

**Cherokee Marsh - South Unit Conservation Park
Habitat Management Plan
11/7/2018**

DRAFT

Site information

Address: 802 Wheeler Road
Acreage: 240 acres. This includes contiguous and non-contiguous parcels located within the City of Madison both north and south of the Yahara River.
Site summary: Prior to its acquisition by the City in the mid 1960s, the uplands and a portion of the wetlands within Cherokee Marsh – South Unit (South Cherokee Marsh) were used for agriculture and gravel mining. Major restoration to date has included converting old fields to tallgrass prairie and removing invasive woody species from overgrown oak woodlands. The park offers 3 miles of trails and a primitive boat launch with a pier, and is one of six Madison parks that are groomed for cross-country skiing.
Adjacent lands: Adjacent natural areas and areas of ecological significance include the Cherokee Marsh State Fishery Area and Yahara Heights County Park.

Conservation values

Numerous sources have studied and written about the resources of and threats to Cherokee Marsh on scales ranging from the entire watershed to single management units within the conservation park, and from various perspectives such as hydrology, ecology, botany and public policy. The focus of this management plan is the restoration of the natural areas within the conservation park.

The dominant natural features of Cherokee Marsh - South Unit (hereafter referred to as South Cherokee Marsh) include the expansive wetland complex, uplands dominated by oak woodland, tallgrass prairie and wet-mesic forest, and three artificial ponds. The park borders the Yahara River and a canal that drains a golf course to the east. The size and location of this natural area in the landscape is important for wildlife, as is the diversity of habitats. Several state-listed plant and animal species are known to occur in the park, including 21 bird species identified as Species of Greatest Conservation Need (SGCN) in Wisconsin's Wildlife Action Plan (DNR 2015). Appendix B contains lists of bird and vascular plant species observed at the park.

Madison Parks' Land Management Plan (2017) outlines the main habitat types found in the City's conservation parks. These general types can be further classified into "Recognized Natural Communities" described by the Wisconsin Natural Heritage Inventory (2018). This helps us to provide more technical and specific restoration targets based on the nuances of each park. The main habitat types that occur at South Cherokee Marsh are below, with the appropriate corresponding NHI-recognized natural communities listed under each one.

Oak savanna / Oak woodland (Madison Parks)

Oak Woodland (NHI)

Tallgrass prairie (Madison Parks)

Mesic Prairie (NHI)

Wet-Mesic Prairie

Wet Prairie (NHI)

Deciduous Forest (Madison Parks)

Floodplain Forest (NHI)

Southern Mesic Forest (NHI)

Sedge Meadow (Madison Parks)

Calcareous Fen (NHI)

Southern Sedge Meadow (NHI)

Shrub-Carr (NHI)*

Emergent marsh (Madison Parks)
Emergent Aquatic (NHI)

* Madison Parks' Land Management Plan does not specifically address Shrub-Carr due to the very small amount of this habitat that occurs in the conservation parks. It is included under Sedge Meadow here because of its association with that habitat in Cherokee Marsh.

Appendix A.2 is a map showing community types within the park, using a combination of the levels described above. Further work is needed to more accurately characterize and map plant communities, and to comprehensively inventory species of all taxa found in the park.

Ecological threats

Fire suppression – Although fire management has increased in recent years, a legacy of fire exclusion has resulted in woody succession in the woodlands and sedge meadows.

Storm water pollution – Storm water runoff has delivered heavy salt and nutrient loads to the wetlands. Although some storm flow has been re-routed through a series of ponds that have been constructed in more recent years (2012-2018), runoff continues to flow from WI Hwy 113 into the west end of the marsh. This pollution here, and its legacy in the other portions of the marsh, has resulted in the replacement of sedge meadows by monocultures of reed canary grass, hybrid cattail and common reed.

Altered hydrology – Artificial drainage ditches have altered hydrology in the wetlands, as has construction of the Tenney Park dam and subsequent management of lake levels.

Invasive species – Major non-native species include reed canary grass, hybrid cattail, common reed, buckthorn and honeysuckle. Bird's-foot trefoil, garlic mustard, Japanese hedge parsley, and sweet clover are also present in significant numbers.

White-tailed deer – Low hunting pressure and relatively low natural mortality are evident from consistent annual harvest numbers at Cherokee Marsh – North Unit. At South Cherokee Marsh, and in the surrounding neighborhood, deer are encountered frequently and sign is abundant.

Conservation goals

1. *Restore and maintain sedge meadows and calcareous fens.*

There is a high potential for pervasive reed canary grass and cattail populations to invade remnants of these communities when they become compromised.

2. *Restore and maintain existing oak woodlands.*

Fire-suppressed oak woodlands in the park have suffered extensive degradation. Priorities for management here include re-establishing an appropriate vegetation structure, promoting oak regeneration, and re-establishing the native herbaceous layer.

3. *Maintain native herbaceous plant diversity and natural community vegetation structure.*

Management objectives and prescriptions should consider both species and habitat diversity, and ensure that actions result in a heterogeneous landscape. For example, variability in the timing and frequency of prescribed burns will ensure optimal herbaceous plant diversity in prairies. Likewise, woody species removal efforts should create or retain a variety of species, seral stages and stem densities.

4. *Conserve animal diversity.*

Management efforts should focus on umbrella species - those whose habitat requirements greatly overlap the requirements of many other species - rather than habitat specialists.

5. *Monitor the various major taxonomic groups in order to inform management decisions.*

Increased monitoring is a broader goal of the Conservation Park program. Specifically, at South Cherokee Marsh, there is not only a need to inventory and document species that occur, but also to collect quantitative data about species richness, diversity, and plant community cover, and also spatial data about vegetation structure and invasive species populations.

Management considerations

Madison Parks' vision is "to provide the ideal system of parks, natural resources and recreational opportunities which will enhance the quality of life for everyone." Ord. 8.40, Preservation of Conservation Parks, includes, "It is important to the residents of Madison that the City preserve Madison's native landscapes, its plant and animal populations for residents' careful use and full enjoyment."

In pursuit of these goals, we strive to balance ecological management needs with the needs of the community. These needs include a system of trails to support nature recreation such as hiking and cross-county skiing. They also include the placement of municipal infrastructure including storm water ponds, a sewer pump station, and a waste oil facility. In 2018, the waste oil facility, which had been located partly on park land, was moved to a right-of-way adjacent to a parking area shared by users of the waste-oil facility and park visitors.

Ecological management at South Cherokee Marsh should pay specific attention to the following:

Prairie-dependent insects and grassland nesting birds – Proper fire regime (frequency and rotation) is critical to maintaining diverse populations of prairie-dependent insects, and habitat for grassland-nesting birds.

Woodpecker habitat - Efforts to restore oak woodland / oak savanna habitat in the park will likely result in increased numbers of woodpeckers, possibly including the state-special concern Red-headed Woodpecker. Management activities will follow Madison Parks' internal Snag Protection Policy, which incorporates a snag inventory to monitor this habitat feature. The snag inventory shall be repeated every five years in applicable management units.

Friends of Cherokee Marsh

Established in 2007, the Friends of Cherokee Marsh have become integral to the management of Cherokee Marsh. They lead several tours and volunteer workdays each year to promote the Park and support Parks staff in ecological management and restoration. Volunteers document approximately 200 hours of labor annually. In the past two years, a relatively small proportion (10%) of that has occurred in South Cherokee Marsh. However, this management plan lays out opportunities for parks staff to better engage them at this site.

Parks' Conservation Supervisor meets with the group monthly, and maintains frequent correspondence with their board president. They are an invaluable resource for monitoring native wildlife and invasive plants throughout the park, and regularly work on pulling garlic mustard and Japanese hedge parsley, establishing native plants, and controlling invasive cattail.

