Underwater View of Coontail in Rice Marsh Lake, August 14, 2014

Aquatic Plant Point-Intercept Surveys for Rice Marsh Lake, Carver County, Minnesota, 2014

Surveys conducted on June 13 and August 14, 2014
(Previous Aquatic Plant Surveys Conducted in 2003)

Prepared for:
Riley Purgatory Bluff Creek Watershed District

Prepared by:
Steve McComas
Jo Stuckert
Blue Water Science
St. Paul, MN 55116

February 3, 2015

Aquatic Plant Point-Intercept Surveys for Rice Marsh Lake, Carver County, Minnesota, 2014

Summary

Two aquatic plant point-intercept surveys were conducted on Rice Marsh Lake (79 acres)(Chanhassen, Carver County) in the summer of 2014. The June 13 survey was to evaluate curlyleaf pondweed and native plants and the August 14 survey was to look for Eurasian watermilfoil and characterize native plants.

In the early summer of 2014, curlyleaf pondweed was found at 5 out of 145 sites around Rice Marsh Lake and out to about 9 feet of water. In August, curlyleaf pondweed was present at one site in the survey. Coontail was the most common plant in both the June and August surveys (Table S1).

The acreage of aquatic submerged plants in Rice Marsh Lake increased slightly from early to late summer due primarily to an increase in coontail (Table S1). Flatstem pondweed also increased from June to August (Table S1 and Figure S2).

Figure S1. Coontail was the dominant plant in Rice Marsh Lake on August 14, 2014.

In 2014, two plant point-intercept surveys were conducted on Rice Marsh Lake and results are shown in Table S1. It appears the occurrence of elodea and sago pondweed may have declined from 2003 to 2014.

Table S1. The percent occurrence of aquatic plants for Rice Marsh Lake in 2003 and 2014. 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. For example, if coontail was found in 25 out of 50 stations, its percent occurrence would be 50%.

	May 29, 2003* % Occur (36 stations)	June 13, 2014 % Occur (145 sites)	Sept 15, 2003* % Occur (48 stations)	August 14, 2014 % Occur (145 sites)
Cattails (*Typha sp*)	6	3	19	3
Duckweed (*Lemna sp*)	--	--	--	36
White water lilies (*Nymphaea sp*)	14	19	50	23
Watermeal (*Wolffia columbiana*)	--	--	--	23
Coontail (*Ceratophyllum demersum*)	78	52	97	78
Elodea (*Elodea canadensis*)	--	--	31	--
Star duckweed (*L. trisulca*)	--	49	--	41
Naiads (*Najas flexilis*)	--	--	--	1
Curlyleaf pondweed (*Potamogeton crispus*)	64	3	11	1
Stringy pondweed (*P. sp*)	--	1	--	--
Flatstem pondweed (*P. zosteriformis*)	--	10	--	28
Sago pondweed (*Stuckenia pectinata*)	3	--	25	3
Filamentous algae	44	23	33	--
Aquatic Plant Coverage (acres)	72	50	69	63
Number of submerged plants	3	5	4	6

*surveys conducted by Blue Water Science for the City of Chanhassen

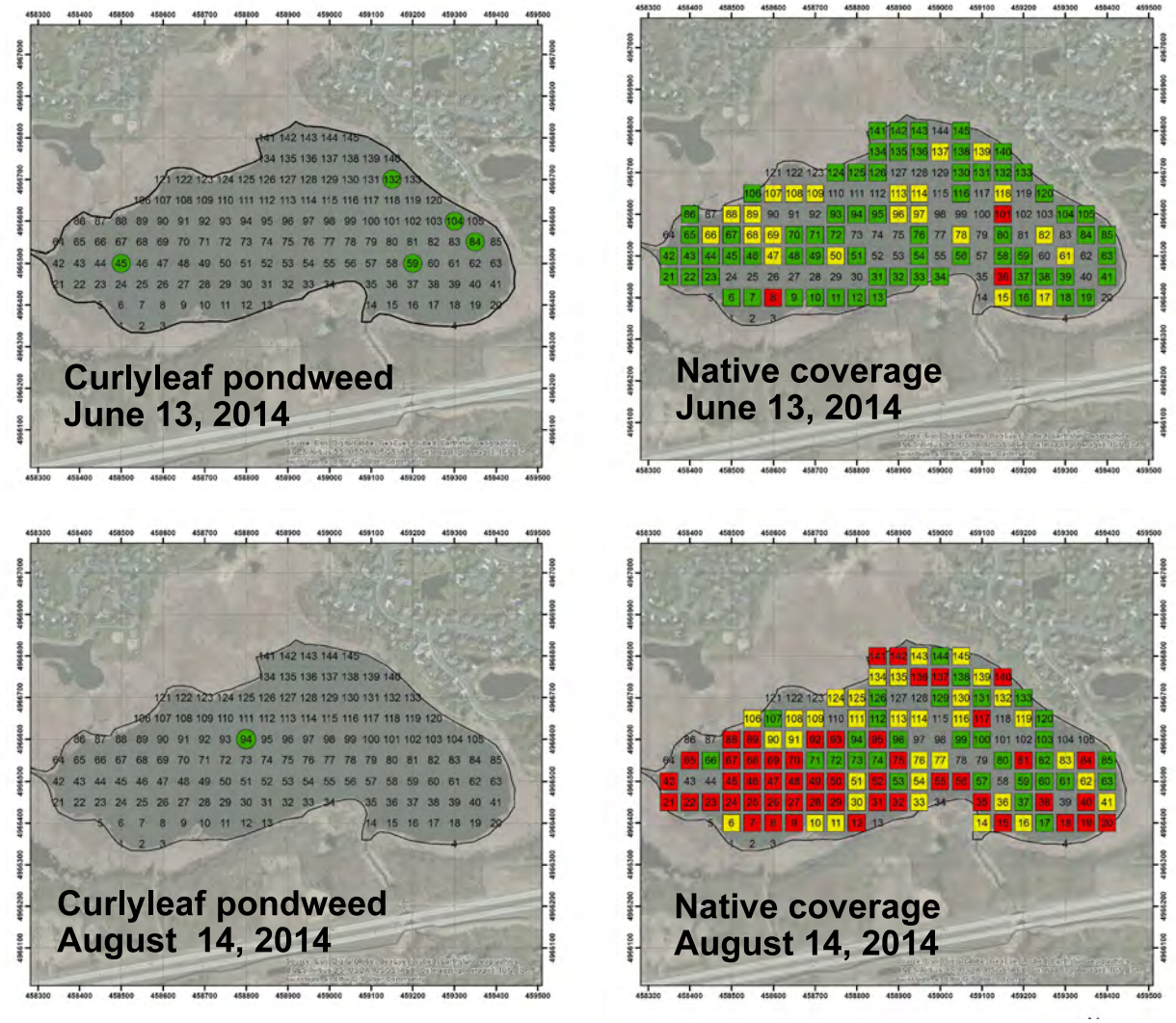


Figure S2. [top-left] Early summer curlyleaf pondweed coverage on June 13, 2014.
[top-right] Early summer aquatic plant coverage on June 21, 2013.
[bottom-left] Late summer curlyleaf pondweed coverage on August 14, 2014.
[bottom-right] Late summer aquatic plant coverage on August 14, 2014.
Key: Green = light growth, yellow = moderate growth, and red = heavy growth.

