



American Lotus in Cates Lake, Scott County, Minnesota, 2019

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# Aquatic Plant Point Intercept Survey for Cates Lake, Scott County, Minnesota

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[Plant Survey Conducted July 12, 2019]

Prepared for:  
Prior Lake-Spring Lake  
Watershed District



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# Aquatic Plant Point Intercept Survey for Cates Lake, Scott County, Minnesota

## Summary

Cates Lake (MnDNR ID #70-001800) is a 30 acre lake located in Scott County, Minnesota. An aquatic plant survey was conducted on July 12, 2019 by Blue Water Science to characterize conditions of native aquatic plants and to look for the non-native Eurasian watermilfoil.

Cates Lake has a moderate diversity of submerged aquatic plants, with 6 species of rooted submerged plants found. Coontail was the dominant plant and was observed at all sites throughout Cates Lake. Curlyleaf pondweed and Eurasian watermilfoil were present but growth was mostly light.

**Table S1. The percent occurrence of summer aquatic plants for Cates Lake on July 12, 2019. Percent occurrence is calculated based on the number of times a plant species occurs at a sampling station divided into the total number of stations for the survey.**

	Cates Lake July 12, 2019 (54 sites)		
	% Occurrence	Occurrence	Density
American lotus ( <i>Nelumbo lutea</i> )	11	6	1.3
Spatterdock ( <i>Nuphar variegata</i> )	1	2	1.0
White water lilies ( <i>Nymphaea sp</i> )	28	15	1.1
Coontail ( <i>Ceratophyllum demersum</i> )	100	54	1.6
Elodea ( <i>Elodea canadensis</i> )	57	31	1.2
Curlyleaf pondweed ( <i>Potamogeton crispus</i> )	28	15	1.0
Eurasian watermilfoil ( <i>Myriophyllum spicatum</i> )	28	15	1.1
Cabbage ( <i>Potamogeton amplifolius</i> )	4	2	1.5
Flatstem pondweed ( <i>P. zosteriformis</i> )	13	7	1.0
Aquatic Plant Coverage (ac)	30 (100%)		
Total submerged species	6		

# Aquatic Plant Point Intercept Survey for Cates Lake, Scott County, Minnesota

Cates Lake, Scott County (MnDNR ID: 70-001800)

Size: 30 acres (source: PLSLWD website)

Maximum depth: 13 feet (source: PLSLWD website)

## Introduction

An aquatic plant survey was conducted on 30 acre Cates Lake, located in Scott County, on July 12, 2019. The objective of the survey was to characterize the aquatic plant community and to look for Eurasian watermilfoil.

## Methods

An aquatic plant point intercept survey of Cates Lake was conducted by Blue Water Science on July 12, 2019 and 54 points were sampled. Sample points were placed 50 meters apart on a grid that covered the lake (Figure 1). At each sample point, a sampling rake was lowered into the water and a plant sample was taken. The plant species were recorded and the density of each species was assigned. Densities were based on the coverage on the teeth of the rake. Density ratings were from 1 to 3 with 1 being sparse and 3 being a nuisance. Based on these sample sites, a plant distribution maps were constructed.

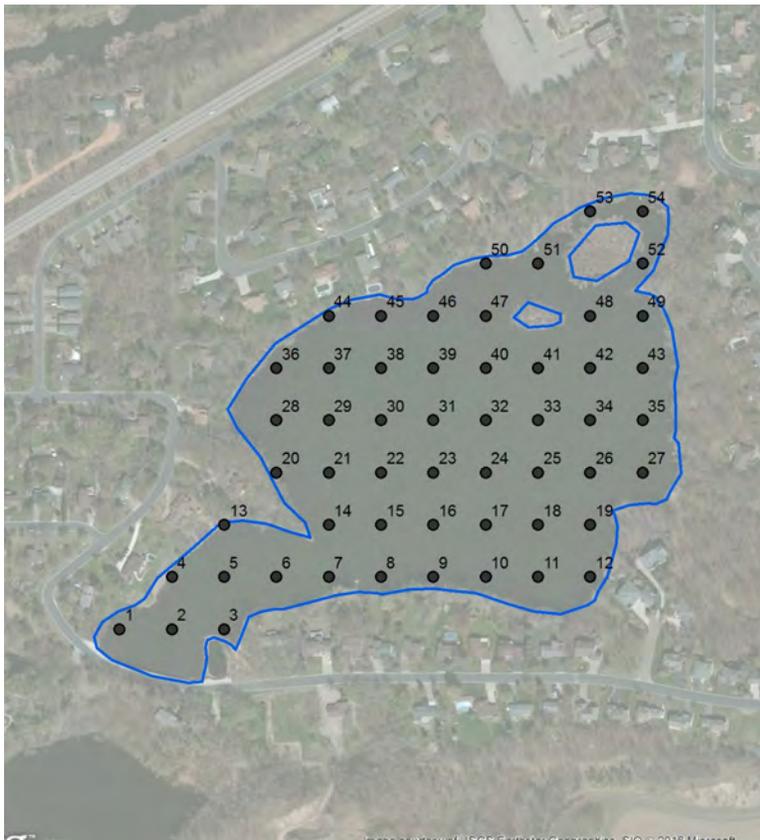


Figure 1. Sample location map for the aquatic plant survey conducted on Cates Lake.

