Habitat Management Plan

Managed Meadows – Tier II

October 31, 2023

Introduction

The City of Madison, Parks Division currently administers more than 7,000 acres of land within the City, encompassing a variety of lands and facilities. These include municipal golf courses, the State Street and Capitol Mall Concourse, Forest Hill Cemetery, Olbrich Botanical Gardens, Conservation Parks and General Parks. The General Parks are the largest subset of parkland; comprising some 3,000 acres managed by geographically-based operations sections. These parks offer a wide variety of urban and suburban recreational opportunities, and range in size from small "mini" parks, to neighborhood parks, to larger community parks with athletic facilities, parking lots and large swaths of open space.

Madison Parks' Land Management Plan (2023) defines land cover categories found in the City's parklands, and provides general parameters for their management. That document provides a foundation upon which more detailed, site-specific work plans can be built. While a large percentage of the acreage in general parks consists of turf, there are also significant areas of more natural open space and managed pollinator habitat. Many of these areas are classified as "Managed Meadows" in the Land Management Plan.

Some of this non-turf open space was originally established as a result of reductions in the total acreage of frequently-mowed turf. Mowing ceased and these areas were allowed to lay fallow, with only occasional mowing to control brush. Some of these areas were intentionally established as native plantings and pollinator habitat. With an increased focus on sustainability and climate resilience, Parks' vegetation management approach has evolved to manage these non-turf open spaces with a goal of increasing native plant diversity, pollinator habitat, ecosystem function, and ecosystem services.

Managed Meadows are divided into three tiers based on plant diversity, restoration potential, and management priority. Management priority is driven by staff and budget capacity, as well as long-term plans for a given park.

Tier I Managed Meadows are characterized by high native plant diversity and relatively small to moderate populations of invasive plants. These generally include the formerly-named "Prairie Managed Meadows" that had been intentionally planted with native wildflowers. There are currently about 51 acres of Managed Meadows classified as Tier I across 17 parks system-wide

Tier II Managed Meadows are characterized by moderate to high native plant diversity, but with more sizable invasive plant populations OR areas that are lower in native plant diversity. These areas also have relatively small to moderate populations of invasive plants and are therefore more easily transitioned to Tier I Managed Meadows in the future. There are currently about 160 acres of Managed Meadows classified as Tier II.

Tier III Managed Meadows are characterized by very low native plant diversity and often contain large populations of invasive plants. These typically include the formerly-named "Bluegrass dominated No-Mow Meadows" or "Low-Mow Meadows". Many of these areas had been maintained as turf in the past, but later allowed to grow fallow as Parks reduced its acreage of frequently mowed turf. Some current Tier III areas are fallow and simply being reserved for future development. These areas are maintained to remain free of woody growth. There are currently about 260 acres of Managed Meadows classified as Tier III.

This habitat management plan is specific to the Tier II Managed Meadows

Conservation values

Managed meadows provide:

- Habitat for native pollinators and other wildlife.
- Increased storm water infiltration.
- Lower maintenance costs, relative to turf.

Social and cultural values

Managed meadows provide:

- Increased variety and aesthetics in parklands dominated by turf.
- Increased passive recreational opportunities, such as bird watching and nature study.

Ecological threats

- Invasive species: Several species of invasive plants regularly become established in managed meadows and have the potential to dominate these management units, resulting in a loss of biodiversity. Evaluation and adaptation of management strategies and methods, when needed, will help control invasive species populations while promoting a healthy, diverse native plant community.
- Fire suppression: Previously, managed meadow maintenance has been limited to annual mowing. Incorporating prescribed fire into management will help improve the native plant community and habitat values provided.

Conservation goals

The goals of ecologically-focused management as outlined in this plan, are to:

- Increase the quality and diversity of habitat for native pollinator species.
- Increase winter habitat for insects and small mammals.
- Provide more effective, long-term control of invasive plant populations.

Management considerations

- Smoke management: Managed Meadows are located in neighborhood and community parks surrounded by residential development, schools, and businesses. Prescribed burn planning and execution must pay particular attention to smoke management to protect public health and prevent hazards or nuisances.
- Pesticide use: Public engagement and education will be necessary to explain integrated pest management and the particular goals of herbicide treatments, and to show how management practices conform to overall Division and City policies and guidelines such as Parks' Land Management Plan and Madison's Policy Regarding Pest Management on City Property. Staff may have to reconcile incomplete and conflicting information available to the public in the media.
- Adoption of summer, rather than fall, mowing schedules, as well as targeted spot mowing during the growing season, may be confusing to stakeholders and may require additional education efforts.

Management history

Previously, Managed Meadows were referred to as “Bluegrass dominated No Mow Meadows” and “Prairie Managed Meadows” had been managed exclusively with mowing. This mowing was primarily limited to once annually in the late summer or fall to prevent establishment of woody species. Some spot mowing of invasive species such as burdock, bird’s foot trefoil, thistles, and wild parsnip was also conducted, depending on staff availability.

Parks has shifted focus to prioritizing management units based on native species richness and invasive species abundance in order to better engage an integrated pest management approach and use resources most efficiently and effectively. This shift has included systematically targeting weed species according to phenology, setting and responding to pre-determined action thresholds for weed abundance for different classes of management units, and employing a wider array of vegetation management methods. These methods include spot herbicide treatments, hand pulling, prescribed burning, and biocontrol.

In addition, more flexibility and more attention are being used to provide winter habitat for insects as the overall grassland structure of these meadows is maintained. For example, staff previously conducted fall mowing annually or every other year to control woody species and remove dead herbaceous vegetation in all managed meadows. The current approach has shifted to prescribed burning or mowing about one third of all sites each year. This allows winter cover on a given meadow to be provided for two consecutive dormant seasons before a stand regeneration treatment (i.e. mowing or fire) occurs to prevent establishment of woody species and maintain the herbaceous-dominated structure.

Site Catalog - Tier II

Tier II Managed Meadows are medium quality prairie plantings. These typically include older plantings that have declined in quality over time, more recent plantings that are just becoming established, and some bluegrass-dominated areas that have become naturalized and include colonies of native species and relatively smaller populations of invasive plant species. This latter group often has an "old-field" quality in terms of plant species composition and wildlife habitat provided.