Conclusions and Recommendations for Aquatic Plant Management in Rice Marsh Lake:
The aquatic plant community in 2014 has 5 species of submerged plants in early summer and 6 species in late summer. This is a fair plant diversity condition. Curlyleaf pondweed was the only non-native plant present.

Curlyleaf pondweed covers about 3 acres in early summer and then dies back. Curlyleaf pondweed had mostly light growth at the time of the June 13, 2014 survey.

In late summer, aquatic plants cover about 65 acres and grow out to about 8 feet of water depth. Water lilies were abundant in some areas in the Rice Marsh Lake. Coontail was the most abundant submerged plant in Rice Marsh Lake in both surveys in 2014.

Eurasian watermilfoil was not found in either survey.

Aquatic Plant Point-Intercept Surveys for Rice Marsh Lake, Carver County, Minnesota, 2014

Lake ID: 10-0001 (Carver County)
Size: 79 acres
Littoral area: 79 acres

Introduction

Rice Marsh Lake is a 79 acre moderately fertile lake in Chanhassen (Carver County), Minnesota (Figure 1). Because of the shallowness there is a potential for widespread aquatic plant growth. The objectives of these two aquatic plant point-intercept surveys were to characterize curlyleaf pondweed and native plants in early summer and assess the distribution and abundance of plants in late summer.

Figure 1. Rice Marsh Lake map from Google Earth.

Methods - Aquatic Plant Surveys

Two aquatic plant point-intercept surveys of Rice Marsh Lake were conducted by Blue Water Science in 2014. The early season survey was performed on June 13, 2014 and the late summer survey was conducted on August 14, 2014. A map and sampling grid were prepared by Blue Water Science and a consisted of a total of 145 points that were distributed throughout the lake (Figure 2). Points were spaced 50 meters apart. Each point represented about 0.6 acres. GPS coordinates used a UTM WGS84 datum. For each survey, the maximum depth of plant growth was found in the course of sampling. For the June survey, a total of 145 points were found out to and including the 11-foot depth. In the August survey, plants were found out to 8 feet but 145 points were used again for statistics. At each sample point, plants were sampled with a rake sampler. A plant density rating was assigned to each plant species on a scale from 1 to 5. A density of a "1" indicated sparse growth and a 4.5 or 5 rating indicated matting surface plant growth.

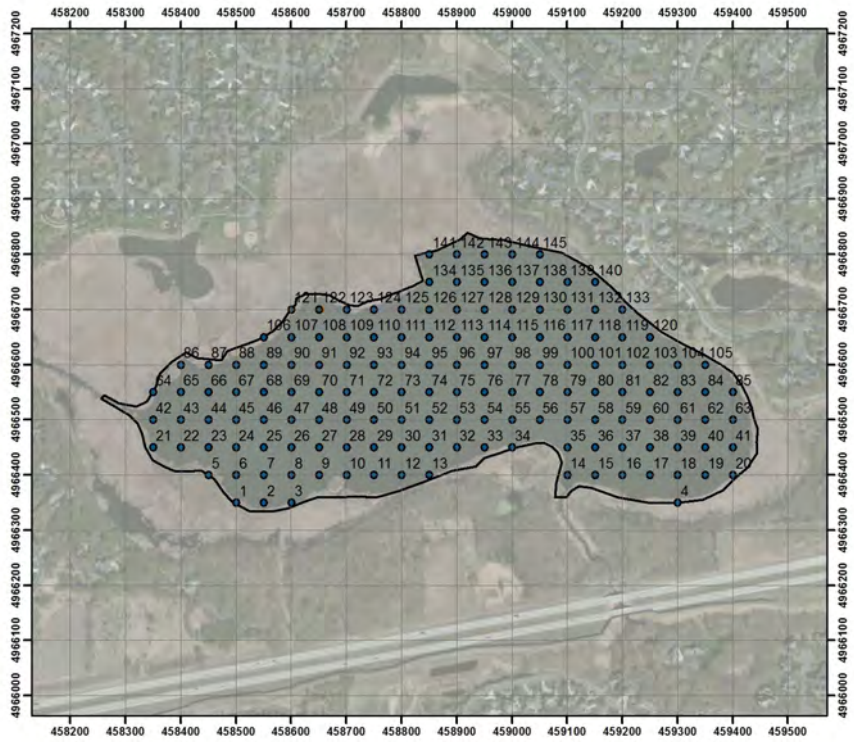


Figure 2. Point locations for the aquatic plant surveys conducted on Rice Marsh Lake in 2014.

Chart of Aquatic Plant Density Ratings

Aquatic plant density ratings. A density rating of 5 (not shown) is used for plants topping out at the surface.

Results of the Early Summer Survey -- June 13, 2014

In the June survey, native aquatic plants were found at 93 sites and represent a coverage of about 50 acres (Figure 3). The most abundant plant in early summer in Rice Marsh Lake was coontail and it was found at 75 out of the 145 sample sites and grew out to a depth of 9 feet (Figure 4 and Table 1). Curlyleaf pondweed was found growing out to water depths of 8 feet. Curlyleaf growth was patchy and consisted of mostly light growth (Figure 4). Curlyleaf coverage was about 3 acres of the 79 acre Rice Marsh Lake on June 13, 2014.

A summary of plant density and occurrence for individual sample sites is shown in Table 2. Eurasian watermilfoil was not found in this survey.