Management history

Major restoration work to date has focused mainly on restoring the upland portions of the park through invasive species removal, re-establishment of native plant communities, and prescribed burning. Specific projects have included converting former agricultural land to prairie and removing invasive woody species from overgrown oak woodlands. Emergent aquatic plants have been established in the artificial storm water ponds and invasive plant species have been controlled in the surrounding, revegetated basins. Systematic management of invasive species has begun to reduce populations of bird's-foot trefoil,

buckthorn, dame's-rocket, garlic mustard, bush honeysuckle, Japanese hedge parsley, and wild parsnip on approximately 50 acres of uplands.

Construction of a sanitary sewer main in 1971 destroyed a portion of a fen located north of the sewer pump station. Attempts were made to return the excavated material and reestablish the native plant community here, but high water levels limited the success of this effort. The fen is still monitored by UW researchers.

Management units

The park can be divided into several management units based on location and habitat type. See Appendix A.3 for a map of management units.

White Oak Loop Unit (6 ac) Good quality oak woodland in the northwest corner of the park, bordering adjacent DNR land. Restoration efforts began here in 2014.

West Marsh Unit (92 ac) Encompasses the majority of the park and is dominated by sedge meadow and shrub-carr with some small pockets of calcareous fen and emergent marsh. This unit is situated along the south side of the Yahara River, and also borders the adjacent DNR land to the northwest.

Wheeler Prairie Unit (15 ac) Former agricultural land that is being restored to prairie. Recent work has focused on mowing to reduce brush, wild parsnip and sweet clover.

Daryl's Woods Unit (13 ac) Dominated by upland oak woodland, sedge meadow wetland and a pond. The majority of the oak woodland has been restored and has an understory dominated by native herbaceous species. Buckthorn is currently being removed from the remainder. A storm water pond was installed along Wheeler Road in the southern end of this unit in 2017, and reed canary grass sod was scraped from an adjacent isolated wetland. Parks has begun to re-establish a native plant community in the wetland scrape and enhance the pond with emergent aquatic plants.

Bluebird Hill Unit (14 ac) Oak woodland and oak savanna located in a transition zone between upland prairie and a pond with emergent marsh.

Central Woods Unit (14 ac) Dominated by silver maple, black willow and ash, this unit is heavily infested with buckthorn, garlic mustard and reed canary grass. No management is planned for this unit in the immediate future.

Boat Launch Hill Unit (10 ac) Located on an upland peninsula that separates the West Marsh and East Marsh, this unit features a prairie restoration on the hill and the boat launch on the canal.

Wheeler Woods (24 ac) Wet-mesic oak woodland is located between two storm water ponds that were re-vegetated with mesic prairie species. The west end of this unit is drier, with relatively sandier soil. This unit has been the focus of major restoration in recent years. A smaller wetland depression is located just east of the western storm water pond, and is bisected by the trail.

East Marsh Unit (44 ac) Sedge meadow and emergent marsh in the northeast corner of the park divided by two buried storm water outfalls that create a strip of upland occupied by tallgrass prairie. This unit is bordered by Wheeler Woods to the south and the canal to the north.

East Woods Unit (8 ac) Located at the corner of Wheeler Rd. and Comanche Way, this unit features mowed turf along the road frontage and a low-quality wet-mesic (floodplain?) forest heavily invaded by garlic mustard. No management is planned for this unit in the immediate future.

Yahara Heights Unit (15 ac) Located north of the Yahara River and contiguous with Yahara Heights County Park. This unit is not actively managed by Madison Parks.

Cherokee Park Unit (5 ac) Located along the south bank of the river between the canal and Cherokee Park. This unit is dominated by reed canary grass and cattails, and is not actively managed.

Prescriptions/Options

Options for three levels of management are presented in this plan: maintenance only, moderate restoration, and increased restoration. The “maintenance only” option is NOT recommended, as it restricts ecological management to areas recently treated. In reality, this is not sustainable within the context of existing adjacent invasive species populations and dispersal corridors. The “moderate restoration” option is approximately the level at which we currently operate. The “increased restoration” option has been supported periodically in the past with additional funding from larger Capital Improvement Projects. Once a site has been restored and a healthy, diverse, native plant community has become established, it can be maintained with much fewer resources. Internal ecological threats will have been minimized, and regular burning and occasional control of new populations of invasive species will be sufficient to sustain the natural area. Only then will the “maintenance only” option be successful.

Prescriptions are presented below for each of the major management units described above. Please note that some of these units are further divided into sub-units based on habitat quality or age of restoration. Sub-units are listed in Appendix B. Staff will develop annual work plans and apply the prescriptions below to sub-units as applicable.

Management Level 1 (maintenance only)

Objectives:

- Follow-up effort to control invasive species only on acres previously treated within last 3 years.
- Mow prairies and woodlands to control brush.
- Burn prairie units on a 5-year return interval. Invertebrate diversity will be conserved through refuges created by increased mowing.
- Burn currently managed woodland units on 6-year return interval.

Annual Budget Estimate:

Task	Annual cost
Invasive species treatments (spring / herbaceous)	\$5,000
Contract for invasive species control	\$8,000
Mow trails, maintain parking lot	\$2,700
Trail maintenance (gravel, water bars, etc.)	\$2,000
Brush mowing	\$4,000
Invasive species treatments (fall)	\$500
Wildlife population control	\$3,000
Burns (two per year)	\$4,000
Install native seed mix	\$500
totals	\$29,700

Specific Management Unit Prescriptions:

Timeline	Unit(s)	Task
Fall 2018	White Oak Loop	Sow seed mix outside of trail loop following Rx burn
Fall 2018	Wheeler Prairie Daryl's Woods East Marsh	Contracts for forestry mowing and selected woody invasive cut/treat on edges of existing restoration areas
Winter 2019	all	Conduct deer reduction
Spring 2019	various	Rx burn (cross-reference Rx burn database)
Spring 2019	White Oak Loop Daryl's Woods Wheeler Woods	Spray or hand pull garlic mustard, Japanese hedge parsley, re-sprouts
Spring 2019	Daryl's Woods	Control reed canary grass in wetland scrape
Spring 2019	Wheeler Prairie Daryl's Woods East Marsh	Contracts for herbaceous weed control and re-sprout control in areas where woody invasives were removed in fall 2018
Summer 2019	Wheeler Prairie Daryl's Woods Boat Launch Hill Wheeler Woods	Spray crown vetch and bird's foot trefoil found predominantly along roads and around ponds
Summer 2019	Wheeler Prairie	Mow wild parsnip
Summer 2019	Boat Launch Hill Wheeler Woods	Mow or pull sweet clover
Summer 2019	White Oak Loop	Mow <i>Rubus</i>
Winter 2020	all	Conduct deer reduction
Spring 2020	various	Rx burn (cross-reference Rx burn database)
Spring 2020	Bluebird Hill Daryl's Woods	Sow native seed following Rx burn

Timeline	Unit(s)	Task
Spring 2020	White Oak Loop Daryl's Woods Wheeler Woods	Spray or hand pull garlic mustard, Japanese hedge parsley
Spring 2020	Daryl's Woods	Follow-up reed canary grass control in wetland scrape
Summer 2020	Wheeler Prairie Daryl's Woods Boat Launch Hill Wheeler Woods	Spray crown vetch and bird's foot trefoil found predominantly along roads and around ponds
Summer 2020	Wheeler Prairie	Mow wild parsnip
Summer 2020	White Oak Loop	Mow <i>Rubus</i>
Fall 2020	Boat Launch Hill	Mow brush
Winter 2021	all	Conduct deer reduction
Spring 2021	various	Rx burn (cross-reference Rx burn database)
Spring 2021	White Oak Loop Daryl's Woods Wheeler Woods	Spray or hand pull garlic mustard, Japanese hedge parsley, re-sprouts.
Spring 2021	Daryl's Woods	Follow-up reed canary grass control in wetland scrape
Summer 2021	Wheeler Prairie	Mow wild parsnip
Fall 2021	Wheeler Woods	Mow brush
Winter 2022	all	Conduct deer reduction
Spring 2022	various	Rx burn (cross-reference Rx burn database)
Spring 2022	White Oak Loop Daryl's Woods Wheeler Woods	Follow-up and maintenance-level herbaceous weed control
Fall 2022	Wheeler Prairie	Mow brush
Winter 2023	all	Conduct deer reduction
Spring 2023	various	Rx burn (cross-reference Rx burn database)
Spring 2023	White Oak Loop	Sow native seed following Rx burn
Spring 2023	White Oak Loop Daryl's Woods Wheeler Woods	Follow-up and maintenance-level herbaceous weed control
Fall 2023	Boat Launch Hill	Mow brush