After maintaining the high quality Tier I managed meadows, resources should be directed to stabilizing and improving Tier II Meadows. Some sites present greater opportunity to increase native plant species richness and abundance, and these will be given greater priority and included in special grant and capital improvement project funded efforts. The following is a list of the higher priority Tier II sites in the system.

Park name	Location in park	Operations section	Year planted	Acreage
Bear Mounds	SW Savanna	Central		0.35
Bear Mounds	NE Savanna	Central		0.05
Cardinal Glenn	W Meadow	West		0.39
Carpenter-Ridgeway	NE Prairie	East	2002*	0.28
Demetral	Berm	East	2004*	2.2
Door Creek	Tennis court hill	East	2007*	0.59
Glacier Crossing	Central meadow	West		3.52
Goodman	Storm basin #2	Central		0.38
Hiestand	Sledding hill – (prairie dock meadow)	East	1985*	0.65
Hudson	Mound meadow	East		0.24
Huegel	Sledding hill	West		1.4
Kennedy	Old ice rink	East		2.73
Kennedy	NW corner of park	East	2020	0.42
Kingswood	Park perimeter	West		1.92
Lake Edge	Oak savanna	East	2021-'22	0.36
Nakoma	Oak savanna	West		0.57
Nesbitt	Central hillside	West		2.01
Olin	S bathhouse meadow	Central		0.24
Olin	N gazebo meadow	Central		0.14
Olin	W gazebo meadow	Central		0.16
Olin	S savanna	Central		1.88
Raymond Ridge	Conservation sign hill	East		1.52
Secret Places	Path meadows	East	2007*	1.11
Sycamore	Playground meadow	West		0.28
Tenney	Sherman prairie	East		0.18
Warner	Forster Dr. savanna	East	2022	1.5
			Total acres:	25.05

*Installment date is estimated based on historical maps, records, and Parks staff recollections.

These comprise 26 management units across 21 parks.

Lower priority Tier II sites exhibit native plant community quality that is similar to the higher priority sites. However, for various reasons, they require slightly more time and resources to stabilize and improve. As the higher priority sites above advance to Tier I quality, these lower priority Tier II sites should be advanced to higher priority as resource capacity allows.

Park name	Location in park	Operations section	Year planted	Acreage
Acewood	W shoreline	East		1.63
Apple Ridge	NE brushy meadow	West		2.7
Baxter	E prairie	Central		1.35
Bear Mounds	Savanna islands	Central		0.28
Bear Mounds	NW savanna	Central		0.07
Blackhawk	S meadow	West		1.88
Brittingham	E half of shoreline	Central		0.48
Cherokee	Restoration area	East	2012*	0.37
Door Creek	Back old field	East		7.74
Door Creek	N-central old field	East		13.55
Door Creek	S-central old field	East		18.45
Eagle Trace	Hillside	West		3.14
Elver	Marsh meadow	West		3.21
Elver	Soccer meadow	West		2.19
Elver	East prairie meadow	West		7.8
Elver	West prairie #1	West		0.72
Elver	West prairie #2	West		0.18
Garner	Tennis savanna	West		1.19
Glacier Crossing	S meadow	West		4.68
Goodman	Wingra W bank	Central		1.22
High Crossing	Old field meadow	East		1.94
Hill Creek	NE savanna	West		1.03
Hill Creek	NW savanna	West		1.4
Hill Creek	SW old field	West		4.98
Hill Creek	SE meadow	West		0.65
Kennedy	SE sign meadow	East	2006*	0.93
Kingston-Onyx	SW meadow	East	2019-2021	0.31
Manchester	Prairie	West		0.96
Marlborough	Central meadow	West		3.44
Meadow Ridge	Main meadow	East		5.01
Meadow Ridge	Soccer meadow	East	2003*	3.33
Nesbitt	Outer hillside	West		1.87
North Star	All meadows	East		7.18
Olin	Lakeside hilltop	Central		0.26
Olin	E gazebo meadow	Central		0.11
Olin	S gazebo meadow	Central		0.3
Olin	Playground savanna	Central		1.88
Quann Park	west edge of park	Central		4.77
Reindahl	Portage prairie	East		0.79
Reindahl	Cricket meadow	East	2013*, 2020	7.18

Park name	Location in park	Operations section	Year planted	Acreage
Sandburg	NE meadow	East		1.82
Sandstone	Playground bed	West		0.04
Sycamore	Restoration plots	East	2021	0.29
Thousand Oaks	E meadow N of path	West		1.83
Thousand Oaks	E meadow S of path	West		1.08
Westmorland	SE savanna	West		1.29
Westport Meadows	north edge of park	East		0.17
Whitetail Ridge	Playground meadow	East	1997*	0.96
Yahara Place	south end of park, near river mouth	East	2010*	0.02
			Total acreage	117.59

*Installment date is estimated based on historical maps, records, and Parks staff recollections.

These comprise 49 management units across 33 parks.

Management unit descriptions

Descriptions of the higher priority Tier II Managed Meadows follow. These can each be considered management units within this class of similarly managed areas across the system. See Appendix A for maps of all higher priority Tier II Managed Meadows.

1. Bear Mounds SW Savanna (0.35 ac) This savanna has volunteer support that has conducted prescribed burns in the past. There is a diverse understory of shady savanna species under big old white oaks. The large population of porcelain berry and medium population of Asian bittersweet are what prevents this area from being considered a tier 1.

2. Bear Mounds NE Savanna (0.05 ac) This area is on the edge of the NE side of the park along the streets. To our knowledge this area was not planted or seeded but has some desirable native species in it, presumably due to its proximity to large old oaks.

3. Cardinal Glenn W Meadow (0.39 ac)
This small meadow was established sometime between 2007 and 2010 according to historical maps. It is unknown whether it was plugged or seeded but the current plant community suggests this area had been a crop field before it was a park, as this typically results in good native planting establishment due to a low invasive weed seed bank. It sits on the west edge of the park. Bird's foot trefoil is the main threat to this meadow as it covers 6-25% of it, and is present in the grass surrounding the unit. It contains slippery elm and a medium sized population of prairie rose.