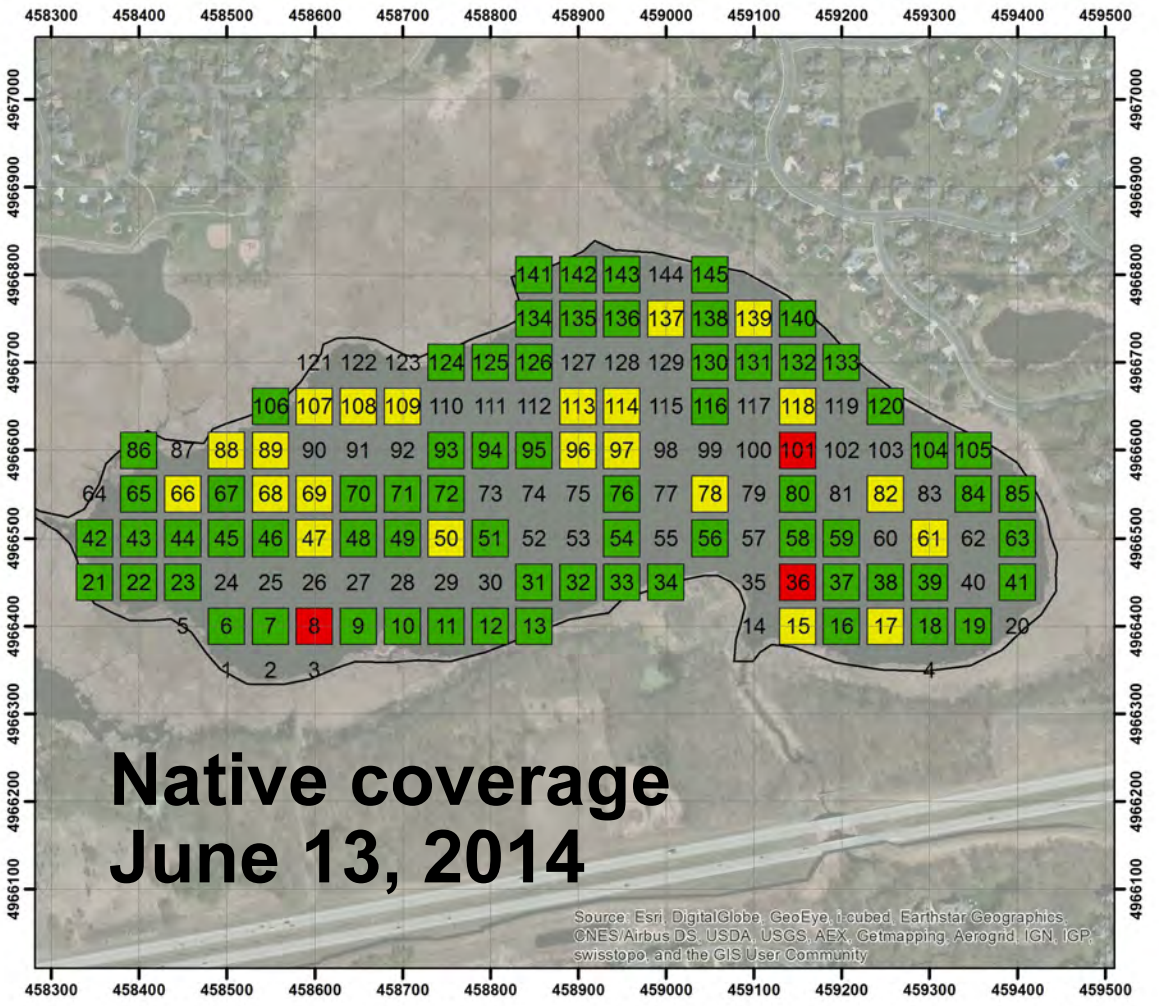


Figure 3. Early summer native plant coverage on June 13, 2014.
Key: Green = light growth, yellow = moderate growth, and red = heavy growth.

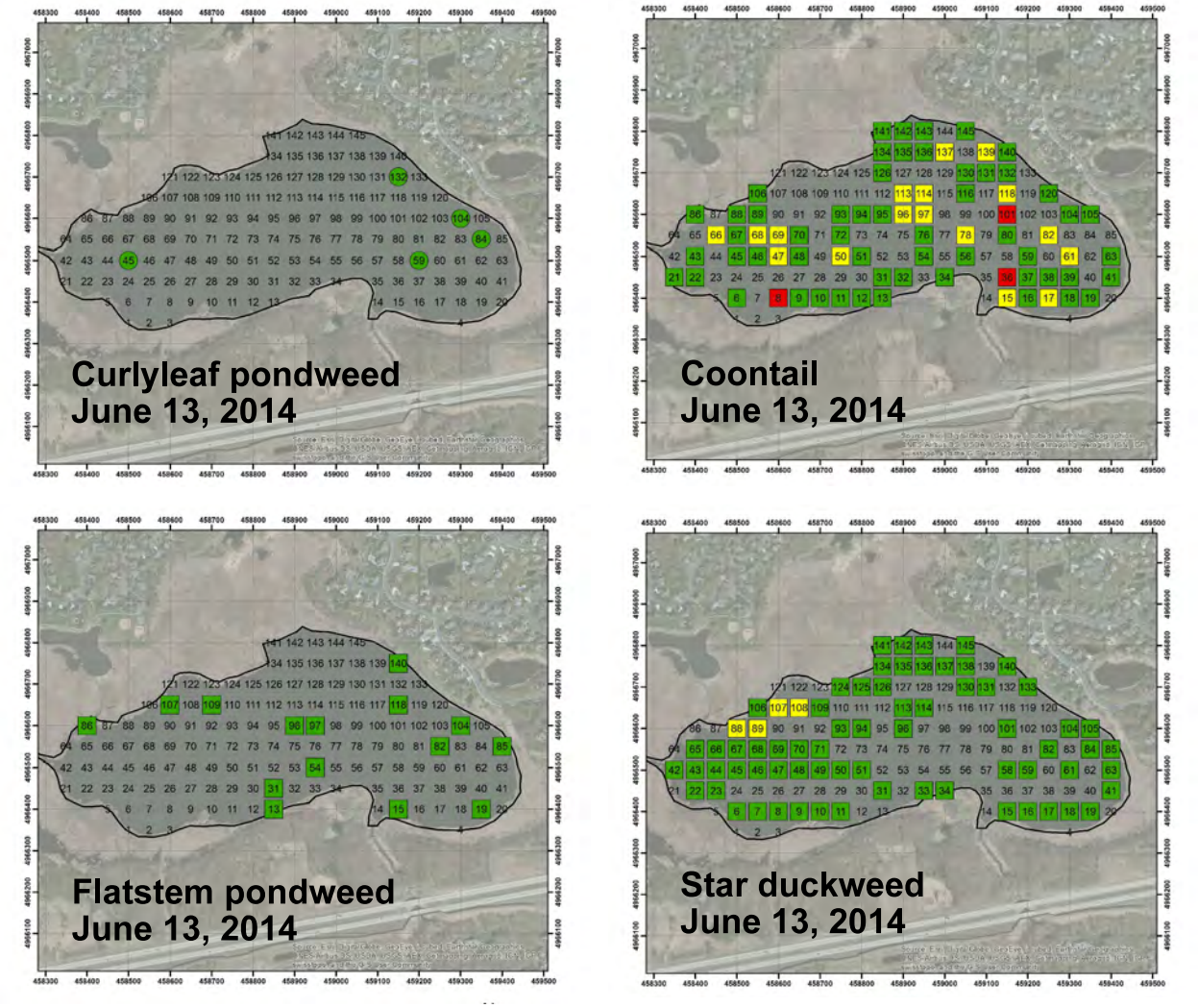


Figure 4. [top-left] Early summer curlyleaf pondweed coverage on June 13, 2014.
[top-right] Early summer coontail coverage on June 13, 2014.
[bottom-left] Early summer flatstem pondweed coverage on June 13, 2014.
[bottom-right] Early summer star duckweed coverage on June 13, 2014.
Key: Green = light growth, yellow = moderate growth, and red = heavy growth.

Table 1. Rice Marsh Lake aquatic plant occurrences and densities for the June 13, 2014 survey based on 145 sites. Density ratings are 1-5 with 1 being low and 5 being most dense.

