



Jeffers Pond, Scott County, Minnesota, 2018

Aquatic Plant Point-Intercept Survey for Jeffers Pond, Scott County, MN, 2018

[Plant Survey Conducted September 10, 2018]

Prepared for:
Prior Lake-Spring Lake
Watershed District



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Aquatic Plant Point-Intercept Survey for Jeffers Pond, Scott County, MN, 2018

Summary

Jeffers Pond (31 acres)(MnDNR ID #70-007700) is located in Scott County, Minnesota. An aquatic plant survey was conducted on September 10, 2018 by Blue Water Science to characterize conditions of native aquatic plants and to check the status of non-native Eurasian watermilfoil.

Jeffers Pond has a high abundance and a fair diversity of submerged aquatic plants. Six species of rooted submerged plants were observed with coontail the dominant native plant (Table S1 and Figure S1). Eurasian watermilfoil growth in 2018 appeared to be reduced compared 2017 but the non-native plant was still found at 44% of the sample sites. A majority of the shoreline was ringed with a narrow buffer of native wetland plant species.

Aquatic plant coverage in the shallow Jeffers Pond basin was approximately 95% of the lake area.

Table S1. The percent occurrence of summer aquatic plants for Jeffers Pond on September 10, 2018. 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.

	Jeffers Pond September 10, 2018 (55 sites)		
	% Occurrence	Occurrence	Density
Coontail (<i>Ceratophyllum demersum</i>)	95	52	1.9
Elodea (<i>Elodea canadensis</i>)	6	11	1.0
Eurasian watermilfoil (<i>M. spicatum</i>)	44	24	1.1
Flatstem pondweed (<i>Potamogeton zosteriformis</i>)	13	7	1.0
Sago pondweed (<i>Stuckenia pectinata</i>)	9	5	1.0
Water Stargrass (<i>Zosterella dubia</i>)	4	2	1.0
Filamentous Algae	12	22	
Aquatic Plant Coverage (ac)	29 (95%)		
Total submerged species	6		

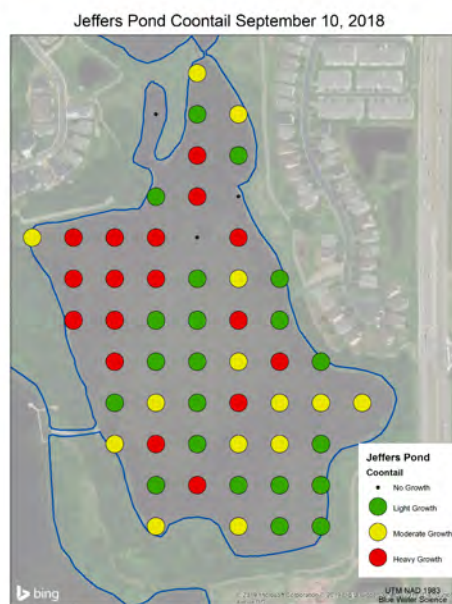


Figure S1. Coontail distribution and density map for Jeffers Pond on September 10, 2018.

Aquatic Plant Point-Intercept Survey for Jeffers Pond, Scott County, MN, 2018

Jeffers Pond, Scott County (MnDNR ID: 70-007700)

Size: 31 acres (Jeffers Pond)

Introduction

An aquatic plant survey was conducted on 31 acre Jeffers Pond, located in Scott County, on September 10, 2018. The objective of the survey was to characterize the aquatic plant community and to check the status of Eurasian watermilfoil.

Methods

An aquatic plant point-intercept survey of Jeffers Pond was conducted by Blue Water Science on September 10, 2018 and 55 points were sampled. A 50m grid was placed over Jeffers Pond (Figure 1). At each sample point, a fixed-head sampling rake on a telescoping pole 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 sampling results plant distribution maps were constructed.

