



American Lotus in Jeffers Pond, Scott County, Minnesota, August 2024

Aquatic Plant Point Intercept Survey for Jeffers Pond, Scott County, MN, 2024

Plant Survey Conducted on August 7, 2024

Prepared for:
Prior Lake-Spring Lake
Watershed District



March 10, 2025

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Aquatic Plant Point Intercept Survey for Jeffers Pond, Scott County, MN, 2024

Summary

Jeffers Pond (39 acres)(MnDNR ID #70-007700 - main lake and MnDNR ID #70-015300 - upper lake) is located in Scott County, Minnesota. An aquatic plant survey was conducted on August 7, 2024 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. Eleven species of rooted submerged plants were observed with coontail the dominant native plant (Table 1 and Figure 1). Eurasian watermilfoil growth in 2024 appeared to be expanded and heavier growth compared 2018 and was found at 73% 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 full Jeffers Pond basin was approximately 34 acres or 87% of the lake area.

Table 1. The percent occurrence of summer aquatic plants for Jeffers Pond on August 7, 2024. 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 Complex (90 sites)		
	Occurrence	% Occurrence	Density
Cattails (<i>Typha</i> spp)	3	3	1.3
American lotus (<i>Nelumbo lutea</i>)	4	4	2.3
Coontail (<i>Ceratophyllum demersum</i>)	64	71	1.5
Braun's stonewort (<i>Chara braunii</i>)	3	3	2.3
Chara (<i>Chara</i> spp)	2	2	1.5
Elodea (<i>Elodea canadensis</i>)	62	69	2.0
Water stargrass (<i>Heteranthera dubia</i>)	2	2	1.0
Northern watermilfoil (<i>Myriophyllum sibiricum</i>)	1	1	1.0
Eurasian watermilfoil (<i>Myriophyllum spicatum</i>)	66	73	1.6
Floatingleaf pondweed (<i>Potamogeton natans</i>)	7	8	1.6
Flatstem pondweed (<i>Potamogeton zosteriformis</i>)	22	24	1.1
Buttercup (<i>Ranunculus aquatilis</i>)	1	1	2.0
Sago pondweed (<i>Stuckenia pectinata</i>)	37	41	1.6
Filamentous Algae	7	8	1.3
Aquatic Plant Coverage (ac)	34 (87%)		
Total submerged species	11		

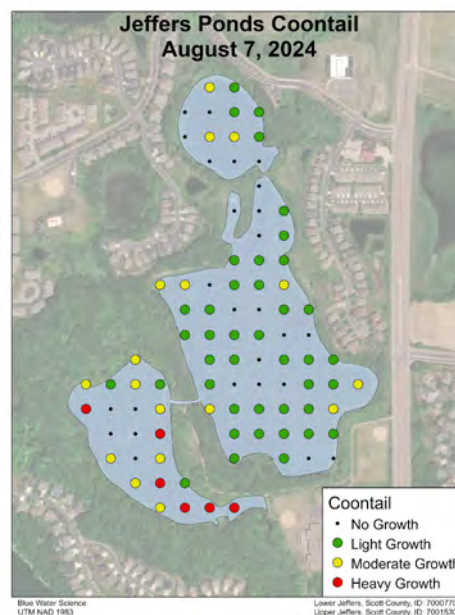


Figure 1. Coontail distribution and density map for Jeffers Pond complex on August 7, 2024.

Aquatic Plant Point-Intercept Survey for Jeffers Pond, Scott County, MN, 2024

Jeffers Pond, Scott County

(MnDNR ID: 70-007700 main lake and #70-015300 - upper lake)

Size: 39 acres (Jeffers Pond complex)

Introduction

An aquatic plant survey was conducted on 39 acre Jeffers Pond complex, located in Scott County, on August 7, 2024. 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 August 7, 2024 and 90 points were sampled. A 50m grid was placed over Jeffers Pond (Figure 2). 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.