Possible Burn Schedule – average one burn per year:

year	1	2	3	4	5	6	7	8	9	10
Wheeler Prairie	X				X					
Bluebird Hill / Darryl's Woods		X				X				
Boat Launch Hill / West Marsh			X				X			
Wheeler Woods				X				X		
East Marsh						X				
White Oak Loop					X					X

Management Level 2 (moderate restoration)

Objectives:

- Follow-up effort to control invasive species on acres previously treated, plus continued moderate effort to restore the remaining uplands. We currently rely on both contracts and staff time to complete this work in all treatment areas. This cost will eventually decrease then plateau, as all management units come under active management and initial restoration is completed, moving the treatment areas from a “restoration phase” to a “maintenance phase”.
- Install native seed mixes to increase diversity and augment or re-establish native plant community.
- Burn tallgrass prairie and sedge meadow units on 2-3 year return interval. (Allow 2 growing seasons between burns.) Burn no more than ½ of prairie habitat in one season to conserve invertebrate diversity.
- Burn woodland units on 4-year return interval. (Allow 3 growing seasons between burns.)
- Mow brush as needed in prairies and woodlands to supplement prescribed burns.

Annual Budget Estimate:

Task	Annual cost
Invasive species treatments (spring / herbaceous)	\$5,000
Contracts for invasive species control	\$31,000
Mow trails, maintain parking lot	\$2,700
Trail maintenance (gravel, water bars, etc.)	\$4,500
Brush and targeted invasives mowing	\$3,000
Invasive species treatments (fall / woody)	\$1,000
Wildlife population control	\$3,000
Burns (three per year)	\$12,000
Install native seed mix	\$5,000
totals	\$67,200

Specific Management Unit Prescriptions:

Timeline	Unit(s)	Task
Fall 2018	White Oak Loop	Sow seed mix outside of trail loop following Rx burn
Fall 2018	Wheeler Prairie Daryl's Woods East Marsh	Contracts for forestry mowing and selected woody invasive cut/treat on edges of existing restoration areas
Winter 2019	all	Conduct deer reduction
Winter 2019	Boat Launch Hill	Cut/treat woody invasives
Spring 2019	various	Rx burn (cross-reference Rx burn database)
Spring 2019	White Oak Loop Daryl's Woods Wheeler Woods	Spray or hand pull garlic mustard, Japanese hedge parsley, re-sprouts
Spring 2019	Daryl's Woods	Control reed canary grass in wetland scrape
Spring 2019	Wheeler Prairie Daryl's Woods East Marsh	Contracts for herbaceous weed control and re-sprout control in areas where woody invasives were removed in Winter 2019
Summer 2019	Wheeler Prairie Daryl's Woods Boat Launch Hill Wheeler Woods	Spray crown vetch and bird's foot trefoil found predominantly along roads and around ponds
Summer 2019	Wheeler Prairie	Mow wild parsnip

Timeline	Unit(s)	Task
Summer 2019	Boat Launch Hill Wheeler Woods	Mow or pull sweet clover
Summer 2019	White Oak Loop	Mow <i>Rubus</i>
Winter 2020	all	Conduct deer reduction
Winter 2020	Bluebird Hill	Cut/treat invasive woody species on island in NW portion of unit
Spring 2020	various	Rx burn (cross-reference Rx burn database)
Spring 2020	Bluebird Hill	Install native seed mix following Rx burn
Spring 2020	White Oak Loop Daryl's Woods Wheeler Woods Bluebird Hill (island)	Spray or hand pull garlic mustard, Japanese hedge parsley (Also re-sprouts on Bluebird Hill island if forestry mow in winter 2020 instead of cut/treat.)
Spring 2020	Daryl's Woods	Follow-up reed canary grass control in wetland scrape
Summer 2020	Wheeler Prairie Daryl's Woods Boat Launch Hill Wheeler Woods	Spray crown vetch and bird's foot trefoil found predominantly along roads and around ponds
Summer 2020	Wheeler Prairie	Mow wild parsnip
Summer 2020	White Oak Loop Bluebird Hill Daryl's Woods	Mow <i>Rubus</i>
Fall 2020	Wheeler Prairie Boat Launch Hill	Mow brush
Fall 2020	Daryl's Woods	Sow native seed in areas cleared in 2018
Winter 2021	all	Conduct deer reduction
Winter 2021	Central Woods	Cut/treat invasive woody species (contract)
Spring 2021	various	Rx burn (cross-reference Rx burn database)
Spring 2021	White Oak Loop Daryl's Woods Wheeler Woods Bluebird Hill (island) Central Woods	Spray or hand pull garlic mustard, Japanese hedge parsley, re-sprouts. (In Central Woods unit, this will be limited to newly cleared areas.)
Spring 2021	Bluebird Hill (island)	Sow native seed following Rx burn (in West Marsh unit)
Spring 2021	Daryl's Woods	Follow-up reed canary grass control in wetland scrape
Summer 2021	Wheeler Prairie	Mow wild parsnip
Fall 2021	Wheeler Woods	Mow brush
Winter 2022	all	Conduct deer reduction
Winter 2022	Central Woods	Cut/treat invasive woody species
Spring 2022	various	Rx burn (cross-reference Rx burn database)
Spring 2022	White Oak Loop	Sow native seed following Rx burn
Spring 2022	White Oak Loop Daryl's Woods Wheeler Woods Bluebird Hill (island) Central Woods	Follow-up and maintenance-level herbaceous weed control
Spring 2022	East Marsh	Control reed canary grass
Summer 2022	various	Mow <i>Rubus</i>

Timeline	Unit(s)	Task
Winter 2023	all	Conduct deer reduction
Winter 2023	Central Woods	Cut/treat invasive woody species
Spring 2023	various	Rx burn (cross-reference Rx burn database)
Spring 2023	White Oak Loop Daryl's Woods Wheeler Woods Bluebird Hill (island) Central Woods	Follow-up and maintenance-level herbaceous weed control
Spring 2023	East Marsh	Follow-up reed canary grass control
Summer 2023	East Marsh	Plant plugs of rhizomatous sedges and grasses in reed canary grass control areas.
Fall 2023	East Marsh	Sow seed of wetland forbs in reed canary grass control areas
Fall 2023	Central Woods	Sow native seed

Possible Burn Schedule – average three burns per year:

year	1	2	3	4	5	6	7	8	9	10
Wheeler Prairie	x		x		x		x		x	
Bluebird Hill		x		x		x		x		
Boat Launch Hill	x		x		x		x		x	
Wheeler Woods		x			x			x		
West Marsh			x			x			x	
East Marsh		x			x			x		
White Oak Loop		x		x			x			x
Darryl's Woods			x			x			x	
Central Woods								x		
East Woods										x

Management Level 3 (increased restoration)

Objectives:

- Follow-up effort to control invasive species on acres previously treated.
- Install native seed mixes to increase diversity and augment or re-establish native plant community.
- Burn tallgrass prairie and sedge meadow units on a 2-3 year return interval. (Allow 2 growing seasons between burns.) Burn no more than 1/3 of prairie habitat in one season.
- Burn woodland units on 4-year return interval. (Allow 3 growing seasons between burns.)
- Mow brush as needed in prairies and open oak woodlands to supplement prescribed burns.
- Map wetland habitat types and plant communities.
- Secure contracts to initiate reed canary grass and hybrid cattail control and expand restore sedge meadow habitat to an additional 10 acres.

