodiversity by increasing abundance and diversity of native plants throughout area

### Management Strategies

- Manually remove invasive vegetation where safe and feasible (as needed)
- Assess if biocontrol is feasible for the site's small population of Purple loosestrife
- Conduct stump and foliar spray treatments with MPRB-approved herbicide (as necessary)
- Install native trees, shrubs, live plant plugs, and seed to maintain forest structure and add native diversity

### Native Species to Plant & Perpetuate

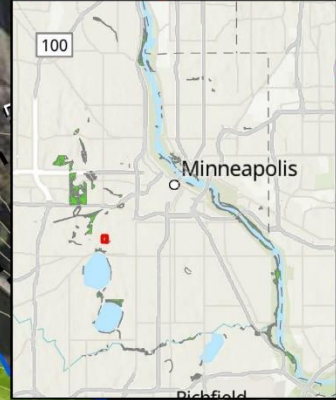
See MNDNR's species lists for MHs37 (Southern Dry-Mesic Oak Forest), MHs38 (Southern Mesic Oak-Basswood Forest), and MHs39 (Southern Mesic Maple-Basswood Forest).







## MANAGEMENT TASKS & SCHEDULE

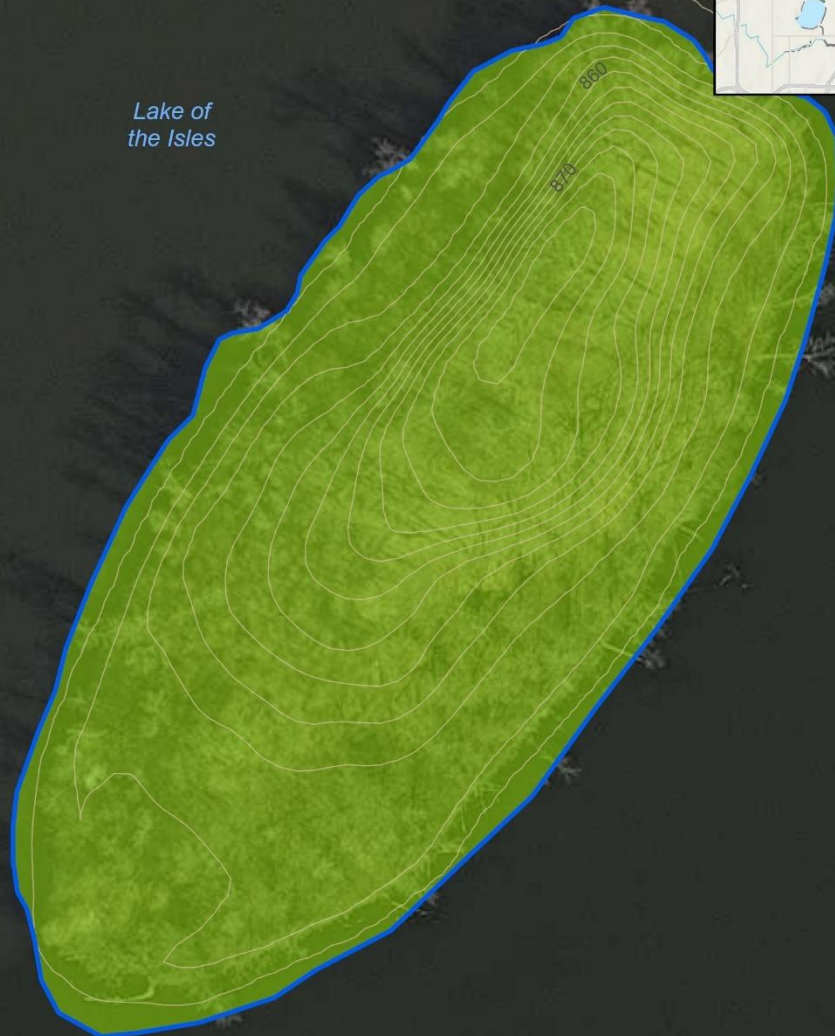
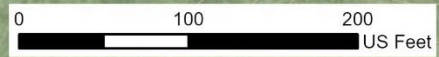
Management Task	Occurrence	Season/Month(s) of Activity			
		Spring	Summer	Fall	Winter
Hazard tree inspection and removal (diseased and dead trees, or trees with damaged limbs)	Annual inspection		Jun-Aug	Sep-Oct	Nov-Feb
Invasive/aggressive tree and shrub removal and treatment (specimens >1" caliper)	Ongoing, as needed				Nov-Feb
Monitor overall improvement of biodiversity	Annually		Jun-Aug		
Foliar treatment of invasive vegetation	Ongoing, as needed	Apr-May	Jun-Aug	Sep-Oct	
Planting and seeding of native woody and herbaceous vegetation	Ongoing, as needed	Mar-May		Sep-Oct	Nov
Invasive pulling events (volunteers)	Ongoing, as needed	May	Jun-Aug		

# Mike's Island

Lake of the Isles



-  MPRB Park Boundary
-  Managed Natural Area
-  Trail
-  Elevation Contour (2ft interval)
-  Mesic Forest
-  Altered Forest/Woodland





# RASPBERRY ISLAND – MANAGEMENT BRIEF



## IDENTIFIERS & BASIC INFORMATION

**MPRB Park:** Lake of the Isles Park

**MPRB Vegetation:** Altered Forest/Woodland

**Natural Area Acres:** 7.3

**MLCCS Classification:** Altered/non-native deciduous woodland

## ASSESSMENT OF CURRENT CONDITIONS

**Site History:** The larger of the Lake's two constructed islands; consists of forested dredge spoils from construction of the lake; the island is a wildlife refuge.

**Current Condition (2019):** Variable, but generally degraded, especially the edges of the island.

**Existing Vegetation, Area & Quality Rank:** Altered Forest/Woodland (7.3 ac, NN quality - not a natural community)

**Notable Native Plant Species:** Dominant trees: Green ash, Common hackberry and American basswood

**Notable Animal Species:** Wood duck, Great blue heron, Downy woodpecker

## RESTORATION & MANAGEMENT ISSUES, GOALS & STRATEGIES

### Issues to Date

- Invasive herbaceous species, including Oriental bittersweet
- Woody invasion by Common and Glossy buckthorn, non-native honeysuckle and White mulberry
- Sparse understory and ground layer, presumably due to non-native earthworms, etc.
- Human encampment

**Restoration Goals** (increase biodiversity and improve ecological quality rank to C or better by implementing the following)

- Maintain >90% canopy cover
- Control invasive species, including those listed above
- Improve biodiversity by increasing abundance and diversity of native plants throughout area

### Management Strategies

- Manually remove invasive vegetation where safe and feasible (as needed)
- Conduct stump and foliar spray treatments with MPRB-approved herbicide (as necessary)
- Install native trees, shrubs, live plant plugs, and seed to maintain forest structure and add native diversity

### Native Species to Plant & Perpetuate

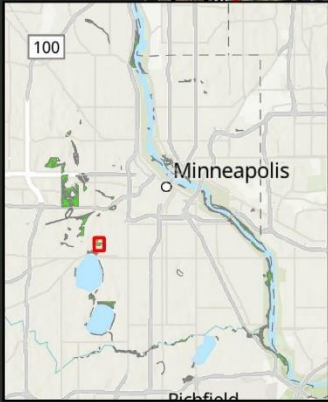
See MNDNR's species lists for MHs37 (Southern Dry-Mesic Oak Forest), MHs38 (Southern Mesic Oak-Basswood Forest), and MHs39 (Southern Mesic Maple-Basswood Forest).

## MANAGEMENT TASKS & SCHEDULE







Management Task	Occurrence	Season/Month(s) of Activity			
		Spring	Summer	Fall	Winter
Hazard tree inspection and removal (diseased and dead trees, or trees with damaged limbs)	Annual inspection		Jun-Aug	Sep-Oct	Nov-Feb
Invasive/aggressive tree and shrub removal and treatment (specimens >1" caliper)	Ongoing, as needed				Nov-Feb
Monitor overall improvement of biodiversity	Annually		Jun-Aug		
Foliar treatment of invasive vegetation	Ongoing, as needed	Apr-May	Jun-Aug	Sep-Oct	
Planting and seeding of native woody and herbaceous vegetation	Ongoing, as needed	Mar-May		Sep-Oct	Nov
Invasive pulling events (volunteers)	Ongoing, as needed	May	Jun-Aug		

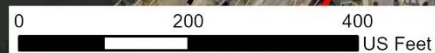
# Raspberry Island

Lake Of Isles Parkway West



Lake of the Isles

-  MPRB Park Boundary
-  Managed Natural Area
-  Trail
-  Elevation Contour (2ft interval)
-  Mesic Forest
-  Altered Forest/Woodland



# WILLIAM BERRY FOREST – MANAGEMENT BRIEF



## IDENTIFIERS & BASIC INFORMATION

**MPRB Park:** William Berry Park

**MPRB Vegetation:** Mesic Forest, Dry-Mesic Forest/Woodland

**Natural Area Acres:** 8.4

**MLCCS Classification:** Oak woodland-brushland

## ASSESSMENT OF CURRENT CONDITIONS

**Site History:** This wooded area represents one of the few remnant forests in the MPRB park system.

**Current Condition (2019):** Generally degraded, with patches of native wildflowers.

**Existing Vegetation, Area & Quality Rank:** Mesic Forest (6.3 ac, C-CD quality); Dry-Mesic Forest/Woodland (2.1 ac, C-CD quality)

### Notable Native Plant Species

- Dominant trees: Mature Red oak, Bur oak, American basswood, and Common hackberry
- Other species: abundant Virginia waterleaf; also patches of sedges and various spring wildflowers

**Notable Animal Species:** None identified

## RESTORATION & MANAGEMENT ISSUES, GOALS & STRATEGIES

### Issues to Date

- Invasive herbaceous species, including Creeping bellflower, Day lily, and Siberian squill
- Woody invasion by Common buckthorn and non-native honeysuckle; recent brushing by volunteers (post assessment) has removed some invasive brush
- Sparse understory and ground layer in areas, presumably due to non-native earthworms, sheet erosion, etc.

**Restoration Goals** (increase biodiversity and improve ecological quality rank to BC or better by implementing the following)

- Maintain >90% canopy cover
- Control invasive species, including those listed above
- Improve biodiversity by increasing abundance and diversity of native plants throughout area

### Management Strategies

- Manually remove invasive vegetation where safe and feasible (as needed)
- Conduct stump and foliar spray treatments with MPRB-approved herbicide (as necessary)
- Install native trees, shrubs, live plant plugs and seed to diversify plant community

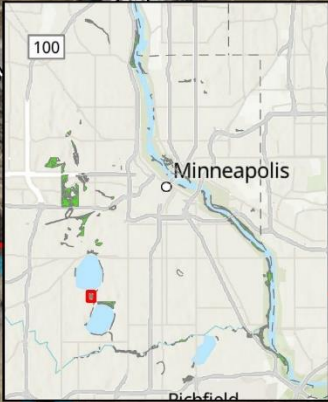
### Native Species to Plant & Perpetuate

See MNDNR's species lists for MHs37 (Southern Dry-Mesic Oak Forest), MHs38 (Southern Mesic Oak-Basswood Forest), and MHs39 (Southern Mesic Maple-Basswood Forest).