Jeffers Ponds 50m Grid 90 Points

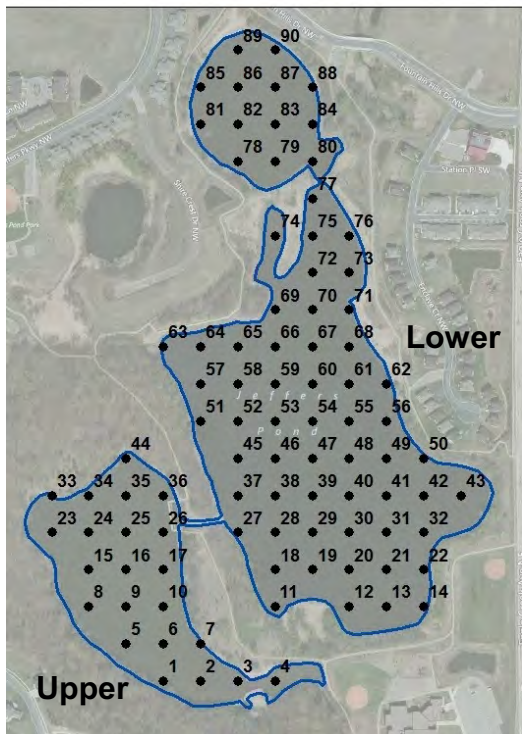


Chart of Aquatic Plant Density Ratings



Aquatic plant density ratings from 1 to 3.

Figure 2. Sample location map for the aquatic plant survey conducted on Jeffers Pond complex.

Results

Results of the summer aquatic plant survey conducted on August 7, 2024 found 11 submerged plant species, 1 floatingleaf plant species and 1 emergent plant species. Coontail was the dominant species (Table 1)(Figure 2). Coontail was dominant native species found at 71% of the sites in Jeffers Pond complex growing at light to heavy densities (Table 2)(Figure 3).

Eurasian watermilfoil was present in Jeffers Pond complex in 2024 with growth densities light to heavy and growth widespread. EWM was found at 73% of the sample sites (66 out of 90 sites)(Figure 3).

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

Table 2. The percent occurrence of summer aquatic plants for Jeffers Pond on August 7, 2024. 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 (90 sites)		
	Occurrence	% Occurrence	Density
Cattails (<i>Typha spp</i>)	3	3	1.3
American lotus (<i>Nelumbo lutea</i>)	4	4	2.3
Coontail (<i>Ceratophyllum demersum</i>)	64	71	1.5
Braun's stonewort (<i>Chara braunii</i>)	3	3	2.3
Chara (<i>Chara spp</i>)	2	2	1.5
Elodea (<i>Elodea canadensis</i>)	62	69	2.0
Water stargrass (<i>Heteranthera dubia</i>)	2	2	1.0
Northern watermilfoil (<i>Myriophyllum sibiricum</i>)	1	1	1.0
Eurasian watermilfoil (<i>Myriophyllum spicatum</i>)	66	73	1.6
Floatingleaf pondweed (<i>Potamogeton natans</i>)	7	8	1.6
Flatstem pondweed (<i>Potamogeton zosteriformis</i>)	22	24	1.1
Buttercup (<i>Ranunculus aquatilis</i>)	1	1	2.0
Sago pondweed (<i>Stuckenia pectinata</i>)	37	41	1.6
Filamentous Algae	7	8	1.3
Aquatic Plant Coverage (ac)	34 (87%)		
Total submerged species	11		

Table 3. Statistics for the Jeffers Pond complex point intercept survey conducted on August 7, 2024.

Total # Points Sampled	90
Depth Range of Rooted Veg	1-8 feet
Maximum Depth of Growth (95%) in feet	6
# Points in Max Depth Range	82
# Points in Littoral Zone (0-15 feet)	85
% Points with Submersed Native Taxa	98
Mean Submersed Native Taxa/Point	2.4
# Submersed Native Taxa	11
# Submersed Invasive Taxa	1
Max Depth of EWM in feet	5
% Frequency of EWM	78
Mode Rake Abundance of EWM	1

Table 4. All data for Jeffers Pond for the August 7, 2024 aquatic plant survey.

