

Comfort Lake/Forest Lake Watershed District

Project Summaries for 2023

January 25, 2024

Steve McComas
Blue Water Science

CLFLWD Lake Projects – 2023

Bone Lake

- CLP and EWM delineation and assessments
- Point intercept survey
- Zebra mussel and SSW search

Comfort Lake

- CLP and EWM delineation and assessments
- Point intercept survey

Moody Lake

- CLP delineation and assessment point intercept surveys

Shields Lake

- CLP delineation and assessment point intercept surveys

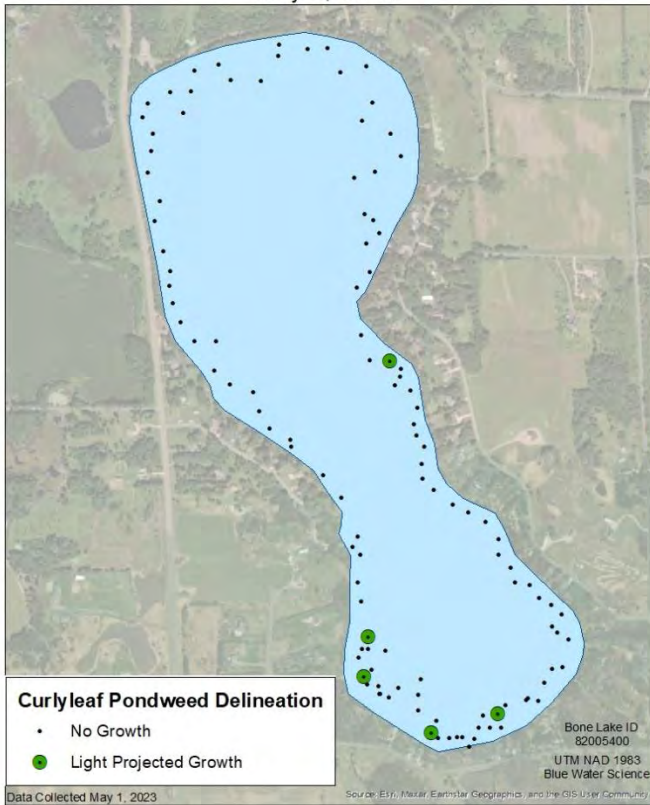
Forest Lake

- CLP and EWM delineations and assessments
- Flowering rush delineation and assessment
- Point intercept survey