## MANAGEMENT TASKS & SCHEDULE

Management Task	Occurrence	Season/Month(s) of Activity			
		Spring	Summer	Fall	Winter
Hazard tree inspection and removal (diseased and dead trees, or trees with damaged limbs)	Annual inspection		Jun-Aug	Sep-Oct	Nov-Feb
Invasive/aggressive tree and shrub removal and treatment (specimens >1" caliper)	Ongoing, as needed				Nov-Feb
Monitor overall improvement of biodiversity	Annually		Jun-Aug		
Foliar treatment of invasive vegetation	Ongoing, as needed	Apr-May	Jun-Aug	Sep-Oct	
Planting and seeding of native woody and herbaceous vegetation	Ongoing, as needed	Mar-May		Sep-Oct	Nov
Invasive pulling events (volunteers)	Ongoing, as needed	May	Jun-Aug		

# William Berry Forest



-  MPRB Park Boundary
-  Managed Natural Area
-  Trail
-  Elevation Contour (2ft interval)
-  Dry-Mesic Forest/Woodland
-  Mesic Forest
-  Altered Forest/Woodland
-  Floodplain Forest
-  Marsh

0 150 300 US Feet



# ROBERTS BIRD SANCTUARY – MANAGEMENT BRIEF



## IDENTIFIERS & BASIC INFORMATION

**MPRB Park:** Lyndale Park

**MPRB Vegetation:** Various upland and wetland types (see below)

**Natural Area Acres:** 31.3

**MLCCS Classification:** Various

## ASSESSMENT OF CURRENT CONDITIONS

**Site History:** While portions of the site represent remnant upland forest, the majority consists of lowlands/wetlands that have been altered by sewer utility construction and replacement, excavation of ponds and hydrologic modifications.

**Current Condition (2019):** Variable, but generally degraded; recent invasive removals and native plantings

**Existing Vegetation, Area & Quality Rank:** Lowland Shrub/ Scrub (3.8 ac, D quality); Marsh (2.9 ac, NN – not a natural community); Mesic Forest (5.3 ac, C to D quality); Wet Forest/Swamp (18.2 ac, CD quality); Wet Meadow (1.2 ac, NN)

**Notable Native Plant Species:** None identified

**Notable Animal Species:** Used by a diversity of waterfowl, forest birds, raptors (e.g., owls, hawks) and deer

## RESTORATION & MANAGEMENT ISSUES, GOALS & STRATEGIES

### Issues to Date

- Invasive herbaceous species, including invasive cattails and Reed canary grass (both abundant in wetlands), Purple loosestrife and Garlic mustard
- Woody invasion by Common and Glossy buckthorn, invasive honeysuckle, Norway maple and White mulberry; recent brushing by volunteers (post assessment) has removed much invasive brush
- Sparse ground layer in uplands, presumably due to invasive earthworms

**Restoration Goals** (increase biodiversity and improve ecological quality rank to C in most areas by implementing the following)

- Maintain >90% canopy cover in forests
- Control invasive species, including those listed above
- Improve biodiversity by increasing abundance and diversity of native plants throughout area

### Management Strategies

- Manually remove invasive vegetation where safe and feasible (as needed)
- Monitor and maintain existing biocontrol of Purple loosestrife
- Conduct stump and foliar spray treatments with MPRB-approved herbicide (as necessary)
- Install native trees, shrubs, live plant plugs, and seed to diversify plant community

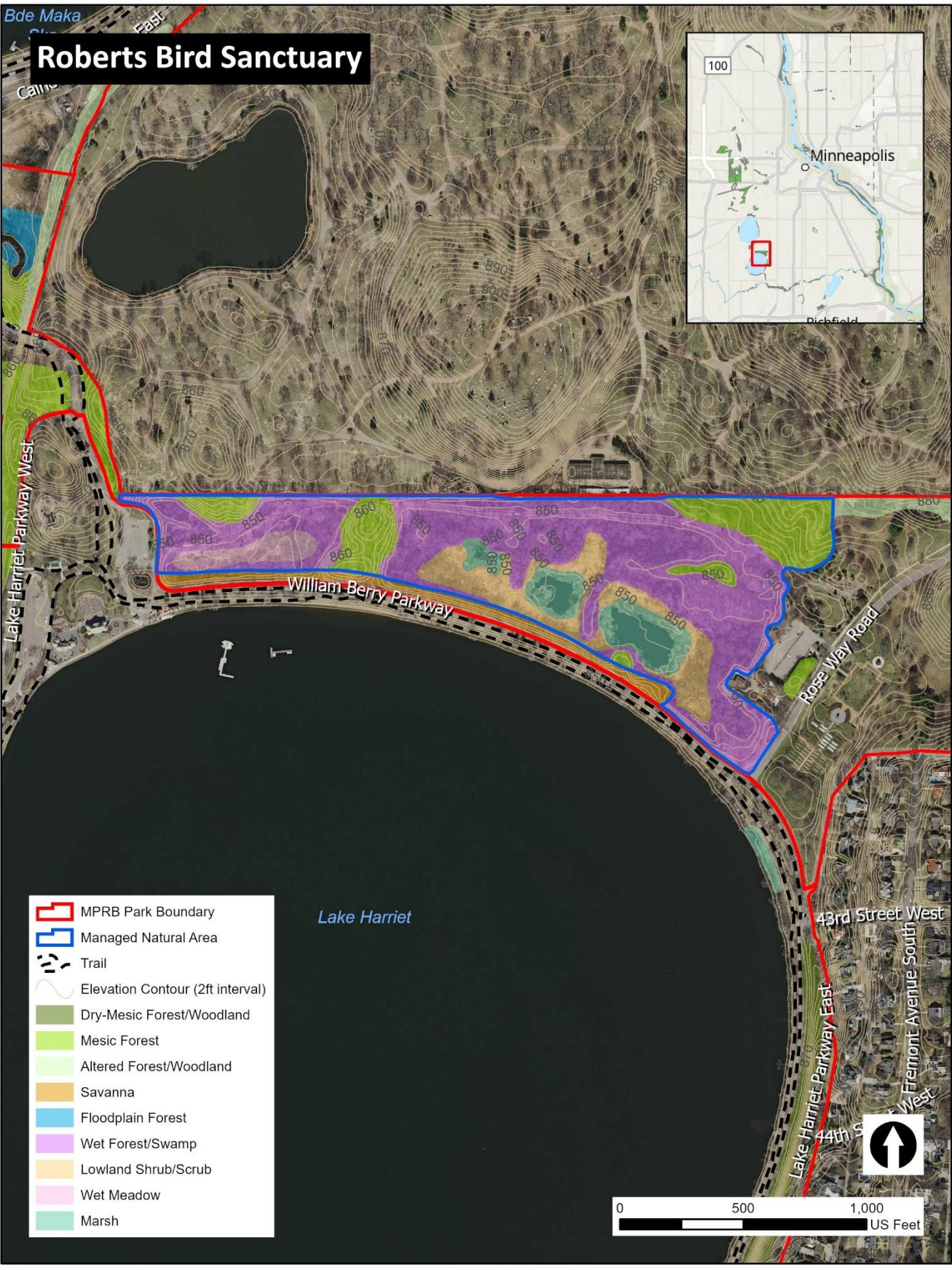
### Native Species to Plant & Perpetuate

See species lists for MnDNR's MHS37 (Southern Dry-Mesic Oak Forest), MHS38 (Southern Mesic Oak-Basswood Forest), MHS39 (Southern Mesic Maple-Basswood Forest) and various wetland communities if wetlands are also being restored/enhanced.

## MANAGEMENT TASKS & SCHEDULE

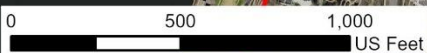
Management Task	Occurrence	Season/Month(s) of Activity			
		Spring	Summer	Fall	Winter
Hazard tree inspection and removal (diseased and dead trees, or trees with damaged limbs)	Annual inspection		Jun-Aug	Sep-Oct	Nov-Feb
Invasive/aggressive tree and shrub removal and treatment (specimens >1" caliper)	Ongoing, as needed				Nov-Feb
Monitor overall improvement of biodiversity	Annually		Jun-Aug		
Foliar treatment of invasive vegetation	Ongoing, as needed	Apr-May	Jun-Aug	Sep-Oct	
Planting and seeding of native woody and herbaceous plants	Ongoing, as needed	Mar-May		Sep-Oct	Nov
Invasive pulling events (volunteers)	Ongoing, as needed	May	Jun-Aug		

# Roberts Bird Sanctuary



- MPRB Park Boundary
- Managed Natural Area
- Trail
- Elevation Contour (2ft interval)
- Dry-Mesic Forest/Woodland
- Mesic Forest
- Altered Forest/Woodland
- Savanna
- Floodplain Forest
- Wet Forest/Swamp
- Lowland Shrub/Scrub
- Wet Meadow
- Marsh

Lake Harriet



Bde Maka  
Calle

Lake Harriet Parkway West

William Berry Parkway

Rose Way Road

43rd Street West

Lake Harriet Parkway East

Fremont Avenue South  
44th Street West

# KENWOOD PRAIRIE – MANAGEMENT BRIEF



## IDENTIFIERS & BASIC INFORMATION

**MPRB Park:** Kenwood Park

**MPRB Vegetation:** Prairie, Savanna

**Natural Area Acres:** 1.2

**MLCCS Classification:** Oak woodland-brushland

## ASSESSMENT OF CURRENT CONDITIONS

**Site History:** Planted prairie, established in 1997. Several trees (including spruce) in western “savanna” portion of site.

**Current Condition (2019):** Prairie is dominated by native grasses and forbs, with scattered invasive species.

**Existing Vegetation, Area & Quality Rank:** Prairie (0.8 ac, BC quality); Savanna (0.5 ac, BC quality)

**Notable Native Plant Species:** None identified

**Notable Animal Species:** None identified

## RESTORATION & MANAGEMENT ISSUES, GOALS & STRATEGIES

### Issues to Date

- Invasive herbaceous species, including Canada thistle, Spotted knapweed, White sweet clover, Crown vetch, Quackgrass and Smooth brome
- Woody invasion by native White mulberry, Common buckthorn and non-native honeysuckles

**Restoration Goals** (increase biodiversity and maintain ecological quality rank of B or better by implementing the following)

- Maintain <5% tree and shrub canopy cover in Prairie; maintain <50% canopy cover in Savanna
- Control invasive species, including those listed above and all listed by MDA as noxious weeds (e.g., Canada thistle)
- Improve biodiversity by increasing abundance and diversity of native plants throughout area

### Management Strategies

- Manually remove invasive vegetation where safe and feasible (as needed)
- Conduct prescribed burn (rotational burn of ½ of site each time, such that each unit is burned every 3-4 years)
- Mow and brush saw as necessary to control woody invasion (burns should limit need for this task)
- Conduct stump and foliar spray treatments with MPRB-approved herbicide (as necessary)
- Overseed to diversify ground layer (as needed)