Site	Depth (ft)	Cattail	Lotus	Braun's stone-wort	Butter-cup	Chara	Coon-tail	Elodea	EWM	Flat-stem	Floating leaf	NWM	Sago	Water star-grass	Fila algae	No Plants	Lake
1	3						2	1	1					1			Upper
2	3						3										Upper
3	2.5						3								2		Upper
4	2.5						3	1	1				1				Upper
5	5						2										Upper
6	6						3										Upper
7	3						1	1	2								Upper
8	8						2										Upper
9	37															1	Upper
10	8						2										Upper
11	1.5						1	3	2	1					2		Main
12	2						1	2	1				1				Main
13	2								1				2	3			Main
14	1	1															Main
15	26															1	Upper
16	81															1	Upper
17	6						3										Upper
18	2						1	1	1				2				Main
19	2						1	2	1				2				Main
20	2						1		2				2				Main
21	2		2				1	1	1				1				Main
22	1	1					1	1					3				Main
23	6						3										Upper
24	20															1	Upper
25	77															1	Upper
26	6						2										Upper
27	2						2	3	2	1					1		Main
28	3						1	2	3				1				Main
29	2.5						1	2	1				2				Main
30	2						1	1	2				2				Main
31	2						1	3	2								Main
32	2						2	1	2				3				Main
33	3						2	2	1	1	1						Upper
34	4						1	1	1		1						Upper
35	8						2										Upper
36	5						1										Upper
37	3		3				1	2									Main
38	2.5		1					2	1				1		1		Main
39	2.5							1					2		1		Main
40	2.5							3	1				2		1		Main
41	2.5						1	3	2				1				Main
42	2.5						1	1	1				1				Main
43	2						2	2	1								Main
44	2						2		1	2							Upper
45	2		3				1	1	1								Main
46	2.5						1						1				Main
47	2.5							2	2				1				Main
48	2						1	2	3								Main
49	3						1	2	1	1			3				Main
50	1						1	2	1	1	2		1				Main

Table 4. All data for Jeffers Pond for the August 7, 2024 aquatic plant survey.

Site	Depth (ft)	Cattail	Lotus	Braun's stone-wort	Butter-cup	Chara	Coon-tail	Elodea	EWM	Flat-stem	Floating leaf	NWM	Sago	Water star-grass	Fila algae	No Plants	Lake
51	2						1	3	1	1							Main
52	2						1	1	1				1	1			Main
53	2.5						1	2	3				1				Main
54	2.5						1	1	1			1	1				Main
55	2							3	3				1				Main
56	2							1	2	1			2				Main
57	3						1	2	1	1					1		Main
58	2.5						1	2	3								Main
59	2.5							3	3	1			2				Main
60	2							3	2								Main
61	3						1	2	2	1			2				Main
62	1						1	3	1	1							Main
63	1						2	1	3	1							Main
64	3						2	1	1	2							Main
65	2							3	2	1			1				Main
66	2						1	2	3				1				Main
67	2.5						1	2	3								Main
68	2.5						2	3	3	1							Main
69	2						1	1	2								Main
70	2.5			1			1	3		1							Main
71	1						1	2	1				1				Main
72	3			3					1								Main
73	4						1		1	1							Main
74	1	2															Main
75	3			3					1	1			1				Main
76	2						1	2	3	2							Main
77	2							1	1		2		3				Main
78	3								1				1				Main
79	3					2		2	2								Main
80	2								2	1	1						Main
81	1								1		2		2				Main
82	5						2	3	2								Main
83	4						2	3	1								Main
84	3						1	2	2								Main
85	2				2	1		2					1				Main
86	4							3	1								Main
87	4						1	3	1								Main
88	1						1	2	1				2				Main
89	2.5						2	3	1								Main
90	3						1	3	1	1							Main
Average		1.3	2.3	2.3	2.0	1.5	1.5	2.0	1.6	1.1	1.6	1.0	1.6	1.0	1.3		
Occur (90 sites)		3	4	3	1	2	64	62	66	22	7	1	37	2	7	5	
% occur		3	4	3	1	2	71	69	73	24	8	1	41	2	8		