	All Stations (n=145)		
	Occur	% Occur	Density
Cattails (*Typha sp*)	5	3	4.0
White water lilies (*Nymphaea sp*)	28	19	1.4
Coontail (*Ceratophyllum demersum*)	75	52	2.1
Star duckweed (*Lemna. trisulca*)	71	49	1.5
Curlyleaf pondweed (*Potamogeton crispus*)	5	3	1.0
Stringy pondweed (*P. sp*)	2	1	1.0
Flatstem pondweed (*P. zosteriformis*)	15	10	1.0
Filamentous algae	33	23	1.9

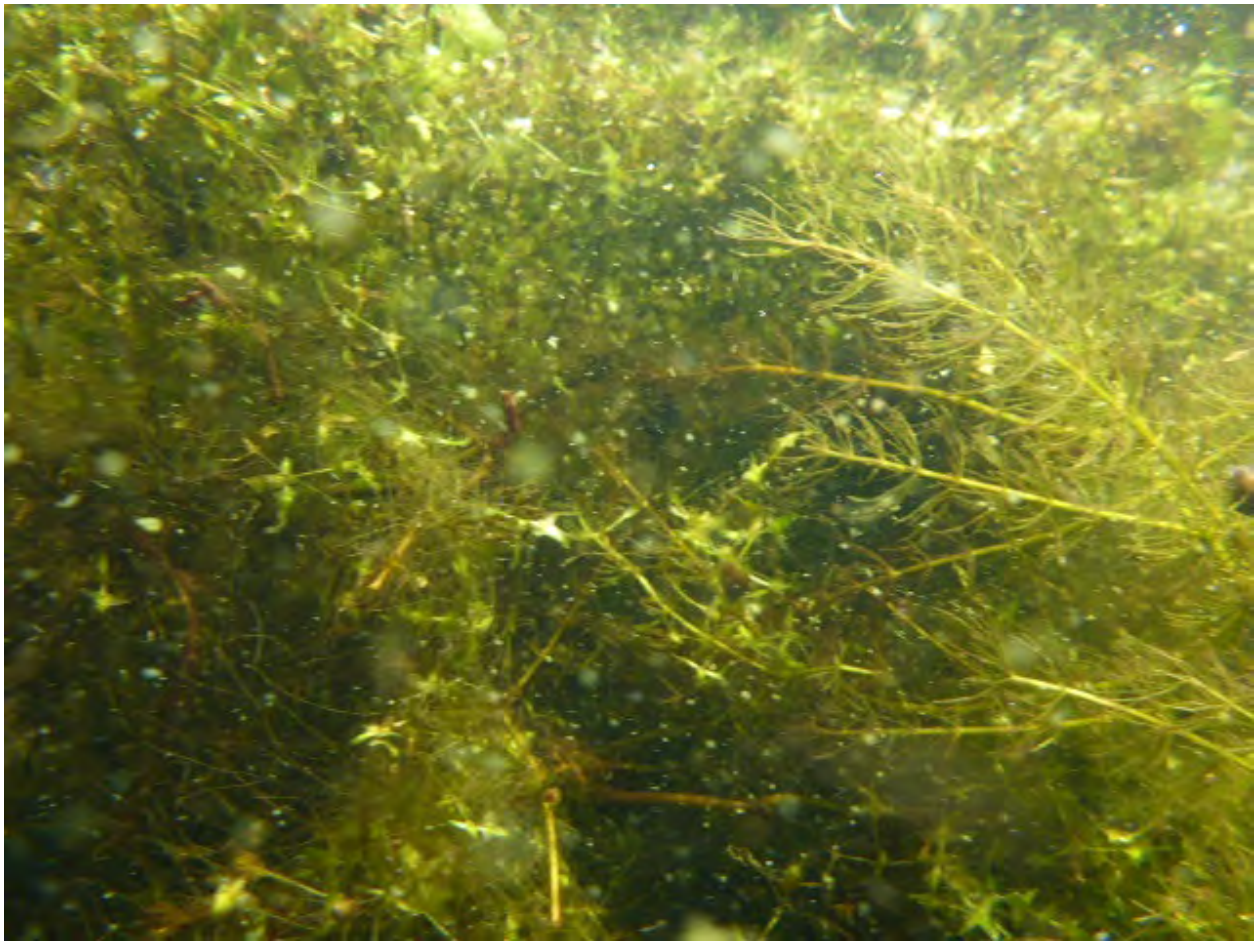


Figure 5. Underwater view of coontail and star duckweed on June 13, 2014 in Rice Marsh Lake.

Table 2. Individual site data for June 13, 2014. Numbers in the plant columns refer to the plant density at that site.

site	depth (ft)	Cattails	White lilies	Coontail	Curlyleaf	Flatstem	Star duckweed	Stringy	Filament algae
1	2	4							
2	land								
3	land								
4	2	4							
5	2	4							
6	4		1	1			2		
7	4		1				2		
8	6		1	4			1		
9	5		2	2			2		
10	4		1	2			2		2
11	6			2			2		3
12	4			1					2
13	3			2		1			2
14	2								
15	4			3		1	1		
16	4			2			2		3
17	5			3			1		1
18	4			2			2		2
19	4			2		1	1		2
20	2	4							
21	4		1	2					
22	4		2	1			1		1
23	3						2		
24	4								
25	5								
26	4								
27	5								
28	5								
29	5								
30	5								
31	5			2		1	1		
32	6			2					
33	2						2		3
34	2			2			2		2
35	5								
36	5			4					1
37	9			2					
38	8			2					
39	6			2					
40	4								
41	3			2			1		2
42	3						2		2
43	6			1			1		
44	6						1		1
45	4			2	1		1		1
46	4		1	1			1		3
47	5			3			1		2
48	6			2			1		
49	7						1		
50	5			3			1		
51	6			2			2		

Table 2. Individual site data for June 13, 2014. Numbers in the plant columns refer to the plant density at that site.

site	depth (ft)	Cattails	White lilies	Coontail	Curlyleaf	Flatstem	Star duckweed	Stringy	Filament algae
52	6								
53	6								
54	6			2		1			
55	6								
56	7			2					
57	7								
58	11						1		
59	8			2	1		1		
60	7								
61	8			3			1		
62	5								
63	4			1			1	1	
64	1								
65	4						2		2
66	5			3			1		
67	5			2			1		
68	5		1	3			1		
69	5		1	3			2		3
70	4			2			2		
71	6						1		
72	6			2					2
73	6								
74	6								
75	5								
76	7			2					
77	6								
78	8			3					
79	10								
80	9			1					
81	5								
82	6			3		1	1		
83	8								
84	4				1		1		
85	3					1	1		
86	2			1		1			3
87	2	4							
88	3			1			3		
89	3		2	1			3		
90	3								
91	3								
92	4								
93	5			2			1		3
94	5			2			1		2
95	5			2					1
96	8			3		1	1		
97	8			3		1			
98	7								
99	9								
100	5								
101	7			5			1		
102	5								

Table 2. Individual site data for June 13, 2014. Numbers in the plant columns refer to the plant density at that site.

site	depth (ft)	Cattails	White lilies	Coontail	Curlyleaf	Flatstem	Star duckweed	Stringy	Filament algae
103	5								
104	5			1	1	1	1		
105	3			1			1		
106	3		2	1			2		
107	3		1			1	3		
108	4		2				3		
109	4		3			1	2		1
110	5								
111	5								
112	5								
113	6			3			1		
114	6			3			1		
115	5								
116	6			2					
117	5								
118	6			3		1			
119	4								
120	4		1	2					2
121	1								
122	2								
123	3								
124	3		2				2		
125	4		1				2		2
126	4			2			2		2
127	5								
128	5								
129	5								
130	5			1			1		
131	5			1			1	1	
132	5			1	1				
133	3		1				2		
134	3		1	1			2		1
135	4		1	2			2		
136	4			2			2		
137	4		1	3			1		
138	4		2				1		
139	4			3					2
140	4		1	1		1	2		
141	3		1	2			2		
142	3		2	2			1		
143	3		1	2			2		1
144	3								
145	3		1	1			2		1
Average		**4.0**	**1.4**	**2.1**	**1.0**	**1.0**	**1.5**	**1.0**	**1.9**
occurrence (145 sites)		5	28	75	5	15	71	2	33
% occurrence		3	19	52	3	10	49	1	23

Results of the Late Summer Survey -- August 14, 2014

The most abundant plant on the August 14, 2014 point-intercept plant survey for Rice Marsh Lake was coontail and it was found at 113 of the 145 sample sites (78%)(Table 3). Submerged plants were found growing out to water depths of 8 feet. The next most common plant was star duckweed and it was found at 60 sites (Table 3). Flatstem pondweed was also common and was found at 41 sites (Table 3).