Bone Lake

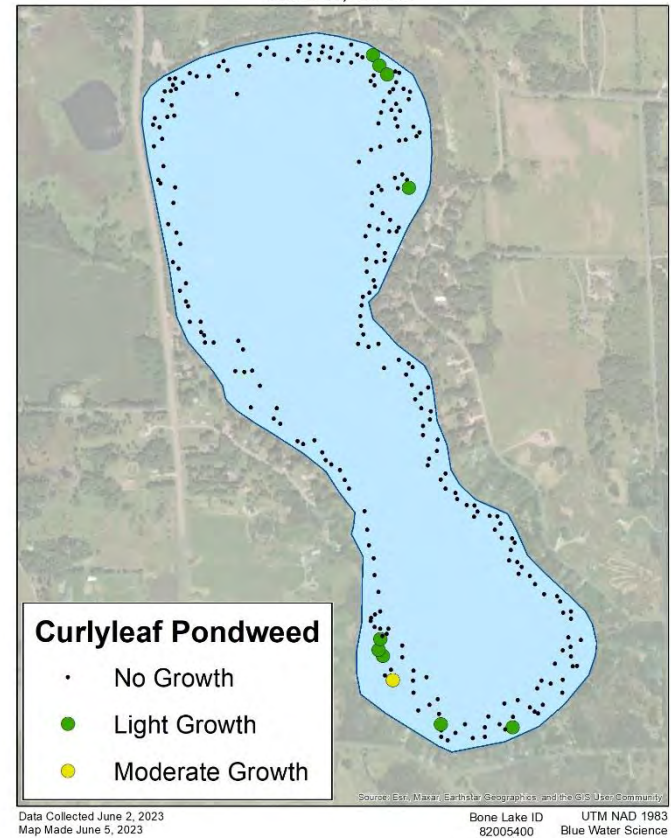
Curlyleaf Pondweed 2023

Bone Lake Curlyleaf Pondweed Delineation
May 1, 2023



May 1, 2023
CLP Delineation

Bone Lake Curlyleaf Pondweed Growth
June 2, 2023

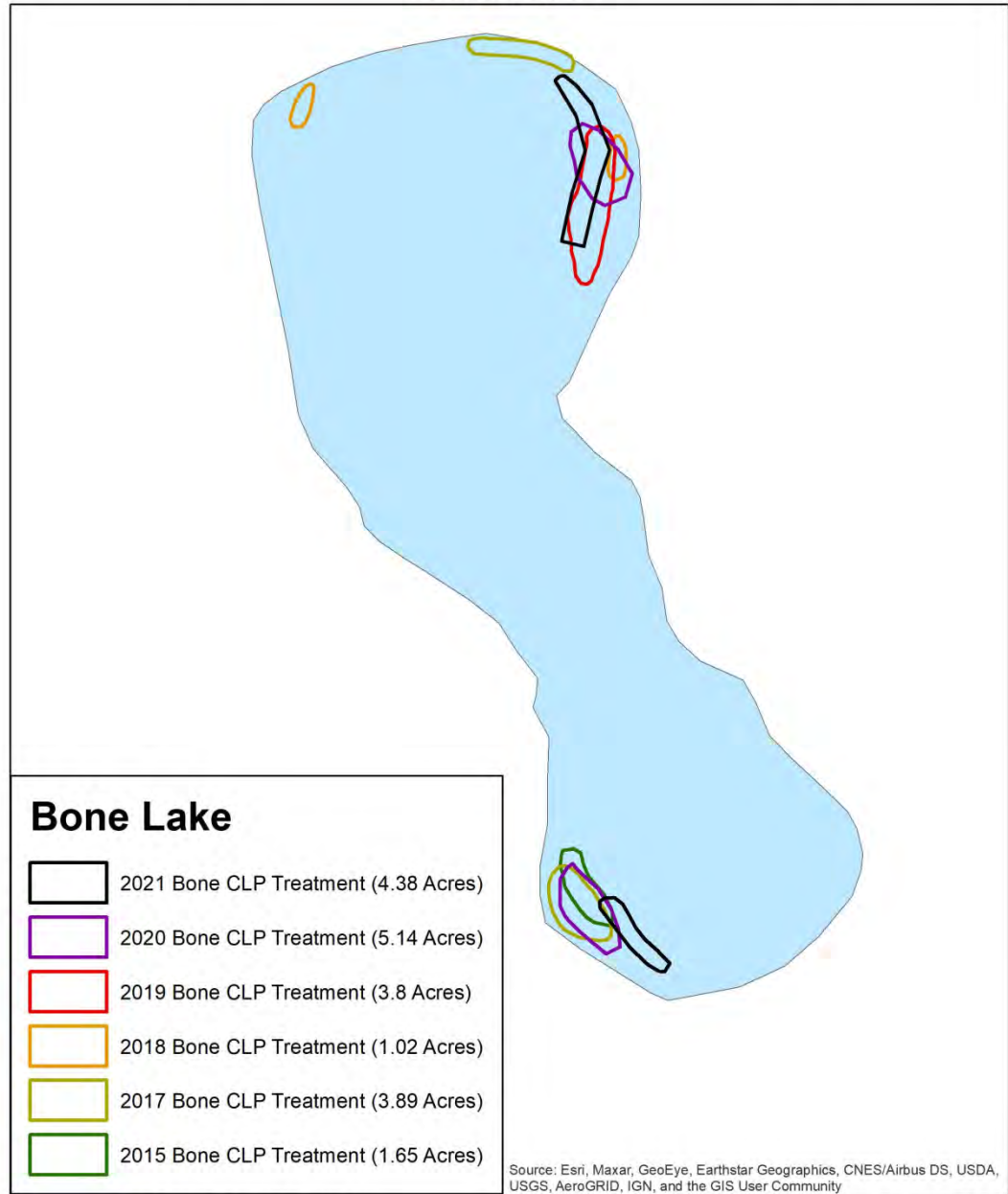


June 2, 2023
CLP Assessment

No
Treatment

Bone Lake Curlyleaf Pondweed Treatment Areas
2015-2022

Bone Lake CLP Hot Spots



No CLP Treatment in 2022

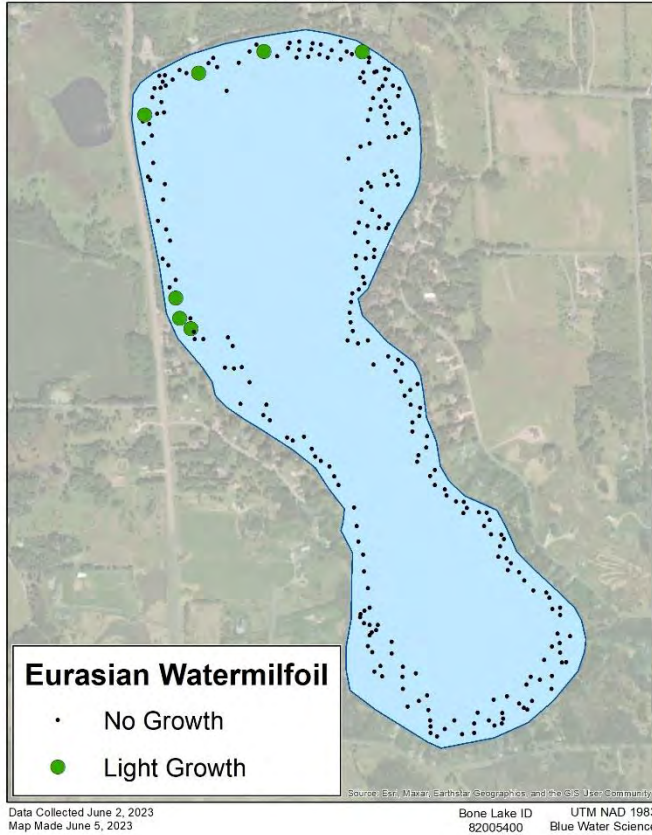
Bone Lake ID
82005400

UTM NAD 1983
Blue Water Science

Bone Lake

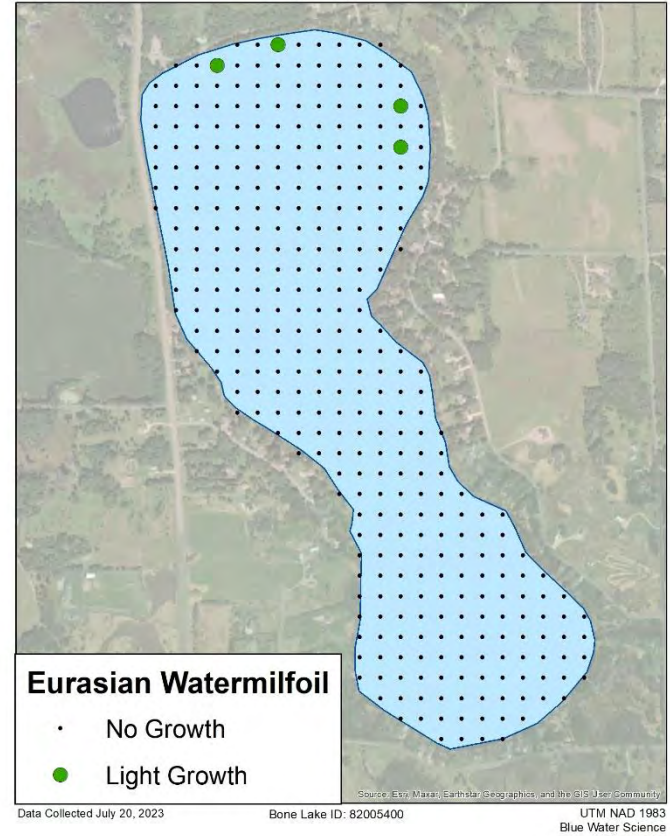
Eurasian Watermilfoil 2023

Bone Lake Eurasian Watermilfoil
June 2, 2023



**June 2, 2023
EWM Delineation**

Bone Lake Eurasian Watermilfoil
July 20, 2023

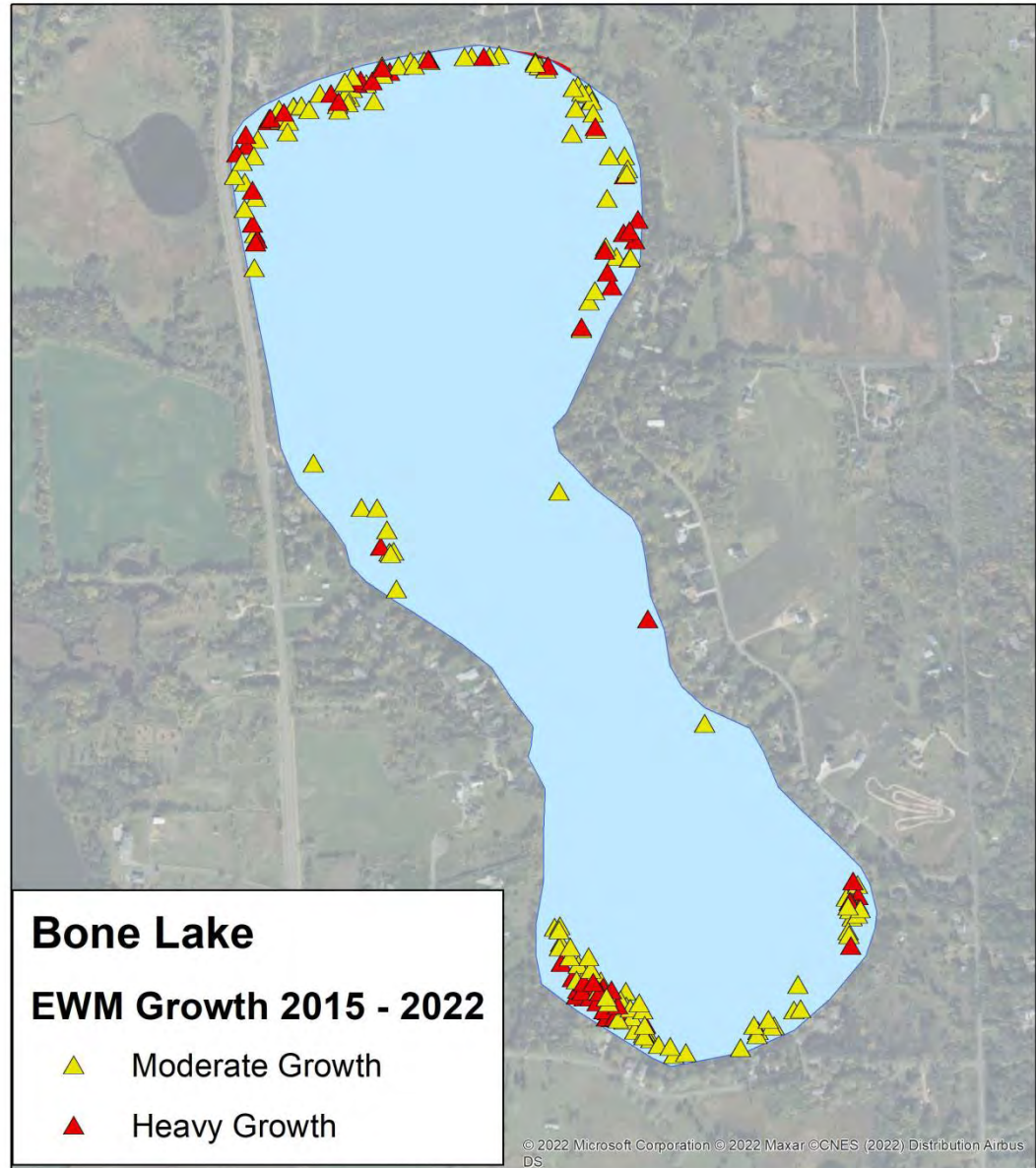


**July 20, 2023
EWM Assessment**

**No
Treatment**

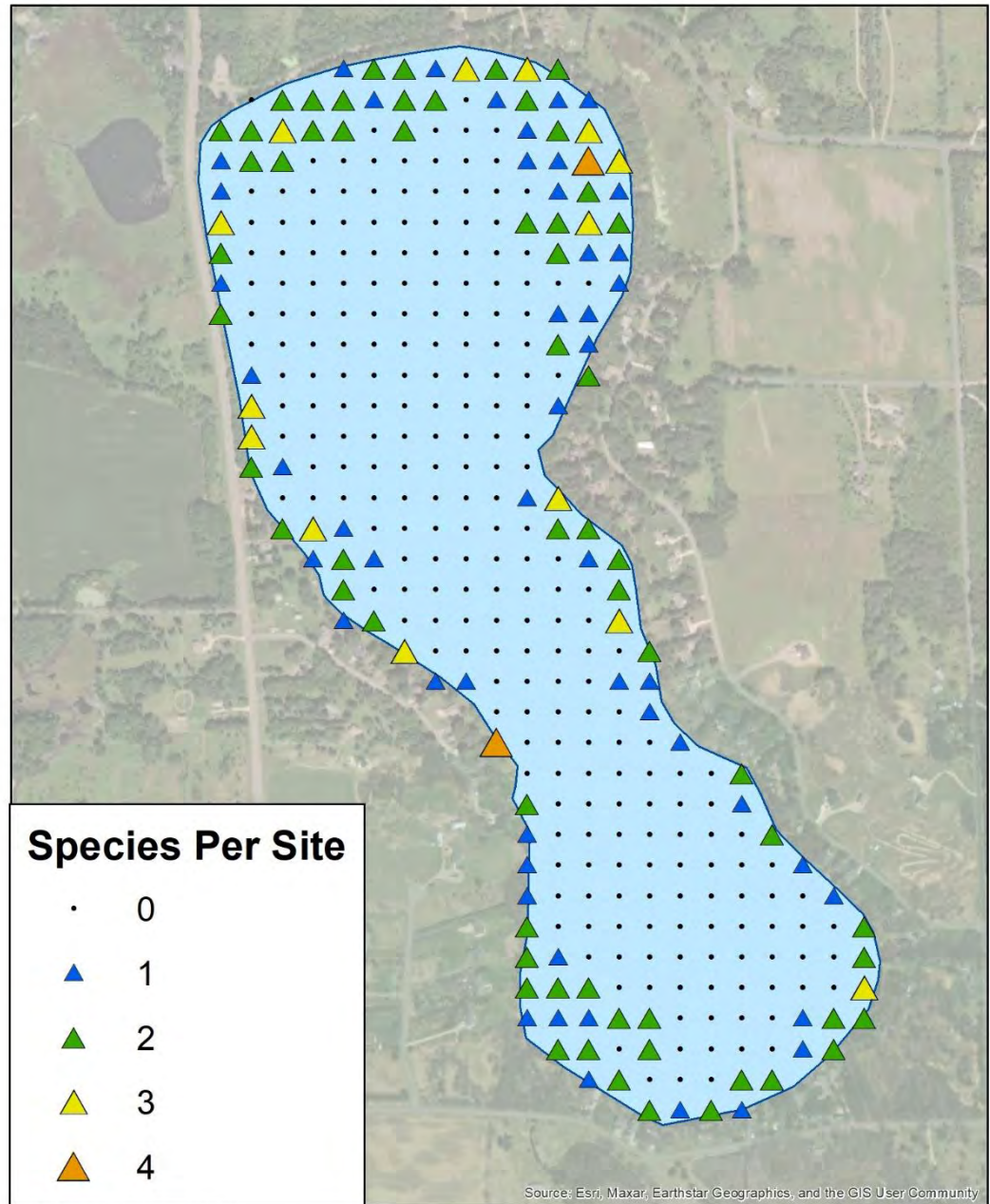
Bone Lake EWM Hot Spots

(EWM first
observed in 2006)



All occurrences of EWM moderate and heavy growth from 2015-2022

Bone Lake Point Intercept Survey Species Richness Map, July 20, 2023

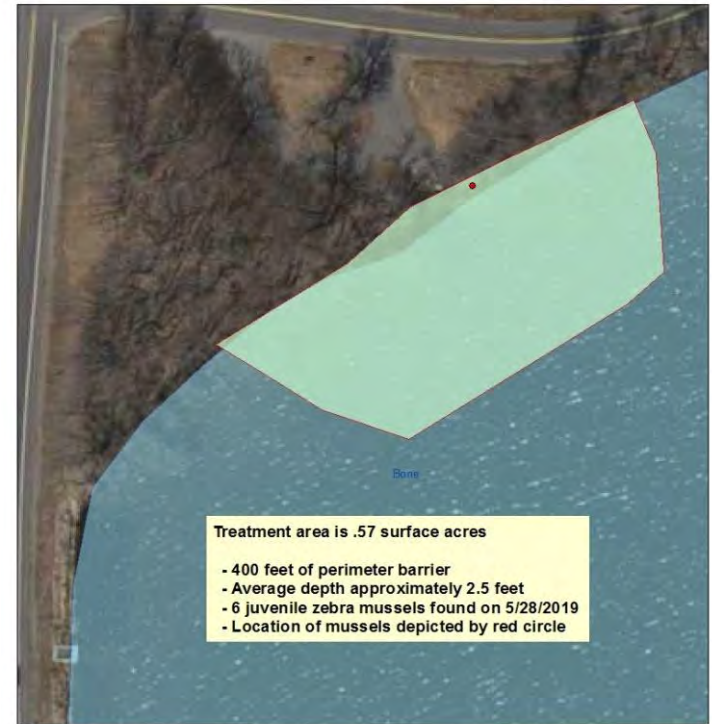


Bone Lake – Zebra Mussels

(six ZMs first observed in 2019 at the public access)