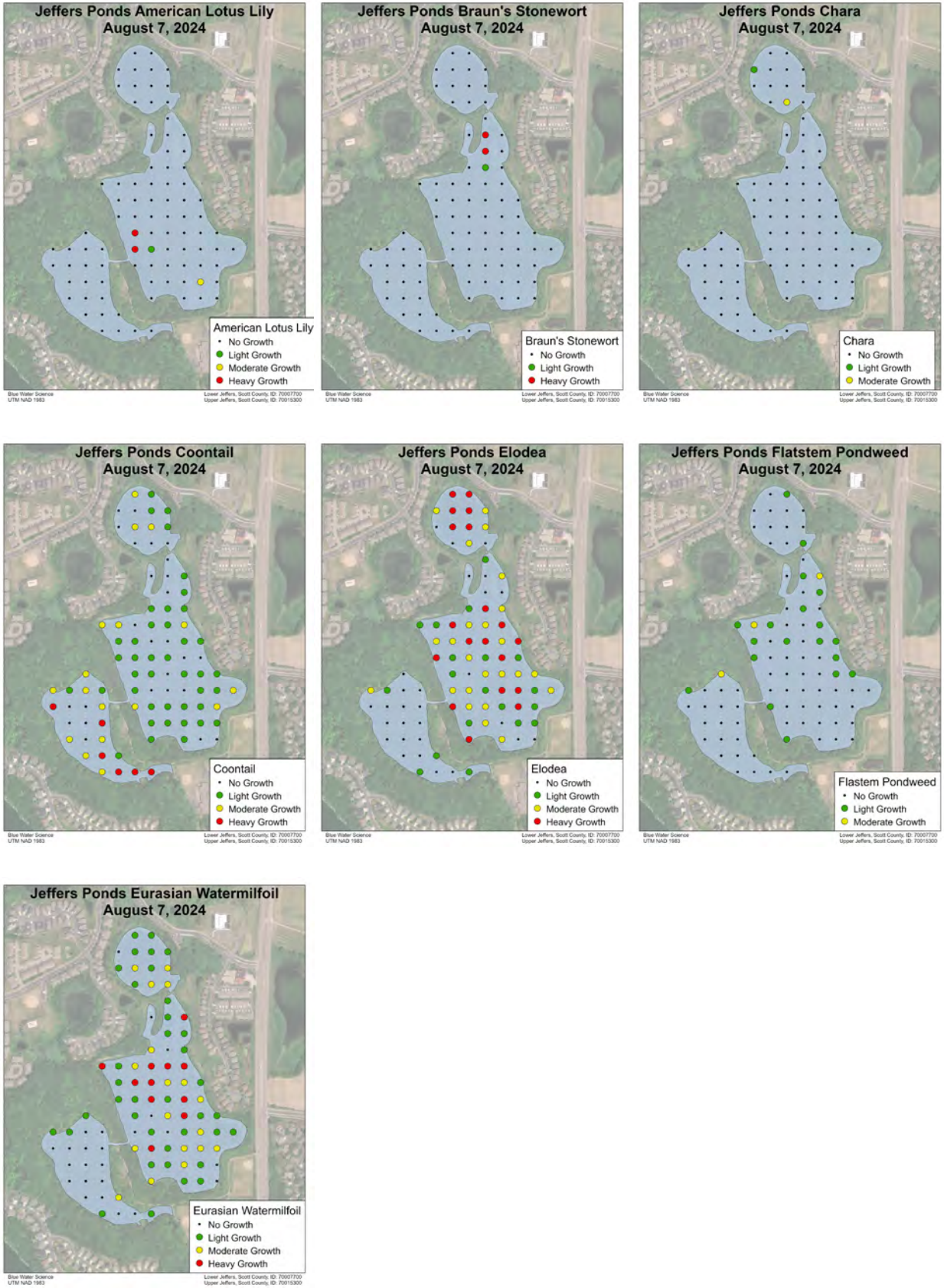


Figure 3. Jeffers Pond aquatic plant distribution maps for August 7, 2024.