A native aquatic plant coverage map is shown in Figure 6. Coverage of selected submerged plants are shown in Figure 7. A summary of plant density and occurrence for individual sample sites are shown in Table 4.

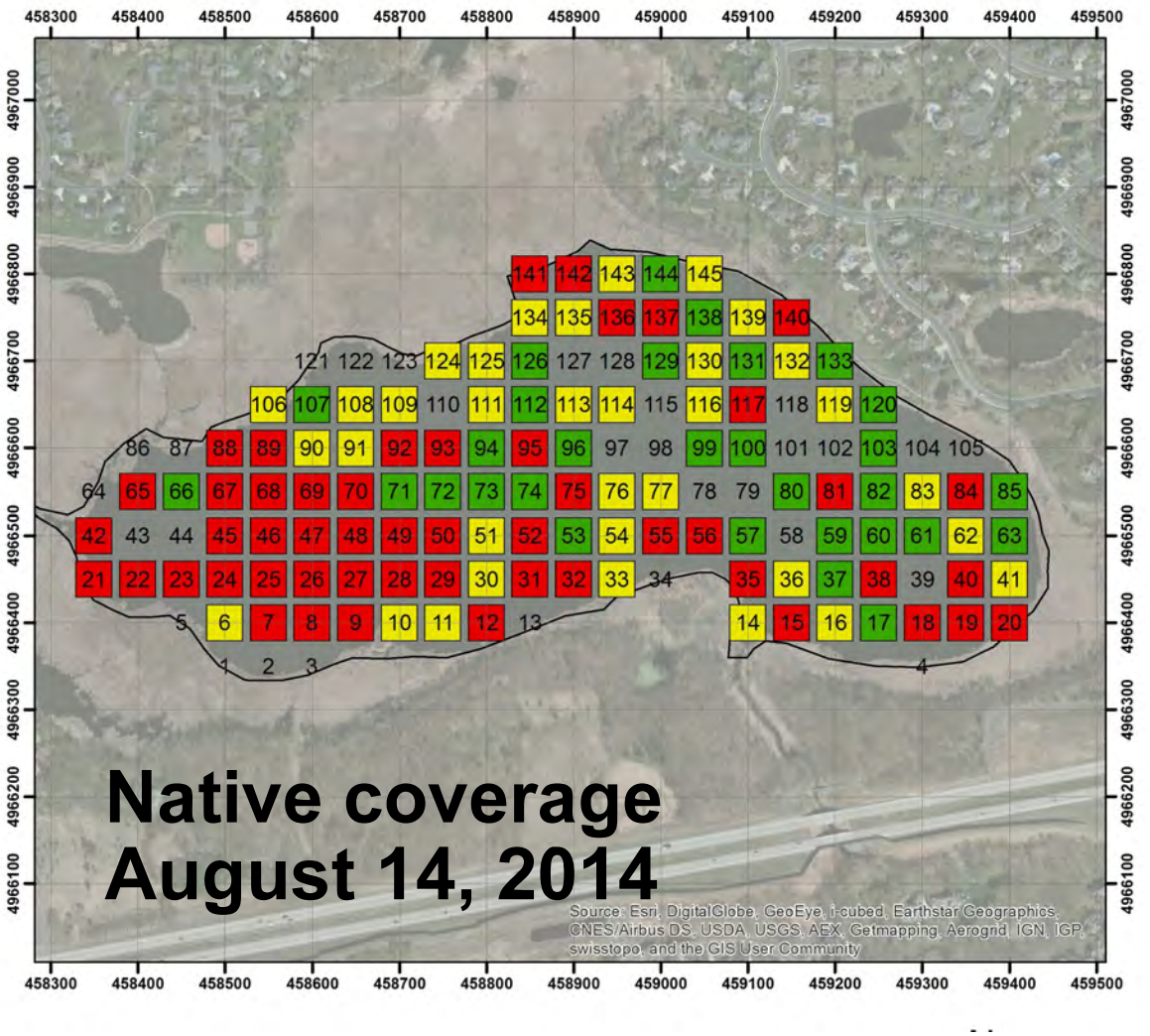


Figure 6. Native submerged aquatic plant coverage map for August 14, 2014.
Key: Green = light growth, yellow = moderate growth, and red = heavy growth.