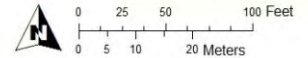
Bone Lake Zebra Mussel Pilot Project Treatment Area (6-13-2019)



Treatment area is .57 surface acres

- 400 feet of perimeter barrier
- Average depth approximately 2.5 feet
- 6 juvenile zebra mussels found on 5/28/2019
- Location of mussels depicted by red circle

Bone Lake zebra mussel treatment area



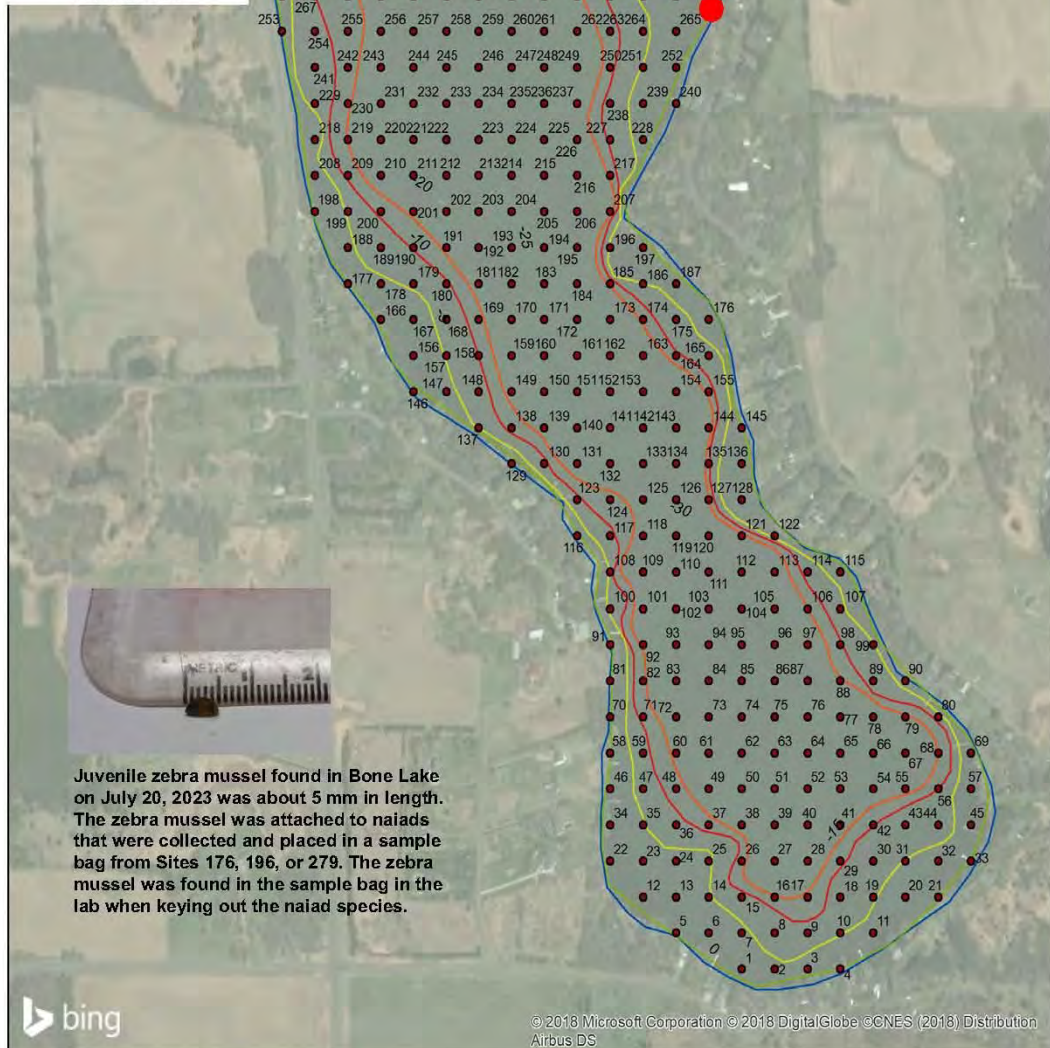
Bone Lake – Zebra Mussels

Veligers observed in
2020, single adult found
on plants in 2023



**Bone Lake,
Washington Co**

**Zebra Mussel
Discovery on
July 20, 2023 by
Blue Water
Science**



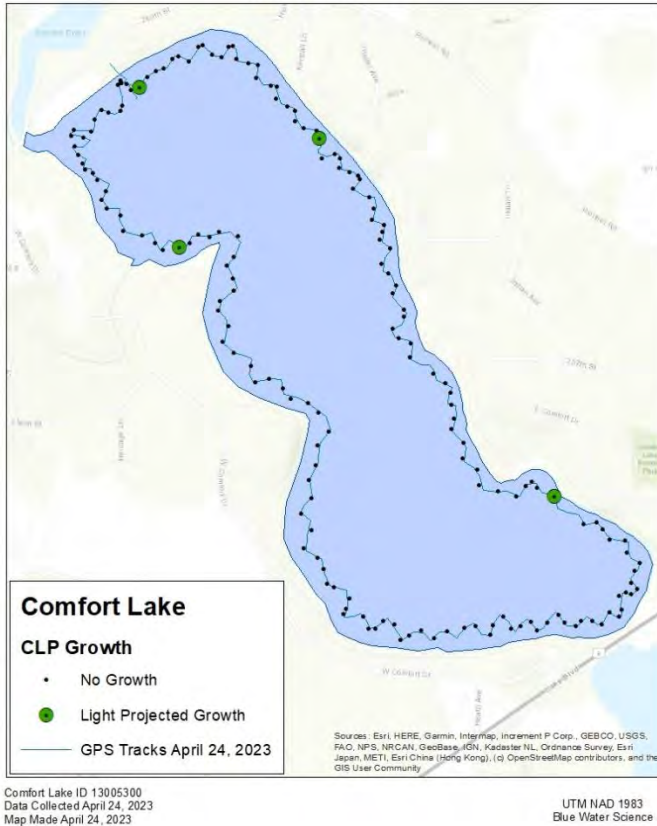
Bone Lake

- CLP varies from year to year.
- EWM heaviest in north and south ends.
- EWM control hampered by lilies.
- EWM is distributed around the lake.
(1st observed in 2006)
- An adult zebra mussel was found on a sample of plants that were brought to the lab to identify.