Annual Budget Estimate:

Task	Annual cost
Invasive species treatments (spring / herbaceous)	\$6,500
Contracts for invasive species control	\$41,000
Mow trails, maintain parking lot	\$2,700
Trail maintenance (gravel, water bars, etc.)	\$4,500
Brush mowing	\$3,000
Invasive species treatments (fall / woody)	\$2,000
Wildlife population control	\$3,000
Burns (four per year)	\$16,000
Install native seed mix	\$10,000
Monitoring	\$5,000
totals	\$93,700

Specific Management Unit Prescriptions:

Timeline	Unit(s)	Task
Fall 2018	White Oak Loop	Sow seed mix outside of trail loop following Rx burn
Fall 2018	Wheeler Prairie Daryl's Woods East Marsh	Contracts for forestry mowing and selected woody invasive cut/treat on edges of existing restoration areas
Winter 2019	all	Conduct deer reduction
Winter 2019	Boat Launch Hill	Cut/treat woody invasives
Spring 2019	various	Rx burn (cross-reference Rx burn database)
Spring 2019	White Oak Loop Daryl's Woods Wheeler Woods	Spray or hand pull garlic mustard, Japanese hedge parsley, re-sprouts
Spring 2019	Daryl's Woods	Control reed canary grass in wetland scrape
Spring 2019	Wheeler Prairie Daryl's Woods East Marsh	Contracts for herbaceous weed control and re-sprout control in areas where woody invasives were removed in Winter 2019
Summer 2019	Wheeler Prairie Daryl's Woods Boat Launch Hill Wheeler Woods	Spray crown vetch and bird's foot trefoil found predominantly along roads and around ponds
Summer 2019	Wheeler Prairie	Mow wild parsnip
Summer 2019	Boat Launch Hill Wheeler Woods	Mow or pull sweet clover

Timeline	Unit(s)	Task
Summer 2019	White Oak Loop	Mow <i>Rubus</i>
Fall 2019	Bluebird Hill	Sow native seed on N slope following Rx burn
Winter 2020	all	Conduct deer reduction
Winter 2020	Bluebird Hill	Cut/treat invasive woody species on island in NW portion of unit
Winter 2020	Central Woods	Contract for woody invasive species control
Spring 2020	various	Rx burn (cross-reference Rx burn database)
Spring 2020	various	Install native seed mix
Spring 2020	White Oak Loop Daryl's Woods Central Woods Wheeler Woods Bluebird Hill (island)	Spray or hand pull garlic mustard, Japanese hedge parsley, re-sprouts. (In Central Woods unit, this will be contract and limited to newly cleared areas.)
Spring 2020	Daryl's Woods	Follow-up reed canary grass control in wetland scrape
Summer 2020	Wheeler Prairie Daryl's Woods Boat Launch Hill Wheeler Woods	Spray crown vetch and bird's foot trefoil found predominantly along roads and around ponds
Summer 2020	Wheeler Prairie	Mow wild parsnip
Summer 2020	White Oak Loop Bluebird Hill Daryl's Woods	Mow <i>Rubus</i>
Fall 2020	Wheeler Prairie Boat Launch Hill	Mow brush
Fall 2020	Daryl's Woods	Sow native seed in areas cleared in 2018
Winter 2021	all	Conduct deer reduction
Winter 2021	Central Woods	Contract for woody invasive species control
Spring 2021	various	Rx burn (cross-reference Rx burn database)
Spring 2021	White Oak Loop Daryl's Woods Central Woods Wheeler Woods Bluebird Hill (island)	Spray or hand pull garlic mustard, Japanese hedge parsley, re-sprouts. (In Central Woods unit, this will be contract and limited to newly cleared areas.)
Spring 2021	Daryl's Woods	Follow-up reed canary grass control in wetland scrape
Summer 2021	Wheeler Prairie	Mow wild parsnip
Fall 2021	Wheeler Woods	Mow brush
Fall 2021	Bluebird Hill (island)	Sow native seed
Winter 2022	all	Conduct deer reduction
Spring 2022	various	Rx burn (cross-reference Rx burn database)
Spring 2022	White Oak Loop Daryl's Woods Wheeler Woods Bluebird Hill (island) Central Woods	Follow-up and maintenance-level herbaceous weed control
Spring 2022	East Marsh	Control reed canary grass
Summer 2022	various	Mow <i>Rubus</i>
Summer 2022	East Marsh	Hybrid cattail treatments
Winter 2023	all	Conduct deer reduction
Spring 2023	various	Rx burn (cross-reference Rx burn database)

Timeline	Unit(s)	Task
Spring 2023	White Oak Loop Daryl's Woods Wheeler Woods Bluebird Hill (island) Central Woods	Follow-up and maintenance-level herbaceous weed control
Spring 2023	East Marsh	Follow-up reed canary grass control
Summer 2023	East Marsh	Plant plugs of rhizomatous sedges and grasses in reed canary grass control areas, assess cattail control areas
Summer 2023	East Marsh	Hybrid cattail treatments
Fall 2023	East Marsh	Sow seed of wetland forbs in reed canary grass control areas
Fall 2023	Central Woods	Sow native seed

Possible Burn Schedule – average four burns per year:

Burn units with same letter can be combined or burned in a single day to reduce mobilization costs.

year	1	2	3	4	5	6	7	8	9	10
Wheeler Prairie	A		A		A		A		A	
Bluebird Hill		A		A		A		A		
Boat Launch Hill	B		B		B		B		B	
Wheeler Woods	C		C			B			C	
West Marsh		B			B			B		
East Marsh (west)	D			B		C				
East Marsh (east)	D				C			C		
White Oak Loop		C		C			C			A
Daryl's Woods (west)		D		A			D			B
Darryl's Woods (east)			D			D			D	
Central Woods (west)			D		D			D		
Central Woods (east)				D			E			C
East Woods										D

Monitoring and Evaluation

Measuring results is critical to determining success. While the Conservation Parks section currently has very limited capacity to increase monitoring efforts, we hope to expand our reach by working with the University of Wisconsin at Madison, Friends of Cherokee Marsh, and independent volunteers. Both formal research and citizen science will provide crucial information on which to base management decisions. With this in mind, basic, periodic monitoring can be performed by staff or volunteers to collect data about mammals, birds, reptiles and amphibians, invertebrates, and vascular plants. A few key metrics that should be used at South Cherokee Marsh include plant and animal diversity, and abundance of invasive species.

As part of a wider monitoring program, the following tasks should be completed:

- Map native plant community types, especially sedge meadow and shrub carr.
- Map invasive plant populations.
- Update/verify plant and animal species lists.
- Sample plant communities to collect data on richness and cover, then calculate diversity and floristic quality indices.
- Install and monitor deer exclosures to measure impacts of herbivory on plant community.