Plant Conditions in Jeffers Pond, Scott County

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, 2018, and 2024.



Figure 4. [top] Coontail on a sample rake. [bottom] Looking toward the upper pond.

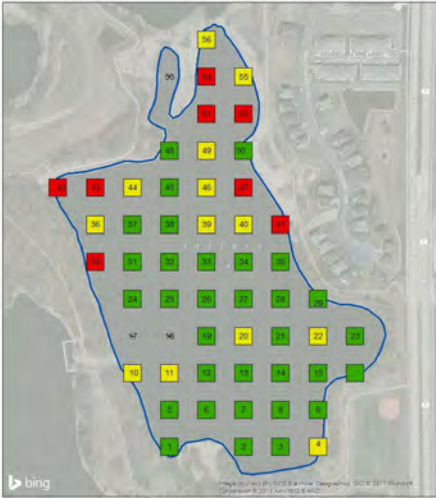
Summary of Point Intercept Surveys for 2016 - 2024

Table 5. The percent occurrence of summer aquatic plants for Jeffers Pond on August 29, 2016, August 7, 2017, September 10, 2018, and August 7, 2024. 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.

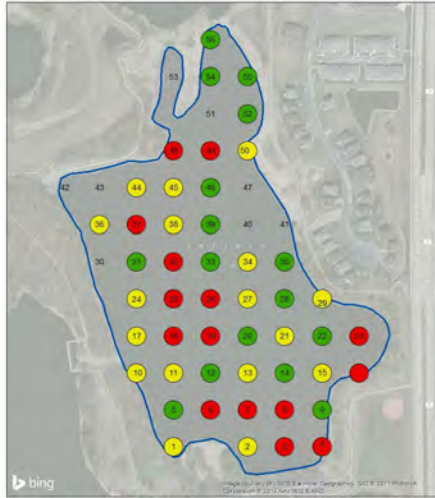
	August 29, 2016 (Lower) (55 sites) % Occurrence	August 7, 2017 (Lower and Upper) (90 sites) % Occurrence	September 10, 2018 (Lower) (55 sites) % Occurrence	August 7, 2024 (Lower and Upper) (90 sites) % Occurrence
Cattails (<i>Typha spp</i>)				3
American lotus (<i>Nelumbo lutea</i>)				4
Coontail (<i>Ceratophyllum demersum</i>)	96	82	95	71
Braun's stonewort (<i>Chara braunii</i>)				3
Chara (<i>Chara spp</i>)				2
Elodea (<i>Elodea canadensis</i>)	36	42	6	69
Water stargrass (<i>Heteranthera dubia</i>)		3	4	2
Northern watermilfoil (<i>Myriophyllum sibiricum</i>)	40			1
Eurasian watermilfoil (<i>Myriophyllum spicatum</i>)	87	84	44	73
Curlyleaf Pondweed (<i>Potamogeton crispus</i>)		1		
Floatingleaf pondweed (<i>Potamogeton natans</i>)	2			8
Flatstem pondweed (<i>Potamogeton zosteriformis</i>)	13	2	13	24
Buttercup (<i>Ranunculus aquatilis</i>)				1
Sago pondweed (<i>Stuckenia pectinata</i>)	2	6	9	41
Filamentous Algae	7			8
Aquatic Plant Coverage (ac)	39 ac (100%)	36 ac (92%)	29 ac (95%)	34 ac (87%)
Total submerged species	7	7	6	11