Comfort Lake

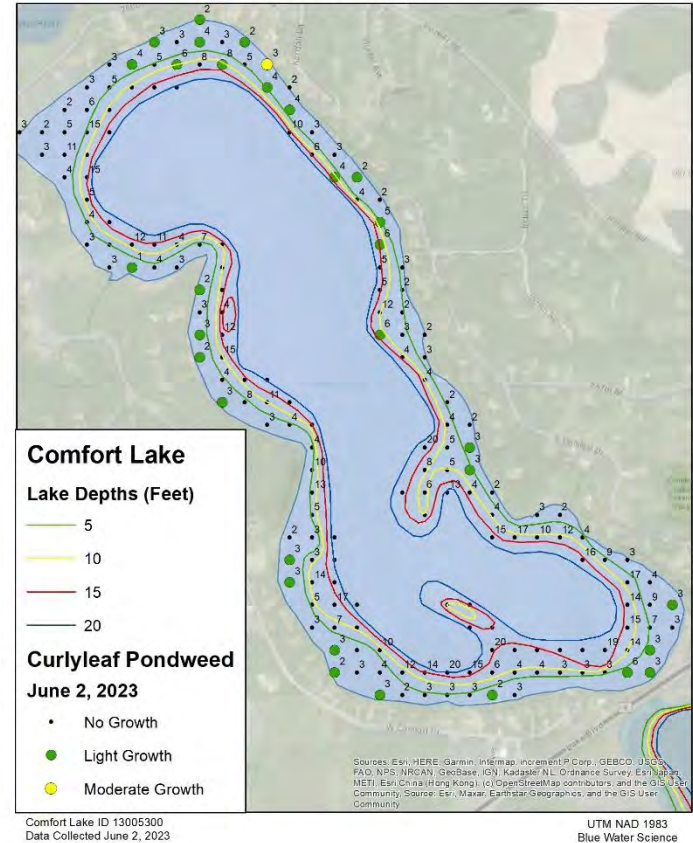
Curlyleaf Pondweed 2023

Comfort Lake Curlyleaf Pondweed Delineation
April 24, 2023



April 24, 2023
CLP Delineation

Comfort Lake Curlyleaf Pondweed Growth and Water Depths (ft)
June 2, 2023



June 2, 2023
CLP Assessment

No
Treatment

Comfort Lake

Eurasian Watermilfoil 2023

Comfort Lake Curlyleaf Pondweed Delineation
April 24, 2023



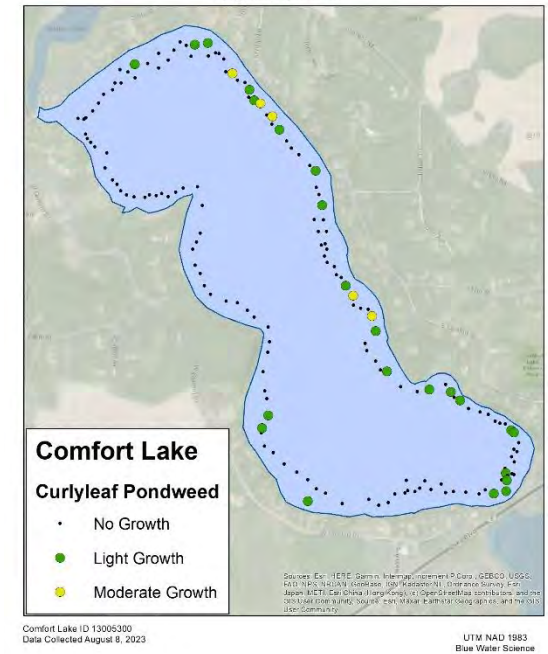
April 24, 2023
EWM Delineation

Comfort Lake Curlyleaf Pondweed Growth and Water Depths (ft)
June 2, 2023



June 2, 2023
EWM Delineation

Comfort Lake Curlyleaf Pondweed Growth
August 8, 2023

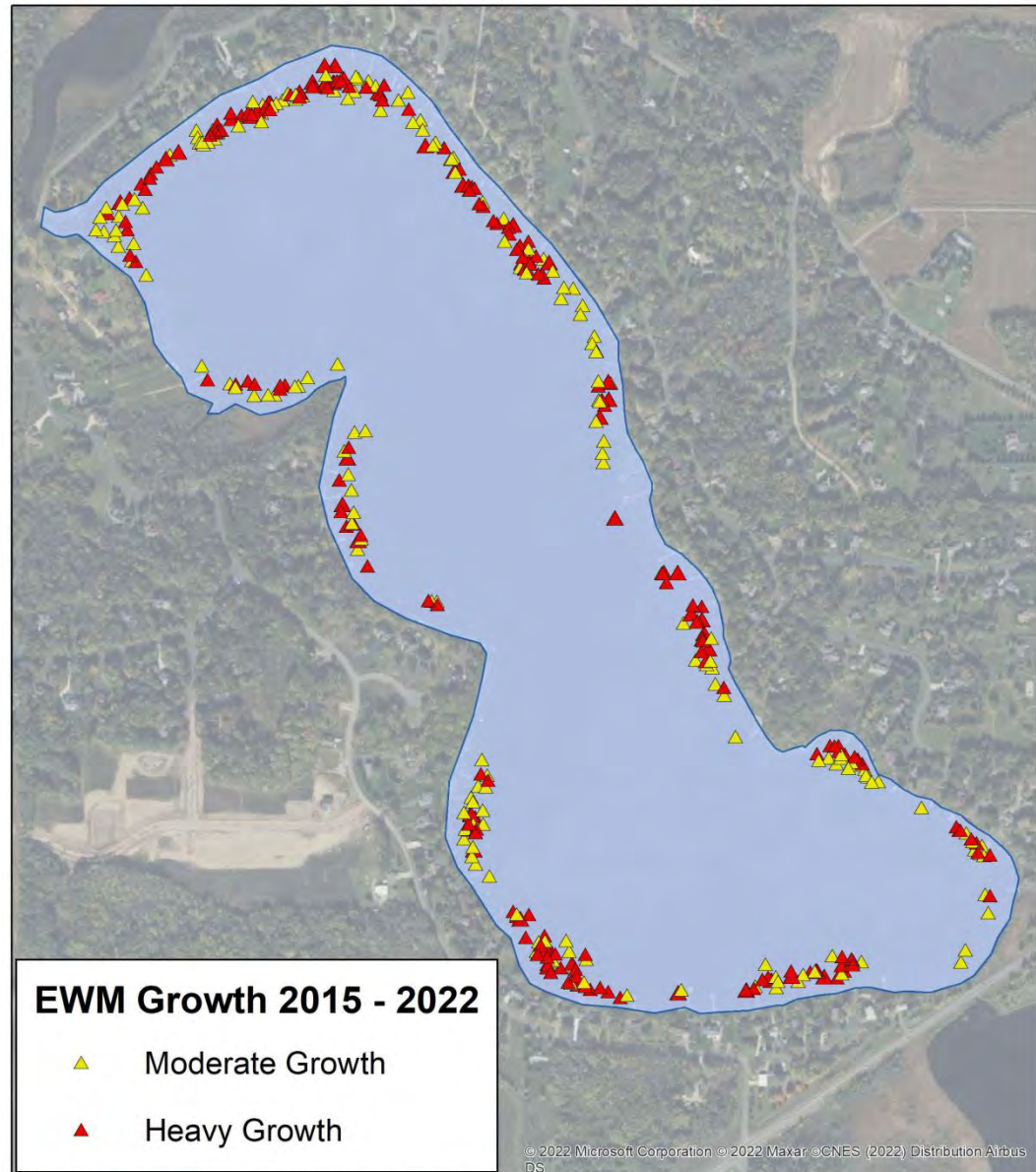


August 8, 2023
EWM Assessment

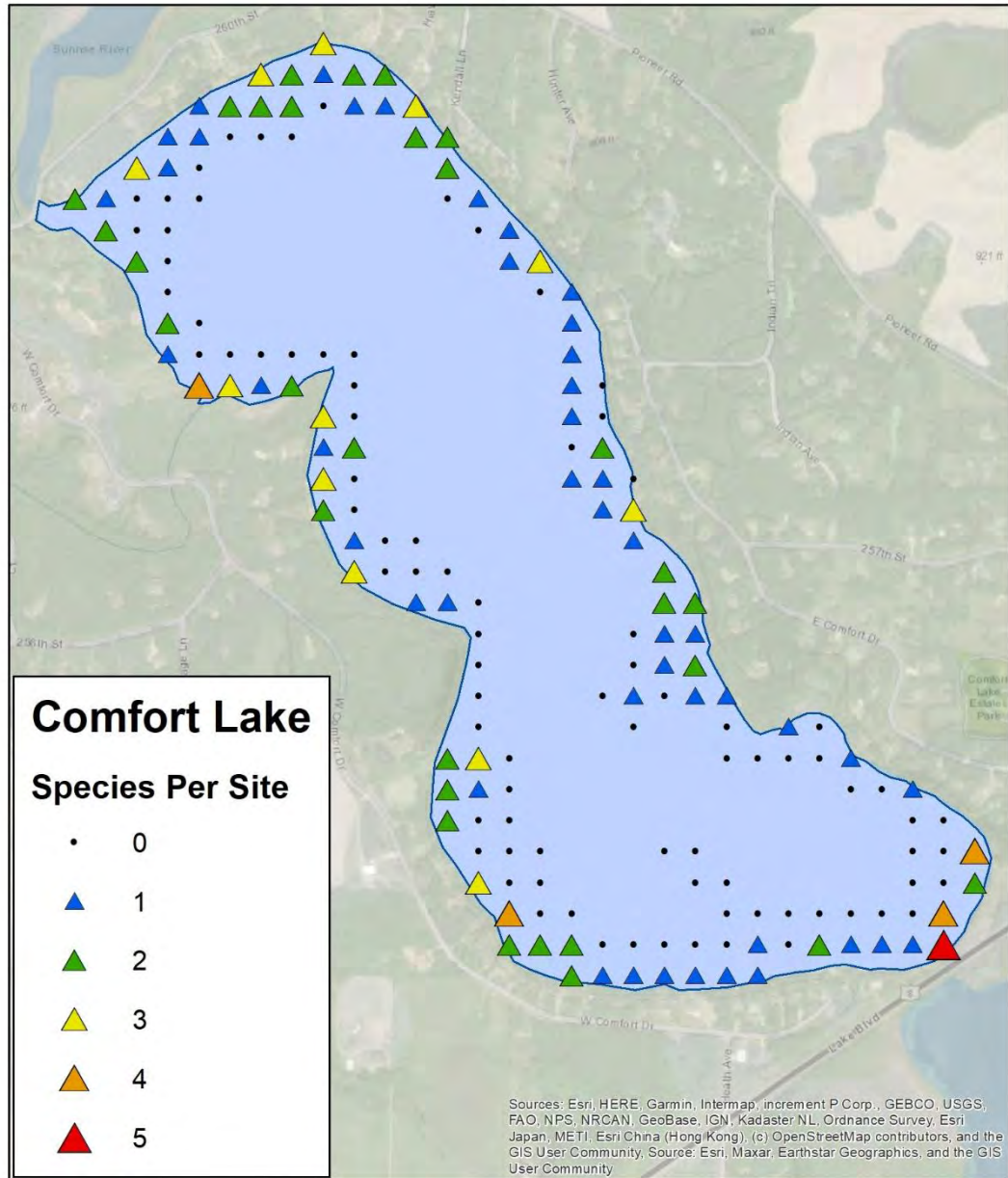
Whole lake treatment with fluridone on June 22, 2022.
Spot EWM treatment on September 19, 2023 (2.77 ac).

Comfort Lake EWM Hot Spots

(EWM first
observed in
2014)



Comfort Lake Point Intercept Survey Species Richness Map, June 2, 2023



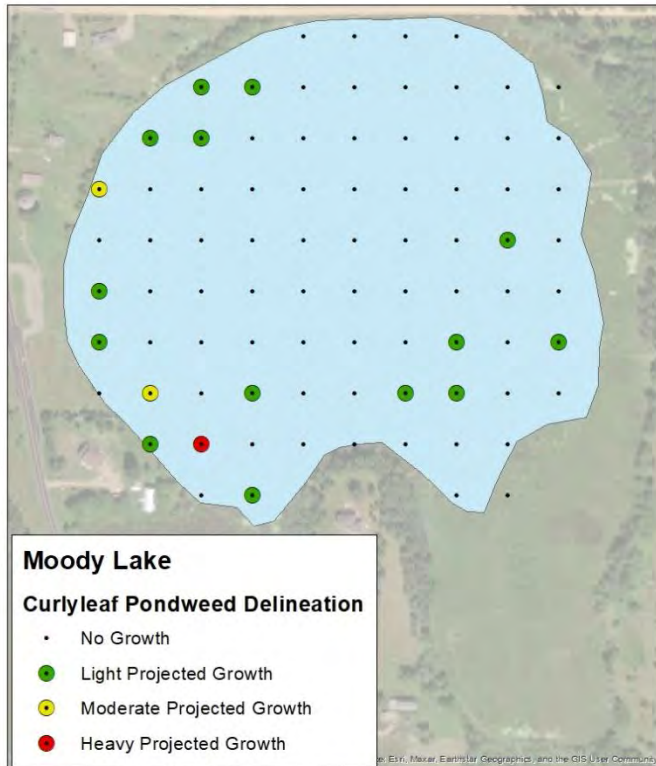
Comfort Lake

- CLP is under control without treatment.
- EWM is mixed in with lilies.
- By 2021 EWM was found around the lake.
(1st observed in 2014)
- In the long term, EWM growth should be light to moderate based on nitrogen conditions.
- A whole lake fluridone treatment occurred on June 22, 2022.
- EWM spot treatment occurred on September 19, 2023 (2.77 ac).

