



Water Lilies were Abundant in Sutton Lake, September 2018

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# Aquatic Plant Point Intercept Survey for Sutton Lake, Scott County, Minnesota, 2018

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Point Intercept Survey: September 11, 2018

Prepared for:  
Prior Lake-Spring Lake  
Watershed District



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# Aquatic Plant Point Intercept Survey for Sutton Lake, Scott County, Minnesota in 2018

## Summary

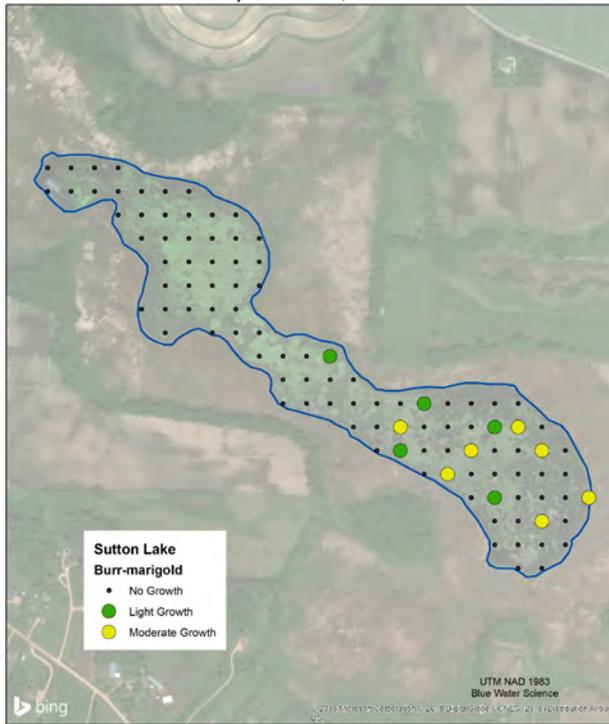
On September 11, 2018, a summer point intercept survey was conducted on Sutton Lake, Scott County. The most common submerged aquatic plant was coontail (Figure S1). Plant growth was found to a depth of 3 feet which is about the maximum depth in Sutton Lake. The aquatic plant community in 2018 had 4 species of submerged plants, 3 floatingleaf species, and 2 emergent species which is a moderate plant diversity condition for a lake in this ecoregion setting.

No non-native submerged aquatic plants were found in the September 11, 2018 survey on Sutton Lake. Plant coverage was roughly 100% of the lake bottom. Maps of aquatic plant distribution are shown in Figure S2.