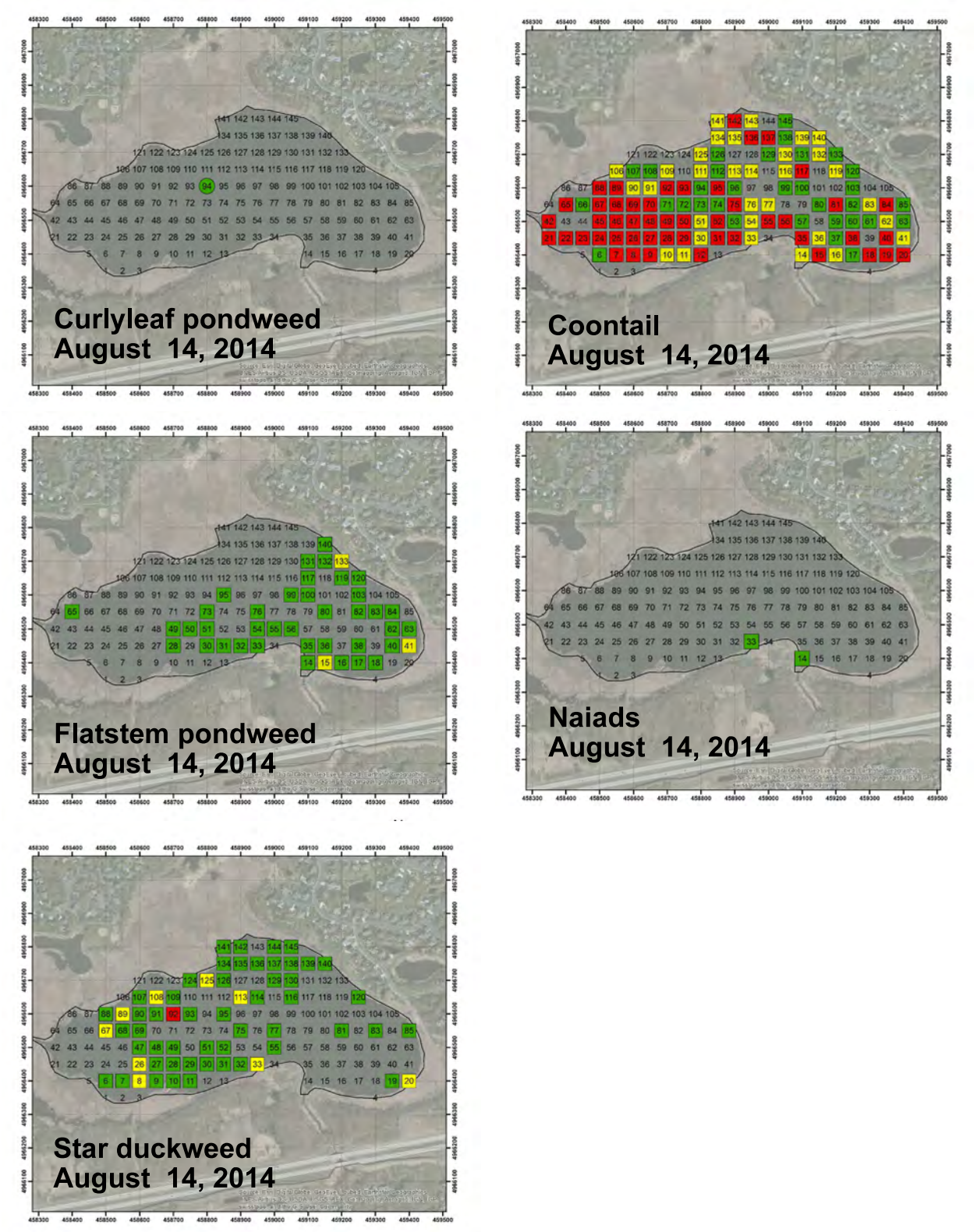


Figure 7. [top-left] Late summer curlyleaf pondweed coverage on August 14, 2014.
[top-right] Late summer coontail coverage on August 14, 2014.
[middle-left] Late summer flatstem pondweed coverage on August 14, 2014.
[middle-right] Late summer naiads coverage on August 14, 2014.
[bottom-left] Late summer star duckweed coverage on August 14, 2014.
Key: Green = light growth, yellow = moderate growth, and red = heavy growth.

Table 3. Rice Marsh Lake aquatic plant occurrences and densities for the August 14, 2014 survey based on 145 sites. Density ratings are 1-5 with 1 being low and 5 being most dense.

	All Stations (n=145)		
	Occur	% Occur	Density
Cattails (*Typha sp*)	4	3	1.0
Duckweed (*Lemna sp*)	52	36	1.5
White waterlily (*Nymphaea sp*)	33	23	2.6
Watermeal (*Wolffia columbiana*)	33	23	1.5
Coontail (*Ceratophyllum demersum*)	113	78	3.1
Star duckweed (*Lemna trisulca*)	60	41	1.9
Naiads (*Najas flexilis*)	2	1	1.0
Curlyleaf pondweed (*Potamogeton crispus*)	1	1	1.0
Flatstem pondweed (*P. zosteriformis*)	41	28	1.4
Sago pondweed (*Stuckenia pectinata*)	5	3	1.0

Figure 8. Underwater view of flatstem pondweed and coontail in Rice Marsh Lake on August 14, 2014.

Table 4. Individual site data for August 14, 2014. Numbers in the plant columns refer to the plant density at that site.

site	depth (ft)	Cattails	Duck-weed	Water-meal	White lilies	Coontail	CLP	Flatstem	Naiads	Sago	Star duckweed
1	1										
2	land										
3	land										
4	1	1									
5	2										
6	4				3	1					1
7	4				3	4					1
8	6		2	1	3	4					3
9	5		2	1	2	4					1
10	4		2	1		3					1
11	6				2	3					1
12	4					4					
13	3										
14	2		1	1		3		1	1	1	
15	3		1	1		4		3			
16	4					3		2		1	
17	4					2		2			
18	3		2	2		4		2		1	
19	3		3	3		4					2
20	3		1	1		4					3
21	2		2	1	2	4					
22	3		1	1	4	4					
23	4		2	1		4					
24	4		2	4		4					
25	5		1	4	1	4					
26	4		2	2		4					3
27	5					4					2
28	5		1	1		4		1			1
29	5					4					1
30	5					3		1			2
31	5					4		1			1
32	5					4		1			2
33	2					3		1	1		3
34	1	1									
35	4				1	4		2			
36	5					3		2			
37	6					1					
38	5					4		1			
39	5										
40	4		2	1		4		2			
41	3		1	1		3		3			
42	2				4	4					
43	7										
44	7										
45	5		3	3	3	4					
46	4		2	4	1	4					
47	5		2	2	2	4					2
48	5		1	1		4					1
49	5					4		1			1
50	6					4		1			
51	5					3		1			1

Table 4. Individual site data for August 14, 2014. Numbers in the plant columns refer to the plant density at that site.

site	depth (ft)	Cattails	Duck-weed	Water-meal	White lilies	Coontail	CLP	Flatstem	Naiads	Sago	Star duckweed
52	5					4					1
53	6					2					
54	6					3		1			
55	6					4		1			2
56	5					4		2			
57	7					1					
58	8										
59	8					1					
60	7					1					
61	6					2					
62	5		1	1		3		1			
63	3		2	2		2		1			
64	1										
65	5		3			4		1			
66	5					1					
67	4		1	1	4	4					3
68	5		1	1	4	4					2
69	5		1	1	2	4					1
70	4				3	4					
71	6					1					
72	5					2					
73	6					2		1			
74	6					2					
75	5		1	1		4					1
76	6					3		2			
77	6		1	1		3					1
78	9										
79	10										
80	8					2		1			
81	5		1	1		4					2
82	5					1		1			
83	5		1	1		3		1			2
84	5					4		2		1	
85	3		1	1		2					1
86	1	1									
87	1	1									
88	3		4			4					1
89	4		3		3	4					3
90	3		2		1	3					2
91	3		3		1	3					2
92	4		3			4					4
93	5		1			4					2
94	5					2	1				
95	5					4		2			2
96	5					2					
97	7										
98	6										
99	5					1		1			
100	5					2		1			
101	6										
102	5										

Table 4. Individual site data for August 14, 2014. Numbers in the plant columns refer to the plant density at that site.

site	depth (ft)	Cattails	Duck-weed	Water-meal	White lilies	Coontail	CLP	Flatstem	Naiads	Sago	Star duckweed
103	5					2		1			
104	5										
105	3										
106	3		1			3					
107	3					2					2
108	4					2					3
109	4		1			3					2
110	5		1								
111	5					3					
112	5					2					
113	6					3					3
114	6					3					2
115	5		1								
116	6					3					2
117	5					4		1			
118	6										
119	4					3		1			
120	4					2		1			2
121	1										
122	2		1								
123	3										
124	3				3						2
125	4				2	3					3
126	4				2	2					2
127	5		1								
128	5										
129	5					2					2
130	5					3					2
131	4		1	1		2		2			
132	4					3		1			
133	3					2		3		1	
134	3				3	3					2
135	4		1		3	3					1
136	4		1			4					2
137	4				2	4					2
138	4					1					2
139	4				3	3					1
140	3		1	1	4	3		1			2
141	3		1		4	3					2
142	3		1		4	4					2
143	3		1		3	3					
144	3		1		2						2
145	3				3	2					2
Average		**1.0**	**1.5**	**1.5**	**2.6**	**3.1**	**1.0**	**1.4**	**1.0**	**1.0**	**1.9**
occurrence (145 sites)		4	52	33	33	113	1	41	2	5	60
% occurrence		3	36	23	23	78	1	28	1	3	41

Comparison of Early and Late Summer Aquatic Plant Surveys in 2003 and 2014

Aquatic plant surveys have been conducted in Rice Marsh Lake in 2003 and 2014. Surveys in 2003 were line transect surveys with 2 depths per transect (36 sites). The 2014 surveys were point-intercept surveys and included 145 sample sites (Table 5).