Moody Lake

Curlyleaf Pondweed 2023

Moody Lake Curlyleaf Pondweed Delineation
April 25, 2023

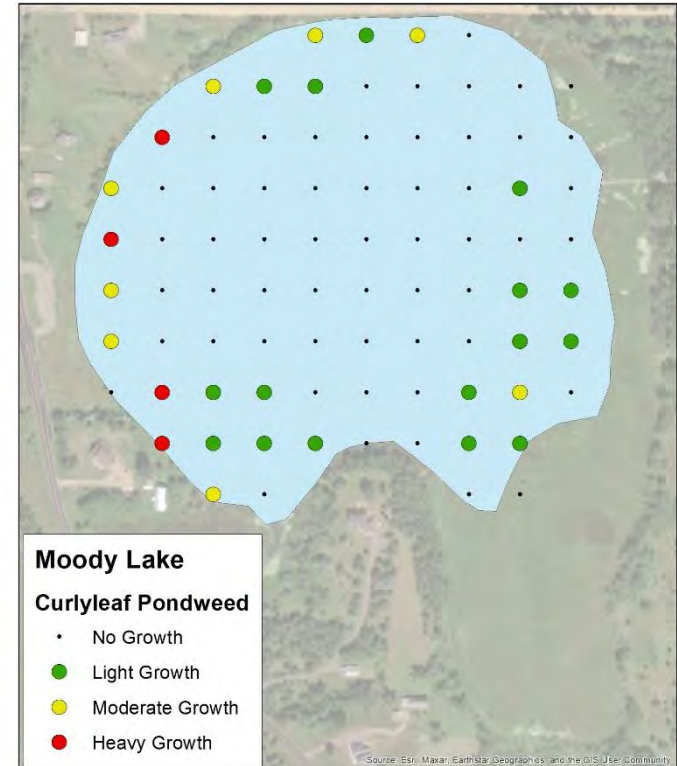


Data Collected: April 25, 2023
Map Made: April 26, 2023

Moody Lake
Inventory Number: 13002300
(49.0 Acres)

UTM NAD 1983
Blue Water Science

Moody Lake Curlyleaf Pondweed
June 1, 2023



Data Collected: June 1, 2023
Map Made: June 5, 2023

Moody Lake
Inventory Number: 13002300
(49.0 Acres)

UTM NAD 1983
Blue Water Science

April 25, 2023
CLP Delineation

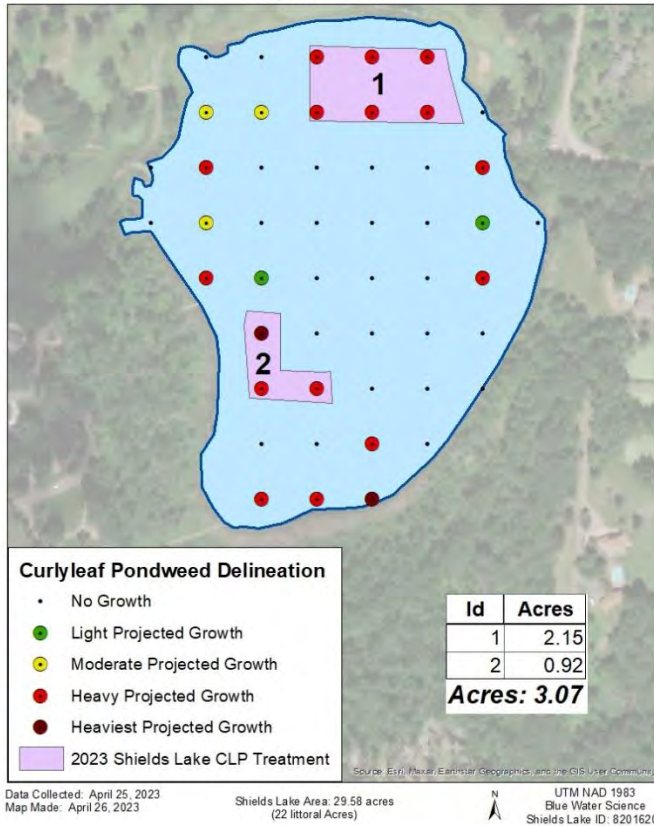
No
Treatment

June 1, 2023
CLP Assessment

Shields Lake

Curlyleaf Pondweed 2023

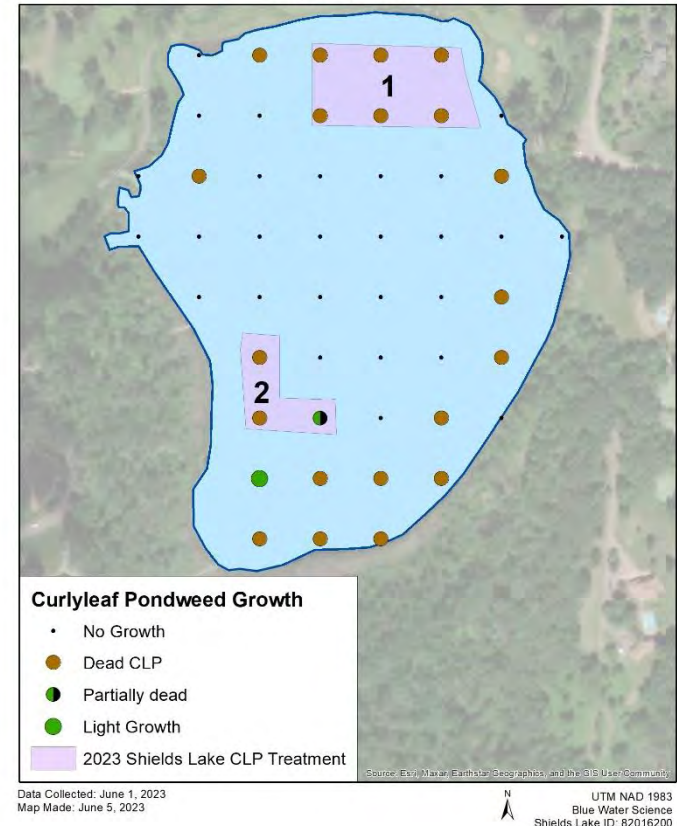
Shields Lake Curlyleaf Pondweed Treatment Areas
April 25, 2023



April 25, 2023
CLP Delineation

Treatment
3.07 ac

Shields Lake Curlyleaf Pondweed
June 1, 2023

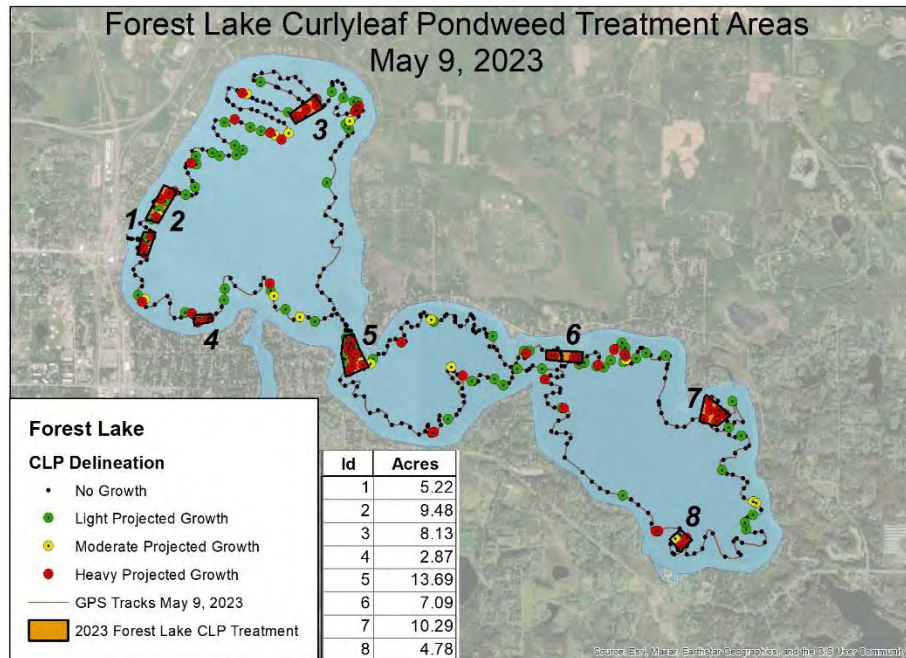


June 1, 2023
CLP Assessment

Forest Lake

Curlyleaf Pondweed 2023

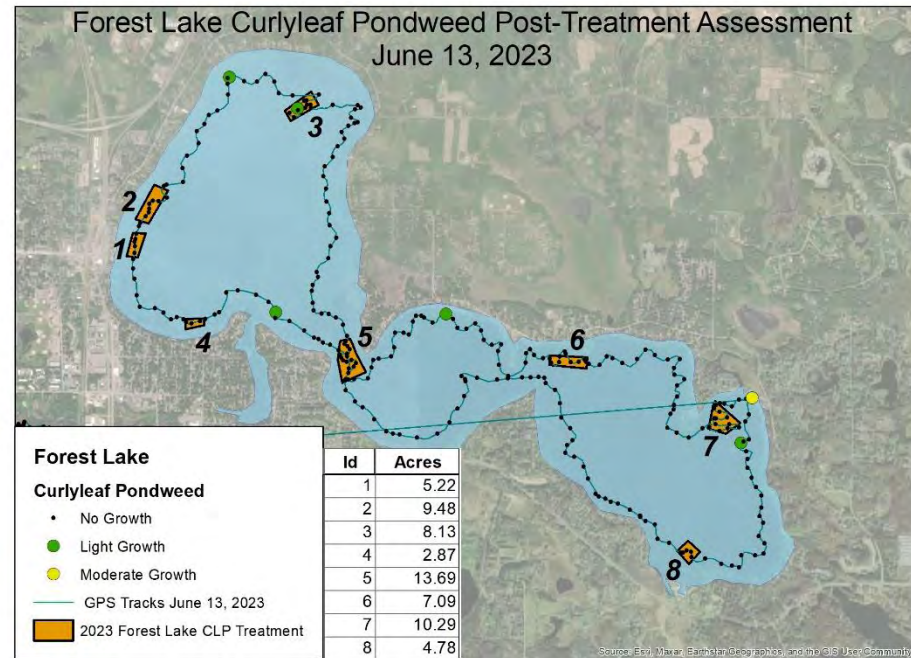
Forest Lake Curlyleaf Pondweed Treatment Areas
May 9, 2023