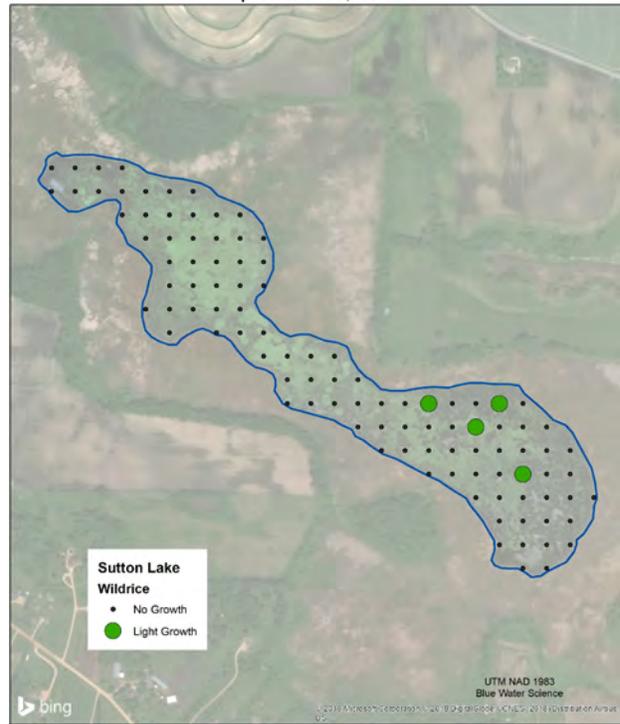


Figure S1. An Old Duck Blind out in Sutton Lake, September 2018

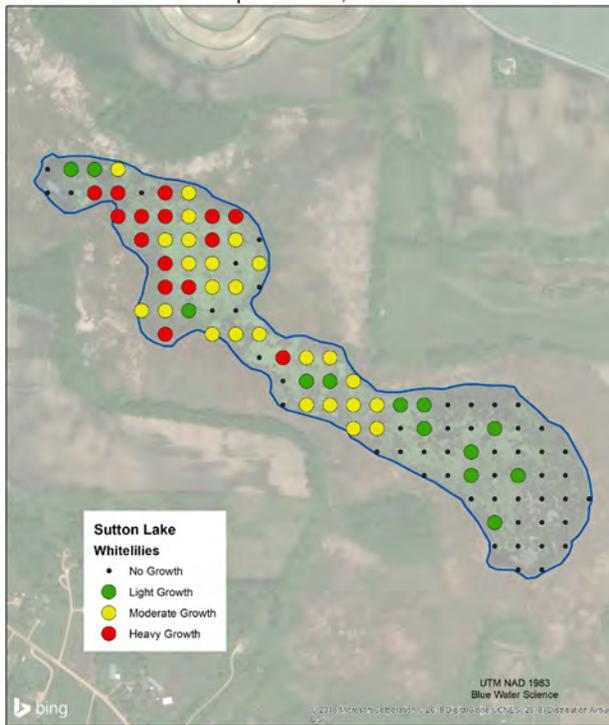
Sutton Lake Burr-Marigold  
September 11, 2018



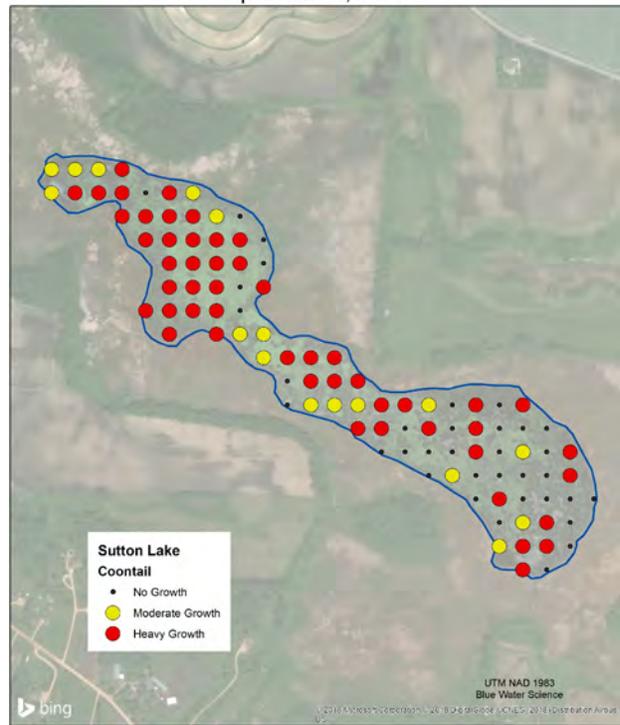
Sutton Lake Wild Rice  
September 11, 2018



Sutton Lake Water Lilies  
September 11, 2018



Sutton Lake Coontail  
September 11, 2018



**Figure S2. [top-left] Bur-marigold, an emergent rare plant in Minnesota was found in Sutton Lake on September 11, 2018. [top-right] Wild rice was found in a few locations in Sutton Lake on September 11, 2018. [bottom-left] White water lilies were abundant in Sutton Lake on September 11, 2018. [bottom-right] Coontail was the most abundance submerged plant in Sutton Lake on September 11, 2018. Key: green = light growth, yellow = moderate growth, and red = heavy growth.**

# Aquatic Plant Point Intercept Survey for Sutton Lake, Scott County, Minnesota, 2018

Lake ID: 70-009400

Size: 64 acres

Littoral area: 64 acres

Maximum depth: 3 ft

## Introduction

Sutton Lake is located within in Scott County. An aquatic plant point intercept survey was conducted on the 64-acre lake on September 11, 2018. A sampling grid is shown in Figure 1.