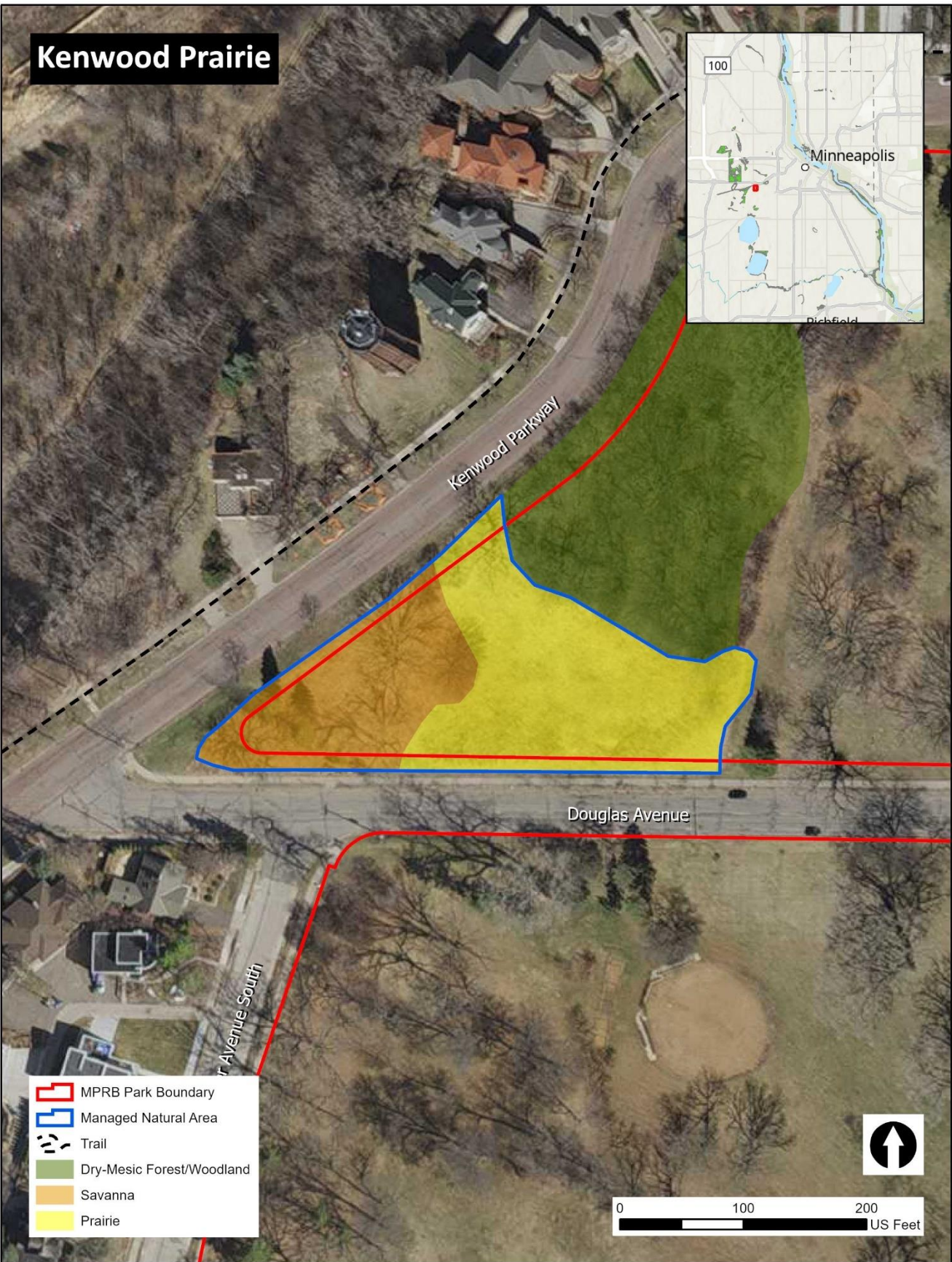
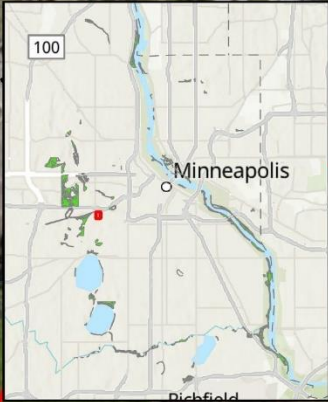
### Native Species to Plant & Perpetuate





See MNDNR’s species list for UPs23 (Southern Mesic Prairie).

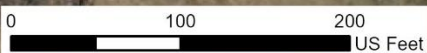
## MANAGEMENT TASKS & SCHEDULE

Management Task	Occurrence	Season/Month(s) of Activity			
		Spring	Summer	Fall	Winter
Hazard tree inspection and removal (diseased and dead trees, or trees with damaged limbs)	Annual inspection		Jun-Aug	Sep-Oct	Nov-Feb
Invasive/aggressive tree and shrub removal and treatment (specimens >1” caliper)	Ongoing, as needed				Nov-Feb
Monitor overall improvement of biodiversity	Annually	Mar-May	Jun-Aug	Sep-Oct	Nov-Feb
Prescribed burn	Every year or two (rotational), varying spring & fall	Mar-Apr		Sep-Oct	Nov
Foliar treatment of invasive vegetation	Ongoing, as needed	Apr-May	Jun-Aug	Sep-Oct	
Planting and seeding of native herbaceous plants	Ongoing, as needed	Mar-May		Sep-Oct	Nov
Prairie mowing	Annually if burns are not possible		Jun-Aug		
Invasive pulling events (volunteers)	Ongoing, as needed	May	Jun-Aug		

# Kenwood Prairie



-  MPRB Park Boundary
-  Managed Natural Area
-  Trail
-  Dry-Mesic Forest/Woodland
-  Savanna
-  Prairie





# DRY- MESIC FOREST/WOODLAND – MANAGEMENT BRIEF



## IDENTIFIERS & BASIC INFORMATION

**Location:** Relatively common in the MPRB park system; vast majority is within Theodore Wirth Park  
**Acres in MPRB Phase II Study:** 152

**MLCCS Classification(s):** “Oak forest”, “Oak woodland-brushland”  
**MNDNR Classification(s):** Southern Dry-Mesic Oak (Maple) Woodland (FDs37)

## ASSESSMENT OF CURRENT CONDITIONS

**General History:** Low-intensity surface fires were important for maintaining plant community structure and species composition. Without fire, woody plant invasion occurs and sun-requiring species disappear, reducing the variety of plants and insects in the community.

**General Conditions:** A well-drained, forested plant community of oaks and other tree species on higher ground and slopes.

## RESTORATION & MANAGEMENT ISSUES, GOALS & STRATEGIES

### Issues to Date

- Invasive vegetation is common, especially Common buckthorn
- Invasive earthworms are often present, which reduces the surface forest duff layer, increases erosion, and changes soil structure to the detriment of many native species

**Restoration Goals** (increase biodiversity and improve quality rank by implementing the following):

- Maintain >80% canopy cover
- Remove and control invasive vegetation
- Improve biodiversity by increasing abundance and diversity of native plants throughout

### Management Strategies

- Assess if fine fuel of oak leaf litter and dense graminoids will carry a prescribed surface fire, and establish if lacking. Fine fuel is essential for management using fire.
- Remove and control invasive woody and herbaceous species using Integrated Pest Management (IPM) practices, and protect desirable vegetation. Start with mechanical and biocontrol means; use herbicides sparingly as a last resort.
- Conduct selective thinning of aggressive native woody species (e.g., Box elder, Green ash) when inhibiting growth of native groundcover and regeneration of desirable canopy trees, especially oaks.
- Identify opportunities to expand and connect to adjacent natural areas.
- Install native trees, shrubs, live plant plugs, and seed to diversify ground, shrub, and canopy layers.
- Conduct annual walkabout to inspect and identify tasks to complete in the next growing season.


### Native Species to Plant & Perpetuate

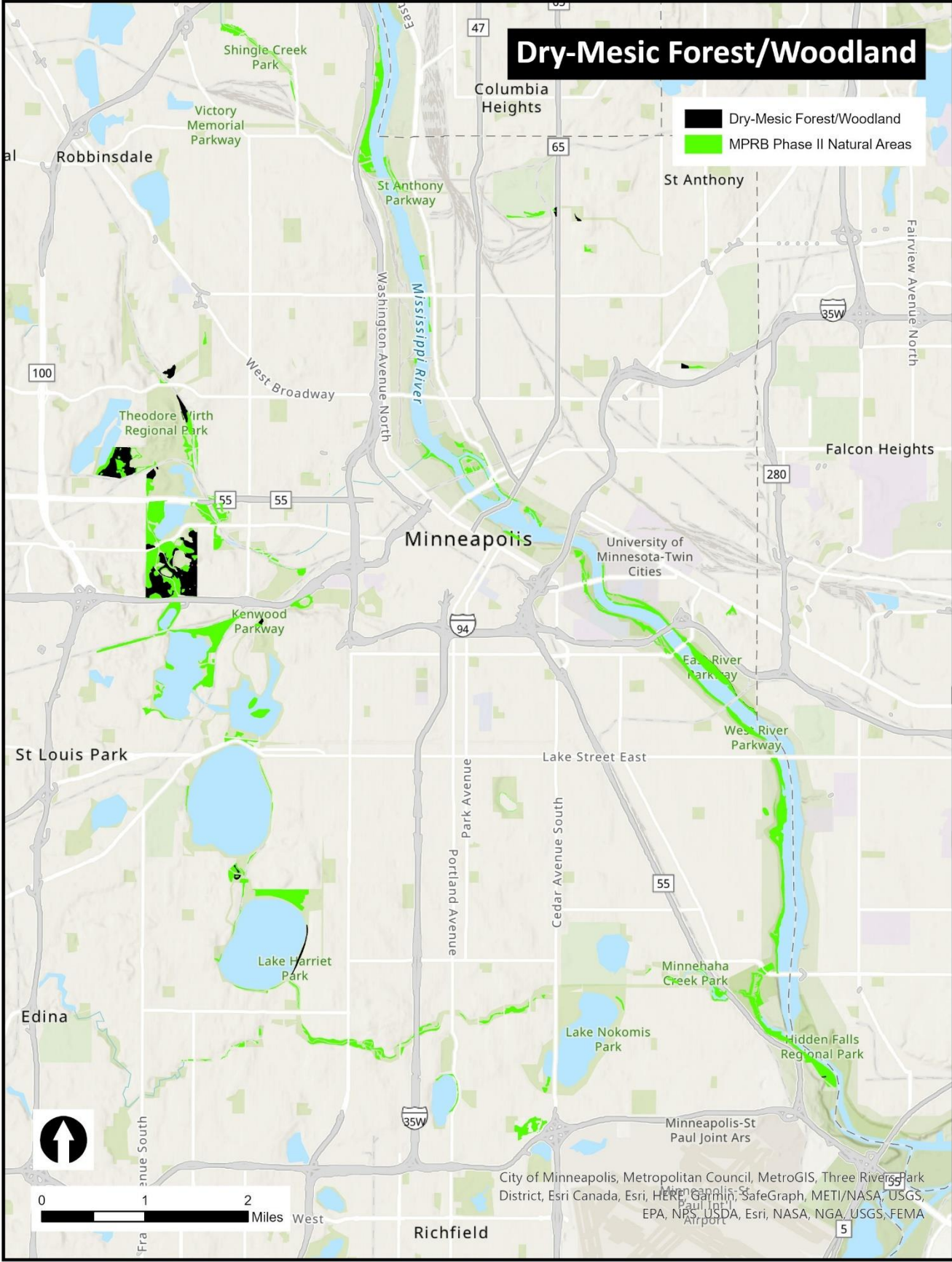
See species lists for MNDNR’s Southern Dry-Mesic Oak (Maple) Woodland (FDs37).

## MANAGEMENT TASKS & SCHEDULE

Management Task	Occurrence	Season/Month(s) of Activity			
		Spring	Summer	Fall	Winter
Hazard tree inspection and removal (diseased and dead trees, or trees with damaged limbs)	Annual inspection & removal		Jun-Aug	Sep-Oct	Nov-Feb
Invasive/aggressive tree and shrub removal and treatment (specimens >1” caliper)	Ongoing, as needed				Nov-Feb
Monitor overall improvement of biodiversity	Annually		Jun-Aug		
Prescribed burn (where feasible)	When fine fuel is sufficient & helps achieve goals; typically, every ~10 yrs	May	Jun-Aug	Sep	
Foliar treatment of invasive vegetation	Ongoing, as needed	Apr-May	Jun-Aug	Sep-Oct	
Planting and seeding of native woody and herbaceous plants	Ongoing, as needed	Mar-May		Sep-Oct	Nov
Invasive pulling events (volunteers)	Ongoing, as needed	May	Jun-Aug		

# Dry-Mesic Forest/Woodland

 Dry-Mesic Forest/Woodland  
 MPRB Phase II Natural Areas



City of Minneapolis, Metropolitan Council, MetroGIS, Three Rivers Park District, Esri Canada, Esri, HERE, Garmin, SafeGraph, METI/NASA, USGS, EPA, NPS, USDA, Esri, NASA, NGA, USGS, FEMA

# MESIC FOREST – MANAGEMENT BRIEF



## IDENTIFIERS & BASIC INFORMATION

**Location:** Found throughout much of the MPRB park system, with most along the Mississippi Gorge and Minnehaha Creek

**MLCCS Classification(s):** “Maple-basswood forest”, “Oak forest mesic subtype”

**Acres in MPRB Phase II Study:** 260

**MNDNR Classification(s):** Southern Dry-Mesic Oak Forest (MHs37), Southern Mesic Oak-Basswood Forest (MHs38), Southern Mesic Maple-Basswood Forest (MHs39)

## ASSESSMENT OF CURRENT CONDITIONS

**General History:** Absence of natural disturbances (e.g., tree death, blowdown, rare surface fire) tends to result in eventual dominance by maple.