In the early season surveys, curlyleaf distribution and abundance in 2014 were lower compared to 2003 (Table 5 and Figure 9). In late season surveys, coontail, curlyleaf pondweed, elodea, and sago pondweed appear to have declined in occurrence from 2003 to 2014 (Table 5). However, star duckweed and flatstem pondweed may have increased (Table 5).

No Eurasian watermilfoil has been observed in the plant surveys in Rice Marsh Lake in 2003 or in 2014.

Table 5. The percent occurrence of aquatic plants for Rice Marsh Lake in 2003 and 2014. 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. For example, if coontail was found in 25 out of 50 stations, its percent occurrence would be 50%.

	May 29, 2003* % Occur (36 stations)	June 13, 2014 % Occur (145 sites)	Sept 15, 2003* % Occur (48 stations)	August 14, 2014 % Occur (145 sites)
Cattails (*Typha sp*)	6	3	19	3
Duckweed (*Lemna sp*)	--	--	--	36
White water lilies (*Nymphaea sp*)	14	19	50	23
Watermeal (*Wolffia columbiana*)	--	--	--	23
Coontail (*Ceratophyllum demersum*)	78	52	97	78
Elodea (*Elodea canadensis*)	--	--	31	--
Star duckweed (*L. trisulca*)	--	49	--	41
Naiads (*Najas flexilis*)	--	--	--	1
Curlyleaf pondweed (*Potamogeton crispus*)	64	3	11	1
Stringy pondweed (*P. sp*)	--	1	--	--
Flatstem pondweed (*P. zosteriformis*)	--	10	--	28
Sago pondweed (*Stuckenia pectinata*)	3	--	25	3
Filamentous algae	44	23	33	--
Aquatic Plant Coverage (acres)	72	50	69	63
Number of submerged plants	3	5	4	6

*surveys conducted by Blue Water Science for the City of Chanhassen

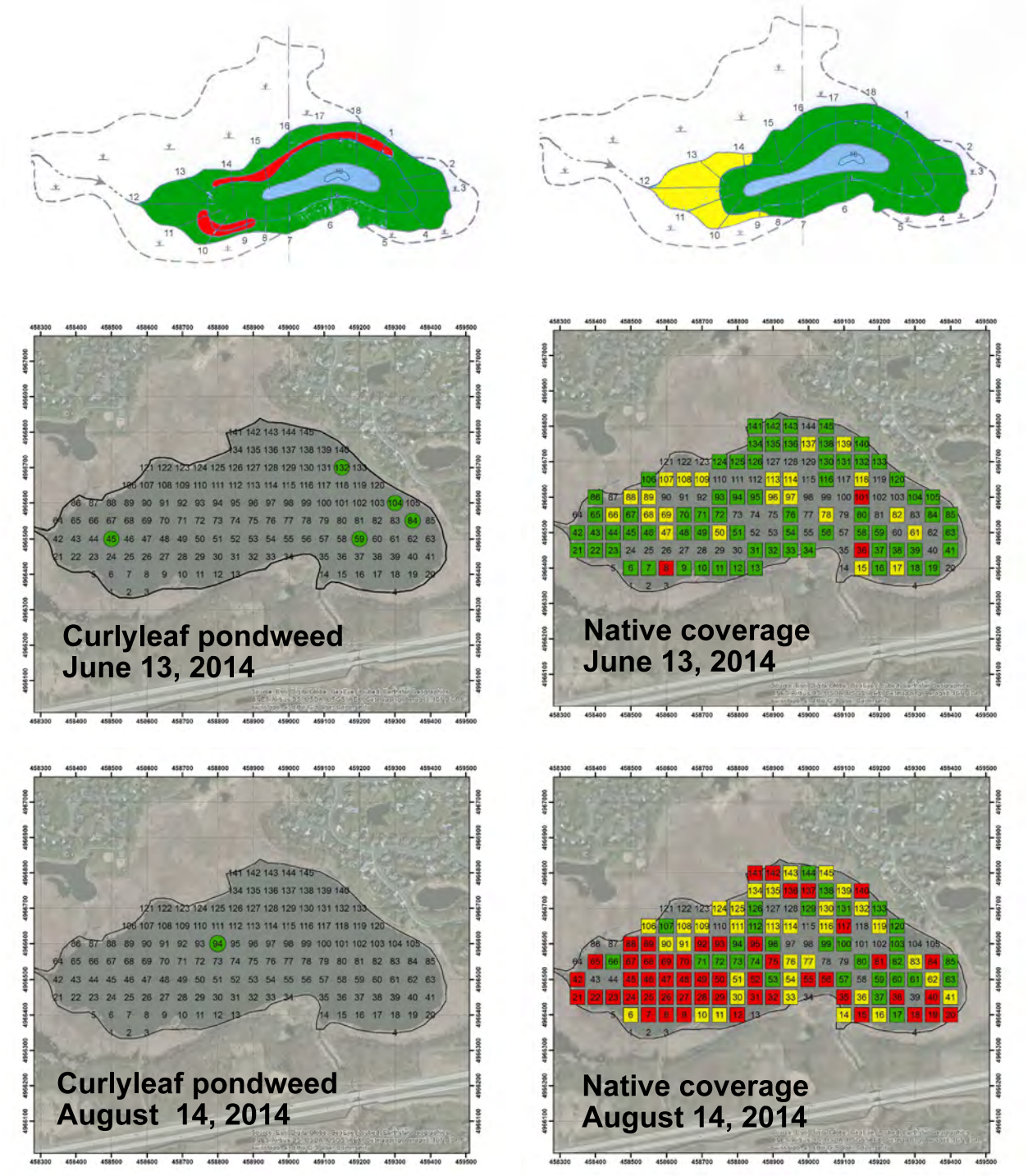


Figure 9. [top-left] Early summer curlyleaf pondweed coverage was about 10 acres (shown in red) and aquatic plant coverage is shown in green was estimated at 72 acres on May 29, 2003 (survey conducted by Blue Water Science).
[top-right] Late summer aquatic plant coverage is shown in green was estimated at 69 acres and the yellow shading is water lilies at the surface on September 15, 2003 (survey conducted by Blue Water Science).
[middle-left] Early summer curlyleaf pondweed coverage on June 13, 2014.
[middle-right] Early summer aquatic plant coverage on June 21, 2013.
[bottom-left] Late summer curlyleaf pondweed coverage on August 14, 2014.
[bottom-right] Late summer aquatic plant coverage on August 14, 2014.
2014 Key: Green = light growth, yellow = moderate growth, and red = heavy growth.

Conclusions and Recommendations for Aquatic Plant Management in Rice Marsh Lake

The aquatic plant community in 2014 has 5 species of submerged plants in early summer and 6 species in late summer. This is a low plant diversity condition. Curlyleaf pondweed was the only non-native plant present.

Curlyleaf pondweed covers about 3 acres in early summer and then dies back. Curlyleaf pondweed had mostly light growth.