Citations

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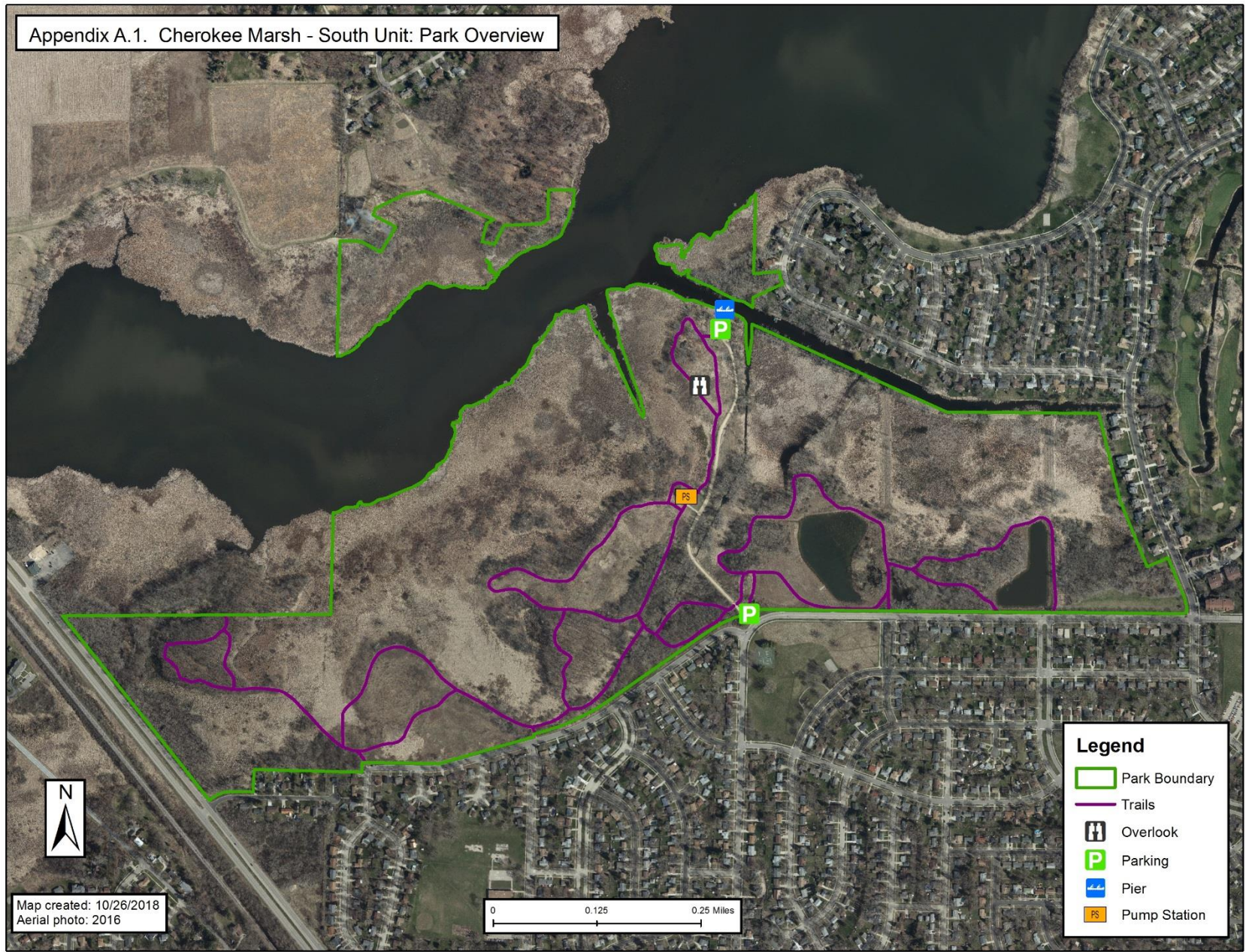
Document History

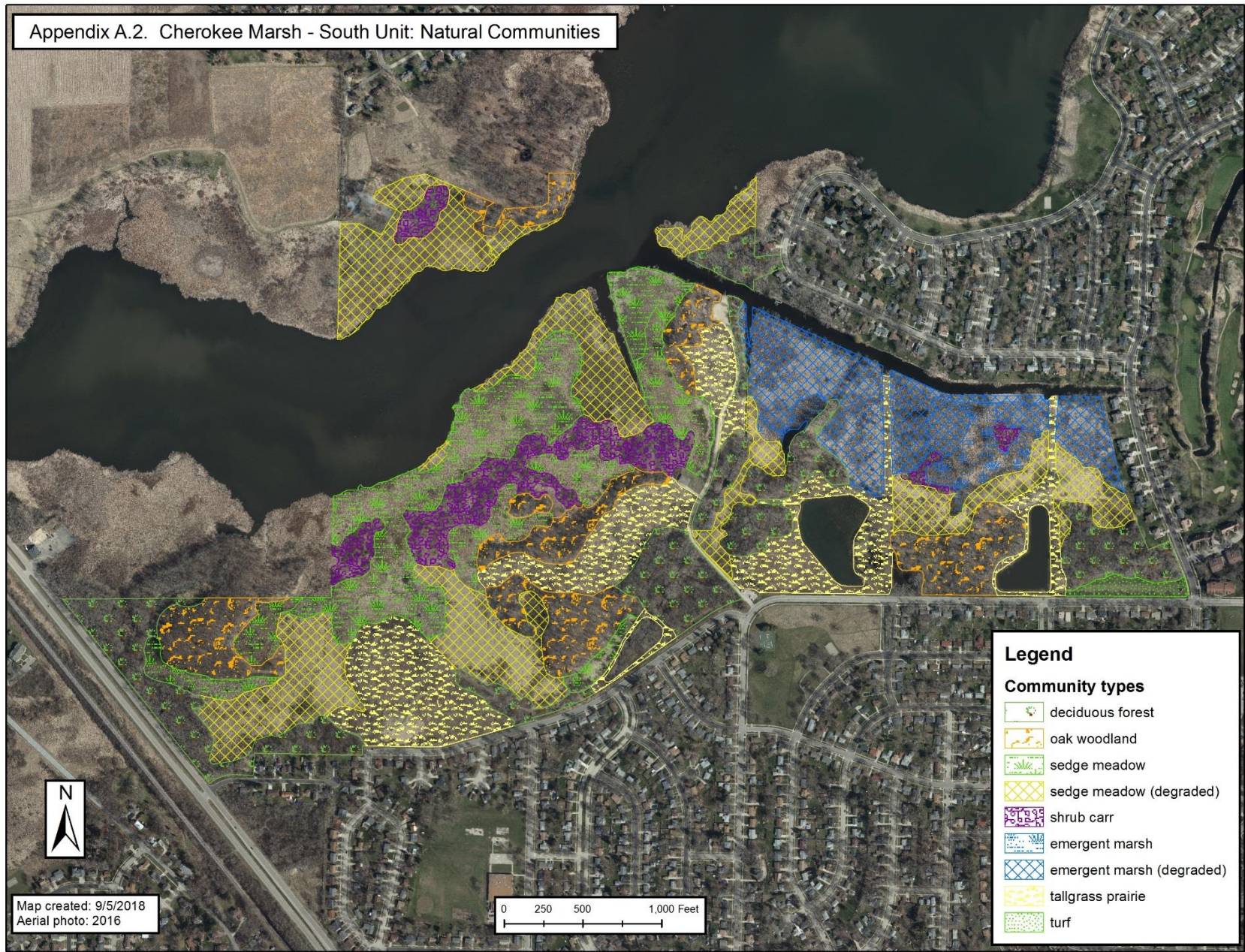
This Habitat Management Plan is consistent with Madison Parks' Land Management Plan. This Habitat Management Plan has 5-year lifespan, and should be reviewed yearly. It can be revised whenever new information is discovered. If no changes have been made, it should be updated in its 5th year.