4. Carpenter-Ridgeway (0.28 ac) This Meadow was installed around 2002 by a volunteer group that is no longer active. Big bluestem is the dominant vegetation remaining. In addition to getting burned spring of 2021, wood betony and other native forb seed has been added to compete with the big bluestem. Buckthorn and honeysuckle are encroaching from the understory of the wooded area that surrounds this unit on the north, east, and south.

5. Demetral Berm (2.2 ac) This prairie was planted in 2004 on top of an old landfill. It was managed by a volunteer group until around 2017 when the group became inactive. Since then, the invasive weeds and trees have grown aggressively. The berm was burned for the first time in fall of 2021 and the brush was cut and treat to protect the landfill. The prairie has large populations of crown vetch, reed canary grass. It was seeded with grasses but needs more to increase fuel for a burn, especially in the northern portion of the berm which is dominated by cup plant and burdock.

6. Door Creek - *Tennis Court Meadow* (0.59 acres) This unit was established in 2007 and is located on the steep hillside directly west of the tennis courts. It has moderate native species diversity and very small populations of invasive weeds. This area has required only occasional spot mowing for herbaceous weeds and woody species control.

7. Glacier Crossing Central Meadow (3.52 ac) Adjacent to the Ice Age Trail Junction Area managed by Dane County Parks. This section of the park is in fairly good shape and so is considered a highly priority tier II due to its diversity and low weed population. The southern portion butts up against an enormous reed canary grass patch.

8. Goodman Storm Basin #2 (0.38 ac) This storm basin has been contracted out for the past 6+ years. It is now in fairly good shape. The main invasive plants still present are reed canary grass, Canada thistle, and crown vetch. This area will remain contracted out for the next three years and the management level will be bumped up to include the species above.

9. Hiestand Sledding Hill (prairie dock portion) (0.65 ac) This portion of the sledding hill was seeded with native forbs along with the east side of the hill. Other native forbs and grasses occur, along with moderate populations of invasive weeds, including spotted knapweed and birds-foot trefoil.

10. Hudson Mound Meadow (0.24 ac)
This small meadow rests on top of a steep embankment overlooking Lake Monona adjacent to two ancient ho-chunk mounds. It has been inter-seeded over the years by the neighborhood volunteer group and has a large population of New England asters. Brush is a constant threat to this meadow as it is creeping in from the wooded embankment and includes black locust and buckthorn.

11. Huegel Sledding Hill (1.4 ac) This unit is east of the tier 1 prairie and has well established warm season grasses and relatively low weed pressure. The main issue in this area is encroaching brush, mainly honey suckle, reed canary grass, and Canada thistle. The sledding portion of the hill is noticeably low on native forbs.

12. Kennedy former ice rink (2.73 ac) It is unclear if this area was seeded with native forbs after its use as a permanent ice-skating rink was abandoned but what is clear is a distinct plant ecosystem boundary between the eastern and western portions of the meadow. This meadow has moderately diverse forbs and grasses but they are sparse and being outcompeted by bluegrass.

13. Kennedy NW corner of park (0.42 ac) This meadow has a sparse yet diverse population of native grasses and forbs, yet again is dominated by Kentucky bluegrass. The area was over seeded in 2020 and burned and seeded again in spring of 2023 with warm season grasses and forbs. Weed management has mainly consisted of controlling biennial weeds.

14. Kingswood (1.92 ac) This is a small prairie planting around the park perimeter established sometime between 2000 and 2005. There is fair amount of warm season grasses and forbs mixed in with bluegrass. The east and western edges have mature spruce and pines and the southern edge is predominantly bird's-foot trefoil. The SE corner is the most diverse and homogeneous, and the western edge is predominantly cup plant.

15. Lake Edge (0.36 ac) This Meadow sits on a hill with very large mature oak trees, mainly bur and white. Unfortunately the oaks have recently been attacked by spongy moths (*Lymantria dispar*). Three young bur oak trees were planted in and just outside of the meadow in fall 2021 yet none survived. Three more will be planted fall 2022. There is a moderate amount of native forbs yet the populations are extremely sparse. Most likely no seed was previously sown here but native plants slowly have become established. A prescribed burn is planned for this unit in spring 2024 to stress cool season turf grass and creeping bellflower, and an oak woodland seed mix was sown fall 2021 to increase diversity. Plugs were also planted on the south-east facing slope 2022.

16. Nakoma Oak Savanna (0.57 ac) This unit has large mature oak trees but no oak regeneration. There are very few invasive forbs but medium populations of buckthorn and Asian bittersweet. Brush removal in general needs to take place and hopefully this will help with the oak regeneration. The establishment of this area was between 2000 and 2005.

17. Nesbitt Central Hillside (2.01 ac) This meadow has a decent population of native grasses and forbs in the center of the prairie, with encroaching invasive weeds coming in from the edges including bird's-foot trefoil and wild parsnip. This meadow is extremely inaccessible to the public as it has no amenities, parking, paths, or sidewalks. It is located at the intersection of Cross Country Rd. and Maple Grove Dr.

Olin has four high-priority Tier II Meadows. Each of these were mowed as turf up until approximately 2005. They have been managed with inter-seeding and spot mowing over the years. 2023 was the first year of more intensive weed management including spot spraying, hand pulling and spot mowing.

18. Olin - S Bathhouse meadow (0.24 ac) Burned and seeded for the first time in the spring of 2023

19. Olin - N Gazebo meadow (0.14 ac) Burned and seeded for the first time in the spring of 2023.

20. Olin - W Gazebo meadow (0.16 ac) Inter-planted with plugs in 2019 and has yet to fill in due to the heavy amount of bluegrass. Burned and seeded for the first time in the spring of 2023.

21. Olin - S Savanna (1.88 ac) First burned in 2019.

22. Raymond Ridge Conservation Sign hill (1.52 ac) This unit is on the west side of the south end of the path that runs through the park. It is adjacent to Prairie Ridge conservation park and has a fair amount of native forb and grass diversity along with a medium population of wild parsnip and thistle.

23. Secret Places (1.11 ac) Newer planting with robust native plant establishment and some tenacious bird's foot trefoil. In 2022, the meadow that runs along the east-west walking path was reverted back to turf as this area was very low diversity and the weeds were creeping in to the meadow that runs north to south. The same thing will happen 2023 with a small southern portion of the north-south meadow to help control a large area of reed canary grass and Canada thistle until we are able to restore that portion.