**General Conditions:** A moist, forested plant community of basswood, oaks, sugar maple, and other tree species typically on level ground, northerly-facing slopes, and lower slopes.

## RESTORATION & MANAGEMENT ISSUES, GOALS & STRATEGIES

### Issues to Date

- Invasive vegetation is common, especially Common buckthorn and Garlic mustard
- Invasive earthworms are often present, which reduces the surface forest duff layer, increases erosion, and changes soil structure to the detriment of many native species

**Restoration Goals** (increase biodiversity and improve quality rank by implementing the following):

- Maintain >90% canopy cover
- Remove and control invasive vegetation
- Improve biodiversity by increasing abundance and diversity of native plants throughout

### Management Strategies

- Determine target native plant community; forest canopy composition and nearby reference sites will indicate the most appropriate type for the site.
- Remove and control invasive woody and herbaceous species using Integrated Pest Management (IPM) practices, and protect desirable vegetation. Start with mechanical and biocontrol means; use herbicides sparingly as a last resort.
- Conduct selective thinning of aggressive native woody species (e.g., Box elder, Green ash) when inhibiting growth of native groundcover and regeneration of desirable canopy trees.
- Identify opportunities to expand and connect forest with adjacent natural areas.
- Install native trees, shrubs, live plant plugs, and seed to diversify ground, shrub, subcanopy, and canopy layers.
- Conduct annual walkabout to inspect and identify tasks to complete in the next growing season.

### Native Species to Plant & Perpetuate

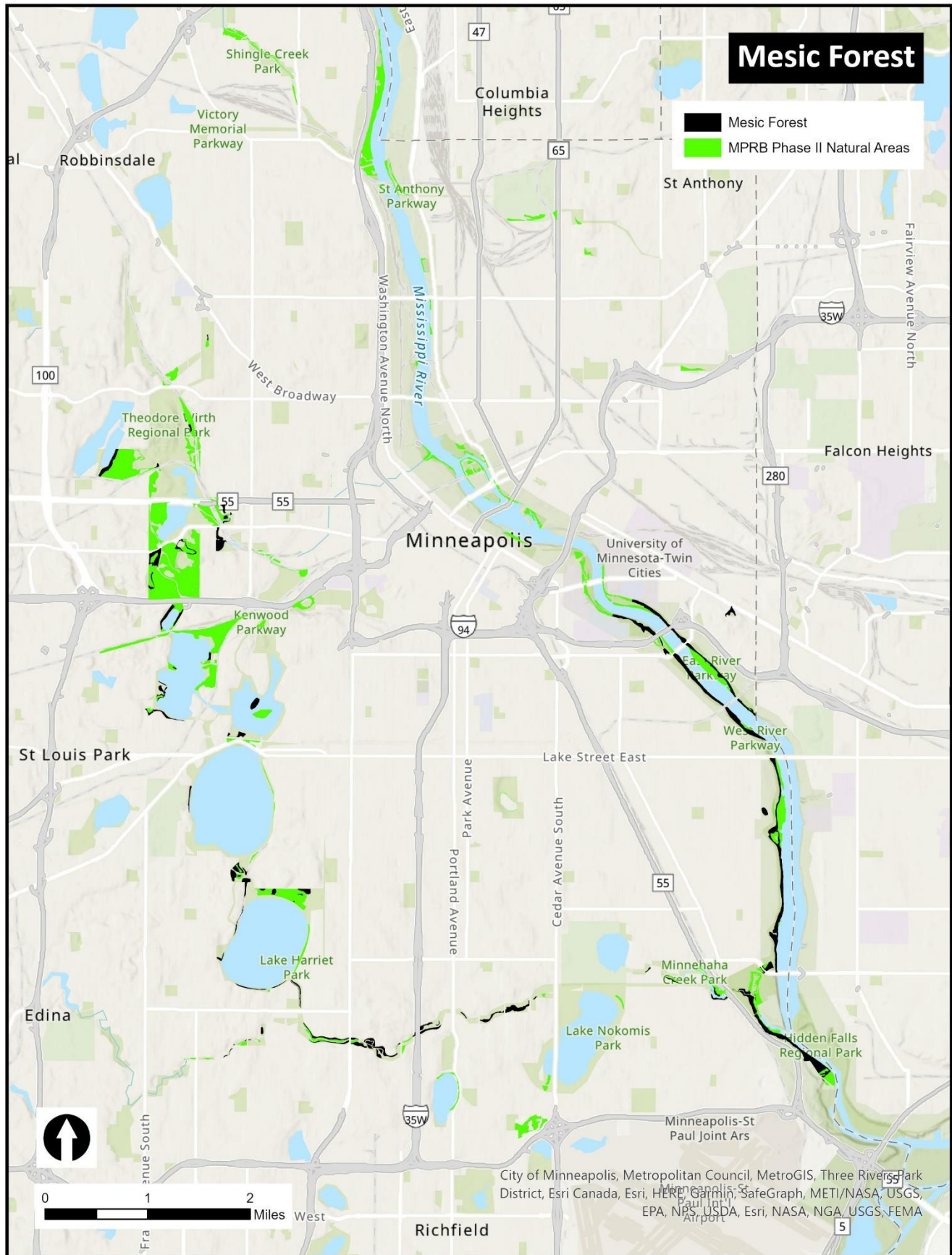
See species lists for MNDNR’s Southern Dry-Mesic Oak Forest (MHs37), Southern Mesic Oak-Basswood Forest (MHs38), Southern Mesic Maple-Basswood Forest (MHs39).

## MANAGEMENT TASKS & SCHEDULE

Management Task	Occurrence	Season/Month(s) of Activity			
		Spring	Summer	Fall	Winter
Hazard tree inspection and removal (diseased and dead trees, or trees with damaged limbs)	Annual inspection & removal		Jun-Aug	Sep-Oct	Nov-Feb
Invasive/aggressive tree and shrub removal and treatment (specimens >1” caliper)	Ongoing, as needed				Nov-Feb
Monitor overall improvement of biodiversity	Annually		Jun-Aug		
Prescribed burn (where feasible)	When fine fuel is sufficient & helps achieve goals	Mar-Apr		Oct	Nov-Dec
Foliar treatment of invasive vegetation	Ongoing, as needed	Apr-May	Jun-Aug	Sep-Oct	
Planting and seeding of native woody and herbaceous plants	Ongoing, as needed	Mar-May		Sep-Oct	Nov
Invasive pulling events (volunteers)	Ongoing, as needed	May	Jun-Aug		

# Mesic Forest

-  Mesic Forest
-  MPRB Phase II Natural Areas



City of Minneapolis, Metropolitan Council, MetroGIS, Three Rivers Park District, Esri Canada, Esri, HERE, Garmin, SafeGraph, METI/NASA, USGS, EPA, NPS, USDA, Esri, NASA, NGA, USGS, FEMA

# ALTERED FOREST/WOODLAND – MANAGEMENT BRIEF



## IDENTIFIERS & BASIC INFORMATION

**Location:** Found throughout much of the MPRB park system    **MLCCS Classification(s):** Most often “Altered/non-native deciduous forest” or “Boxelder-green ash (forest)”

**Acres in MPRB Phase II Study:** 253    **MNDNR Classification(s):** Not considered a natural community

## ASSESSMENT OF CURRENT CONDITIONS

**General History:** A forested plant community on disturbed land (e.g., fill areas, former building/industrial sites, dump sites or unmanaged parkland).

**General Conditions:** Dominated by light-seeded trees and shrubs, most of which originated in lowland settings (e.g., Box elder, Green ash, American and Slippery elms, Eastern cottonwood, Hackberry).

## RESTORATION & MANAGEMENT ISSUES, GOALS & STRATEGIES

### Issues to Date

- While these forests/woodlands may be dominated by native species, they are not a natural community
- Invasive vegetation is common

### Restoration Goals (increase biodiversity and improve quality rank by implementing the following):

- Transition to a natural community: typically Mesic Forest or Dry-Mesic Forest/Woodland
- Maintain >80% canopy cover
- Remove and control invasive vegetation
- Improve biodiversity by increasing abundance and diversity of native plants throughout

### Management Strategies

- Determine target native plant community. Forest and woodland with well-drained soil, especially on south- to west-facing slopes and lacking seepage, are best transitioned to fire-dependent Dry-Mesic Forest/Woodland; moister, mesic sites are best transitioned to Mesic Forest.
- If target is Dry-Mesic Forest/Woodland, assess if fine fuel of oak leaf litter and dense graminoids will carry a prescribed surface fire, and establish if lacking. Fine fuel is essential for management using fire.
- Remove and control invasive woody and herbaceous species using Integrated Pest Management (IPM) practices, and protect desirable vegetation. Start with mechanical and biocontrol means; use herbicides sparingly as a last resort.
- Conduct selective thinning of aggressive native woody species (e.g., Box elder, Green ash) when inhibiting growth of native groundcover and regeneration of desirable canopy trees, especially oaks.
- Identify opportunities to expand and connect to adjacent natural areas.
- Install native trees, shrubs, live plant plugs, and seed to diversify ground, shrub, and canopy layers.
- Conduct annual walkabout to inspect and identify tasks to complete in the next growing season.

### Native Species to Plant & Perpetuate

For Dry-Mesic Forest/Woodland restorations, see species lists for MNDNR’s Southern Dry-Mesic Oak (Maple) Woodland (FDs37); for Mesic Forest, see species lists for Southern Dry-Mesic Oak Forest (MHs37), Southern Mesic Oak-Basswood Forest (MHs38), or Southern Mesic Maple-Basswood Forest (MHs39).