In late summer, aquatic plants cover about 63 acres and grow out to about 8-feet of water depth. Water lilies were abundant in some areas in the Rice Marsh Lake. Coontail was the most abundant submerged plant in Rice Marsh Lake in both surveys in 2003 and 2014.

Eurasian watermilfoil was not found in either survey. At this time, no aquatic plant management controls are necessary.

Figure 10. Coontail at the surface within white water lilies on August 14, 2014 in Rice Marsh Lake.

Appendix

2003 Aquatic Plant Surveys for Rice Marsh Lake Conducted by Blue Water Science for the City of Chanhassen

May 29 and June 12, 2003: Rice Marsh Lake aquatic plant occurrences and densities based on 18 transects and 2 depths, for a total of 36 stations. Density ratings are 1-5 with 1 being low and 5 being most dense.

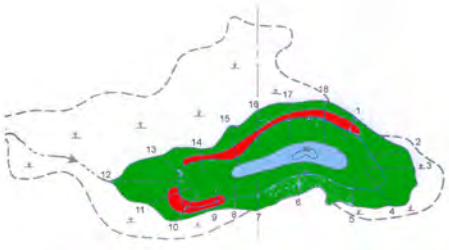
	Depth 0-5 feet (n=18)			Depth 6-10 feet (n=18)			All Stations (n=36)		
	Occur	% Occur	Density	Occur	% Occur	Density	Occur	% Occur	Density
Cattails (*Typha sp*)	2	11	1.3	--	--	--	2	6	1.3
White waterlily (*Nymphaea sp*)	5	28	0.7	--	--	--	5	14	0.7
Coontail (*Ceratophyllum demersum*)	18	100	1.9	10	56	2.8	28	78	2.2
Curlyleaf pondweed (*Potamogeton crispus*)	16	89	3.0	7	39	1.2	23	64	2.4
Sago pondweed (*Stuckenia pectinata*)	1	6	0.5	--	--	--	1	3	0.5
Filamentous algae	11	61	1.7	5	28	1.3	16	44	1.6

Individual transect data for Rice Marsh Lake for May 29 and June 12, 2003.

	T1		T2		T3		T4		T5		T6	
	0-5	6-10	0-5	6-10	0-5	6-10	0-5	6-10	0-5	6-10	0-5	6-10
Cattails	0.5											
White waterlily	0.5				0.5							
Coontail	1.5	2.5	1	3.5	1.5	3.5	2	3	2.5	2.5	2	3
Curlyleaf pondweed	3	2.5	0.5	2	0.5		1	0.5	2		2	
Sago pondweed												
Filamentous algae	0.5	0.5	0.5		2	2	2	1	4		3.5	
No plants												

	T7		T8		T9		T10		T11		T12	
	0-5	6-10	0-5	6-10	0-5	6-10	0-5	6-10	0-5	6-10	0-5	6-10
Cattails											1	
White waterlily			2								1	
Coontail	3	3.5	4		1		1		1		1	
Curlyleaf pondweed	2				5		5		5		2.5	1
Sago pondweed												
Filamentous algae	3	2										
No plants				X		X		X		X		

	T13		T14		T15		T16		T17		T18	
	0-5	6-10	0-5	6-10	0-5	6-10	0-5	6-10	0-5	6-10	0-5	6-10
Cattails												
White waterlily	4		0.5									
Coontail	1.5		2.5		2.5		2	2.5	2	2	2	1.5
Curlyleaf pondweed			1.5		2.5		5	0.5	5	1	5	1
Sago pondweed			0.5									
Filamentous algae					0.5		1	1	1		1	
No plants		X		X		X						



Aquatic plant coverage on May 29, 2003 is shown in green and covers about 72 acres. Nuisance curlyleaf pondweed coverage for early summer 2003 is shown in red and covered approximately 10 acres.

September 15, 2003: Rice Marsh Lake aquatic plant occurrences and densities based on 18 transects and 2 depths, for a total of 36 stations. Density ratings are 1-5 with 1 being low and 5 being most dense.

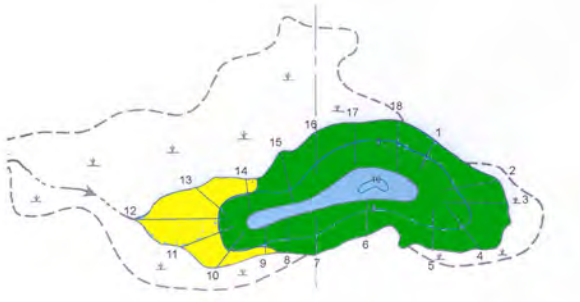
	Depth 0-5 feet (n=18)			Depth 6-10 feet (n=18)			All Stations (n=36)		
	Occur	% Occur	Density	Occur	% Occur	Density	Occur	% Occur	Density
Duckweed (*Lemna sp*)	6	33	0.9	1	6	0.5	7	19	0.9
White waterlily (*Nymphaea sp*)	18	100	2.2	--	--	--	18	50	1.6
Coontail (*Ceratophyllum demersum*)	18	100	3.9	17	94	4.0	35	97	3.9
Elodea (*Elodea canadensis*)	10	56	0.6	1	6	0.5	11	31	0.6
Curlyleaf pondweed (*Potamogeton crispus*)	4	22	0.6	--	--	--	4	11	0.6
Sago pondweed (*Stuckenia pectinata*)	8	44	0.5	1	6	0.5	9	25	0.5
Filamentous algae	10	56	1.4	2	11	1.3	12	33	1.4

Individual transect data for Rice Marsh Lake for September 15, 2003.

	T1		T2		T3		T4		T5		T6	
	0-5	6-10	0-5	6-10	0-5	6-10	0-5	6-10	0-5	6-10	0-5	6-10
Duckweed					0.5		1.5					
White waterlily	0.5		0.5		0.5		0.5		0.5		0.5	
Coontail	4	4	3.5	4	2.5	4	4	4	4.5	4	3.5	4
Elodea	0.5		0.5		0.5						1.5	
Curlyleaf pondweed			1		0.5						0.5	
Sago pondweed				0.5	0.5		0.5		0.5		0.5	
Filamentous algae	0.5	0.5	1				1		1			
No plants												

	T7		T8		T9		T10		T11		T12	
	0-5	6-10	0-5	6-10	0-5	6-10	0-5	6-10	0-5	6-10	0-5	6-10
Duckweed							1				0.5	
White waterlily	0.5		4		2.5		5		5		5	
Coontail	4.5	4	4	4	4	4	3		4	4	3	4
Elodea	0.5								0.5			
Curlyleaf pondweed	0.5											
Sago pondweed									0.5			
Filamentous algae	0.5		2		1				1		2	
No plants								X				

	T13		T14		T15		T16		T17		T18	
	0-5	6-10	0-5	6-10	0-5	6-10	0-5	6-10	0-5	6-10	0-5	6-10
Duckweed	1	0.5	1									
White waterlily	5		5		0.5		1.5		1.5		0.5	
Coontail	5	3.5	4	4	4	4	4	4	4	4	4	4
Elodea			0.5	0.5			0.5		0.5		0.5	
Curlyleaf pondweed												
Sago pondweed							0.5		0.5		0.5	
Filamentous algae	4	2										
No plants												



Aquatic plant coverage for September 15, 2003 is shown in green. White waterlily heavy coverage is shown in yellow.