Sutton Lake 50m Grid 102Pts

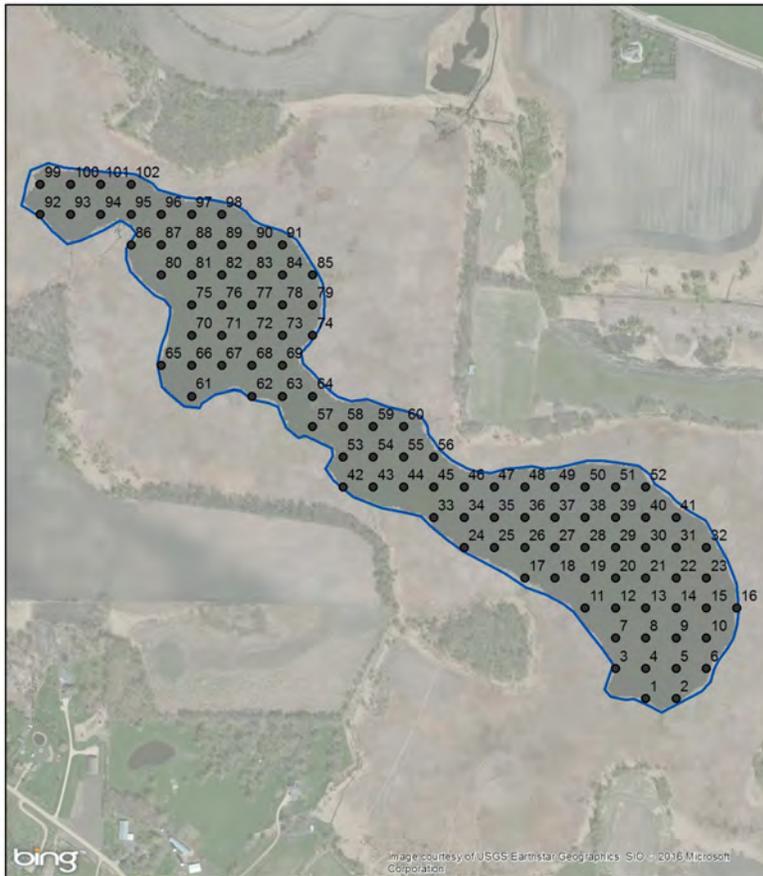


Figure 1. Sample locations for the point-intercept aquatic plant survey.

## Methods - Aquatic Plant Point Intercept Survey

**Point Intercept Survey:** An aquatic plant survey of Sutton Lake using a point intercept sampling method was conducted by Blue Water Science on September 11, 2018. A map and sampling grid were prepared by Blue Water Science and consisted of a total of 102 points that were distributed throughout the lake (Figure 1). Points were spaced 50 meters apart and each point represented about 0.6 acres. At each sample point, plants were sampled with a fixed-head rake sampler and were sampled to depth of 3 feet. A plant density rating was assigned to each plant species on a scale from 1 to 3 (Figure 2). A density of a “1” indicated sparse growth and a “3” rating indicated heavy plant growth (Figure 2).

### Chart of Aquatic Plant Density Ratings



Figure 2. Aquatic plant density ratings from 1 to 3.

## Point Intercept Survey -- September 11, 2018

Aquatic plants were abundant in Sutton Lake for the September 2018 point intercept plant survey. Coontail was the dominant plant in Sutton Lake. Bur-marigold, which is relatively rare in lakes, was found in Sutton Lake as well (Figure 3). A total of 4 submerged aquatic plants, 3 floatingleaf plants, and 2 emergent plants were identified (Figure 4 and Table 1).

A summary of plant density and occurrence is shown in Table 1. Maps of the distribution of 4 selected plant species are shown in Figure 4.