Total Acres: 61.55

Forest Lake ID: 82015900

Forest Lake Curlyleaf Pondweed Post-Treatment Assessment
June 13, 2023



Total Acres: 61.55

Forest Lake ID: 82015900

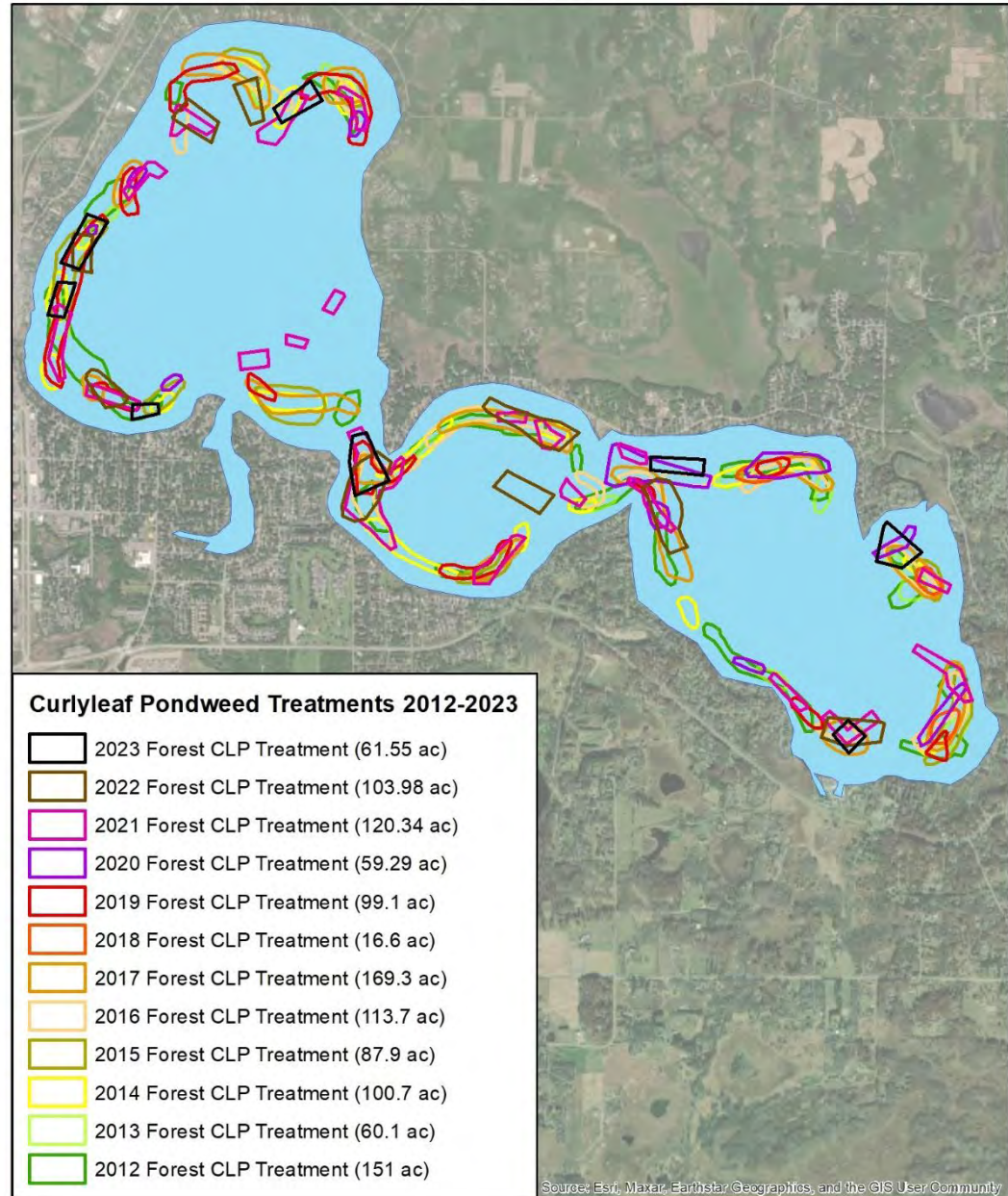
May 9, 2023
CLP Delineation

Treatment
61.55 ac

June 13, 2023
CLP Assessment

Forest Lake CLP Hot Spots 2012-2023

Forest Lake Curlyleaf Pondweed Treatment Areas
2012- 2023



Forest Lake Treatment Acres

Table 3. Acres of non-native plants treated from 2009 through 2023.

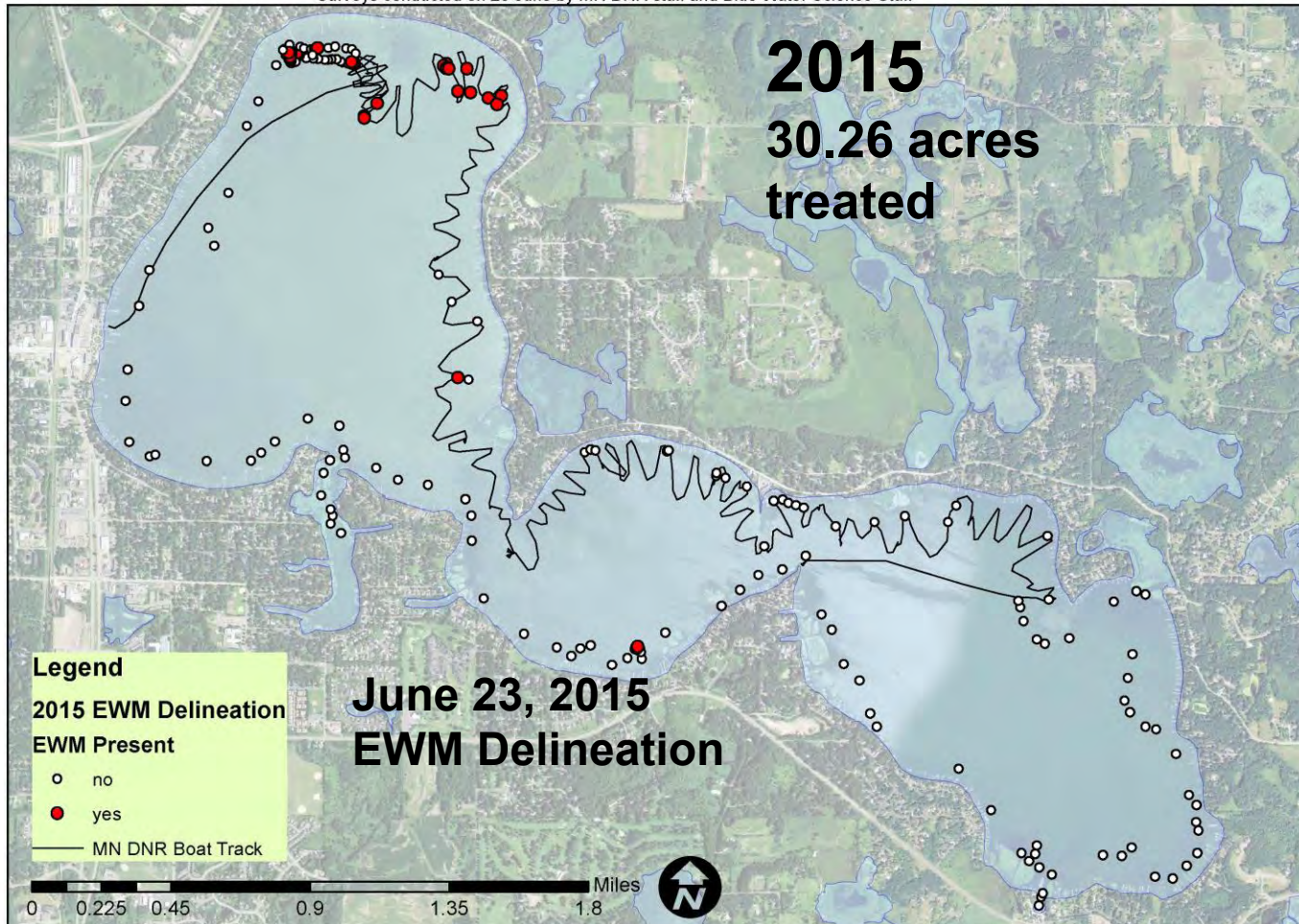
	Curlyleaf Pondweed (acres)	Eurasian Watermilfoil (acres)
2009	98	
2010	155	
2011	168	
2012	155	
2013	60	
2014	101	
2015	88	30
2016	114	13.9
2017	169	33.35
2018	16.59	40.74
2019	99.11	49.34
2020	59.29	53.83
2021	120.33	8.37
2022	103.96	22.3
2023	61.55	8.41