24. Sycamore playground meadow (0.28 ac) This small meadow portion is the only area on the landfill turned dog park edge that appears to have been seeded with native forbs.

25. Tenney Sherman prairie (0.18 ac) This small prairie was installed with the rest of the Tenney lagoon shoreline restorations around 2007. It has been contracted out for management for the past 6+ years. There is a decent amount of native diversity and relatively low pressure of invasive weeds.

26. Warner Forster Dr. savanna (1.5 ac) This oak savanna was mowed as turf until around 2005, after which it was mowed only annually. Active weed management began in 2020 and has included prescribed fire, spot treatments and brush clearing. After the burn in the spring of 2022, savanna forbs and grasses were sown.

Management Objectives

Management of Tier II Meadows consists of stabilizing and improving the native plant communities present to allow them to resist colonization by invasive species. This involves providing a regular disturbance regime, reducing the abundance of invasive species present, and augmenting the existing native plant community.

Objectives:

- Provide a fire regime with a 3-year return interval on higher priority sites; burn 1/3 of higher priority sites annually.
- Control woody species to prevent seed set and reduce dominance, as measured by percent cover every three years.
- Control annual, biennial and perennial invasive plant species annually with higher tolerance, but still with long-term goal of eradication from the management unit. This would be pursued first in the higher priority units, then the lower priority units, with the general strategy of advancing units to the next level of quality.
- Broadcast native seed mixes following all burns until native plant abundance increases. Use plugs where funding and volunteer resources would support it.

Prescriptions:

Timeline	Unit(s)	Task
Spring (April)	1/3 of higher priority units (see table below)	Prescribed burn
Spring (April)	Units burned this spring	Taking advantage of exposed soil, add seed to areas where native species are less robust or where previous treatments have reduced cover of vegetation.
Summer (July)	1/3 of lower priority units	Mow to control brush and flowering perennial weeds.
Spring (May)	Higher priority units	• Monitor for invasive species including but not limited to: burdock, dame's rocket, motherwort, mullein, spiny-plumeless thistle, musk thistle, and velvetleaf • Spray invasive perennial species with broad-leaf specific herbicide depending on species and population size.
Spring (May)	Units burned since last growing season	Spot herbicide treatments to reed canary grass where applicable
Summer (June)	Units burned since last growing season	Spot herbicide treatments to more scattered populations of bird's foot trefoil, crown vetch, Canada thistle and leafy spurge.
Summer (June-August)	Units that were not burned	Mow reed canary grass populations.
Summer (June-July)	All other units	Herbicide treatments to all target species mentioned above.
Summer (July-August)	Higher priority units	Hand pull or spot mow flowering invasive herbaceous weeds depending on population size.

Timeline	Unit(s)	Task
Summer (as appropriate)	Selected units	Monitor biocontrol sites and release additional individuals as appropriate. Parks currently uses flea beetles to control leafy spurge. This could be expanded as needed to include root-boring weevils for spotted knapweed control, and weevils for musk thistle control.
Summer (June - July)	Higher priority units	• Spot mowing with string trimmer or flail mower to target biennial species including sweet clover and wild parsnip. Goal is eradication. • Continue targeted weed control with hand-pulling, digging, spot mowing, or spot herbicide treatments as appropriate to species and density of target species. • Spot mowing as needed to target dense stands of perennial herbaceous species to prevent seed set and force re-sprouting. Typical targets include Canada thistle and crown vetch.
Summer (June - July)	Lower priority units	• Spot mowing with flail mower to target larger populations of biennial species including sweet clover and wild parsnip. Goal is reduction. • Spot mowing as needed to target dense stands of perennial herbaceous species to prevent seed set. Typical targets include burdock, Canada thistle and crown vetch. Goal is suppression.
Summer (July or September, as appropriate)	Higher priority units	• Spot herbicide treatments to populations of perennial herbaceous species that had been mowed and have re-sprouted. Typical targets include Canada thistle and crown vetch. Goal is eradication.
Summer (July)	Higher priority units	Spot mowing as needed to target dense stands of woody species encroaching on prairie plantings. Normally, this will not be needed with regular burning, but a series of poor fires may allow woody species to increase. Primary targets will be clonal species such as dogwood and sumac, as regular burns should control other species (buckthorn, honeysuckle) sufficiently to reduce stem density and suppress seed production.
Late Summer (September – October)	Meadows with dense woody species encroachment	Prescribed burn during growing season before woody species go dormant. This timing will be highly effective for control of woody species in thickets or other areas of very high stem density, resulting in mortality of a proportion of individuals, rather than suppression provided by mowing. The goal of this is to shift the dominance from woody species to herbaceous species, rather than limit smaller numbers of woody stems as with prescribed burns conducted in Tier I meadows for maintenance.

Timeline	Unit(s)	Task
Fall (September)	Units in which reed canary grass has been mowed	Foliar spray reed canary grass with herbicide.
Fall (October - November)	1/3 of units (see table below)	As conditions allow, burn those units slated for this dormant season in order to reduce spring workload. System-wide, this will still reserve at least 1/3 of high priority Tier II meadows to provide winter cover.
Fall (November – December)	Units burned this fall	Add seed to areas where native species are less robust or where treatments have reduced cover of vegetation. Strive for frost-seeding with optimal soil-contact.

Possible prescribed fire regime:

	Year		
Site	**1**	**2**	**3**
Bear Mounds	x		
Bear Mounds		x	
Cardinal Glenn			x
Carpenter-Ridgeway	x		
Demetral		x	
Door Creek			x
Glacier Crossing	x		
Goodman		x	
Hiestand			x
Hudson	x		
Huegel		x	
Kennedy			x
Kennedy	x		
Kingswood		x	
Lake Edge			x
Nakoma	x		
Nesbitt		x	
Olin			x
Olin	x		
Olin		x	
Olin			x
Raymond Ridge	x		
Secret Places		x	
Sycamore			x
Tenney	x		
Warner		x	

Budget

The work outlined in this plan is accomplished through financial and in-kind support from the City's General Operating budget, special Capital Improvement Project funding, and volunteer labor.