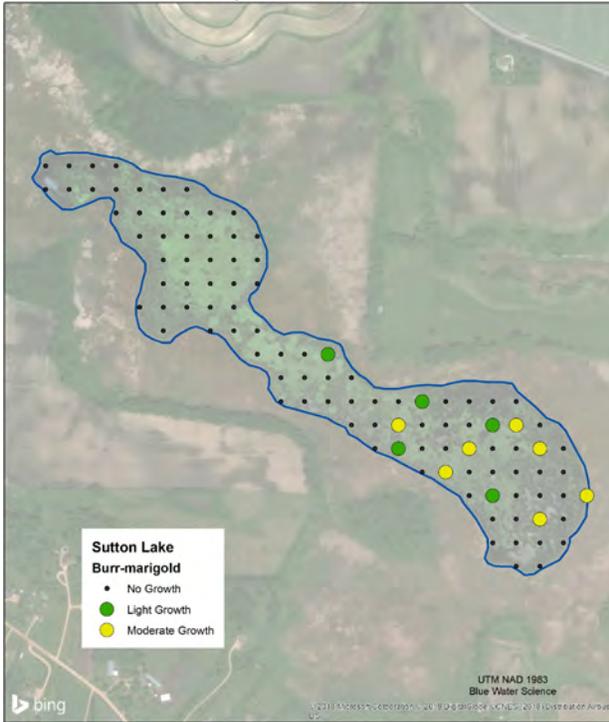
**Table 1. Sutton Lake aquatic plant occurrences and densities for the September 11, 2018 survey based on 102 sites in water depths from 0 to 3 feet. Density ratings are 1-3 with 1 being low and 3 being most dense.**

	All Stations (n=102)		
	Occurrence	% Occur	Density
<b>Emergents</b>			
Wild rice ( <i>Zizania aquatica</i> )	4	4	1.0
Bur-marigold ( <i>Bidens cernua</i> )	12	12	1.7
<b>Floatingleafs</b>			
Duckweed ( <i>Lemna sp</i> )	6	6	1.0
Spatterdock ( <i>Nuphar variegata</i> )	11	11	1.4
White water lilies ( <i>Nymphaea odorata</i> )	53	52	2.0
<b>Submergents</b>			
Coontail ( <i>Ceratophyllum demersum</i> )	67	66	2.7
Star duckweed ( <i>Lemna trisulca</i> )	8	8	1.0
Flatstem pondweed ( <i>Potamogeton zosteriformis</i> )	1	1	1.0
Bladderwort ( <i>Utricularia sp</i> )	1	1	1.0
Number of submerged species	4		



**Figure 3. Bur-marigold in Sutton Lake in September 2018.**

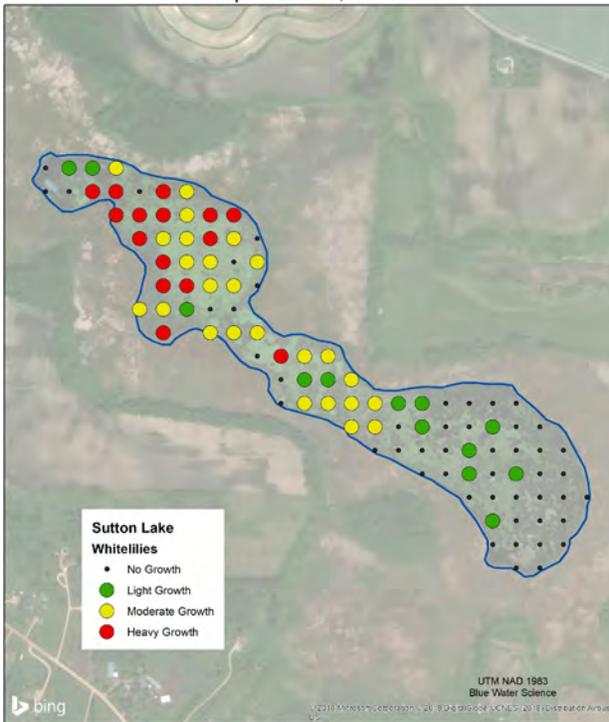
Sutton Lake Burr-Marigold  
September 11, 2018