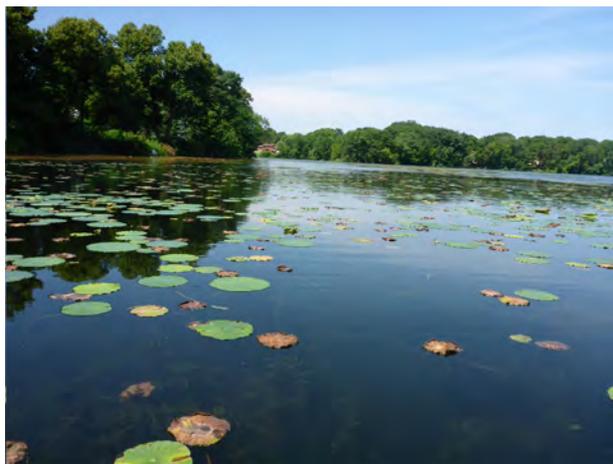
## Results

Results of the summer aquatic plant survey conducted on July 12, 2019 found there were 6 submerged plants (Table 1)(Figure 3).

Eurasian watermilfoil was observed in this survey at 15 sites and curlyleaf pondweed was observed at 15 sites.

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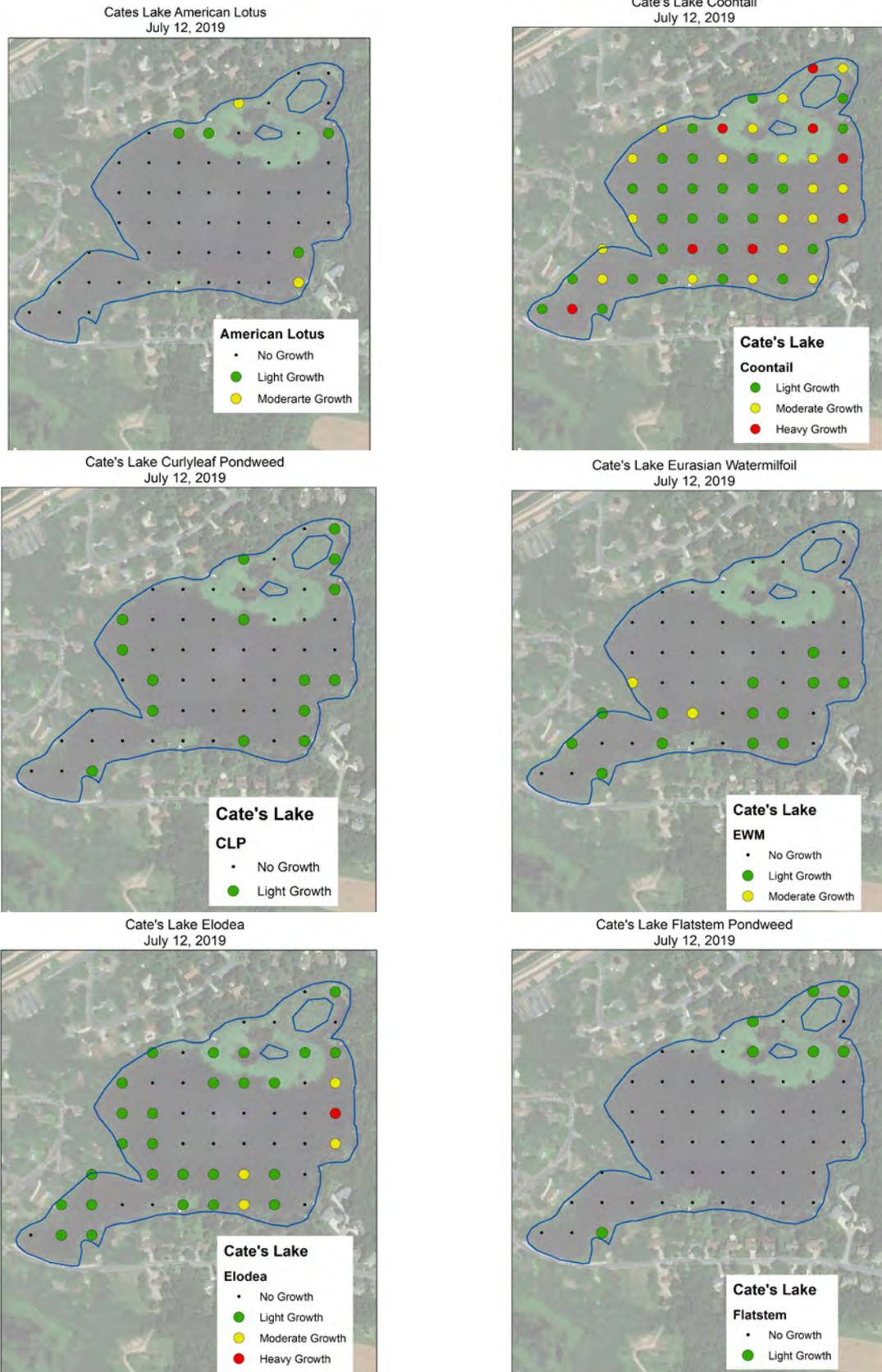
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Total submerged species		6	