Typical Annual Budget Estimate:

Description	Annual cost
Prescribed burns (dormant season and growing season)	$15,000
Weed control: hand pulling and small-scale spot treatments (high priority sites)	$10,000
Weed and brush control: spot mowing and larger-scale treatments (high priority and some lower priority sites)	$15,000
Biocontrol monitoring and release	$3,000
Augment plant community (seeding/planting)	$10,000
Total:	**$53,000**

Monitoring and Evaluation

Measuring results is critical to determining success. Managed meadows are tracked individually with a scorecard that documents relative quality, plant species richness, and volunteer engagement. See Appendix C for an example.

As with other natural areas in the Madison Parks system, staff plan to engage volunteers to conduct vegetation monitoring and participate in a variety of established Community Science efforts. See Appendix D for outline of the goals for monitoring natural areas in Madison Parks.

Monitoring goals include:

- Invasive plant cover surveys for each Tier II Managed Meadow
- Native plant species richness surveys for each Tier II Managed Meadow

Document History

This Habitat Management Plan is consistent with Madison Parks' Land Management Plan.

Version	Description
10/31/2023	Initial plan, reviewed by Parks staff, presented to Habitat Stewardship Subcommittee on 11/7/2023

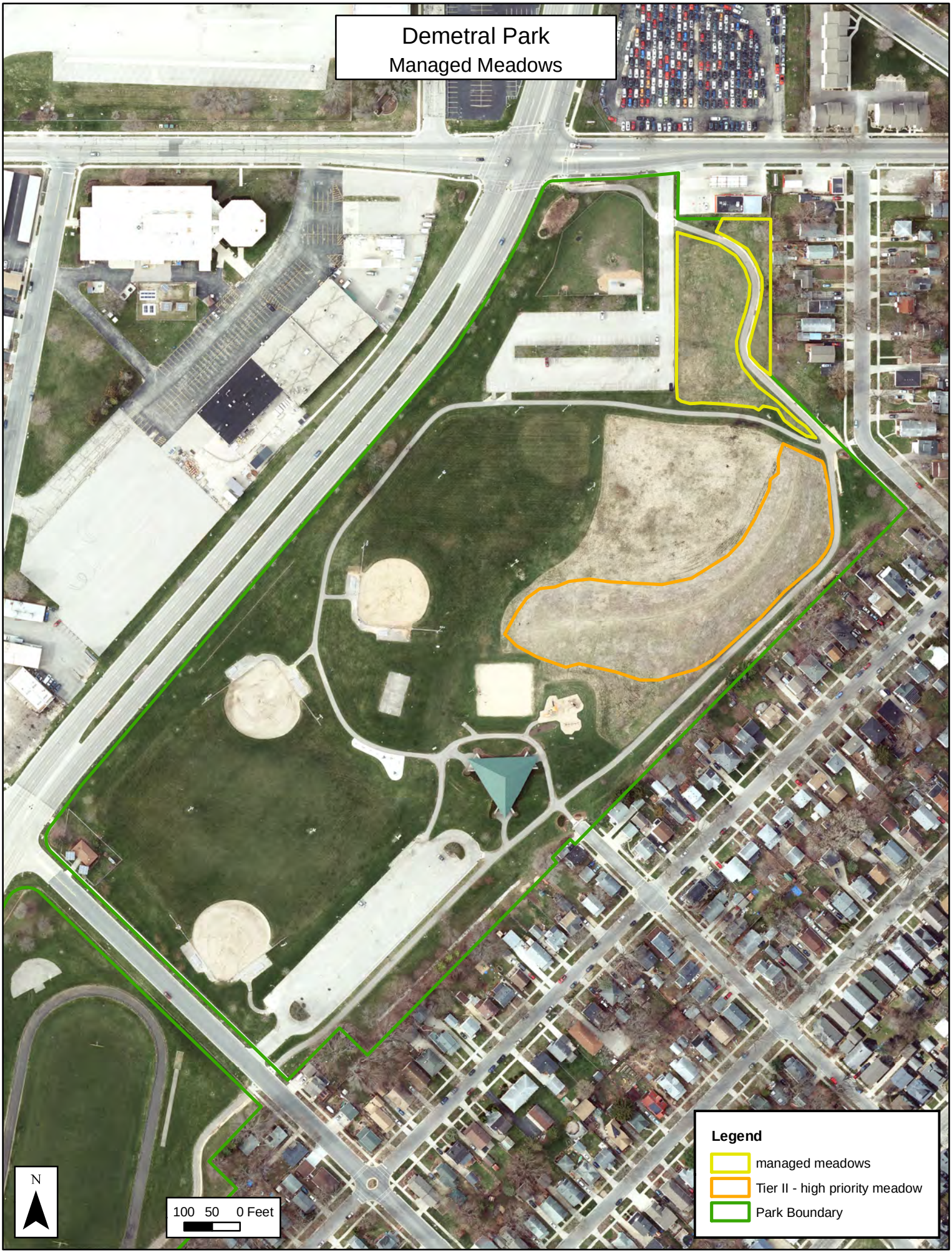
Appendices

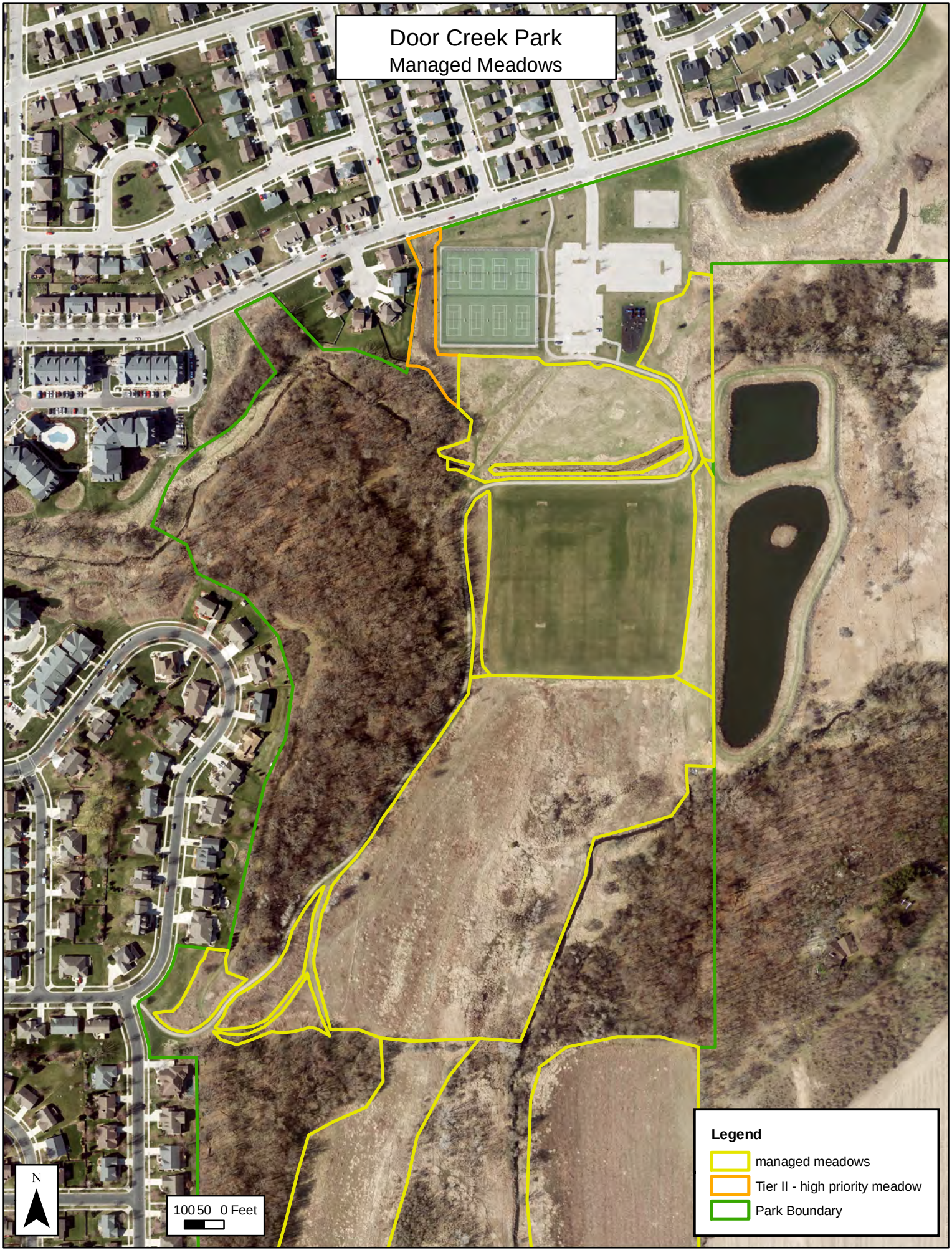
A. Managed Meadow Unit Maps (forthcoming)
B. Major invasive plant species targets
C. Managed Meadow Scorecard (Example)
D. Natural Areas Monitoring Plan


Bear Mound Park
Managed Meadows
Legend
Park Boundary
managed meadows
Tier II - high priority meadow
N
100
50
0 Feet


Cardinal Glen Park
Managed Meadows
N
100 50 0 Feet
Legend
managed meadows
Tier II - high priority meadow
Park Boundary


Carpenter Ridgeway Park
Managed Meadows
N
100 50 0 Feet
Legend
managed meadows
Tier II - high priority meadow
Park Boundary


Demetral Park
Managed Meadows
N
100 50 0 Feet
Legend
managed meadows
Tier II - high priority meadow
Park Boundary


Door Creek Park
Managed Meadows
Legend
managed meadows
Tier II - high priority meadow
Park Boundary
N
100 50 0 Feet


Glacier Crossing
Managed Meadows
N
100
50
0 Feet
Legend
managed meadows
Tier II - high priority meadow


Goodman Park
Managed Meadows
Legend
managed meadows
Tier II - high priority meadow
Park Boundary
N
100 50 0 Feet