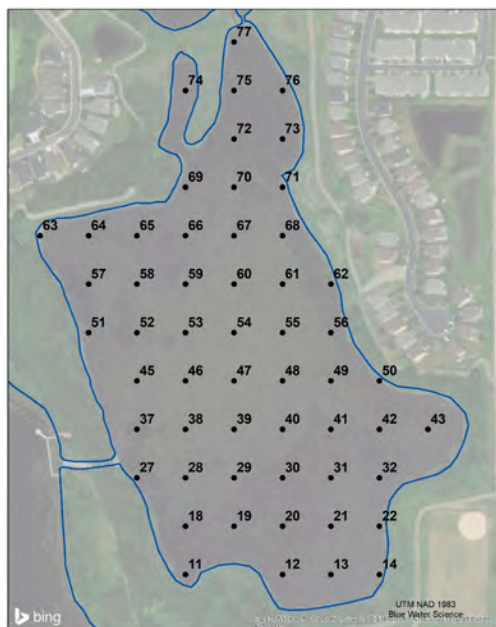
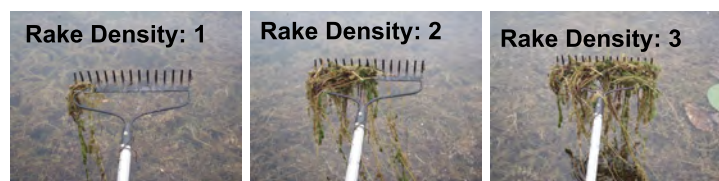


Chart of Aquatic Plant Density Ratings



Aquatic plant density ratings from 1 to 3.

Figure 1. Sample location map for the aquatic plant survey conducted on Jeffers Pond.

Results

Results of the summer aquatic plant survey conducted on September 10, 2018 found 6 submerged plant species with coontail being the dominant species (Table 1)(Figure 2). Coontail was found at 95% of the sites in Jeffers Pond growing at light to heavy densities.

Eurasian watermilfoil was present in Jeffers pond in 2018 but not as abundant and widespread as 2017, EWM was found at 44% of the sample sites (24 out of 55 sites)(Figure 2).

Point intercept survey statistics (Table 2) and results of individual sample sites are shown in Table 3. Maps of aquatic plant distribution and abundance are shown in Figure 2.

Table 1. The percent occurrence of summer aquatic plants for Jeffers Pond on September 10, 2018. 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.

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Sago pondweed (<i>Stuckenia pectinata</i>)	9	5	1.0
Water Stargrass (<i>Zosterella dubia</i>)	4	2	1.0
Filamentous Algae	12	22	
Aquatic Plant Coverage (ac)	29 (95%)		
Total submerged species	6		

Table 2. Statistics for the Jeffers Pond point intercept survey conducted on September 10, 2018.

Total # Points Sampled	55
Depth Range of Rooted Veg	1-3 feet
Maximum Depth of Growth (95%) in feet	3.0
# Points in Max Depth Range	55
# Points in Littoral Zone (0-15 feet)	55
% Points w/ Native Submersed Taxa	95
Mean Native Submersed Taxa/Point	1.3
Mean Density of Native Submersed Taxa	1.2
# Submersed Native Taxa	5

Table 3. All data for Jeffers Pond for the September 20, 2018 aquatic plant survey.

Site	Depth (ft)	Coontail	Elodea	EWM	Flastem	Sago	Water stargrass	Filamentous Algae
11	2	2						
12	1	2			1			
13	1	1			1			
14	1	1						
18	1	1						1
19	1.5	3			1			
20	1	1			1			
21	1	1		1				
22	1	1						
27	3	2		1				
28	2	3	1					
29	1.5	1		1		1		
30	1.5	2		1				
31	1	2		1	1			
32	2	1		1				
37	1	1	1	1				1
38	2	2	1	1				1
39	2	1		1				
40	2	3						
41	1.5	2				1		
42	2	2						
43	2	2						
45	2	3						1
46	2	1		2		1		
47	1.5	1		1		1		
48	1.5	2						
49	2	3		1				
50	1	1						
51	2	3						
52	2	3	1	1		1		1
53	2	1		2				
54	2	1	1	1			1	
55	2.5	3		1				
56	1	1						
57	2	3	1					
58	2	3		1	1			
59	2	3						1
60	2	1		1				
61	2	2						
62	1	1		1	1			
63	2	2						1
64	2	3						1
65	2	3						1
66	2	3		1				
67	3							
68	3	3						1
69	1	1						
70	2.5	3		1				
71	1							
72	3	3						2
73	1	1		1				2
74	3							
75	1	1		1				
76	2	2						
77	3	2		1			1	
Average		1.9	1.0	1.1	1.0	1.0	1.0	1.2
Occurrence (55 sites)		52	6	24	7	5	2	12
% occurrence		95	11	44	13	9	4	22