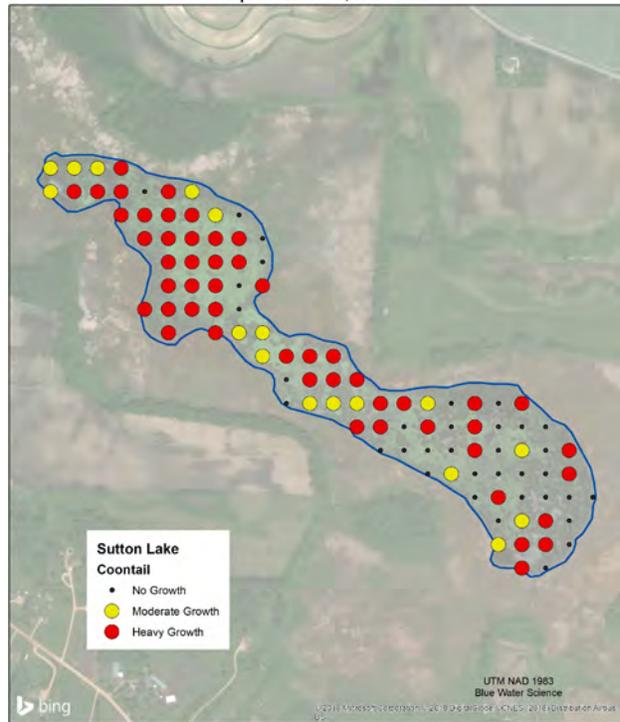
Sutton Lake Wild Rice  
September 11, 2018



Sutton Lake Water Lilies  
September 11, 2018



Sutton Lake Coontail  
September 11, 2018



**Figure 4. Distribution and abundance maps for September 11, 2018. [top-left] Bur-marigold. [top-right] Wild rice. [bottom-left] White water lilies. [bottom-right] Coontail. Key: green = light growth, yellow = moderate growth, and red = heavy growth.**

# Sutton Lake Point Intercept Survey Statistics

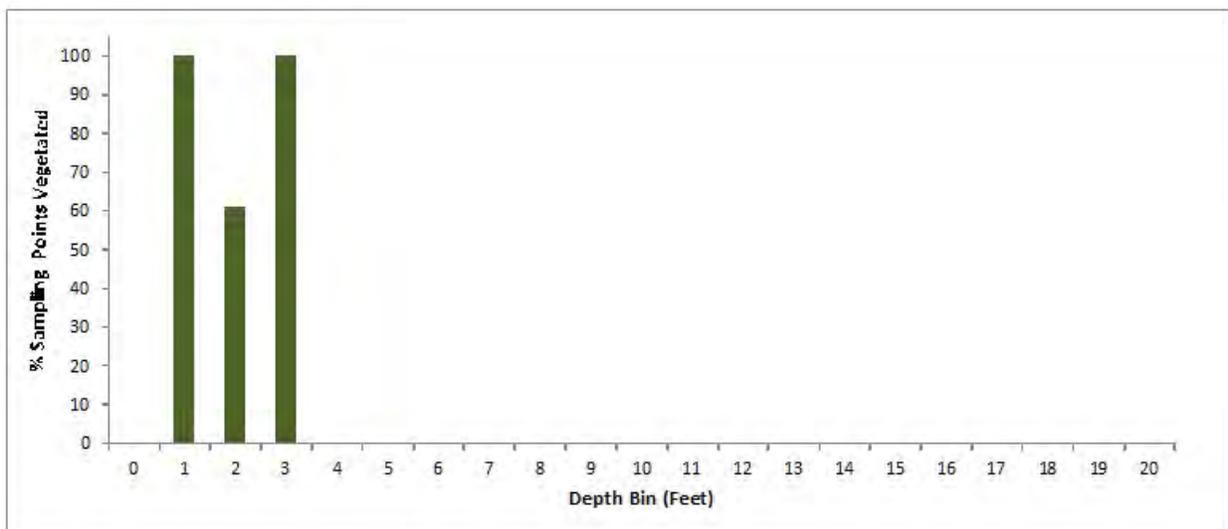
A summary of plant statistics from the point intercept survey is shown in Tables 2 and 3 and Figure 5. A total of 102 points were sampled. Plant occurrence and abundance for individual sites are shown in Table 4.