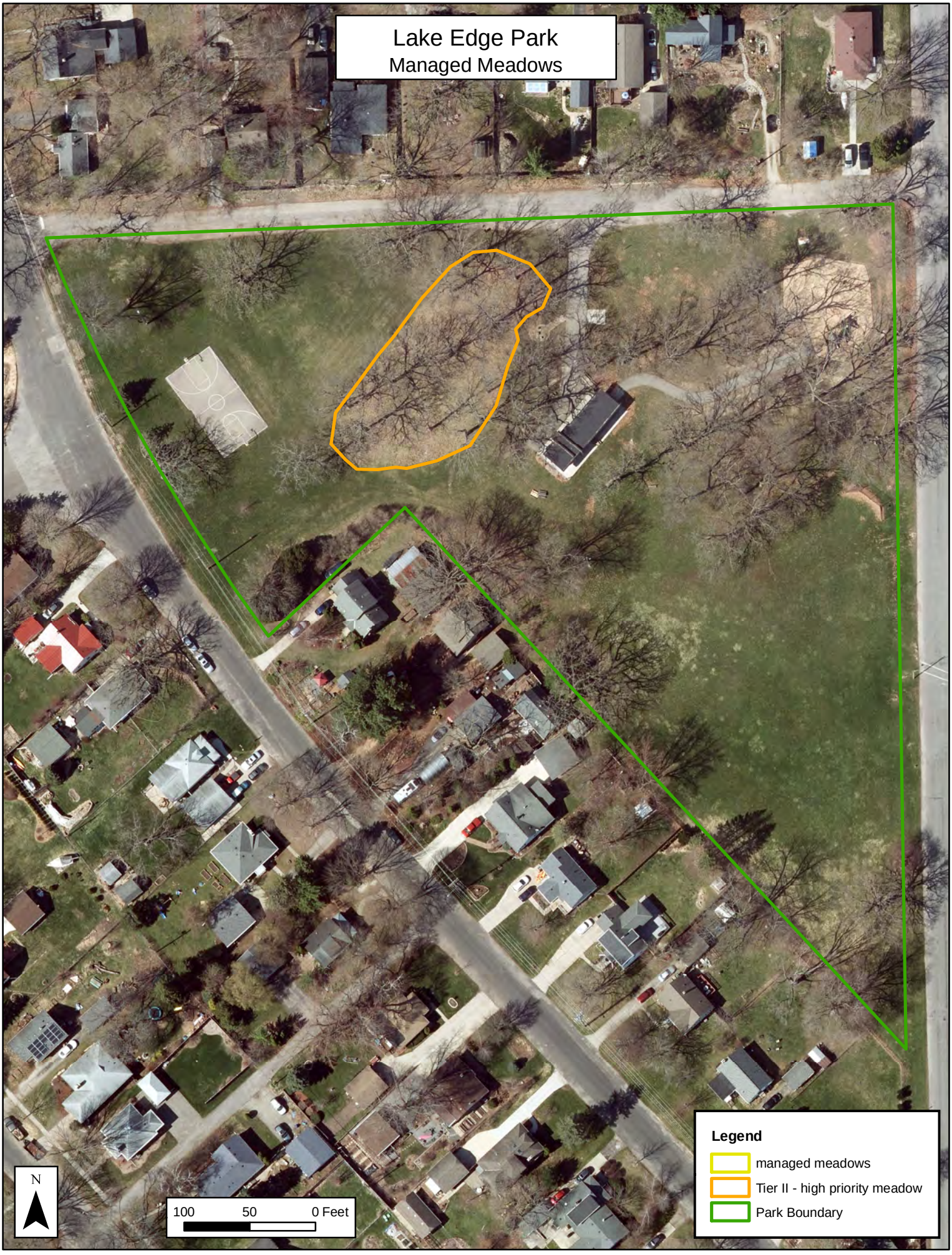

Hiestand Park
Managed Meadows
Legend
managed meadows
Tier II - high priority meadow
Park Boundary
N
100 50 0 Feet


Hudson Park
Managed Meadows
N
100
50
0 Feet
Legend
managed meadows
Tier II - high priority meadow
Park Boundary


Huegel Park
Managed Meadows
Legend
managed meadows
Tier II - high priority meadow
Park Boundary
N
100 50 0 Feet


Kennedy Park
Managed Meadows
N
100 50 0 Feet
Legend
managed meadows
Tier II - high priority meadow
Park Boundary


Kingswood Park
Managed Meadows
N
100
50
0 Feet
Legend
managed meadows
Tier II - high priority meadow
Park Boundary

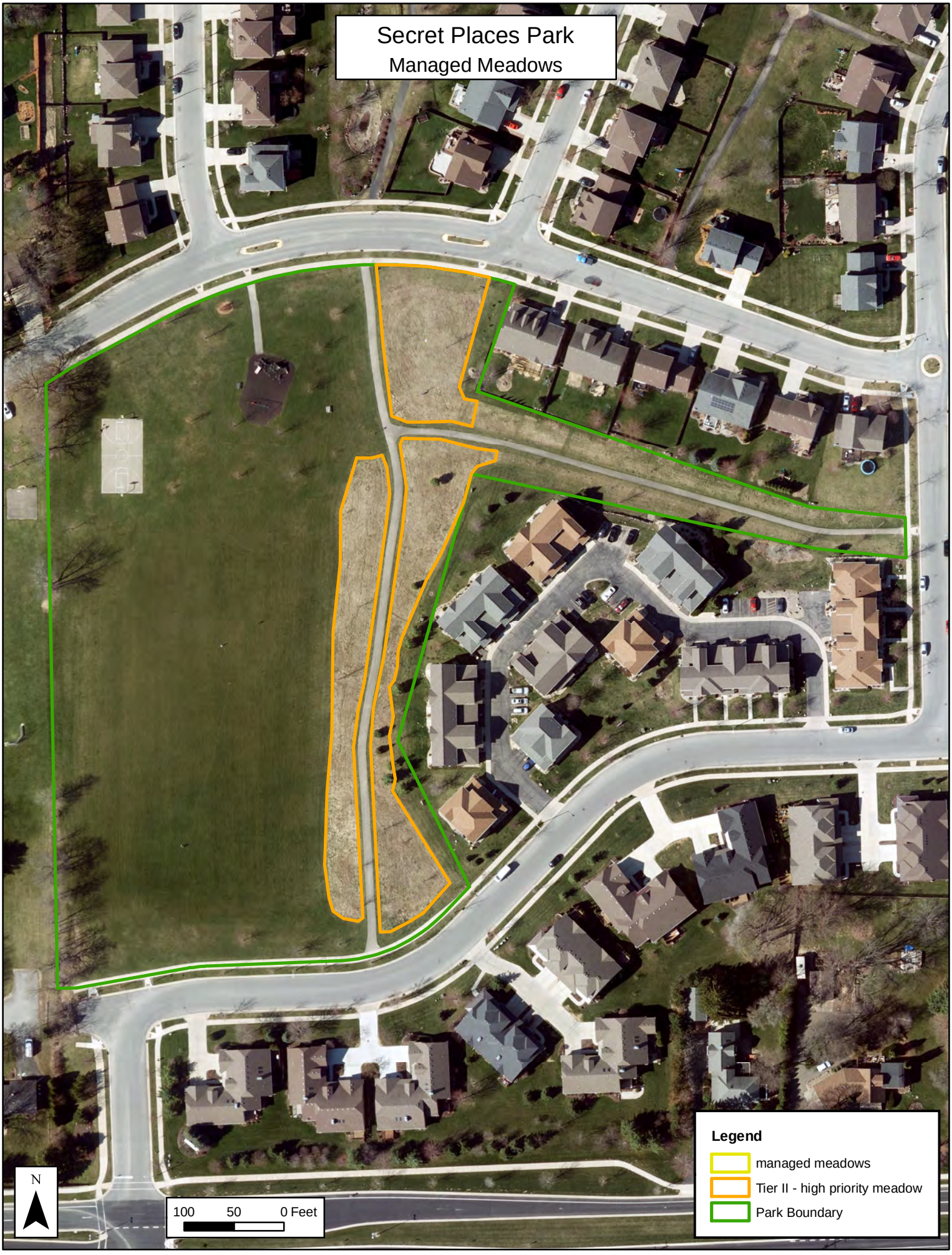

Lake Edge Park
Managed Meadows
N
100
50
0 Feet
Legend
managed meadows
Tier II - high priority meadow
Park Boundary


Nakoma Park
Managed Meadows
Legend
managed meadows
Tier II - high priority meadow
Park Boundary
N
100 50 0 Feet


