

Lake Ripley Management District

Lake District Preserve Vegetation Surveys 2023

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Introduction

The Lake District Preserve is located in Jefferson County, Wisconsin, and is managed by the Lake Ripley Protection and Rehabilitation District. There are three wetland areas in the Preserve. Wetland 2 was ditched and partially drained in the 1950s. In 1999 the ditch was plugged, and a wetland scrape was created which resulted in a 17-acre pond up to one foot deep. Over the years, the pond has reduced in size to roughly 12.5 acres. This pond is a frequent stopping area for migratory waterfowl and hosts many pairs of breeding Canada geese, mallards, and wood ducks. Wetland 3 has a half-acre scrape that was excavated to a depth of 12 to 24 inches in the middle, with spoils placed on the adjacent uplands. This scrape was created as part of a wetland enhancement project in the late summer of 1998 with the goal of providing excellent spring wildlife habitat and helping trap sediment from upland runoff. This scrape adds diversity to the surrounding reed canary grass-dominated fresh-wet meadow.

In 2023, vegetation surveys were conducted using DNR protocols in these two scrapes to assess their plant communities and to look for invasive plant species.

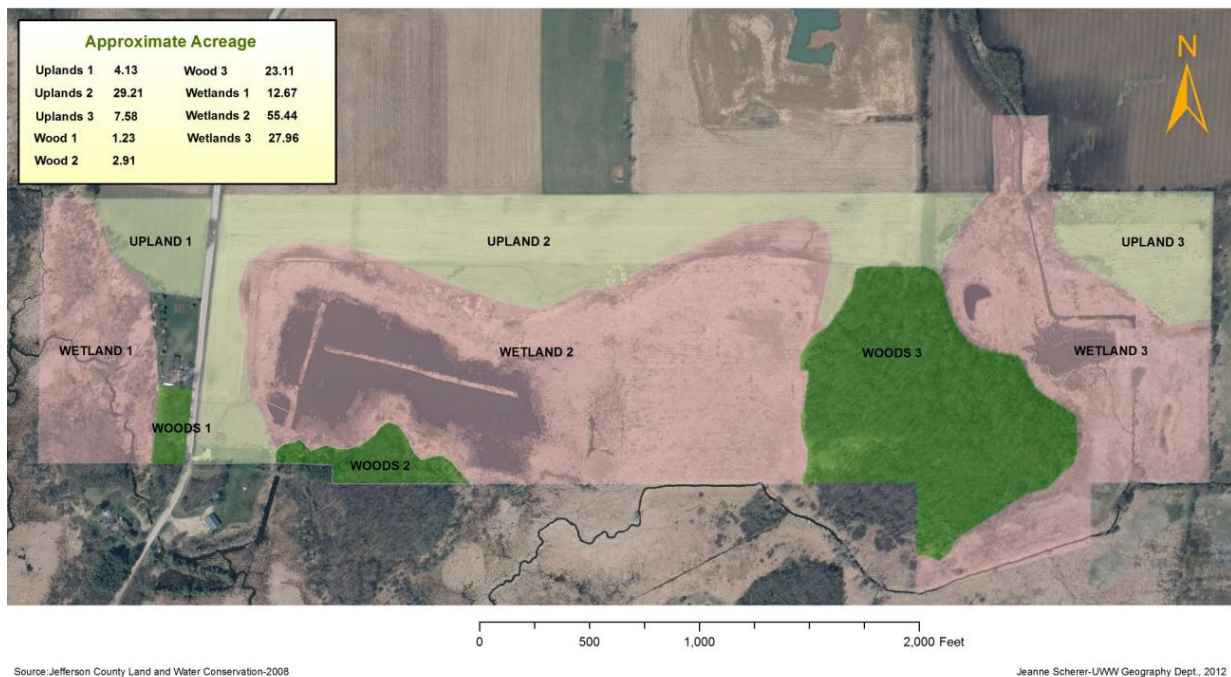


Figure 1. Lake District Preserve plant community management areas.

Methods

The vegetation survey of Wetland 2 was conducted June 15, 2023, using *The Timed Meander Protocol for Deep Water Wetlands using Boat* (draft, MCG 7/22/22). The vegetation survey for Wetland 3 scrape was conducted on May 26, 2023, using the *Edge Rake-Toss Survey Protocol for Aquatic Plant Community Floristic Assessments* (MCG 4/2023). Follow-up observations were made on foot on August 15, 2023.

Survey results were entered into Wisconsin Department of Natural Resources FQA Calculator Excel spreadsheet.