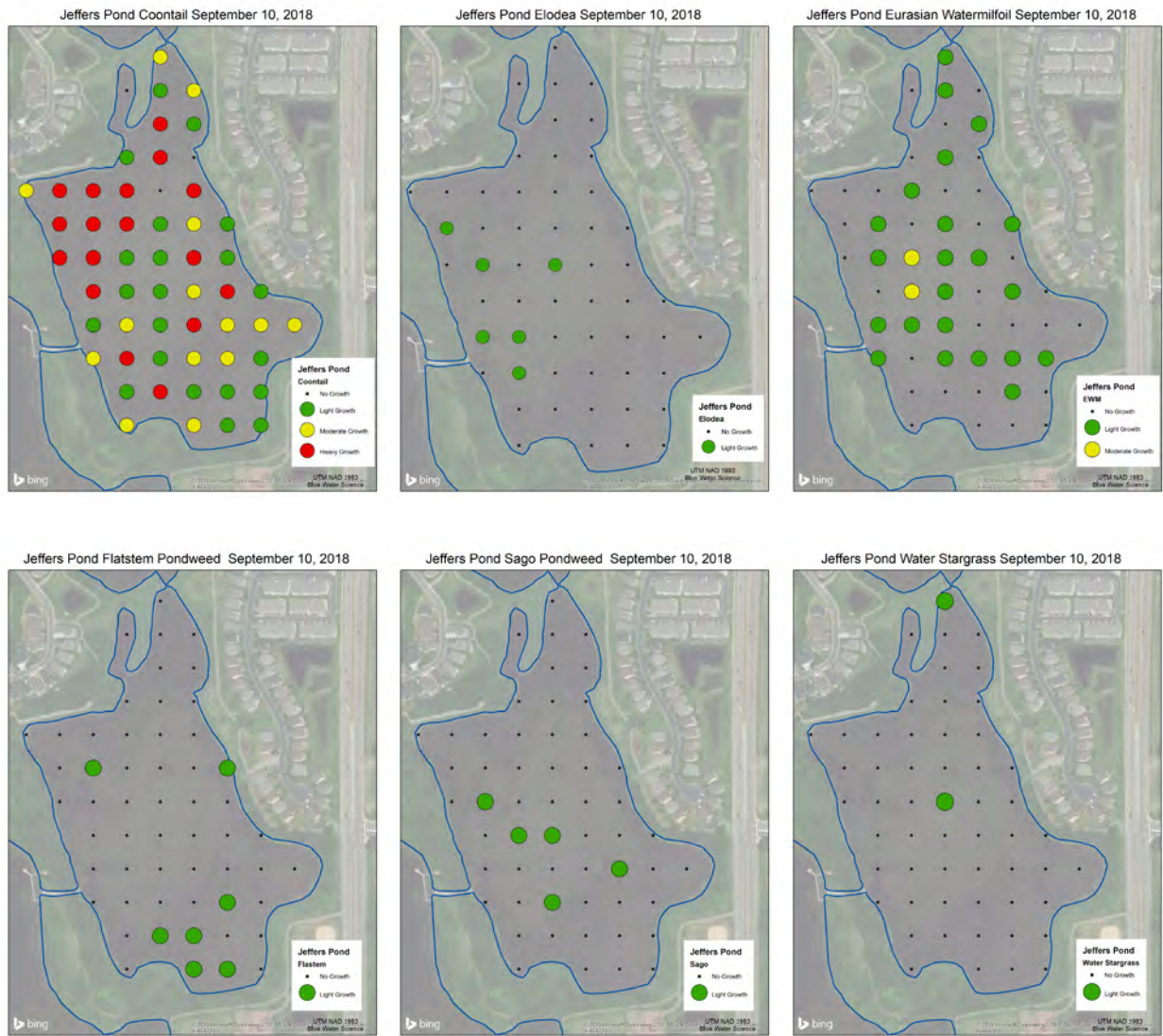


Figure 2. Jeffers Pond aquatic plant distribution maps for September 10, 2018.