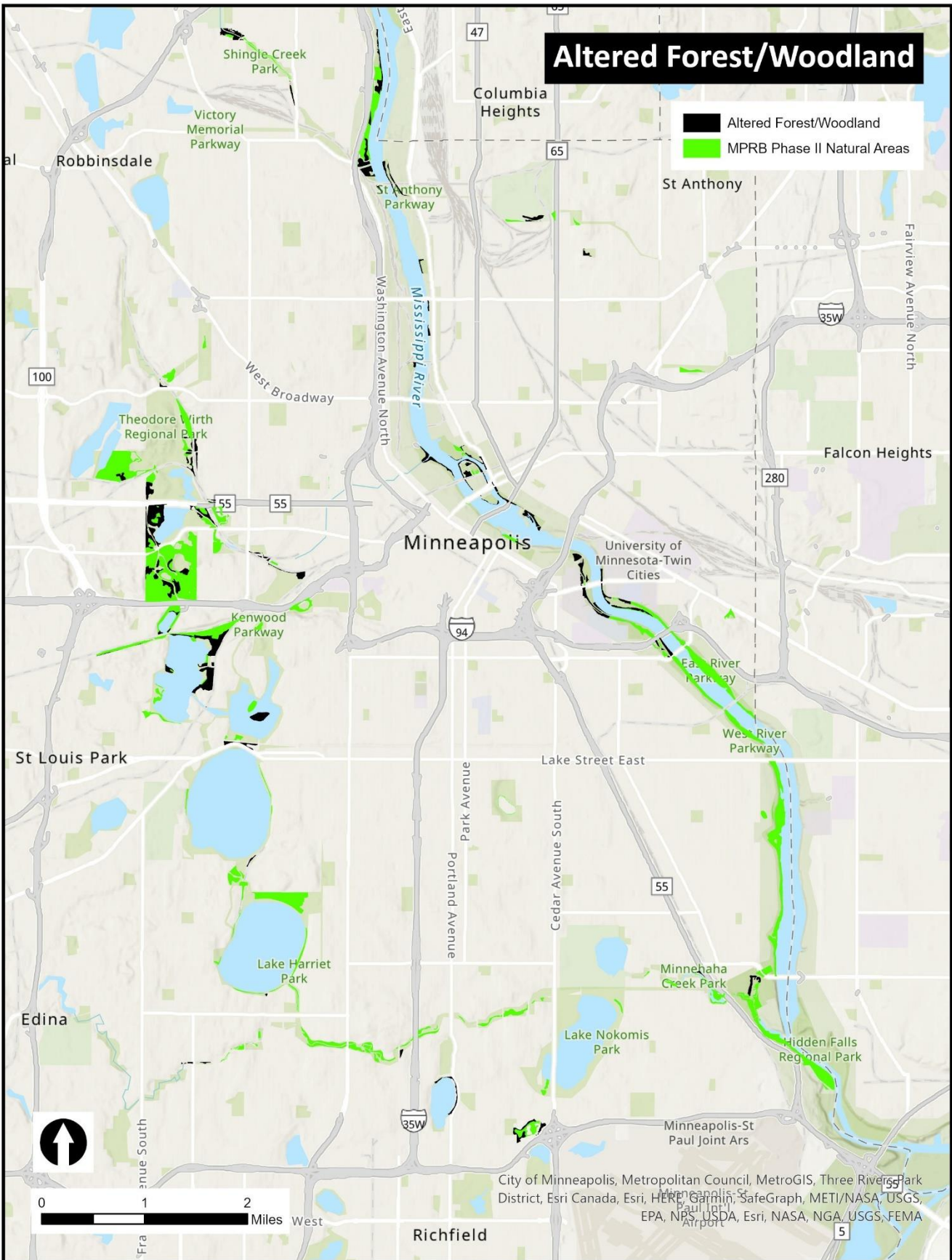
## MANAGEMENT TASKS & SCHEDULE

Management Task	Occurrence	Season/Month(s) of Activity			
		Spring	Summer	Fall	Winter
Hazard tree inspection and removal (diseased and dead trees, or trees with damaged limbs)	Annual inspection & removal		Jun-Aug	Sep-Oct	Nov-Feb
Invasive/aggressive tree and shrub removal and treatment (specimens >1” caliper)	Ongoing, as needed				Nov-Feb
Monitor overall improvement of biodiversity	Annually		Jun-Aug		
Prescribed burn (where feasible)	When fine fuel is sufficient & helps achieve goals	May	Jun-Aug	Sep	
Foliar treatment of invasive vegetation	Ongoing, as needed	Apr-May	Jun-Aug	Sep-Oct	
Planting and seeding of native woody and herbaceous plants	Ongoing, as needed	Mar-May		Sep-Oct	Nov
Invasive pulling events (volunteers)	Ongoing, as needed	May	Jun-Aug		

# Altered Forest/Woodland

Legend:

- Altered Forest/Woodland (Black outline)
- MPRB Phase II Natural Areas (Green fill)



City of Minneapolis, Metropolitan Council, MetroGIS, Three Rivers Park District, Esri Canada, Esri, HERE, Garmin, SafeGraph, METI/NASA, USGS, EPA, NPS, USDA, Esri, NASA, NGA, USGS, FEMA

# SAVANNA – MANAGEMENT BRIEF



## IDENTIFIERS & BASIC INFORMATION

**Location:** Relatively uncommon in the MPRB park system

**MLCCS Classification(s):** “Mesic oak savanna”, “Dry oak savanna”, various cover types “with sparse trees”

**Acres in MPRB Phase II Study:** 41

**MNDNR Classification(s):** Native savannas: Southern Mesic Savanna (Ups24), Southern Dry Savanna (UPs14); if dominated by non-native plants, it is a “structural savanna”, not a natural community

## ASSESSMENT OF CURRENT CONDITIONS

**General History:** Frequent surface fires (every 2-4 yrs) helped maintain plant community structure and species composition. Without fire, woody plant invasion occurs, resulting in oak woodland-brushland or closed canopy forests; sun-requiring species disappear, reducing the variety of plants and insects in the community. Grazing and browsing animals also affected woody plant development but were less influential than fire.

**General Conditions:** A relatively open plant community where oaks, other trees, and shrubs cover less than half the ground, which is blanketed by sun-requiring and shade-tolerant plants.

## RESTORATION & MANAGEMENT ISSUES, GOALS & STRATEGIES

### Issues to Date

- Invasive vegetation is common, especially Common buckthorn and species that invade prairies

**Restoration Goals** (increase biodiversity and improve quality rank by implementing the following):

- Maintain 5-50% canopy cover
- Remove and control invasive vegetation
- Improve biodiversity by increasing abundance and diversity of native plants throughout Savanna

### Management Strategies

- Assess if fine fuel of oak leaf litter and dense graminoids will carry a prescribed surface fire, and establish if lacking. Fine fuel is essential for management using fire.
- Remove and control invasive woody and herbaceous species using Integrated Pest Management (IPM) practices, and protect desirable vegetation. Start with prescribed fire, mechanical and biocontrol means; use herbicides sparingly as a last resort.
- Divide area into two or three units and burn in alternating years.
- Conduct selective thinning of aggressive native woody species (e.g., Box elder, Green ash) when inhibiting growth of native groundcover and regeneration of desirable canopy trees, especially oaks.
- Identify opportunities to expand and connect to adjacent natural areas.
- Install native trees, shrubs, live plant plugs, and seed to diversify ground, shrub, and canopy layers.
- Conduct annual walkabout to inspect and identify tasks to complete in the next growing season.



### Native Species to Plant & Perpetuate

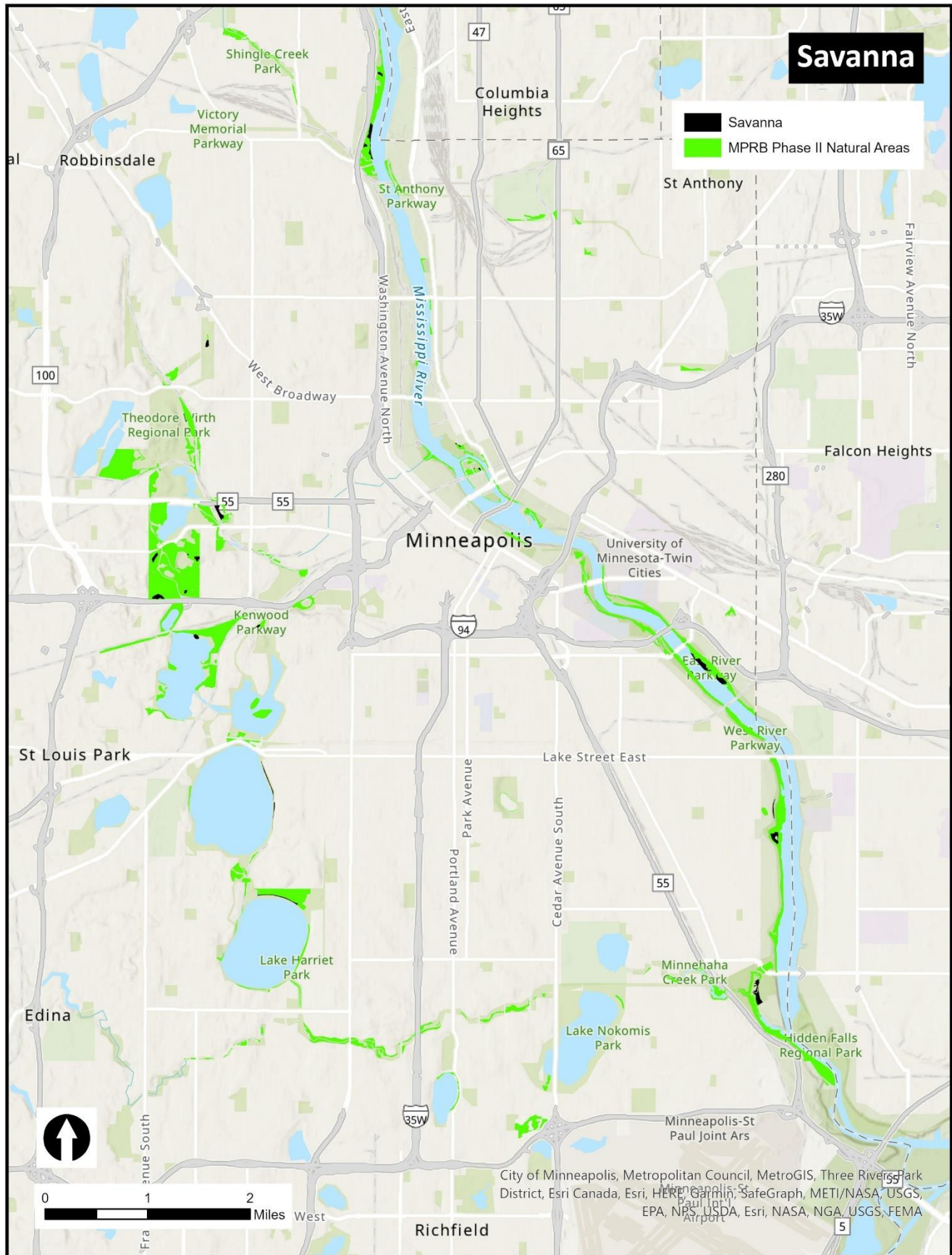
See species lists for MNDNR’s Southern Mesic Savanna (Ups24) or Southern Dry Savanna (UPs14).

## MANAGEMENT TASKS & SCHEDULE

Management Task	Occurrence	Season/Month(s) of Activity			
		Spring	Summer	Fall	Winter
Hazard tree inspection and removal (diseased and dead trees, or trees with damaged limbs)	Annual inspection & removal		Jun-Aug	Sep-Oct	Nov-Feb
Invasive/aggressive tree and shrub removal and treatment (specimens >1” caliper)	Ongoing, as needed				Nov-Feb
Monitor overall improvement of biodiversity	Annually		Jun-Aug		
Prescribed burn (where feasible)	When fine fuel is sufficient & helps achieve goals; typically every ~2-4 yrs	May	Jun-Aug	Sep	
Foliar treatment of invasive vegetation	Ongoing, as needed	Apr-May	Jun-Aug	Sep-Oct	
Planting and seeding of native woody and herbaceous plants	Ongoing, as needed	Mar-May		Sep-Oct	Nov
Invasive pulling events (volunteers)	Ongoing, as needed	May	Jun-Aug		

# Savanna

-  Savanna
-  MPRB Phase II Natural Areas



City of Minneapolis, Metropolitan Council, MetroGIS, Three Rivers Park District, Esri Canada, Esri, HERE, Garmin, SafeGraph, METI/NASA, USGS, EPA, NPS, USDA, Esri, NASA, NGA, USGS, FEMA



# SHRUB/SCRUB – MANAGEMENT BRIEF



## IDENTIFIERS & BASIC INFORMATION

**Location:** Uncommon in the MPRB park system

**MLCCS Classification(s):** Upland shrublands and various cover types  
“with sparse trees”

**Acres in MPRB Phase II Study:** 16

**MNDNR Classification(s):** Not considered a natural community

## ASSESSMENT OF CURRENT CONDITIONS

**General History:** Most examples are former turf or other grassland areas that became overgrown with shrubs and scattered trees (including areas where MPRB has practiced reduced mowing).