Forest Lake Eurasian Watermilfoil First Observed in 2015

Forest Lake, Washington County - 2015 Eurasian watermilfoil delineation

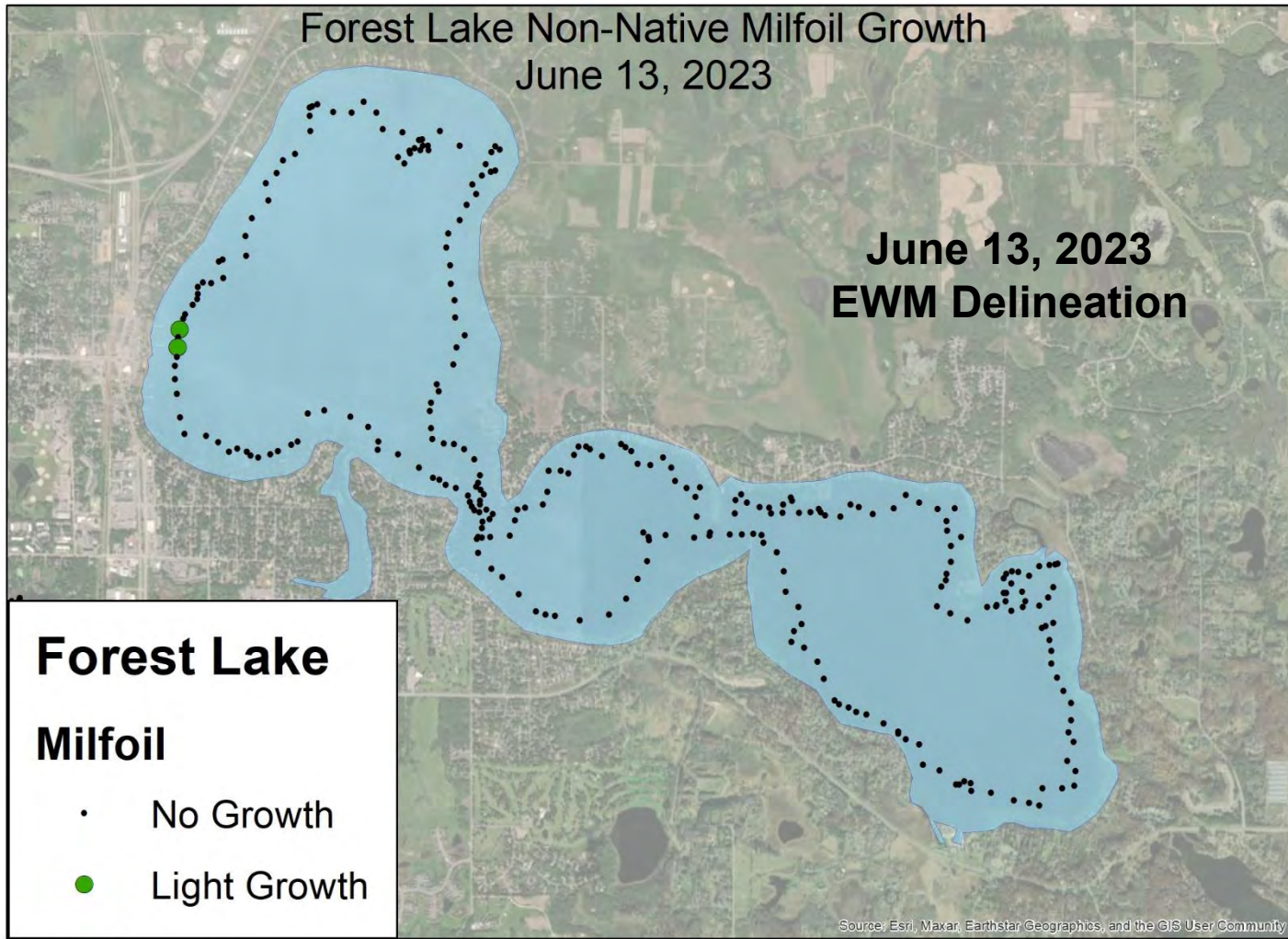
Map made by Mike Verhoeven

Surveys conducted on 23 June by MN DNR staff and Blue Water Science Staff



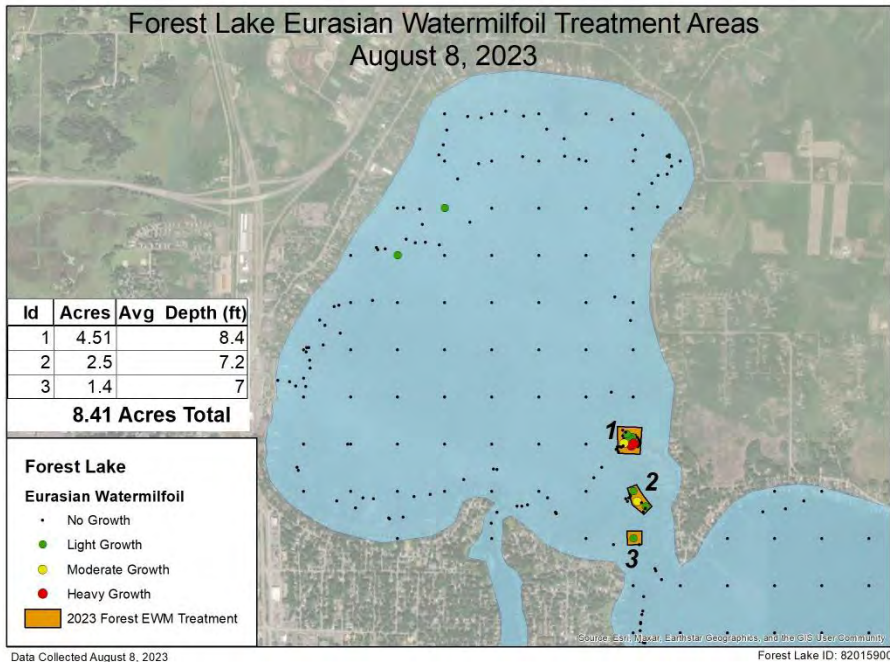
Forest Lake

Eurasian Watermilfoil 2023



Forest Lake

Eurasian Watermilfoil 2023

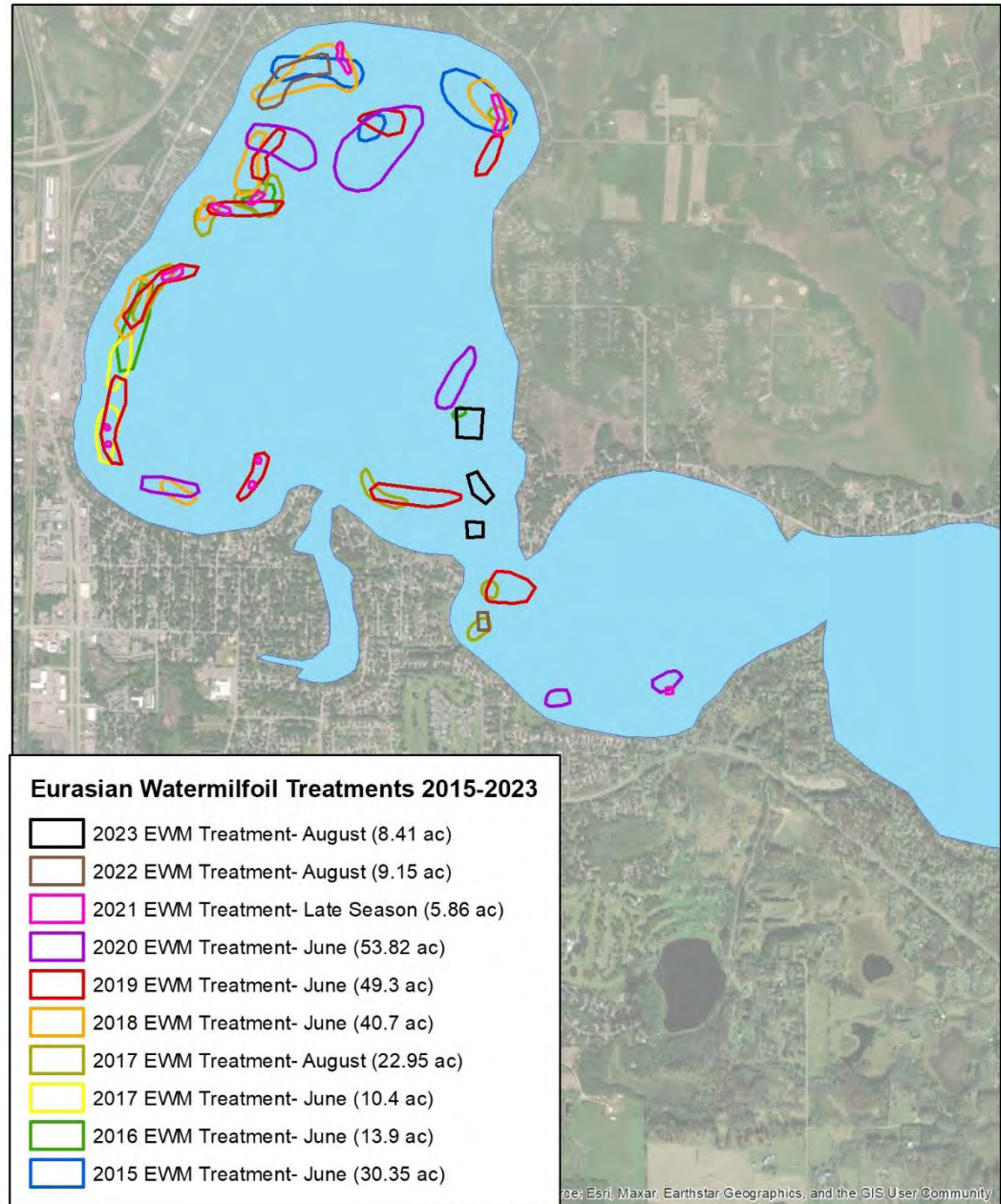


August 8, 2023
EWM Delineation

Treatment:
8.41 ac

August 18, 2023
EWM Treatment

Forest EWM Hot Spots 2015-2023

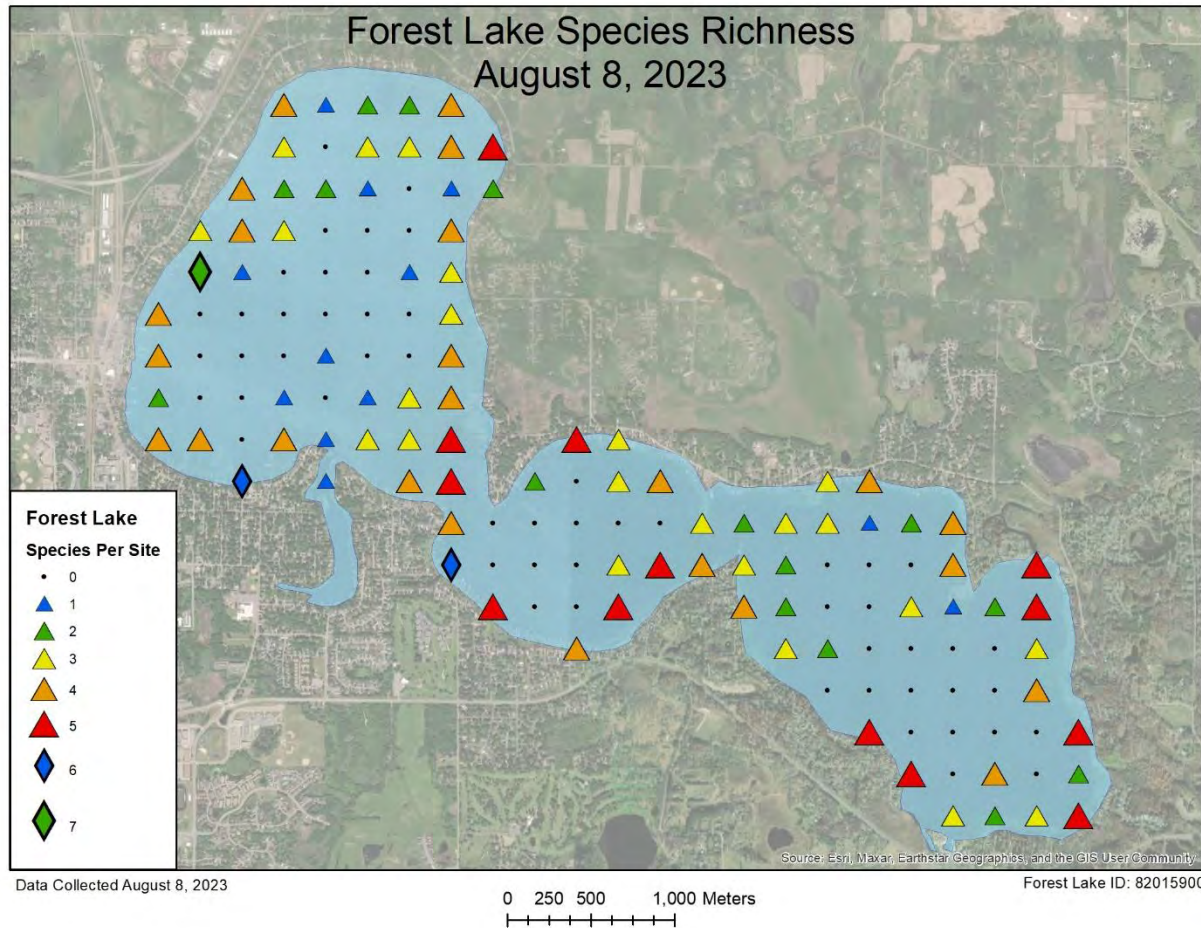


Forest Lake Treatment Acres

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2023	61.55	8.41

Forest Lake Point Intercept Survey Species Richness Map, August 8, 2023



Forest Lake Flowering Rush



Flowering Rush