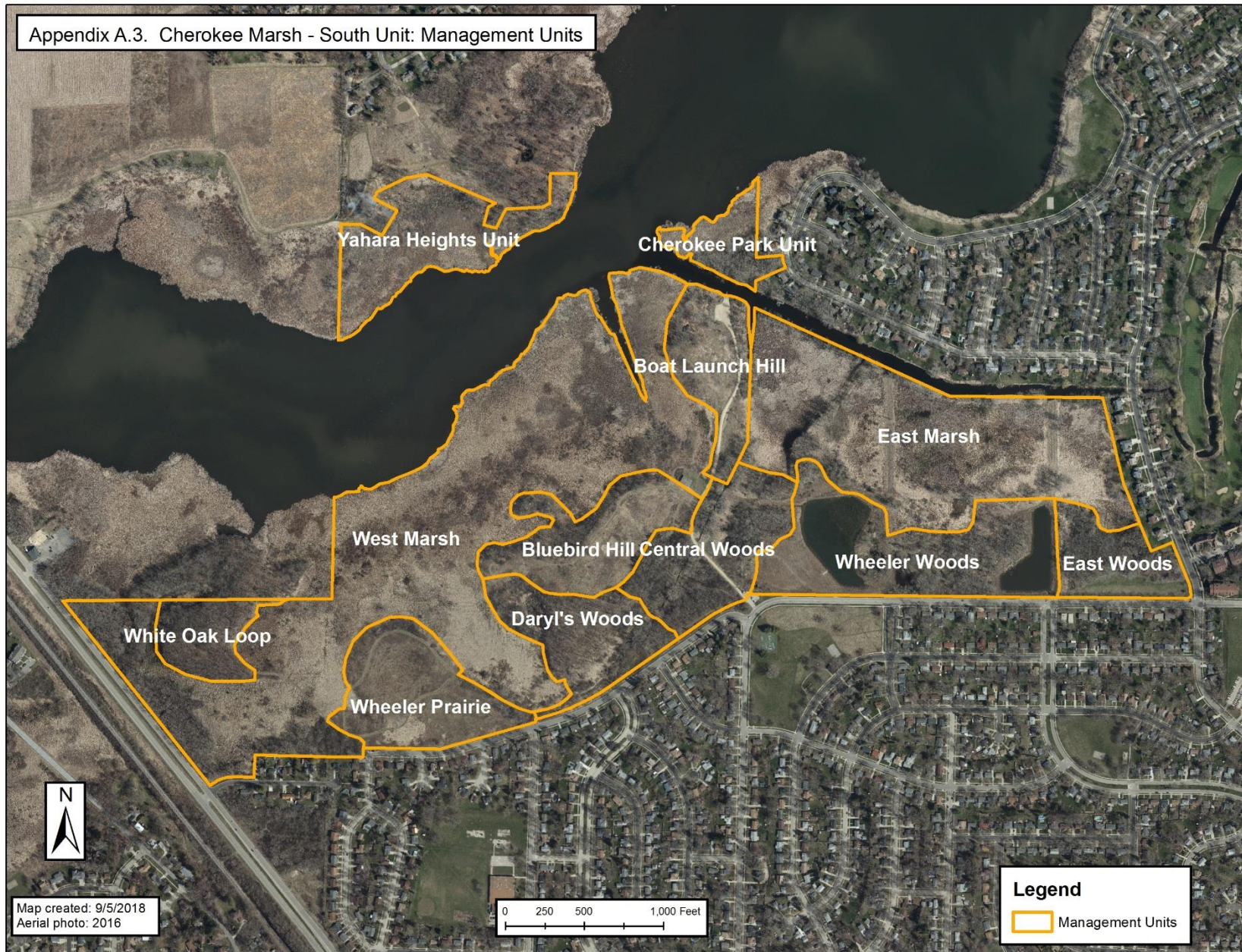
Version	Description
10/26/2018	First draft, presented to FOCM
11/12/2018	Minor edits made, presented to HSC

Appendices

- A. Maps
 - A.1 Park Overview
 - A.2 Natural Communities
 - A.3 Management Units
 - A.4 Prescribed Burns
 - A.5 Invasive Plant Populations (forthcoming)
- B. Species Lists









Appendix B. Species Lists

Vascular Plants

Source: This list was compiled largely by researchers working in the fen located north of the sewer pump station (Bart, unpublished data). Staff and volunteers have contributed as well.

SCIENTIFIC NAME	COMMON NAME	Native	Introduced
<i>Acer negundo</i>	box elder	X	
<i>Alliaria officinalis</i>	garlic mustard		X
<i>Apocynum cannabinum</i>	hemp-dogbane, Indian hemp	X	
<i>Asclepias incarnata</i>	swamp milkweed	X	
<i>Asclepias syriaca</i>	common milkweed	X	
<i>Aster novae-angliae</i>	New England aster	X	
<i>Aureolaria grandiflora</i>	large-flowered yellow false foxglove	X	
<i>Bromus ciliatus</i>	fringed brome	X	
<i>Cacalia atriplicifolia</i>	pale Indian plantain	X	
<i>Calamagrostis canadensis</i>	blue-joint grass	X	
<i>Caltha palustris</i>	cowslip, marsh-marigold	X	
<i>Campanula aparinoides</i>	marsh bellflower	X	
<i>Cardamine bulbosa</i>	spring-cress, bulbous bitter-cress	X	
<i>Carex aquatilis</i>	water sedge	X	
<i>Carex bebbii</i>	Bebb's sedge	X	
<i>Carex buxbaumii</i>	Buxbaum's sedge	X	
<i>Carex lacustris</i>	common lake sedge	X	
<i>Carex lasiocarpa</i>	narrow-leaved woolly sedge	X	
<i>Carex prairea</i>	fen paniced sedge, prairie sedge	X	
<i>Carex sartwellii</i>	running marsh sedge	X	
<i>Carex sterilis</i>	dioecious sedge	X	
<i>Carex stricta</i>	tussock sedge	X	
<i>Carya ovata</i>	shagbark hickory	X	
<i>Circaea alpina</i>	small enchanter's nightshade	X	
<i>Cirsium arvense</i>	Canada thistle, field thistle		X
<i>Cirsium muticum</i>	swamp thistle	X	
<i>Cornus racemosa</i>	gray dogwood	X	
<i>Cornus sericea</i>	red osier dogwood	X	
<i>Daucus carota</i>	Queen Anne's lace		X
<i>Dryopteris cristata</i>	crested shield fern	X	
<i>Eleocharis elliptica</i>	elliptic spike-rush	X	
<i>Eleocharis obtusa</i>	blunt spike-rush	X	
<i>Epilobium leptophyllum</i>	bog willow-herb, fen willow-herb	X	
<i>Equisetum arvense</i>	field horsetail	X	

SCIENTIFIC NAME	COMMON NAME	Native	Introduced
<i>Equisetum fluviatile</i>	river horsetail	X	
<i>Erigeron philadelphicus</i>	marsh fleabane	X	
<i>Eriophorum angustifolium</i>	cotton-grass	X	
<i>Eupatorium perfoliatum</i>	boneset	X	
<i>Eutrochium maculatum</i>	spotted Joe-Pye-weed	X	
<i>Galium boreale</i>	northern bedstraw	X	
<i>Galium labradoricum</i>	Labrador marsh bedstraw	X	
<i>Glyceria striata</i>	fowl manna grass	X	
<i>Hackelia virginiana</i>	stickseed	X	
<i>Hypoxis hirsuta</i>	common star-grass, yellow star-grass	X	
<i>Impatiens capensis</i>	orange jewelweed	X	
<i>Iris versicolor</i>	northern blue flag	X	
<i>Juglans nigra</i>	black walnut	X	
<i>Juncus dudleyi</i>	Dudley's rush	X	
<i>Lathyrus palustris</i>	marsh pea	X	
<i>Leersia oryzoides</i>	rice cutgrass	X	
<i>Lonicera tatarica</i>	tartarian honeysuckle		X
<i>Lotus corniculatus</i>	bird's-foot trefoil		X
<i>Lycopus americanus</i>	common water-horehound	X	
<i>Lycopus uniflorus</i>	northern water-horehound	X	
<i>Lysimachia quadriflora</i>	narrow-leaved loosestrife	X	
<i>Lysimachia thyrsoiflora</i>	tufted loosestrife	X	
<i>Melilotus officinalis</i>	yellow sweet clover		X
<i>Mentha canadensis</i>	field mint, wild mint	X	
<i>Monarda fistulosa</i>	wild bergamot	X	
<i>Morus alba</i>	white mulberry		X
<i>Muhlenbergia glomerata</i>	marsh muhly, spiked muhly	X	
<i>Onoclea sensibilis</i>	sensitive fern	X	
<i>Oxypolis rigidior</i>	stiff cowbane	X	
<i>Parthenocissus quinquefolia</i>	Virginia creeper	X	
<i>Pastinaca sativa</i>	wild parsnip		X
<i>Phalaris arundinacea</i>	reed canary grass		X
<i>Phragmites australis</i>	common reed		X
<i>Pilea pumila</i>	Canadian clearweed	X	
<i>Poa palustris</i>	marsh bluegrass	X	
<i>Podophyllum peltatum</i>	mayapple	X	
<i>Polemonium reptans</i>	spreading Jacob's-ladder	X	
<i>Populus alba</i>	white poplar		X
<i>Populus deltoides</i>	cottonwood	X	
<i>Populus tremuloides</i>	quaking aspen	X	