**General Conditions:** A non-forested, upland plant community where shrubs and scrubby trees cover up to half the ground.

## RESTORATION & MANAGEMENT ISSUES, GOALS & STRATEGIES

### Issues to Date

- Invasive vegetation is common, including species of Non-Native Grasslands

**Restoration Goals** (increase biodiversity and improve quality rank by implementing the following):

- Transition to a natural community: typically Prairie, Savanna, Mesic Forest or Dry-Mesic Forest/Woodland
- Remove and control invasive vegetation
- Improve biodiversity by increasing abundance and diversity of native plants throughout

### Management Strategies

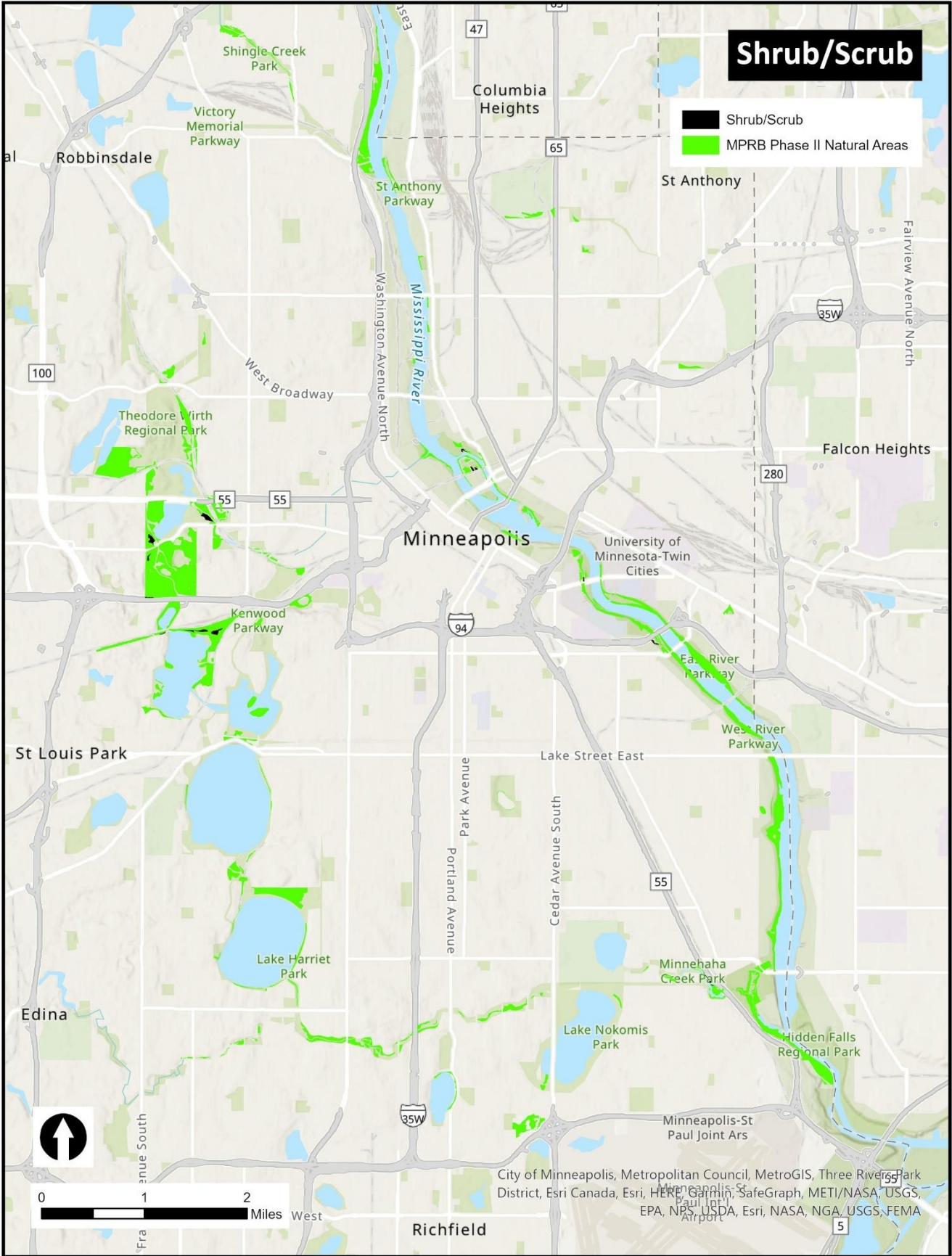
- Determine target native plant community based on the site’s conservation goals. Goals may include establishing a habitat type to benefit particular plant or wildlife species, managing invasive vegetation to prevent its spread, or simply filling tree canopy gaps to convert quickly to forest or woodland.
- If restoring to a fire-dependent community, assess if fine fuel of oak leaf litter and dense graminoids will carry a prescribed surface fire, and establish if lacking. Fine fuel is essential for management using fire.
- Remove and control invasive woody and herbaceous species using Integrated Pest Management (IPM) practices, and protect desirable vegetation. Start with mechanical and biocontrol means; use herbicides sparingly as a last resort.
- Conduct selective thinning of aggressive native woody species (e.g., Box elder, Green ash) if they are inhibiting conservation goals.
- Identify opportunities to expand and connect to adjacent natural areas.
- Install native trees, shrubs, live plant plugs, and seed (as appropriate to the target plant community) to diversify ground, shrub, and canopy layers.
- Conduct annual walkabout to inspect and identify tasks to complete in the next growing season.

### Native Species to Plant & Perpetuate

See species lists for the target native plant community.

## MANAGEMENT TASKS & SCHEDULE

Management Task	Occurrence	Season/Month(s) of Activity			
		Spring	Summer	Fall	Winter
Hazard tree inspection and removal (diseased and dead trees, or trees with damaged limbs)	Annual inspection & removal		Jun-Aug	Sep-Oct	Nov-Feb
Invasive/aggressive tree and shrub removal and treatment (specimens >1” caliper)	Ongoing, as needed				Nov-Feb
Monitor overall improvement of biodiversity	Annually		Jun-Aug		
Prescribed burn (where feasible)	When fine fuel is sufficient & helps achieve goals; frequency depends on target plant community	May	Jun-Aug	Sep	
Foliar treatment of invasive vegetation	Ongoing, as needed	Apr-May	Jun-Aug	Sep-Oct	
Planting and seeding of native woody and herbaceous plants (when appropriate for target plant community)	Ongoing, as needed	Mar-May		Sep-Oct	Nov
Invasive pulling events (volunteers)	Ongoing, as needed	May	Jun-Aug		



# PRAIRIE – MANAGEMENT BRIEF



## IDENTIFIERS & BASIC INFORMATION

**Location:** Relatively common in the MPRB park system; most are planted prairies

**Acres in MPRB Phase II Study:** 76

**MLCCS Classification(s):** Mesic prairie”, “Dry prairie”, “Wet prairie”

**MNDNR Classification(s):** Southern Mesic Prairie (Ups23), Southern Dry Prairie (Ups13), Southern Wet Prairie (WPs54)

## ASSESSMENT OF CURRENT CONDITIONS

**General History:** All but Morley’s Prairie in Minnehaha Park (addressed in a separate management brief) are planted prairies. Frequent surface fires (every 2-4 years) helped maintain plant community structure and species composition. Grazing and burrowing animals were also influential.

**General Conditions:** A plant community of native grasses with a large variety of sunlight-dependent wildflowers that grow in different combinations based on soil moisture.

## RESTORATION & MANAGEMENT ISSUES, GOALS & STRATEGIES

### Issues to Date

- Invasive vegetation is common, including species of Non-Native Grasslands such as Smooth brome grass

**Restoration Goals** (increase biodiversity and improve quality rank by implementing the following):

- Maintain <5% canopy cover
- Remove and control invasive vegetation, including woody plant invasion
- Improve biodiversity by increasing abundance and diversity of native plants throughout

### Management Strategies

- Remove and control invasive woody and herbaceous species using Integrated Pest Management (IPM) practices, and protect desirable vegetation. Start with prescribed fire, mechanical and biocontrol means; use herbicides sparingly as a last resort.
- Divide area into two or three units and burn in alternating years.
- Identify opportunities to expand and connect to adjacent natural areas.
- Install native prairie shrubs, live plant plugs, and seed to diversify vegetation.
- Conduct annual walkabout to inspect and identify tasks to complete in the next growing season.



### Native Species to Plant & Perpetuate

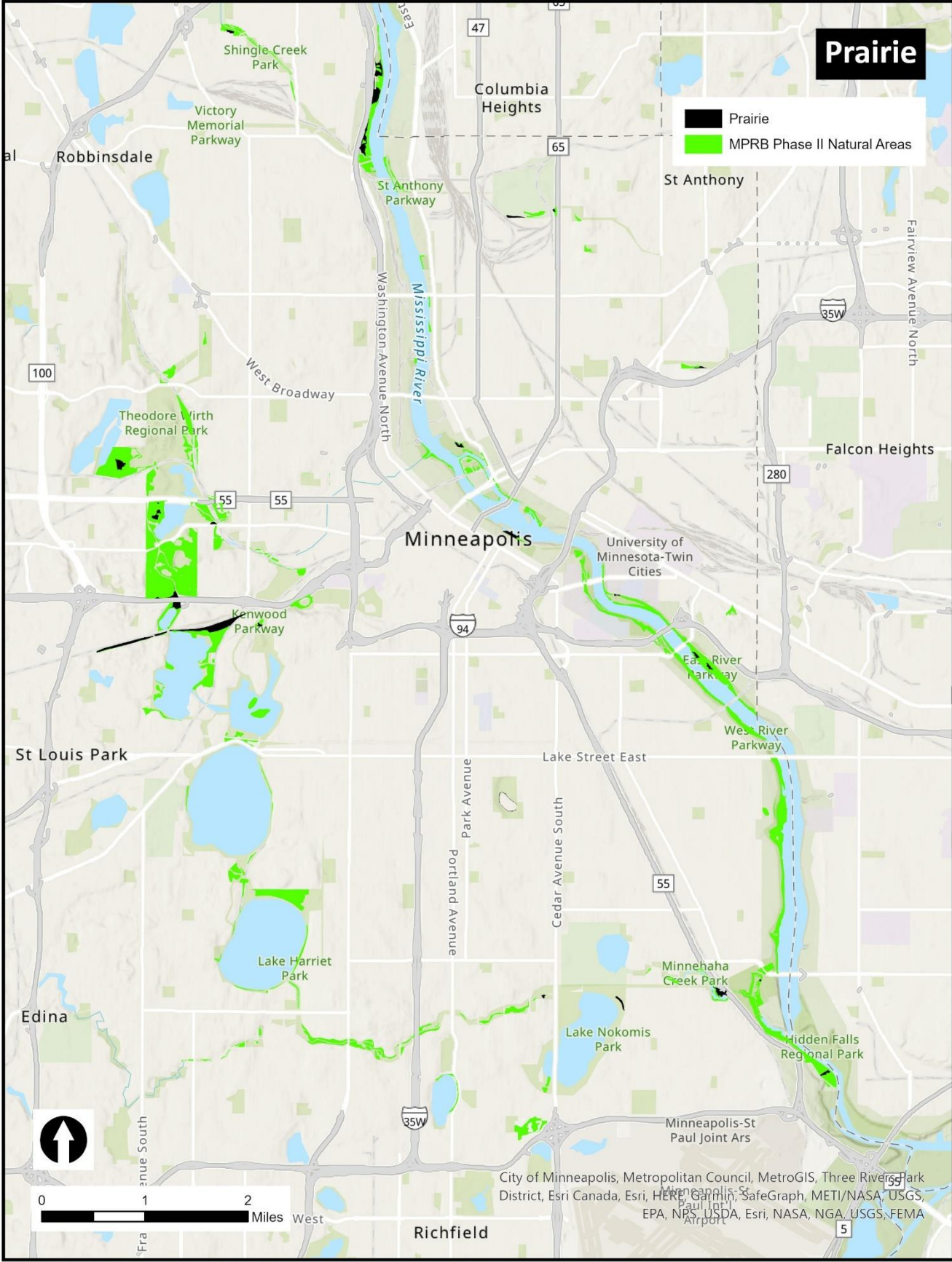
See species lists MNDNR’s Southern Mesic Prairie (Ups23), Southern Dry Prairie (Ups13), Southern Wet Prairie (WPs54).