Figure 2: Wetland 2 scrape

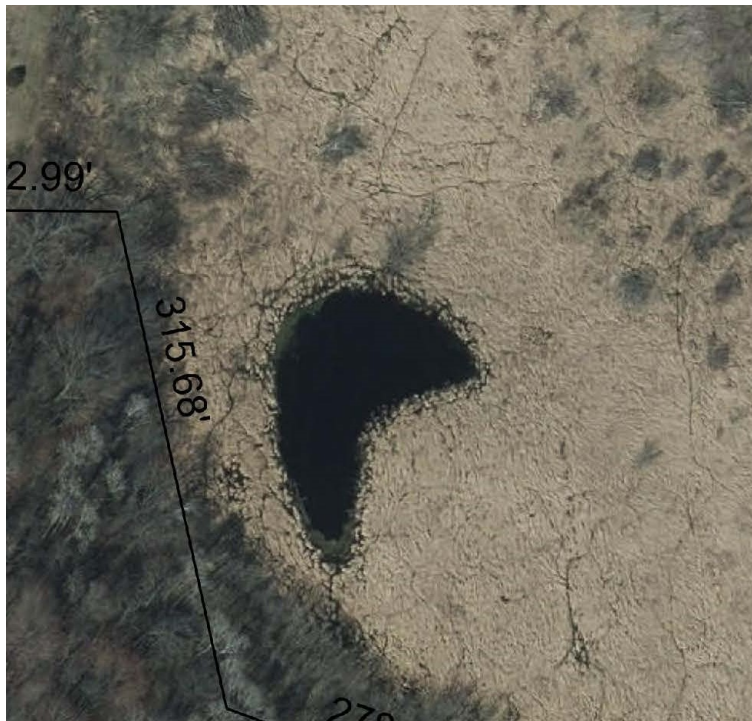


Figure 3: Wetland 3 Scrape

Results

Water levels were low during the growing season, as a drought formed and was sustained in the State of Wisconsin. By the end of August, precipitation was down 20% from the mean of the 2000-2023 National Weather Service Lake Mills station data.

Table 1. Mean precipitation data at the National Weather Service in Lake Mills (National Weather Service 2023)

	Jan	Feb	March	April	May	June	July	Aug	Jan-Aug Total
2023	2.03	3.64	2.81	2.67	1.2	1.86	4.3	2.89	21.4
2000-2023 Mean	1.39	1.55	2.16	3.47	4.02	4.94	3.89	4.32	25.74
2023 Deviation	0.64	2.09	0.65	-0.8	-2.82	-3.08	0.41	-1.43	-4.34

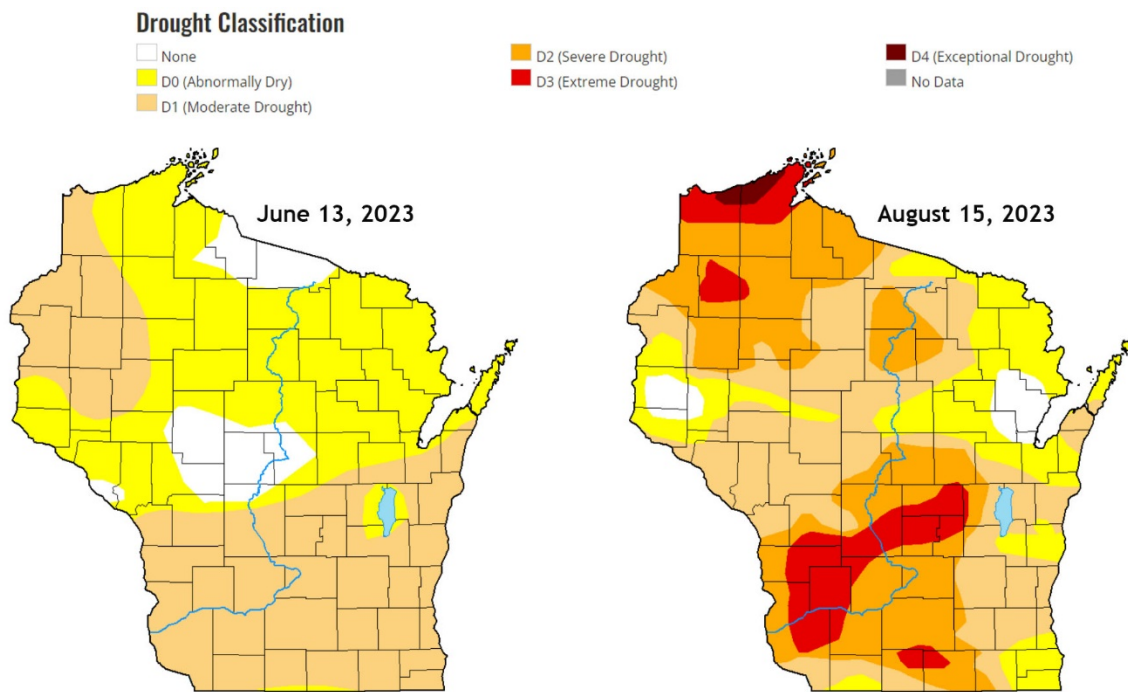


Figure 4. Drought severity maps for Wisconsin (U.S. Drought Monitor 2023)