**Table 2. MnDNR Template Statistics**

Total # Points Sampled	102
Depth Range of Vegetation	1-3 feet
Maximum Depth of Growth (95%) in feet	3.0
# Points in Max Depth Range	102
# Points in Littoral Zone (0-15 feet)	102
% Points w/Submersed Native Taxa	69
Mean Native Submersed Taxa/Point	0.8
Mean Density of Native Submersed Taxa	1.4
# Submersed Native Taxa	4

**Table 3. Aquatic plants sampled by depth.**

Depth (feet)	Number of Points Sampled	Percent Sampling Points with Submersed Species Observed
0	0	0
1	8	100
2	82	61
3	12	100



**Figure 5. Depth of plant colonization (in feet).**

**Table 4. Individual site data for September 11, 2018. Numbers indicate plant density.**

Site	Depth (ft)	Wild rice	Duckweed	Spatterdock	White lilies	Bladderwort	Bur-marigold	Coontail	Flatstem	Star duckweed	No Plants
1	2							3			
2	2										1
3	2							2			
4	2							3			
5	2							3			
6	2										1
7	2				1						
8	2							2			
9	2						2	3			
10	2										1
11	2										1
12	2										
13	2						1	3			1
14	2										1
15	2										1
16	2						2				
17	2										1
18	2						2	2			
19	2				1						
20	2										1
21	2	1			1						
22	2										1
23	2							3			
24	2										1
25	2						1				
26	2										1
27	2										1
28	2				1		2	3			
29	2										1
30	2							2			
31	2						2				
32	2							3			
33	2			1	2			3		1	
34	2				2			3			
35	2						2				
36	1				1			3			
37	2										1
38	2	1						3			
39	2				1		1				
40	2						2				
41	2										1
42	2										1
43	2			1	2			2			
44	2			1	2			2			
45	2			1	2			2		1	
46	2				2			3			
47	1				1			3			
48	1	1			1		1	2			
49	2									1	
50	2							3		1	
51	2	1								1	
52	2							3		1	
53	2									1	
54	1				1			3		1	
55	1				1			3			
56	2			1	2			3			
57	2			3				2			
58	3		1	1	3			3			
59	2				2			3			

**Table 4. Individual site data for September 11, 2018. Numbers indicate plant density.**

Site	Depth (ft)	Wild rice	Duckweed	Spatterdock	White lilies	Bladderwort	Bur-marigold	Coontail	Flatstem	Star duckweed	No Plants
60	2			1	2		2	3			
61	3				3			3			
62	2			2	2			3			
63	2		1	1	2			2			
64	2		1	2	2			2			
65	2				2			3			
66	2				2			3			
67	1				1			3			
68	2							3			
69	2										1
70	3				3			3			
71	3				3			3			
72	2				2			3			
73	2				2						
74	2							3			
75	3				3			3			
76	2				2			3			
77	2				2			3			
78	2							3			
79	2				2						
80	3				3			3			
81	2				2			3			
82	2				2			3			
83	2				3			3			
84	2				2			3			
85	2										1
86	3				3			3			
87	3				3			3			
88	3				3			3			
89	2				2			3			
90	2				3			2			
91	2				3						
92	2							2			
93	2							3			
94	3				3			3			
95	3				3			3			
96	2										1
97	3				3			3			
98	2				2			2			
99	2		1					2			
100	1		1		1	1		2	1		
101	1				1			2			
102	2		1		2			3			
Average		1.0	1.0	1.4	2.0	1.0	1.7	2.7	1.0	1.0	
Occur (102 sites)		4	6	11	53	1	12	67	1	8	20
% occur		4	6	11	52	1	12	66	1	8	

## Representative Aquatic Plants in Sutton Lake



**Coontail**



**Water lilies**



**Bur-marigold**



**Wild rice**