## MANAGEMENT TASKS & SCHEDULE

Management Task	Occurrence	Season/Month(s) of Activity			
		Spring	Summer	Fall	Winter
Hazard tree inspection and removal (diseased and dead trees, or trees with damaged limbs); often not needed in Prairies	Annual inspection & removal		Jun-Aug	Sep-Oct	Nov-Feb
Invasive/aggressive tree and shrub removal and treatment (specimens >1” caliper)	Ongoing, as needed				Nov-Feb
Monitor overall improvement of biodiversity	Annually		Jun-Aug		
Prescribed burn	Typically every 2-4 yrs	May	Jun-Aug	Sep	
Foliar treatment of invasive vegetation	Ongoing, as needed	Apr-May	Jun-Aug	Sep-Oct	
Planting and seeding of native prairie shrubs and herbaceous plants	Ongoing, as needed	Mar-May		Sep-Oct	Nov
Invasive pulling events (volunteers)	Ongoing, as needed	May	Jun-Aug		

# Prairie

-  Prairie
-  MPRB Phase II Natural Areas



City of Minneapolis, Metropolitan Council, MetroGIS, Three Rivers Park District, Esri Canada, Esri, HERE, Garmin, SafeGraph, METI/NASA, USGS, EPA, NPS, USDA, Esri, NASA, NGA, USGS, FEMA

# NON-NATIVE GRASSLAND – MANAGEMENT BRIEF



## IDENTIFIERS & BASIC INFORMATION

**Location:** Uncommon in the MPRB park system

**MLCCS Classification(s):** Various cover types with “altered/non-native dominated grassland”

**Acres in MPRB Phase II Study:** 10

**MNDNR Classification(s):** Not considered a natural community

## ASSESSMENT OF CURRENT CONDITIONS

**General History:** Often previously farmed or grazed long ago; in Minneapolis parks these areas frequently occur where reduced mowing has been practiced.

**General Conditions:** A plant community dominated by invasive non-native grasses, often supporting few wildflower species.

## RESTORATION & MANAGEMENT ISSUES, GOALS & STRATEGIES

### Issues to Date

- Invasive vegetation is common, including trees and shrubs

**Restoration Goals** (increase biodiversity and improve quality rank by implementing the following):

- Transition to a natural community, typically Prairie or Savanna
- Remove and control invasive vegetation
- Improve biodiversity by increasing abundance and diversity of native plants throughout

### Management Strategies

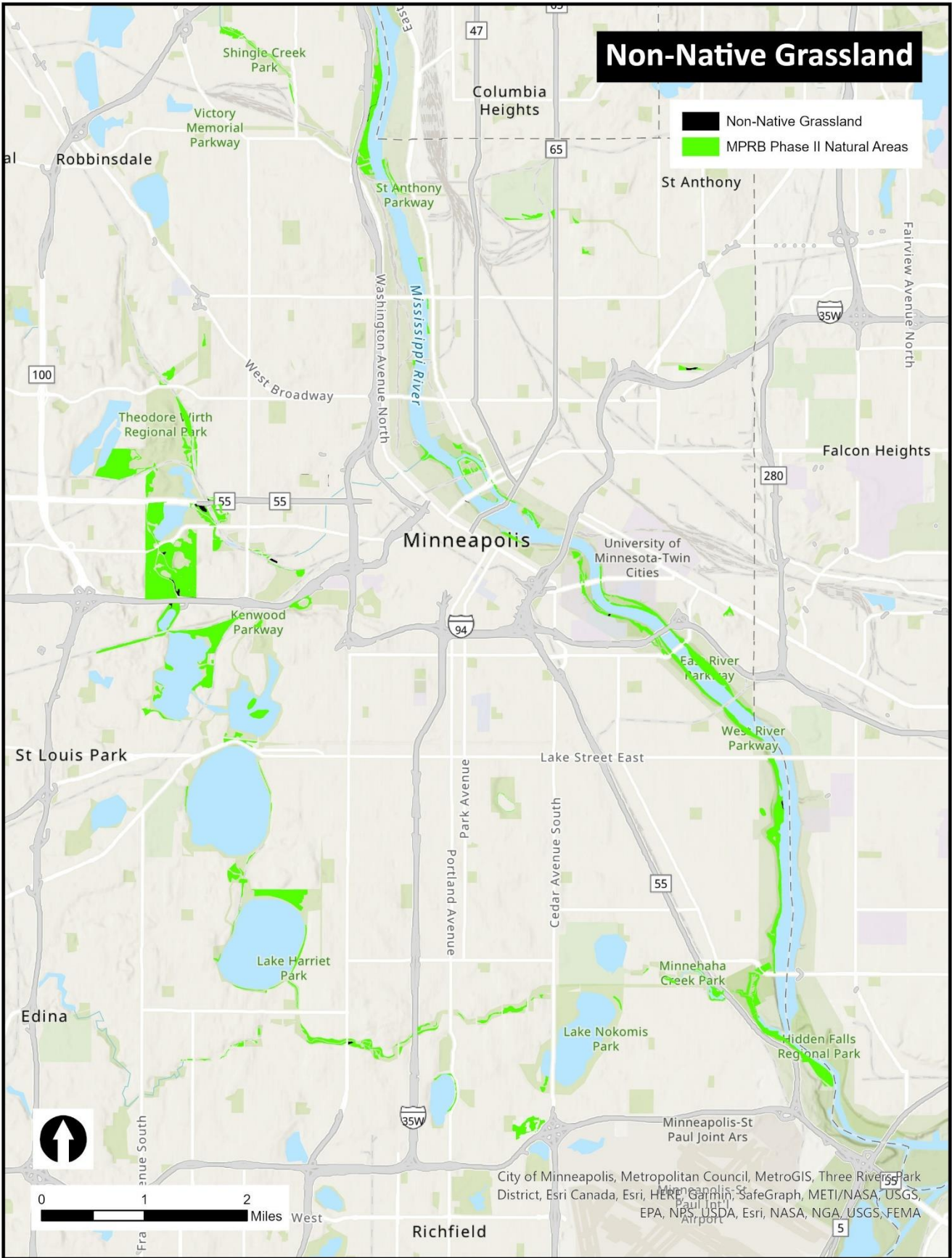
- Determine target native plant community based on the site’s conservation goals. Goals may include establishing a habitat type to benefit particular plant or wildlife species and managing invasive vegetation to prevent its spread.
- If restoring to a fire-dependent community, assess if fine fuel of oak leaf litter and dense graminoids will carry a prescribed surface fire, and establish if lacking. Fine fuel is essential for management using fire.
- Remove and control invasive woody and herbaceous species using Integrated Pest Management (IPM) practices, and protect desirable vegetation. Start with mechanical and biocontrol means; use herbicides sparingly as a last resort.
- Conduct selective thinning of aggressive native woody species (e.g., Box elder, Green ash) when inhibiting growth of native groundcover and regeneration of desirable trees.
- Identify opportunities to expand and connect to adjacent natural areas.
- Install native trees, shrubs, live plant plugs, and seed (as appropriate to the target plant community) to diversify ground, shrub, and canopy layers.
- Conduct annual walkabout to inspect and identify tasks to complete in the next growing season.

### Native Species to Plant & Perpetuate

See species lists for the target native plant community.

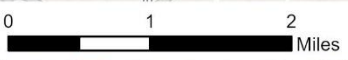
## MANAGEMENT TASKS & SCHEDULE

Management Task	Occurrence	Season/Month(s) of Activity			
		Spring	Summer	Fall	Winter
Hazard tree inspection and removal (diseased and dead trees, or trees with damaged limbs)	Annual inspection & removal		Jun-Aug	Sep-Oct	Nov-Feb
Invasive/aggressive tree and shrub removal and treatment (specimens >1” caliper)	Ongoing, as needed				Nov-Feb
Monitor overall improvement of biodiversity	Annually		Jun-Aug		
Prescribed burn (where feasible/appropriate)	When fine fuel is sufficient & helps achieve goals; frequency depends on target plant community	May	Jun-Aug	Sep	
Foliar treatment of invasive vegetation	Ongoing, as needed	Apr-May	Jun-Aug	Sep-Oct	
Planting and seeding of native woody and herbaceous plants (when appropriate for target plant community)	Ongoing, as needed	Mar-May		Sep-Oct	Nov
Invasive pulling events (volunteers)	Ongoing, as needed	May	Jun-Aug		



# Non-Native Grassland

- Non-Native Grassland
- MPRB Phase II Natural Areas



City of Minneapolis, Metropolitan Council, MetroGIS, Three Rivers Park District, Esri Canada, Esri, HERE, Garmin, SafeGraph, METI/NASA, USGS, EPA, NPS, USDA, Esri, NASA, NGA, USGS, FEMA

# FLOODPLAIN FOREST – MANAGEMENT BRIEF



## IDENTIFIERS & BASIC INFORMATION

**Location:** Relatively common in the MPRB park system, with **MLCCS Classification(s):** “Floodplain Forest System” with most along the Mississippi River

**Acres in MPRB Phase II Study:** 81 **MNDNR Classification(s):** Southern Floodplain Forest (FFs68)

## ASSESSMENT OF CURRENT CONDITIONS

**General History:** Some Floodplain Forests still experience an unaltered annual flood-drawdown cycle and resemble historical forests, but others have changed due to dams, levees and other hydrological changes.

**General Conditions:** Low-lying woodlands, typically with mineral soils, that experience flooding or shallow water tables for a period of time; these floods often occur annually or at least once every few years.

## RESTORATION & MANAGEMENT ISSUES, GOALS & STRATEGIES

### Issues to Date

- Hydrological alterations (e.g., watershed development, Ford Dam) have produced an unnatural flood regime
- Invasive vegetation is common, including Common buckthorn and Reed canary grass

### Restoration Goals (increase biodiversity and improve quality rank by implementing the following):

- Maintain 70-100% canopy cover
- Remove and control invasive vegetation
- Improve biodiversity by increasing abundance and diversity of native plants throughout

### Management Strategies

- Remove and control invasive woody and herbaceous species using Integrated Pest Management (IPM) practices, and protect desirable vegetation. Start with mechanical and biocontrol means; use herbicides sparingly as a last resort.
- Conduct selective thinning of aggressive native woody species (e.g., Box elder, Green ash) when inhibiting growth of native groundcover and regeneration of desirable canopy trees.
- Identify opportunities to expand and connect Floodplain Forest with adjacent natural areas.
- Install native trees, shrubs, live plant plugs, and seed to diversify ground, shrub, and canopy layers.
- Conduct annual walkabout to inspect and identify tasks to complete in the next growing season.