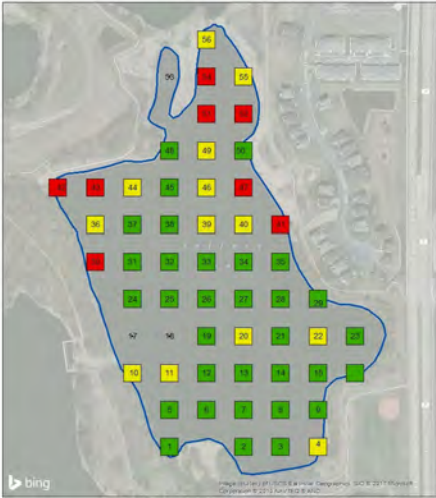
Plant Conditions in Jeffers Pond, Scott County DOW 70-007700

Coontail and Eurasian watermilfoil were dominant plants and were present at most sites around the Jeffers ponds. Coontail has been the dominant native plant in surveys for 2016, 2017, and 2018.

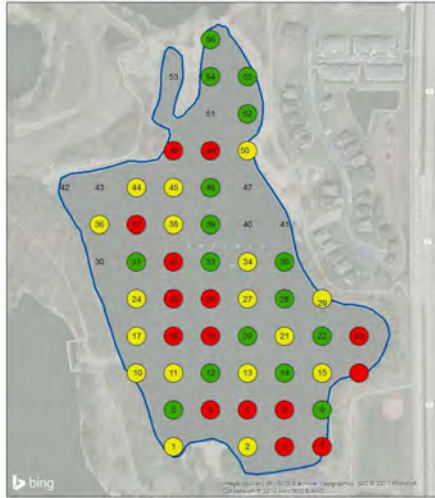


Coontail and Eurasian Watermilfoil in Jeffers Pond for 2016, 2017, and 2018

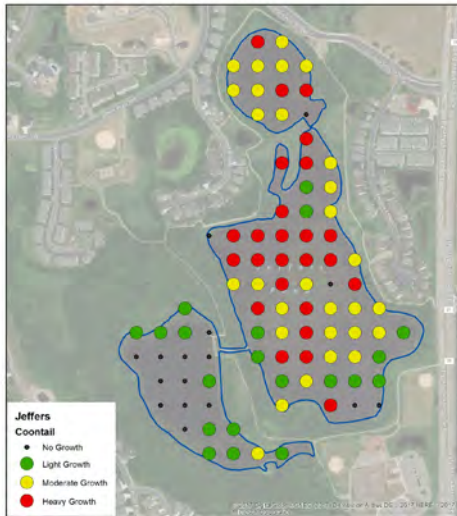
Jeffers Lake Coontail
August 31, 2016



Jeffers Lake Eurasian Watermilfoil