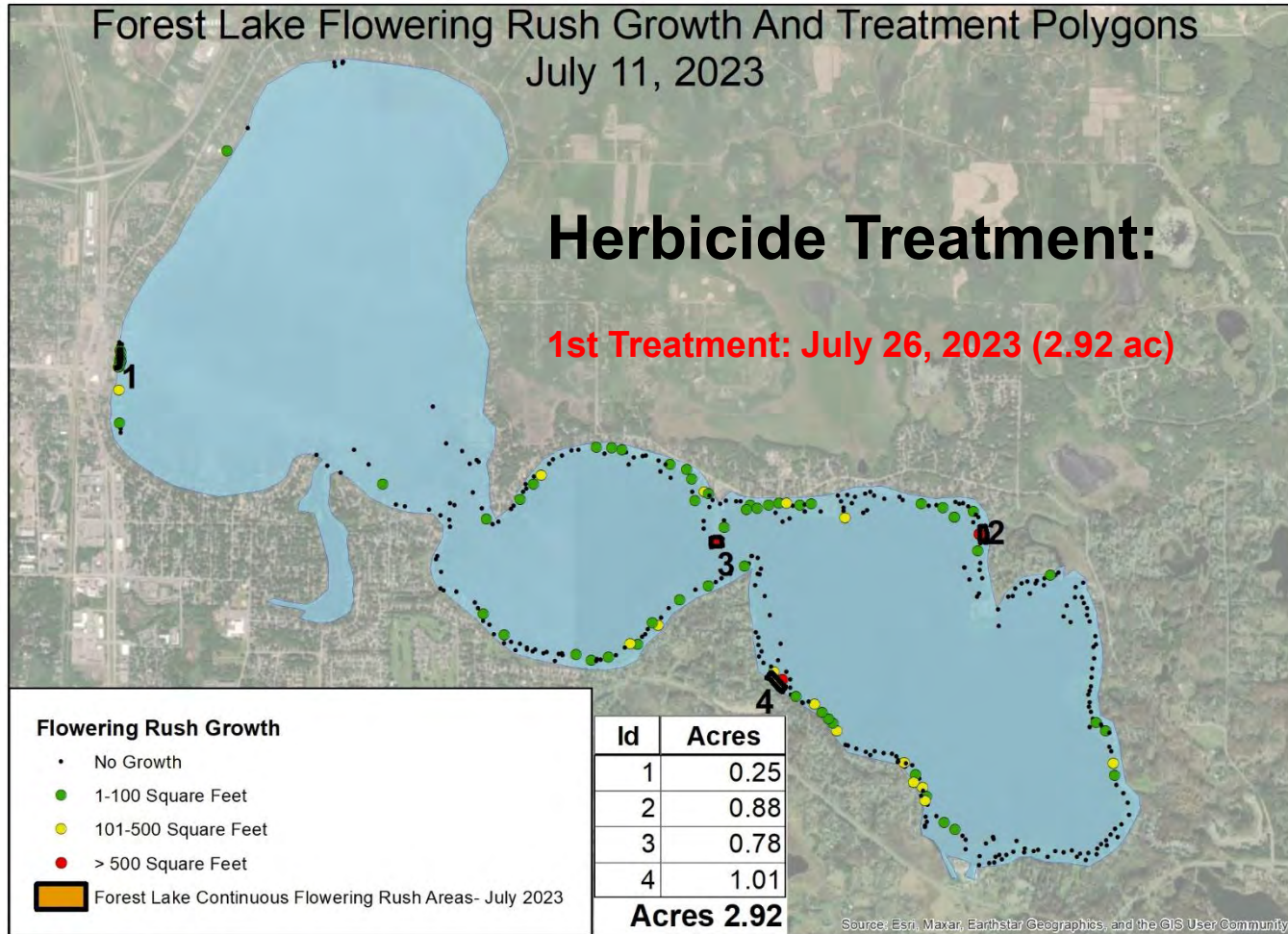


Sagittaria

Forest Lake

Flowering Rush Pre-Treatment Delineation

July 11, 2023



Forest Lake Flowering Rush

Assessment Survey September 20, 2023

Herbicide Treatment:

1st Treatment: July 26, 2023

2nd Treatment: August 15, 2023

3rd Treatment: August 29, 2023

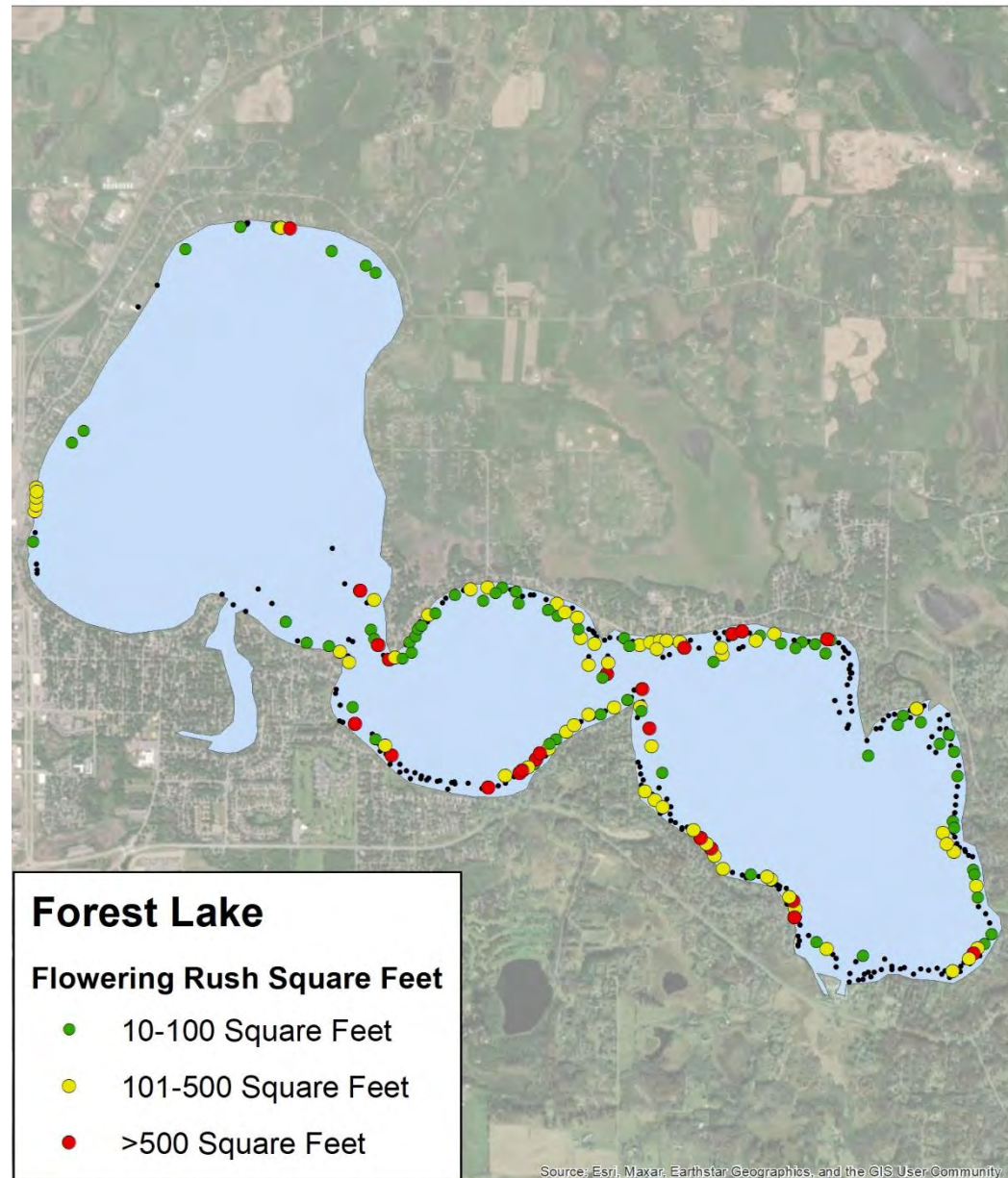
(shoreline test)

4th Treatment: September 27, 2023

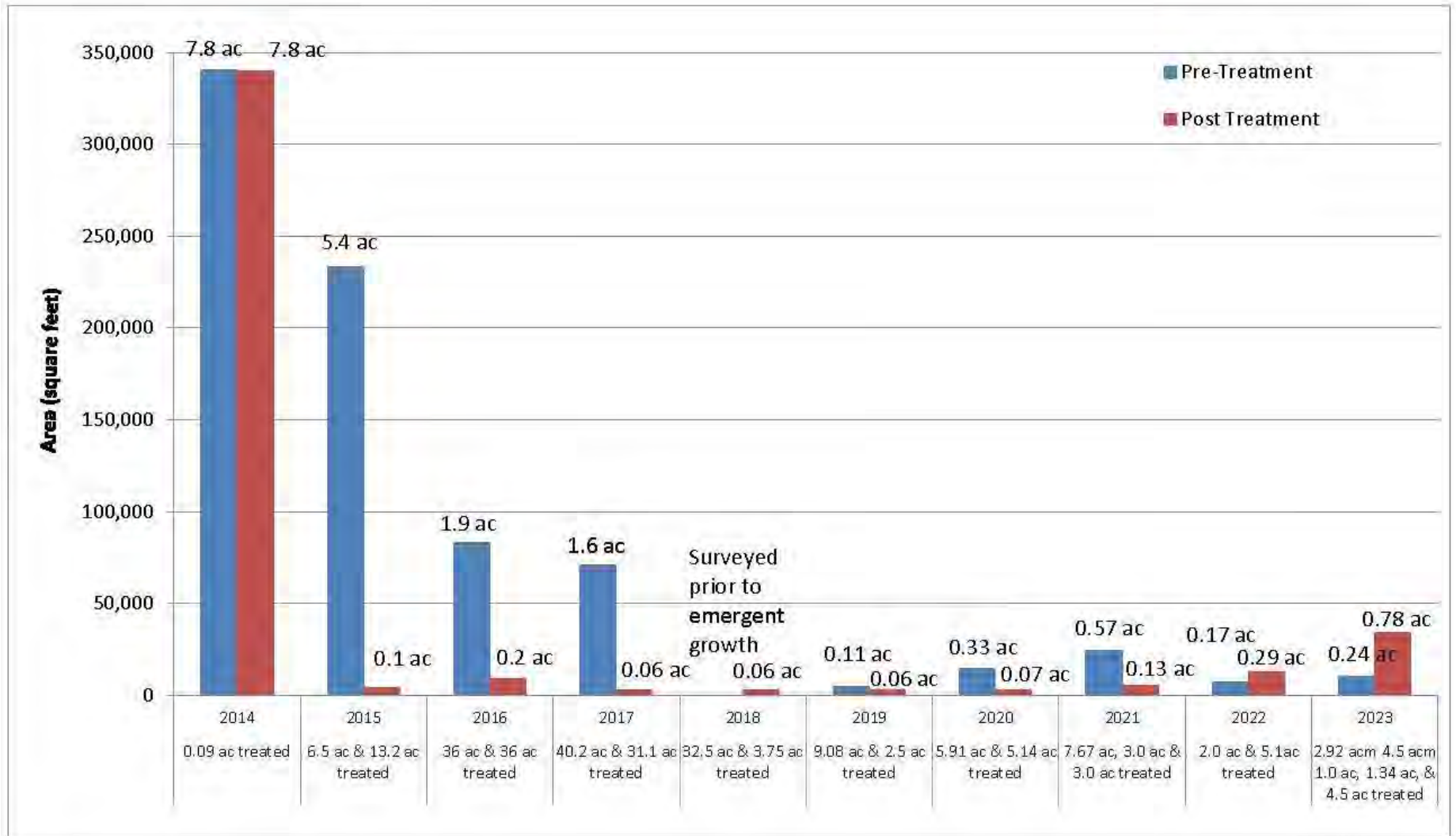
(entire shoreline)

5th Treatment: October 10, 2023

(off shore)



Forest Lake Flowering Rush 2014 - 2023



Conclusions

- All CLFLWD lakes have unique natural features.
- AIS, a healthy lake, and recreational opportunities can coexist.
- Flowering rush management is evolving. Ongoing challenge is to manage AIS and protect native species with cost-effective methods.