Coontail and Eurasian Watermilfoil in Jeffers Pond for 2016 Through 2024

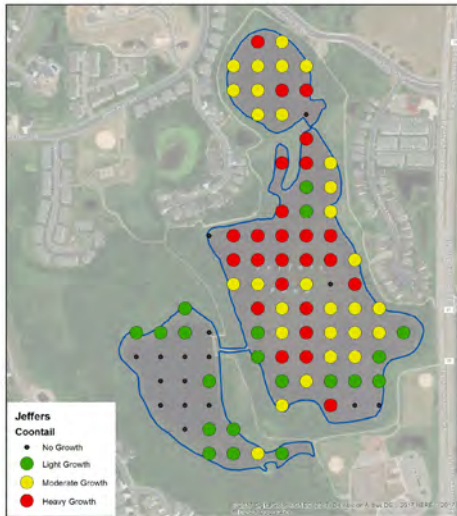
Jeffers Lake Coontail
August 31, 2016



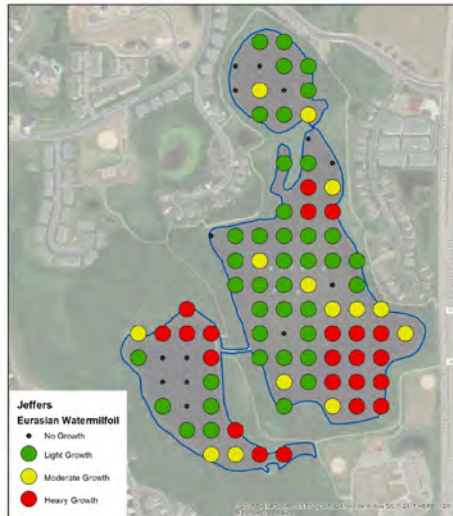
Jeffers Lake Eurasian Watermilfoil
August 31, 2016



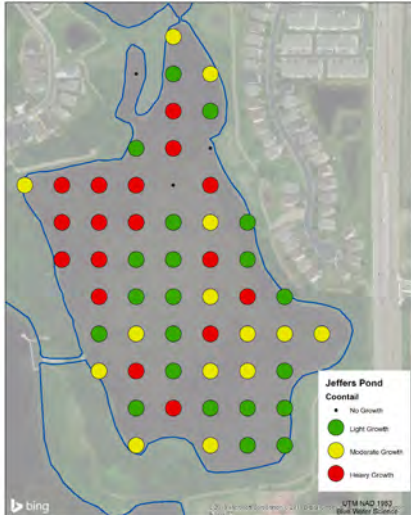
Jeffers Complex Coontail
August 7, 2017



Jeffers Complex Eurasian Watermilfoil
August 7, 2017

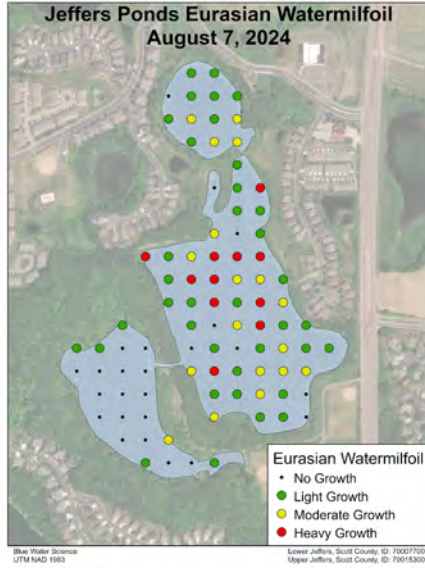
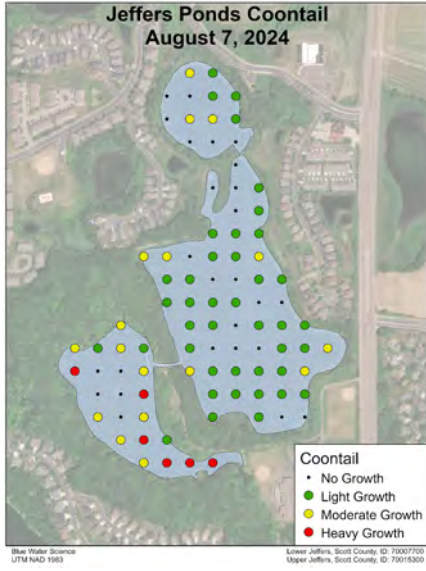