Wetland 2 Scrape Results

Drought-induced, low-water conditions during 2023 made navigating Wetland 2 during the June 15th survey difficult, even in a shallow flat-bottom boat. We tried our best to navigate as much of the scrape as possible. All standing water was submergent marsh. We found five species of plants, only three of which are rooted in aquatics (Appendix B). Small pondweed (*Potamogeton pusillus*) was by far the most abundant species with 80% coverage. Both lesser duckweed (*Lemna minor*) and common water-meal (*Wolffia columbiana*) were also abundant. No aquatic invasive species were found within the water body,

but hybrid cattail (*Typha x glauca*) and reed canary grass (*Phalaris arundinacea*) were both observed at the pond's edges.



Figure 5: Wetland 2 scrape on August 2023. Launching a boat was not feasible.

Water levels continued to drop all season and by August 15th, 2023, only a small area of the pond contained standing water, surrounded by mudflats, making using a boat impossible. Therefore, we attempted to conduct a partial survey using a rake toss from three different shoreline points. We found one species, coontail (*Ceratophyllum demersum*), on one rake toss and therefore did not enter the results into the spreadsheet.

Wetland 3 Scrape Results

Low but somewhat fluctuating water levels in this small waterbody left the plant community type to be somewhere between a submergent marsh and a seasonally flooded basin. Identification of tiny plants, sprouting by seed, to species level was difficult. We identified seven rooted wetland plants to species or genus (Appendix C). Only one invasive species, reed canary grass, was found in the survey area. As with Wetland 2, we did not use a percent coverage in our calculations for duckweed and watermeal, but if we had, we would have assessed both at 80%. Filamentous algae was very common at 50% coverage.

By the time of the August 15th survey, the pond was without standing water and no vegetation sampling could be conducted using the protocol. Vegetation consisted mostly of beggarticks (*Bidens sp.*), smartweed (*Polygonum sp.*) and other annual plants.



Figure 6: Wetland 3 Scrape August 15, 2023, location for previous Rake Toss 1, looking east.

Conclusion

The Wetland 3 pond/scrape was more diverse than the much larger Wetland 2 scrape pond; the survey of Wetland 3 sampled a much larger percentage of its total area. The Wetland 2 survey protocol excluded the same water depths as those surveyed in Wetland 3. Under normal water level conditions, Wetland 3 would have been more thoroughly surveyed. Although the surveys were difficult under these conditions, and the results would be consistent with normal vegetative conditions, I believe that we would have found any new aquatic invasive species. Many emergent wetland plants become established during dry conditions, including invasive cattails, reed canary grass, and phragmites. These should be monitored and controlled in the next few years if new populations are established.

References

National Weather Service 2023 <https://www.weather.gov/wrh/Climate?wfo=mkx>

U.S. Drought Monitor 2023 <https://droughtmonitor.unl.edu/Maps/CompareTwoWeeks.aspx>

Appendix

A: Wetland 3 Photolog



Rake Toss 1, looking east.



Rake Toss 2, looking south.



Rake Toss 3, looking west.



Rake Toss, 4, looking north.

B: Wetland 2 vegetation calculator results.

SITE NAME: Lake District Preserve		PLANT COMMUNITY: Submergent Marsh	
ASSESSMENT AREA NAME: Wetland Pond/Scrape 2		SURVEYORS: Andrew Sabai, Dwight Osmon	
GPS COORDINATES		SURVEY DATE: 6/15/23	
(Decimal Degrees)		SITE NOTES: Navigation is difficult due to drought induced low water and thick vegetation.	
COUNTY: Jefferson			
ECOREGION (LEVEL III): Southeastern Wisconsin Till Plains			

RESULTS:		Floristic Quality Metrics: Native Species (n)				Floristic Quality Metrics: All Species (a)				wC _n By Growth Form:						
N _a	N _n	N _{int.}	Non-Native Total Cover:	Non-Native Relative Cover:	FQI _n	wFQI _n	Mean C C _n	Weighted Mean C wC _n	FQI _a	wFQI _a	Mean C C _a	Weighted Mean C wC _a	Tree	Shrub	Herb	Aquatic
5	5	0			9.8		4.4		9.8		4.4		0%	0%	0%	90%
:Total Cover																