Cate's Lake Native Plant Coverage  
July 12, 2019



**Figure 2. [left] View of Cates Lake on July 12, 2019. [right] Native plant distribution and abundance on July 12, 2019. Key: green = light growth, yellow = moderate growth, and red = heavy growth.**



**Figure 3. Cates Lake aquatic plant coverage maps. For individual species maps: green = light growth, yellow = moderate growth, and red = heavy growth.**

**Table 2. Cates Lake, individual site data collected on July 12, 2019.**

Site	Depth (ft)	American lotus	Spatterdock	White lily	Cabbage	Coontail	CLP	Elodea	EWM	Flatstem
1	7			1	2	1				
2	7					3		1		
3	4			2		1	1	1	1	1
4	4			1	1	1		1	1	
5	10					2		1		
6	9					1				
7	5			1		1			1	
8	5			1		2		1		
9	6			1		1		1		
10	5			1		2	1	2	1	
11	5			1		1		1	1	
12	5	2		1		2	1			
13	7					2		1	1	
14	7					1	1	1	1	
15	7					3		1	2	
16	8					1		1		
17	7					3		2	1	
18	7					2		1	1	
19	6	1		1		1	1			
20	5					2		1	2	
21	8					1	1	1		
22	11					1				
23	10					1				
24	10					1			1	
25	8					2				
26	7					2	1		1	
27	6			1		3	1	2	1	
28	6					1	1	1		
29	8					1		1		
30	13					1				
31	9					1				
32	10					1				
33	9					1				
34	7					2			1	
35	7					2		3		
36	5			1		2	1	1		
37	8					1				
38	10					1				
39	8					2		1		
40	8					1	1	1		
41	7					2		1		
42	7					2				
43	6					3		2		
44	4					2		1		
45	6	1		1		1				
46	5	1				3		1		
47	6					2		1		1
48	4					3		1		1
49	5	1		1		1	1	1		1
50	5	2	1	2		1	1			1
51	5					2				
52	4					1	1			
53	3					3				1
54	5					2	1	1		1
<b>Average Density</b>		<b>1.3</b>	<b>1.0</b>	<b>1.1</b>	<b>1.5</b>	<b>1.6</b>	<b>1.0</b>	<b>1.2</b>	<b>1.1</b>	<b>1.0</b>
<b>Occurrence (54 sites)</b>		<b>6</b>	<b>1</b>	<b>15</b>	<b>2</b>	<b>54</b>	<b>15</b>	<b>31</b>	<b>15</b>	<b>7</b>
<b>% occurrence</b>		<b>11</b>	<b>2</b>	<b>28</b>	<b>4</b>	<b>100</b>	<b>28</b>	<b>57</b>	<b>28</b>	<b>13</b>

## General Findings of This Study

- Native shoreline conditions offer good wildlife habitat.
- Water clarity is good in Cates Lake and should continue to support aquatic plants and good habitat.
- Coontail was observed growing throughout the lake, at 54 out of 54 sites.
- Filamentous algae was present at the surface, sometimes sitting on top of surfacing coontail
- The rare emergent American lotus, a lily like plant was observed at 6 sites.
- Eurasian watermilfoil(EWM) was found at 15 sites (28%) and curlyleaf (CLP) was found at 15 sites (28%).
- CLP and EWM were growing at light to moderate densities, no heavy growth was observed.



**Figure 4. Looking at Cates Lake from the shoreline on July 12, 2019.**

# Appendix

**Previous aquatic plant conditions on September 14, 2007 (survey was conducted by Blue Water Science).**

American Lotus	Common along the NW shoreline, growing out to a depth of 6 feet.
White lilies	Growing in the nearshore area around much of the lake out to water depth of about 5 feet (Figure 1).
Smartweed	Rare, found along NW side of the lotus beds.
Coontail	Most common plant in the lake, found growing out to 8-foot water depth. Coontail covers about 80% of the lake bottom.
Elodea	Sparse, found on the NW and west sides of the lake.
Eurasian watermilfoil	Scattered around Cate's Lake, but most common in the southern half of the lake. It was growing to the surface in patches in shallow water, within 30 feet of the shore in only a couple of spots (primarily in the southern half of the lake).