August 31, 2016



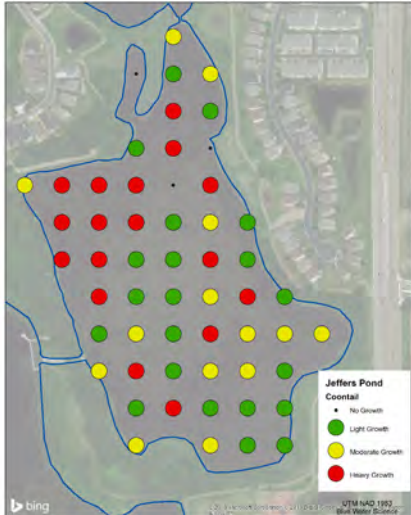
Jeffers Complex Coontail
August 7, 2017



Jeffers Complex Eurasian Watermilfoil
August 7, 2017



Jeffers Pond Coontail September 10, 2018



Jeffers Pond Elodea September 10, 2018



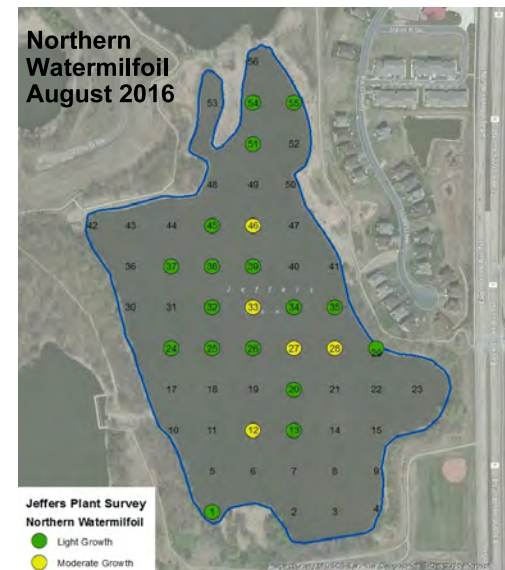
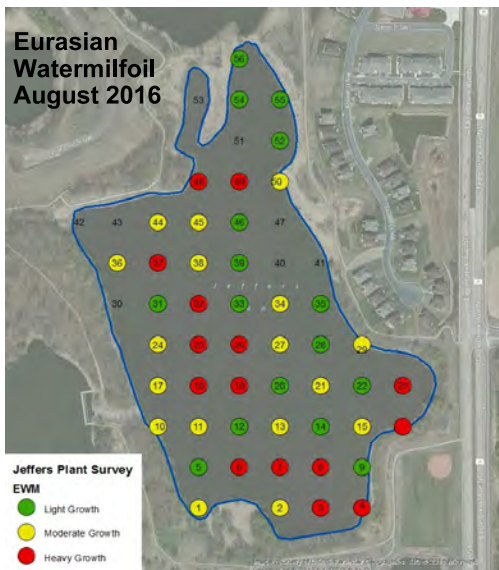
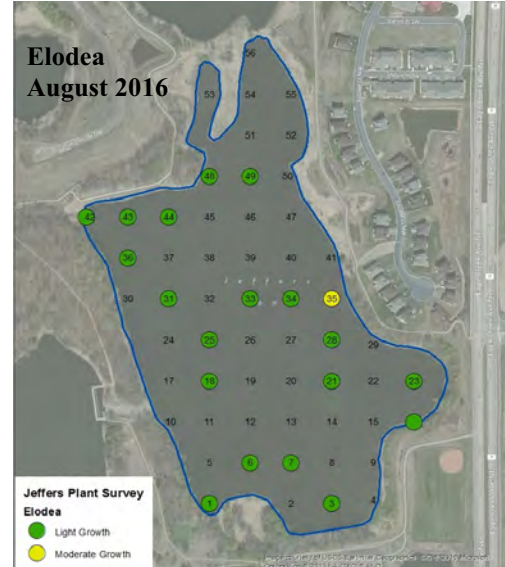
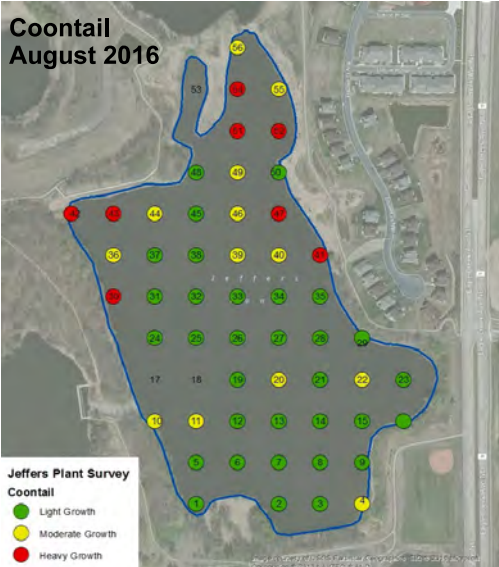
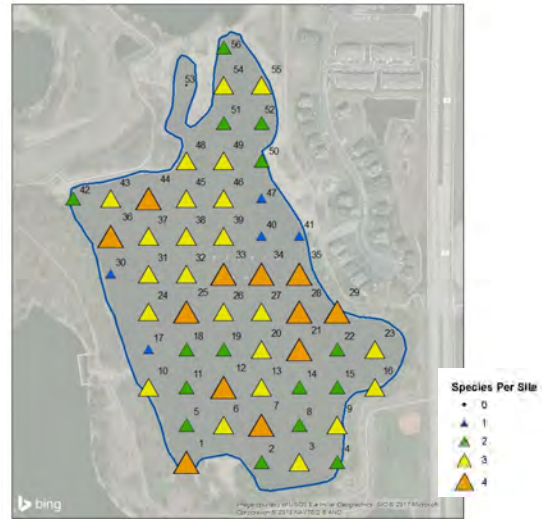
2016 Jeffers Pond Aquatic Plant Distribution and Abundance