ENTER SPECIES CODE:	ENTER % COVER:	Scientific Name	Common Name	C-Value	Wetland Ind. Status (MW/MCN)	WI Status	Growth Form	Duration	NH Status	Invasive (NR40) Status	Accepted ITIS Name
		<i>Wolffia columbiana</i>	common water-meal	5	OBL	Native	aquatic	perennial	0	0	<i>Wolffia columbiana</i>
		<i>Lemna minor</i>	common duckweed, lesser duckweed,	4	OBL	Native	aquatic	perennial	0	0	<i>Lemna minor</i>
80		<i>Potamogeton pusillus</i>	slender pondweed, small pondweed	7	OBL	Native	aquatic	perennial	0	0	<i>Potamogeton pusillus</i>
5		<i>Stuckenia pectinata</i>	comb pondweed, sago pondweed	3	OBL	Native	aquatic	perennial	0	0	<i>Stuckenia pectinata</i>
5		<i>Ceratophyllum demersum</i>	coon's-tail, hornwort	3	OBL	Native	aquatic	perennial	0	0	<i>Ceratophyllum demersum</i>

C: Wetland 3 vegetation calculator results.

SITE NAME:		Lake District Preserve		PLANT COMMUNITY:		Submergent Marsh															
ASSESSMENT AREA NAME:		Wetland 3 Pond/Scrape		SURVEYORS:		Andrew Sabai, Lianna Spenser															
GPS COORDINATES		Latitude: 43.003250		SURVEY DATE:		5/26/23															
(Decimal Degrees)		Longitude: -88.957640		SITE NOTES:		Low water due to drought. When attempting second survey on 8/15/2023, there was no water in the pond.															
COUNTY:		Jefferson																			
ECOREGION (LEVEL III):		Southeastern Wisconsin Till Plains																			
RESULTS:																					
		Floristic Quality Metrics: Native Species (n)			Floristic Quality Metrics: All Species (a)			wC _a By Growth Form:													
N _a	N _n	N _{int.}	Non-Native Total Cover:	Non-Native Relative Cover:	FQ _n	wFQ _n	FQ _a	wFQ _a	Mean C	Weighted Mean C wC _n	Tree	Shrub	Herb	Aquatic							
6	5	1	5%	45%	9.8	14.0	9.0	8.5	3.7	3.5	0.0	0.0	0.5	6.9							
										0%		0%		:Total Cover							
										0%		6%		5%							
ENTER SPECIES CODE:		ENTER % COVER:		Scientific Name		Common Name		C-Value		Wetland Ind. Status (MW/MCNE)		Growth Form		Duration		NHI Status		Invasive (NR40) Status		Accepted ITIS Name	
PHAAU	5			<i>Phalaris arundinacea</i>	reed canary grass	0	FACW	Introduced	herb	perennial	0	Non-restricted			<i>Phalaris arundinacea</i>						
SAGLAT	0.1			<i>Sagittaria latifolia</i>	broad-leaved arrowhead	3	OBL	Native	aquatic	perennial	0				<i>Sagittaria latifolia</i>						
WOLCOL	0			<i>Wolffia columbiana</i>	common water-nut	5	OBL	Native	aquatic	perennial	0				<i>Wolffia columbiana</i>						
LEMWIN	0			<i>Lemna minor</i>	common duckweed, lesser duckweed,	4	OBL	Native	aquatic	perennial	0				<i>Lemna minor</i>						
ALISUB	1			<i>Alisma subcordatum</i>	American water-plantain, common w	3	OBL	Native	herb	perennial	0				<i>Alisma subcordatum</i>						
POTPUS	5			<i>Potamogeton pusillus</i>	slender pondweed, small pondweed	7	OBL	Native	aquatic	perennial	0				<i>Potamogeton pusillus</i>						
ENTER SPECIES CODE:		ENTER % COVER:		Field Notes		Scientific Name		Common Name		WI Status		NHI Status		NR40 Status		Accepted ITIS Name					
TYPSP	0.1			<i>Typha sp.</i>						0	0	0	0	0	0		<i>Typha</i>				
ELESP	10			<i>Eleocharis sp.</i>						0	0	0	0	0	0		<i>Eleocharis</i>				
POLSP	0.1			<i>Polygonum sp.</i>						0	0	0	0	0	0		<i>Polygonum</i>				
ALGSP	0			<i>Algae sp.</i>						0	0	0	0	0	0						
	0.1			Unkown																	

D: Wetland 2 Survey Map



E: Wetland 3 Survey Map