### Native Species to Plant & Perpetuate

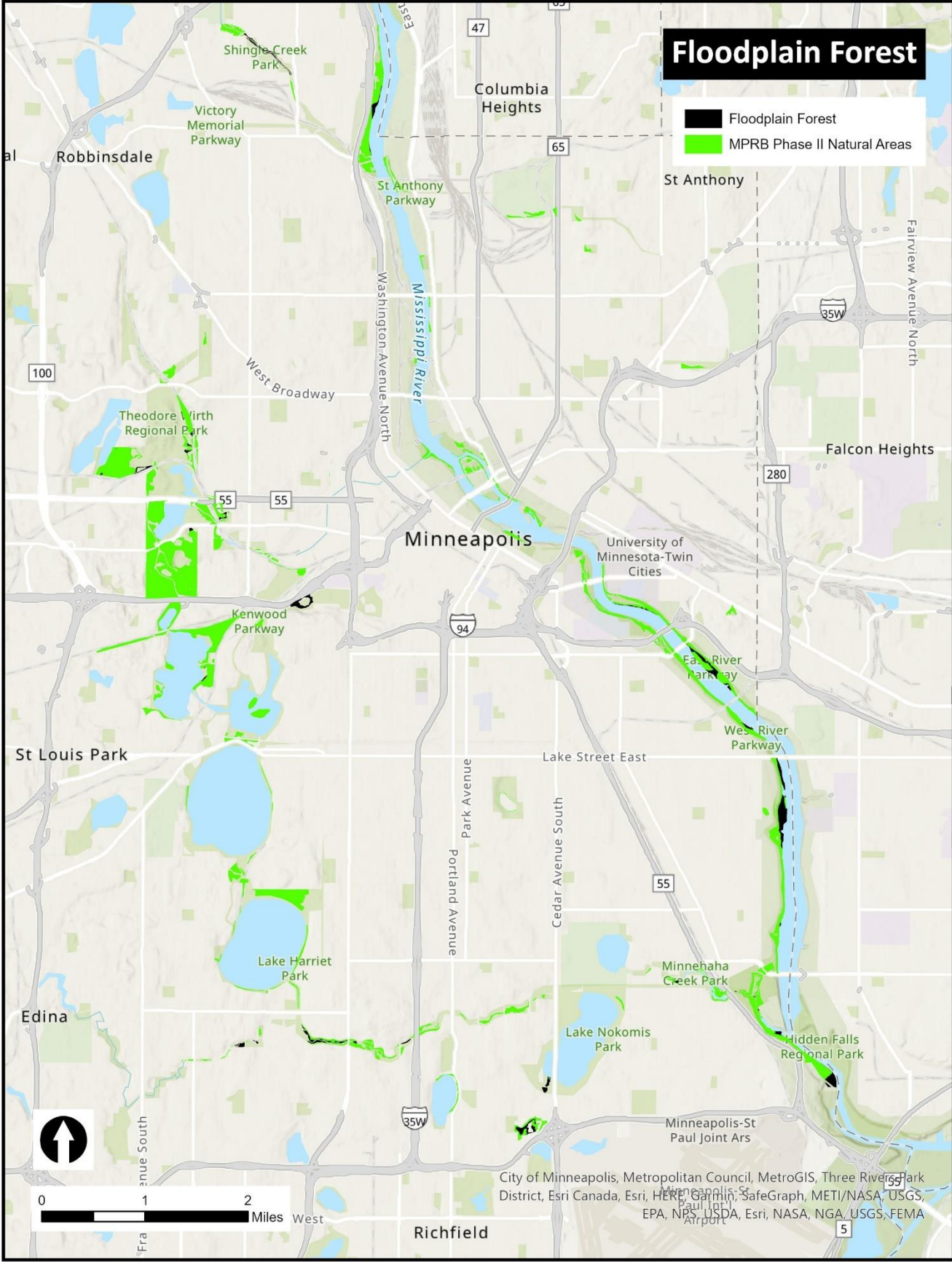
See species lists for MNDNR’s FFs68 (Southern Floodplain Forest).

## MANAGEMENT TASKS & SCHEDULE

Management Task	Occurrence	Season/Month(s) of Activity			
		Spring	Summer	Fall	Winter
Hazard tree inspection and removal (diseased and dead trees, or trees with damaged limbs)	Annual inspection & removal		Jun-Aug	Sep-Oct	Nov-Feb
Invasive/aggressive tree and shrub removal and treatment (specimens >1” caliper)	Ongoing, as needed				Nov-Feb
Monitor overall improvement of biodiversity	Annually		Jun-Aug		
Foliar treatment of invasive vegetation	Ongoing, as needed	Apr-May	Jun-Aug	Sep-Oct	
Planting and seeding of native woody and herbaceous plants	Ongoing, as needed	Mar-May		Sep-Oct	Nov
Invasive pulling events (volunteers)	Ongoing, as needed	May	Jun-Aug		

# Floodplain Forest

-  Floodplain Forest
-  MPRB Phase II Natural Areas



City of Minneapolis, Metropolitan Council, MetroGIS, Three Rivers Park District, Esri Canada, Esri, HERE, Garmin, SafeGraph, METI/NASA, USGS, EPA, NPS, USDA, Esri, NASA, NGA, USGS, FEMA



# WET FOREST/SWAMP – MANAGEMENT BRIEF



## IDENTIFIERS & BASIC INFORMATION

**Location:** Relatively uncommon in the MPRB park system

**MLCCS Classification(s):** “Wet Forest System”

**Acres in MPRB Phase II Study:** 30

**MNDNR Classification(s):** Wet Ash Swamp (WFs57a)

## ASSESSMENT OF CURRENT CONDITIONS

**General History:** Some Wet Forest/Swamp areas represent historical conditions of continuously saturated soil, while others have experienced partial drying due to ditching and other hydrological modifications.

**General Conditions:** Limited to saturated or inundated, typically organic soils, which were formed by plants that died but did not fully decompose.

## RESTORATION & MANAGEMENT ISSUES, GOALS & STRATEGIES

### Issues to Date

- Invasive vegetation is common, especially Reed canary grass in locations where the forest canopy is open. The ash borer will likely decimate black ash, a common canopy constituent.

### Restoration Goals (increase biodiversity and improve quality rank by implementing the following)

- Maintain <75% canopy cover
- Remove and control invasive vegetation
- Improve biodiversity by increasing abundance and diversity of native plants throughout

### Management Strategies

- Remove and control invasive woody and herbaceous species using Integrated Pest Management (IPM) practices, and protect desirable vegetation. Start with hydrological restoration, mechanical and biocontrol means; use herbicides sparingly as a last resort.
- Conduct selective thinning of aggressive native woody species (e.g., Box elder, Green ash) when they are inhibiting growth of native groundcover and regeneration of desirable canopy trees.
- Identify opportunities to expand and connect Wet Forest/Swamp with adjacent natural areas.
- Install native trees, shrubs, live plant plugs, and seed to diversify ground, shrub, and canopy layers.
- Conduct annual walkabout to inspect and identify tasks to complete in the next growing season.

### Native Species to Plant & Perpetuate

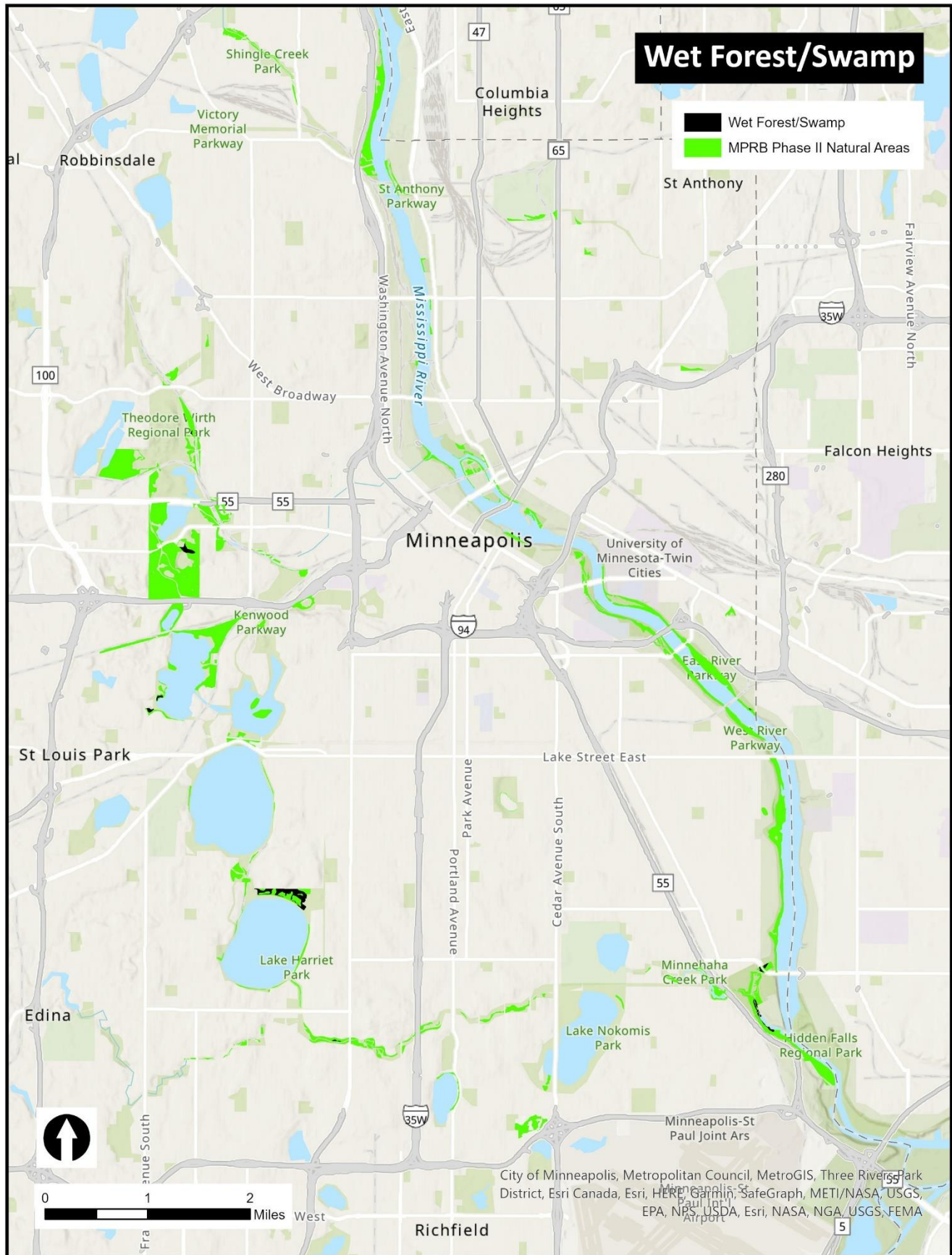
See species lists for MNDNR’s WFs57a (Wet Ash Swamp).

## MANAGEMENT TASKS & SCHEDULE

Management Task	Occurrence	Season/Month(s) of Activity			
		Spring	Summer	Fall	Winter
Hazard tree inspection and removal (diseased and dead trees, or trees with damaged limbs)	Annual inspection & removal		Jun-Aug	Sep-Oct	Nov-Feb
Invasive/aggressive tree and shrub removal and treatment (specimens >1” caliper)	Ongoing, as needed				Nov-Feb
Monitor overall improvement of biodiversity	Annually		Jun-Aug		
Foliar treatment of invasive vegetation	Ongoing, as needed	Apr-May	Jun-Aug	Sep-Oct	
Planting and seeding of native woody and herbaceous plants	Ongoing, as needed	Mar-May		Sep-Oct	Nov
Invasive pulling events (volunteers)	Ongoing, as needed	May	Jun-Aug		

# Wet Forest/Swamp

- Wet Forest/Swamp
- MPRB Phase II Natural Areas



City of Minneapolis, Metropolitan Council, MetroGIS, Three Rivers Park District, Esri Canada, Esri, HERE, Garmin, SafeGraph, METI/NASA, USGS, EPA, NPS, USDA, Esri, NASA, NGA, USGS, FEMA