Jeffers Pond



Blue Water Science
UTM NAD 1983

Jeffers Lake Species Richness



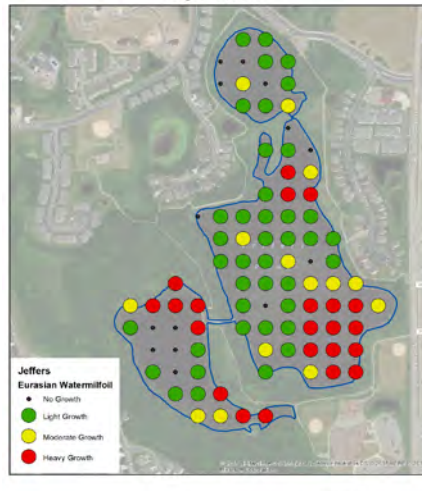
2017 Jeffers Pond Aquatic Plant Distribution and Abundance

Jeffers Complex Coontail
August 7, 2017



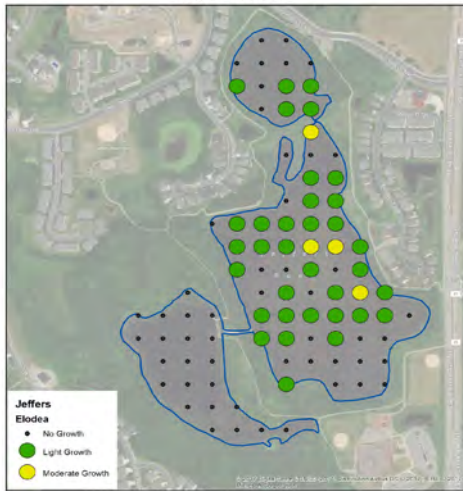
UTM NAD 1983
Blue Water Science

Jeffers Complex Eurasian Watermilfoil
August 7, 2017



UTM NAD 1983
Blue Water Science

Jeffers Complex Elodea
August 7, 2017



UTM NAD 1983
Blue Water Science

Jeffers Complex Flatstem Pondweed
August 7, 2017



UTM NAD 1983
Blue Water Science

Jeffers Complex Sago Pondweed
August 7, 2017



UTM NAD 1983
Blue Water Science

Jeffers Complex Water Stargrass
August 7, 2017



UTM NAD 1983
Blue Water Science

General Findings of This Study

- Emergent plants along the shoreline were abundant and offer good wildlife habitat.
- Submerged plants were widespread. The relatively shallow basin offers good growing conditions.
- Eurasian watermilfoil growth was moderate to heavy through much of the lake. EWM growth decreased in 2018 compared to 2017.
- Eurasian watermilfoil and coontail were the dominant plants. Both species reached the surface at many sites.
- Jeffers pond is a shallow and productive system. Heavy plant growth is expected in the future.
- Signs of reproducing carp were noted and may be able to make there way into Spring lake.



Figure 3. Coontail was topping out around most of Jeffers pond. Adult carp were observed around Jeffers Pond.