SCIENTIFIC NAME	COMMON NAME	Native	Introduced
<i>Prunus serotina</i>	wild black cherry	X	
<i>Pycnanthemum virginianum</i>	common mountain mint	X	
<i>Quercus alba</i>	white oak	X	
<i>Quercus bicolor</i>	swamp white oak	X	
<i>Quercus macrocarpa</i>	bur oak	X	
<i>Rhamnus cathartica</i>	common buckthorn		X
<i>Rhus glabra</i>	smooth sumac	X	
<i>Rhus typhina</i>	staghorn sumac	X	
<i>Rudbeckia hirta</i>	black-eyed susan	X	
<i>Rumex britannica</i>	greater water dock	X	
<i>Sagittaria latifolia</i>	broad-leaved arrowhead	X	
<i>Salix bebbiana</i>	Bebb's willow	X	
<i>Salix candida</i>	hoary willow, sage-leaved willow	X	
<i>Salix discolor</i>	pussy willow	X	
<i>Salix interior</i>	sandbar willow	X	
<i>Salix nigra</i>	black willow	X	
<i>Sambucus canadensis</i>	elderberry	X	
<i>Schoenoplectus tabernaemontani</i>	soft-stem bulrush	X	
<i>Scirpus atrovirens</i>	dark-green bulrush	X	
<i>Scutellaria galericulata</i>	common skullcap, marsh skullcap	X	
<i>Silphium laciniatum</i>	compass plant	X	
<i>Silphium perfoliatum</i>	cup plant	X	
<i>Silphium terebinthinaceum</i>	prairie dock	X	
<i>Solidago riddellii</i>	Riddell's goldenrod	X	
<i>Solidago uliginosa</i>	northern bog goldenrod	X	
<i>Sorghastrum nutans</i>	Indian grass	X	
<i>Sparganium eurycarpum</i>	common bur reed	X	
<i>Symphyotrichum boreale</i>	common northern bog aster	X	
<i>Symphyotrichum puniceum</i>	purple-stem aster, swamp aster	X	
<i>Taraxacum officinale</i>	common dandelion		X
<i>Thelypteris palustris</i>	marsh fern	X	
<i>Torilis japonica</i>	Japanese hedge parsley		X
<i>Trifolium pratense</i>	red clover		X
<i>Typha X glauca</i>	hybrid cat-tail, white cat-tail		X
<i>Utricularia intermedia</i>	flat-leaved bladderwort	X	
<i>Viola cucullata</i>	blue marsh violet, hooded violet	X	
total species	110		
total native	94		
total exotic	16		

Birds observed within the park

Source: eBird Field Checklist generated by eBird on 10/27/2018. (GBIF.org 2018)

State listings: END = endangered
THR = threatened
SC/M = special concern, but fully protected by federal and state laws under the
Migratory Bird Act

SGCN = Species of Greatest Conservation Need, as identified in the Wisconsin Wildlife Action Plan
SINS-Monitoring = Species has numerical conservation status ranks and sufficient information to be
assessed, but does not meet SGCN criteria. See Wisconsin natural heritage
working list website (<https://dnr.wi.gov/topic/NHI/WList.html>) for more information.

COMMON NAME	SCIENTIFIC NAME	State Listing	SGCN
Alder Flycatcher	<i>Empidonax alnorum</i>		
American Bittern	<i>Botaurus lentiginosus</i>	SC/M	SGCN
American Coot	<i>Fulica americana</i>		
American Crow	<i>Corvus brachyrhynchos</i>		
American Goldfinch	<i>Spinus tristis</i>		
American Kestrel	<i>Falco sparverius</i>		
American Redstart	<i>Setophaga ruticilla</i>		
American Robin	<i>Turdus migratorius</i>		
American Tree Sparrow	<i>Spizelloides arborea</i>		
American White Pelican	<i>Pelecanus erythrorhynchos</i>		
American Wigeon	<i>Mareca americana</i>		
American Woodcock	<i>Scolopax minor</i>	SC/M	SGCN
Bald Eagle	<i>Haliaeetus leucocephalus</i>		
Baltimore Oriole	<i>Icterus galbula</i>		
Bank Swallow	<i>Riparia riparia</i>		
Barn Swallow	<i>Hirundo rustica</i>		
Barred Owl	<i>Strix varia</i>		
Bay-breasted Warbler	<i>Setophaga castanea</i>		
Belted Kingfisher	<i>Megaceryle alcyon</i>		
Black-and-white Warbler	<i>Mniotilta varia</i>		
Blackburnian Warbler	<i>Setophaga fusca</i>		
Black-capped Chickadee	<i>Poecile atricapillus</i>		
Blackpoll Warbler	<i>Setophaga striata</i>		
Black-throated Blue Warbler	<i>Setophaga caerulescens</i>		
Black-throated Green Warbler	<i>Setophaga virens</i>		
Blue Jay	<i>Cyanocitta cristata</i>		
Blue-gray Gnatcatcher	<i>Poliioptila caerulea</i>		
Blue-headed Vireo	<i>Vireo solitarius</i>		
Blue-winged Teal	<i>Spatula discors</i>		

COMMON NAME	SCIENTIFIC NAME	State Listing	SGCN
Blue-winged Warbler	<i>Vermivora cyanoptera</i>		
Bonaparte's Gull	<i>Chroicocephalus philadelphia</i>		
Broad-winged Hawk	<i>Buteo platypterus</i>		
Brown Creeper	<i>Certhia americana</i>		
Brown Thrasher	<i>Toxostoma rufum</i>		
Brown-headed Cowbird	<i>Molothrus ater</i>		
Bufflehead	<i>Bucephala albeola</i>		
Cackling Goose	<i>Branta hutchinsii</i>		
Canada Goose	<i>Branta canadensis</i>		
Canada Warbler	<i>Cardellina canadensis</i>		
Canvasback	<i>Aythya valisineria</i>		
Cape May Warbler	<i>Setophaga tigrina</i>		
Caspian Tern	<i>Hydroprogne caspia</i>	END	SGCN
Cedar Waxwing	<i>Bombycilla cedrorum</i>		
Cerulean Warbler	<i>Setophaga cerulea</i>	THR	SGCN
Chestnut-sided Warbler	<i>Setophaga pensylvanica</i>		
Chimney Swift	<i>Chaetura pelagica</i>		
Chipping Sparrow	<i>Spizella passerina</i>		
Clay-colored Sparrow	<i>Spizella pallida</i>		
Cliff Swallow	<i>Petrochelidon pyrrhonota</i>		
Common Goldeneye	<i>Bucephala clangula</i>		
Common Grackle	<i>Quiscalus quiscula</i>		
Common Loon	<i>Gavia immer</i>		SINS-Monitoring
Common Merganser	<i>Mergus merganser</i>		
Common Nighthawk	<i>Chordeiles minor</i>	SC/M	SGCN
Common Redpoll	<i>Acanthis flammea</i>		
Common Yellowthroat	<i>Geothlypis trichas</i>		
Connecticut Warbler	<i>Oporornis agilis</i>	SC/M	SGCN
Cooper's Hawk	<i>Accipiter cooperii</i>		
Dark-eyed Junco	<i>Junco hyemalis</i>		
Double-crested Cormorant	<i>Phalacrocorax auritus</i>		
Downy Woodpecker	<i>Dryobates pubescens</i>		
Eastern Bluebird	<i>Sialia sialis</i>		
Eastern Kingbird	<i>Tyrannus tyrannus</i>		
Eastern Meadowlark	<i>Sturnella magna</i>	SC/M	SGCN
Eastern Phoebe	<i>Sayornis phoebe</i>		
Eastern Screech-Owl	<i>Megascops asio</i>		
Eastern Towhee	<i>Pipilo erythrophthalmus</i>		
Eastern Wood-Pewee	<i>Contopus virens</i>		
European Starling	<i>Sturnus vulgaris</i>		
Field Sparrow	<i>Spizella pusilla</i>		