Nesbitt Open Space
Managed Meadows
N
100 50 0 Feet
Legend
managed meadows
Tier II - high priority meadow
Park Boundary


Olin Park
Managed Meadows
N
100 50 0 Feet
Legend
managed meadows
Tier II - high priority meadow
Park Boundary


Raymond Ridge
Managed Meadows
N
100 50 0 Feet
Legend
managed meadows
Tier II - high priority meadow
Park Boundary


Secret Places Park
Managed Meadows
N
100 50 0 Feet
Legend
managed meadows
Tier II - high priority meadow
Park Boundary


Sycamore Park
Managed Meadows
Legend
managed meadows
Tier II - high priority meadow
Park Boundary
N
100 50 0 Feet


Tenney Park
Managed Meadows
N
100 50 0 Feet
Legend
managed meadows
Tier II - high priority meadow
Park Boundary


Warner Park
Managed Meadows
Legend
managed meadows
Tier II - high priority meadow
Park Boundary
N
1050 0 Feet

Appendix B. Major invasive plant species targets

Common burdock *Arctium minus* Introduced. Herbaceous. Biennial. Sever root with shovel. Mow before seed set.

Spiny plumeless thistle *Carduus acanthoides* Introduced. Herbaceous. Biennial. Hand pull or mow before seed set.

Musk thistle, Nodding thistle *Carduus nutans* Introduced. Herbaceous. Biennial. Hand pull or mow before seed set.

Canada thistle *Cirsium arvense* Introduced. Herbaceous. Perennial. Spreads vegetatively. Mow before seed set to suppress. Mow, then spray with narrow-spectrum herbicide to reduce or eliminate.

Gray dogwood *Cornus racemosa* Native. Woody. Perennial. Spreads vegetatively, and older clones can be tenacious. Mow to suppress. Burn to suppress and reduce.

Bush honeysuckle *Lonicera spp.* Introduced. Woody. Perennial. Allelopathic and provides intense competition. Mow to suppress. Cut and treat with herbicide to eliminate.

Bird's-fool trefoil *Lotus corniculatus* Introduced. Herbaceous. Perennial. Spreads vegetatively. Mow before seed set to suppress. Mow, then spray with narrow-spectrum herbicide to reduce or eliminate. Emerging plants can be foliar sprayed following a burn to reduce impact to surrounding plants.

Yellow sweet clover *Melilotus officinalis* Introduced. Herbaceous. Biennial. Hand pull or mow before seed set.

Reed canary grass *Phalaris arundinacea* Circumboreal, but invasive farther south. Herbaceous. Perennial. Spreads vegetatively, usually into degraded plant communities. Treat with grass-specific herbicide following a burn. Mow before seed set to suppress. Can be mowed then sprayed.

Common buckthorn *Rhamnus cathartica* Introduced. Woody. Perennial. Allelopathic and provides intense competition. Mow to suppress. Cut and treat with herbicide to eliminate.

Smooth sumac *Rhus glabra* Native. Woody. Perennial. Spreads vegetatively, and older clones can be tenacious. Mow to suppress. Burn to suppress and reduce.

Multiflora rose *Rosa multiflora* Introduced. Woody. Perennial. Mow to suppress. Cut and treat with herbicide to eliminate.

Crown vetch *Securigera varia* Introduced. Herbaceous. Perennial. Spreads vegetatively. Mow before seed set to suppress. Mow, then spray with narrow-spectrum herbicide to reduce or eliminate.

Appendix C. Managed Meadow Scorecard Example

Managed Meadow Scorecard (example)					
Park Name: Example Park					
Year	2022	2023	2024	2025	2026
Assessment date	6/15/2022	7/10/2023	6/30/2024	7/20/2025	6/15/2026
Current Tier assignment	2	2	2	1	1
Floristic Quality index	20	25	28	30	30
Native species richness	40	45	52	61	65
Invasive plant dominance (combined % cover of targeted weeds)	20%	15%	10%	5%	2%
Woody species abundance (% cover)	10%	5%	1%	1%	1%
Dedicated volunteer support (Y/N)	N	N	Y	Y	Y

Madison Parks
Natural Areas Monitoring Goals
August 2023

Monitoring is necessary to track the success of restoration efforts as well as the overall quality of the habitat being managed. Data collected can quantify results, show trends in natural area health, and reveal potential concerns. The following framework identifies some possible monitoring subjects and strategies. Objectives and tasks can be implemented and completed as staff and volunteer capacity allow.

Much information can be gained by engaging and supporting various formal community science programs, and less formal community-populated databases. Data from many of these are accessible from the individual host organizations, as well as through clearing houses such as the Global Biodiversity Information Facility (GBIF) Many volunteers currently conduct monitoring within conservation parks and other natural areas. These programs are recognized below as well.

Taxa: Plants

Objectives:

1. Complete and update species inventories for each park, and each management unit where applicable (Managed Meadow, Woodland, management unit within a conservation park, etc.).

   Tasks:

   a. Conduct meander surveys three times during the growing season to compile and update plant species list.

2. Determine and track floristic quality in managed natural areas

   Tasks:

   a. Establish permanent transects with randomized 1m^2 plots (quadrats)

   b. Survey quadrats and record percent cover of each species present.

   c. Analyze data to calculate species richness, diversity, and Floristic Quality Index.

Taxa: Insects

Objectives:

1. Complete overall species inventory per park

   Tasks:

   a. Conduct daytime surveys with sweep nets

   b. Conduct nighttime surveys with light traps

   c. Conduct surveys of soil surface insect fauna

2. Monitor pollinator abundance and species composition

   Tasks:

   a. Collect data using Wisconsin Bumble Bee Brigade protocols

   b. Support the Integrated Monarch Monitoring Program

   c. Collect data using Pollard transects to target butterflies

   d. Support the Wisconsin Odonata Survey

Taxa: Herptiles

Objectives:

1. Complete overall species inventory per park

   Tasks:

   a. Conduct surveys with funnel traps

2. Conduct breeding survey

   Tasks:

   a. Establish Wisconsin Frog and Toad Survey phenology survey locations where appropriate

Taxa: Birds

Objectives:

1. Conduct surveys and document species present.
2. Analyze data available from eBird through the Global Biodiversity Information Facility (GBIF)

   Tasks:

   a. Download data sets for each park