Jeffers Pond Coontail September 10, 2018



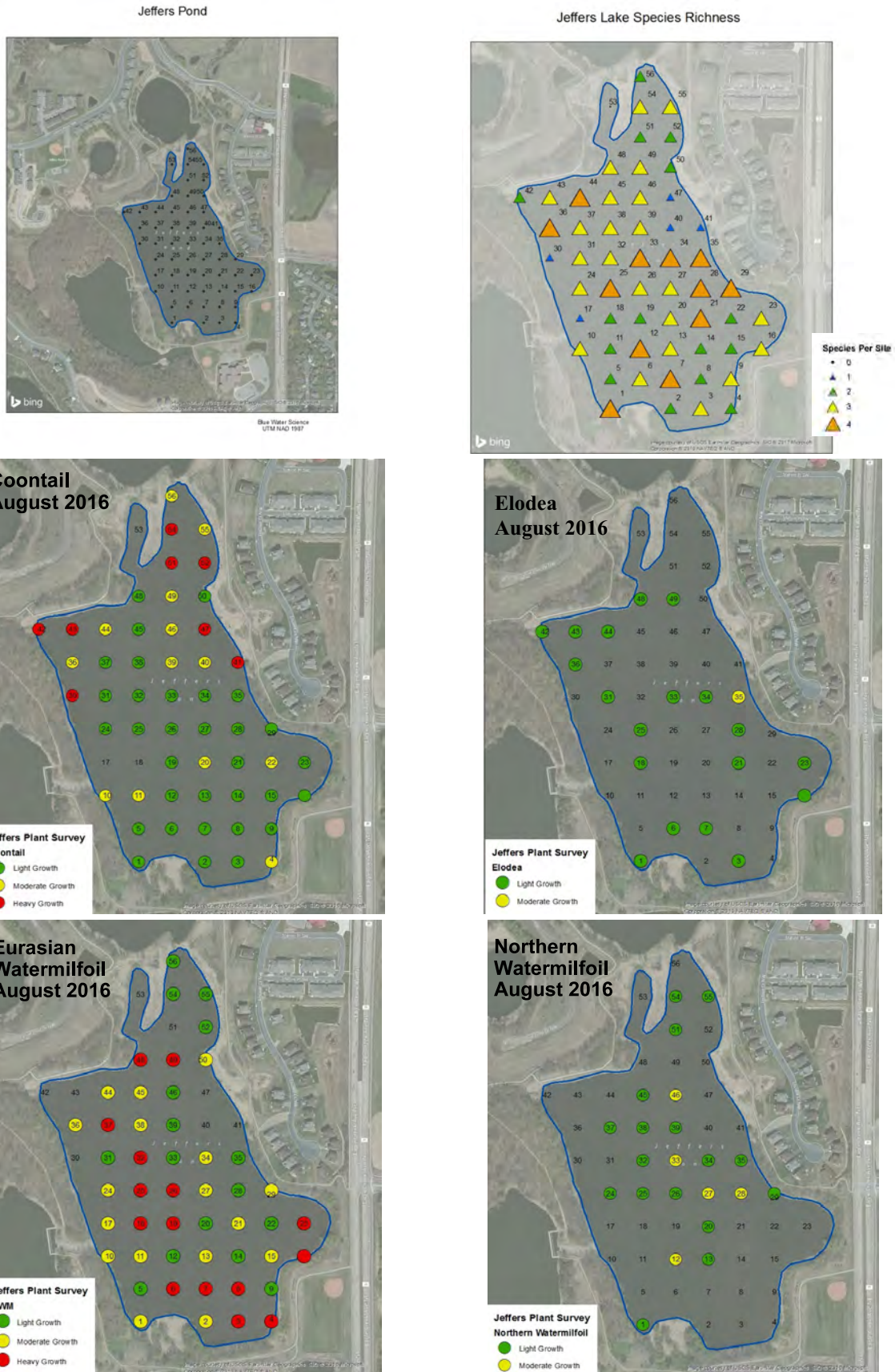
Jeffers Pond Elodea September 10, 2018





Previous Point Intercept Maps from 2016, 2017, and 2018

2016 Jeffers Pond Aquatic Plant Distribution and Abundance



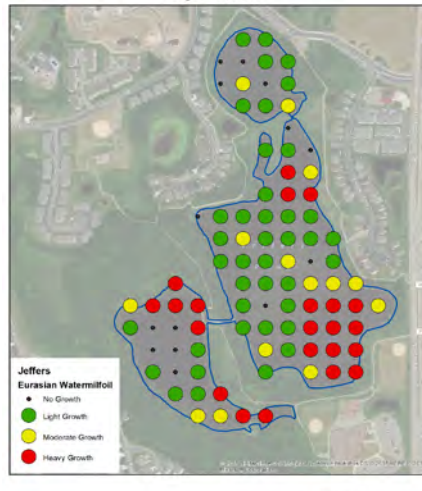
2017 Jeffers Pond Aquatic Plant Distribution and Abundance

Jeffers Complex Coontail
August 7, 2017



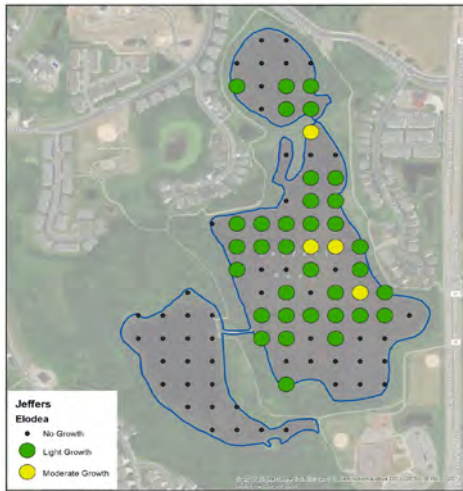
UTM NAD 1983
Blue Water Science

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



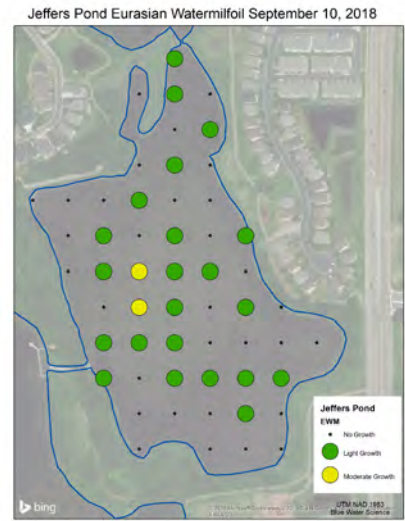
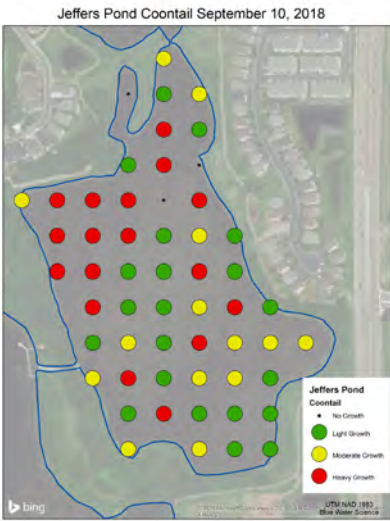
UTM NAD 1983
Blue Water Science

Jeffers Complex Water Stargrass
August 7, 2017



UTM NAD 1983
Blue Water Science

2018 Jeffers Pond Aquatic Plant Distribution and Abundance



General Findings of This Study

- Emergent plants along the shoreline were abundant and offer good wildlife habitat.
- Submerged plants were widespread. The relatively shallow lower basin offers good growing conditions and habitat.
- Eurasian watermilfoil growth was moderate to heavy through much of the lake. EWM growth increased in 2024 compared to previous surveys.
- Eurasian watermilfoil and coontail were the dominant plants. Both species reached the surface at many sites.
- Jeffers pond is a shallow and productive system while the upper pond has a deeper basin with a maximum depth of 80 feet.
- Signs of reproducing carp were noted and may be able to make their way into Spring Lake.
- The American lotus lily, a rare lily, was found in Jeffers Pond.



Figure 5. Bearded stonewort was topping out in a small area of Jeffers pond.