COMMON NAME	SCIENTIFIC NAME	State Listing	SGCN
Fox Sparrow	<i>Passerella iliaca</i>		
Gadwall	<i>Mareca strepera</i>		
Golden-crowned Kinglet	<i>Regulus satrapa</i>		
Golden-winged Warbler	<i>Vermivora chrysoptera</i>	SC/M	SGCN
Grasshopper Sparrow	<i>Ammodramus savannarum</i>	SC/M	SGCN
Gray Catbird	<i>Dumetella carolinensis</i>		
Gray-cheeked Thrush	<i>Catharus minimus</i>		
Great Blue Heron	<i>Ardea herodias</i>		
Great Crested Flycatcher	<i>Myiarchus crinitus</i>		
Great Egret	<i>Ardea alba</i>	THR	SGCN
Great Horned Owl	<i>Bubo virginianus</i>		
Greater White-fronted Goose	<i>Anser albifrons</i>		
Green Heron	<i>Butorides virescens</i>		
Green-winged Teal	<i>Anas crecca</i>		
Hairy Woodpecker	<i>Dryobates villosus</i>		
Hermit Thrush	<i>Catharus guttatus</i>		
Herring Gull	<i>Larus argentatus</i>		
Hooded Merganser	<i>Lophodytes cucullatus</i>		
Horned Lark	<i>Eremophila alpestris</i>		
House Finch	<i>Haemorhous mexicanus</i>		
House Sparrow	<i>Passer domesticus</i>		
House Wren	<i>Troglodytes aedon</i>		
Ruby-throated Hummingbird	<i>Archilochus colubris</i>		
Indigo Bunting	<i>Passerina cyanea</i>		
Kentucky Warbler	<i>Geothlypis formosa</i>	THR	SGCN
Killdeer	<i>Charadrius vociferus</i>		
Least Flycatcher	<i>Empidonax minimus</i>	SC/M	SGCN
Lesser Scaup	<i>Aythya affinis</i>		
Lesser Yellowlegs	<i>Tringa flavipes</i>		
Lincoln's Sparrow	<i>Melospiza lincolnii</i>		
Louisiana Waterthrush	<i>Parkesia motacilla</i>		
Magnolia Warbler	<i>Setophaga magnolia</i>		
Mallard	<i>Anas platyrhynchos</i>		
Marsh Wren	<i>Cistothorus palustris</i>		
Merlin	<i>Falco columbarius</i>		
Mourning Dove	<i>Zenaida macroura</i>		
Mourning Warbler	<i>Geothlypis philadelphia</i>		
Mute Swan	<i>Cygnus olor</i>		
Nashville Warbler	<i>Oreothlypis ruficapilla</i>		
Northern Cardinal	<i>Cardinalis cardinalis</i>		
Northern Flicker	<i>Colaptes auratus</i>		

COMMON NAME	SCIENTIFIC NAME	State Listing	SGCN
Northern Harrier	<i>Circus hudsonius</i>		
Northern Parula	<i>Setophaga americana</i>		
Northern Pintail	<i>Anas acuta</i>		
Northern Rough-winged Swallow	<i>Stelgidopteryx serripennis</i>		
Northern Shoveler	<i>Spatula clypeata</i>		
Northern Waterthrush	<i>Parkesia noveboracensis</i>		
Olive-sided Flycatcher	<i>Contopus cooperi</i>	SC/M	SGCN
Orange-crowned Warbler	<i>Oreothlypis celata</i>		
Osprey	<i>Pandion haliaetus</i>		
Ovenbird	<i>Seiurus aurocapilla</i>		
Palm Warbler	<i>Setophaga palmarum</i>		
Peregrine Falcon	<i>Falco peregrinus</i>	END	SGCN
Philadelphia Vireo	<i>Vireo philadelphicus</i>		
Pied-billed Grebe	<i>Podilymbus podiceps</i>		
Pileated Woodpecker	<i>Dryocopus pileatus</i>		
Pine Siskin	<i>Spinus pinus</i>		
Pine Warbler	<i>Setophaga pinus</i>		
Prothonotary Warbler	<i>Protonotaria citrea</i>	SC/M	SGCN
Purple Finch	<i>Haemorhous purpureus</i>		
Purple Martin	<i>Progne subis</i>	SC/M	SGCN
Red-bellied Woodpecker	<i>Melanerpes carolinus</i>		
Red-breasted Merganser	<i>Mergus serrator</i>		
Red-breasted Nuthatch	<i>Sitta canadensis</i>		
Red-eyed Vireo	<i>Vireo olivaceus</i>		
Redhead	<i>Aythya americana</i>		
Red-headed Woodpecker	<i>Melanerpes erythrocephalus</i>	SC/M	SGCN
Red-shouldered Hawk	<i>Buteo lineatus</i>	THR	SGCN
Red-tailed Hawk	<i>Buteo jamaicensis</i>		
Red-winged Blackbird	<i>Agelaius phoeniceus</i>		
Ring-billed Gull	<i>Larus delawarensis</i>		
Ring-necked Duck	<i>Aythya collaris</i>		
Ring-necked Pheasant	<i>Phasianus colchicus</i>		
Rock Pigeon	<i>Columba livia</i>		
Rose-breasted Grosbeak	<i>Pheucticus ludovicianus</i>		
Ruby-crowned Kinglet	<i>Regulus calendula</i>		
Ruddy Duck	<i>Oxyura jamaicensis</i>		
Rusty Blackbird	<i>Euphagus carolinus</i>	SC/M	SGCN
Sandhill Crane	<i>Antigone canadensis</i>		
Scarlet Tanager	<i>Piranga olivacea</i>		
Sedge Wren	<i>Cistothorus platensis</i>		
Sharp-shinned Hawk	<i>Accipiter striatus</i>		

COMMON NAME	SCIENTIFIC NAME	State Listing	SGCN
Solitary Sandpiper	<i>Tringa solitaria</i>		
Song Sparrow	<i>Melospiza melodia</i>		
Sora	<i>Porzana carolina</i>		
Spotted Sandpiper	<i>Actitis macularius</i>		
Summer Tanager	<i>Piranga rubra</i>		
Swainson's Thrush	<i>Catharus ustulatus</i>	SC/M	SGCN
Swamp Sparrow	<i>Melospiza georgiana</i>		
Tennessee Warbler	<i>Oreothlypis peregrina</i>		
Tree Swallow	<i>Tachycineta bicolor</i>		
Tufted Titmouse	<i>Baeolophus bicolor</i>		
Tundra Swan	<i>Cygnus columbianus</i>		
Turkey Vulture	<i>Cathartes aura</i>		
Vesper Sparrow	<i>Pooecetes gramineus</i>	SC/M	SGCN
Warbling Vireo	<i>Vireo gilvus</i>		
Waxwings	<i>Celeus undatus</i>		
White-breasted Nuthatch	<i>Sitta carolinensis</i>		
White-crowned Sparrow	<i>Zonotrichia leucophrys</i>		
White-throated Sparrow	<i>Zonotrichia albicollis</i>		
Wild Turkey	<i>Meleagris gallopavo</i>		
Willow Flycatcher	<i>Empidonax traillii</i>		
Wilson's Snipe	<i>Gallinago delicata</i>		
Wilson's Warbler	<i>Cardellina pusilla</i>		
Winter Wren	<i>Troglodytes hiemalis</i>		
Wood Duck	<i>Aix sponsa</i>		
Wood Thrush	<i>Hylocichla mustelina</i>		
Yellow Warbler	<i>Setophaga petechia</i>		
Yellow-bellied Flycatcher	<i>Empidonax flaviventris</i>		
Yellow-bellied Sapsucker	<i>Sphyrapicus varius</i>		
Yellow-rumped Warbler	<i>Setophaga coronata</i>		
Yellow-throated Vireo	<i>Vireo flavifrons</i>		
total species	182		