



Curlyleaf Pondweed and Coontail on a Sample Rake Pole, Forest Lake on June 13, 2022

Curlyleaf Pondweed and Eurasian Watermilfoil Delineation, Treatment, and Assessment for Forest Lake, Washington County, 2022

	Delineation	Treatment	Assessment
CLP	May 6, 2022	May 24, 2022 (103.96 acres)	June 13, 2022
EWM	June 13, August 9, 2022	22.3 acres	October 18, 2022

Prepared for:
**Comfort Lake-Forest Lake
 Watershed District
 Forest Lake, Minnesota**



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Summary

Curlyleaf Pondweed (CLP) Delineation, Treatment, and Assessment: Forest Lake (MnDNR ID#82-015900) is a 2,271 acre lake in Washington County, Minnesota. Early season curlyleaf pondweed distribution and abundance were evaluated May 6, 2022.

In the delineation survey, heaviest potential curlyleaf growth was found in the Second Lake and potential early summer heavy growth was estimated at 103.96 acres for all 3 basins (Figure S1). A total of 103.96 acres of curlyleaf areas were treated on May 24, 2022.

A post treatment curlyleaf assessment was conducted on June 13, 2022. The June curlyleaf assessment found excellent control in the treated areas although there was some new curlyleaf pondweed sprouting in 3rd lake (Figure S1).

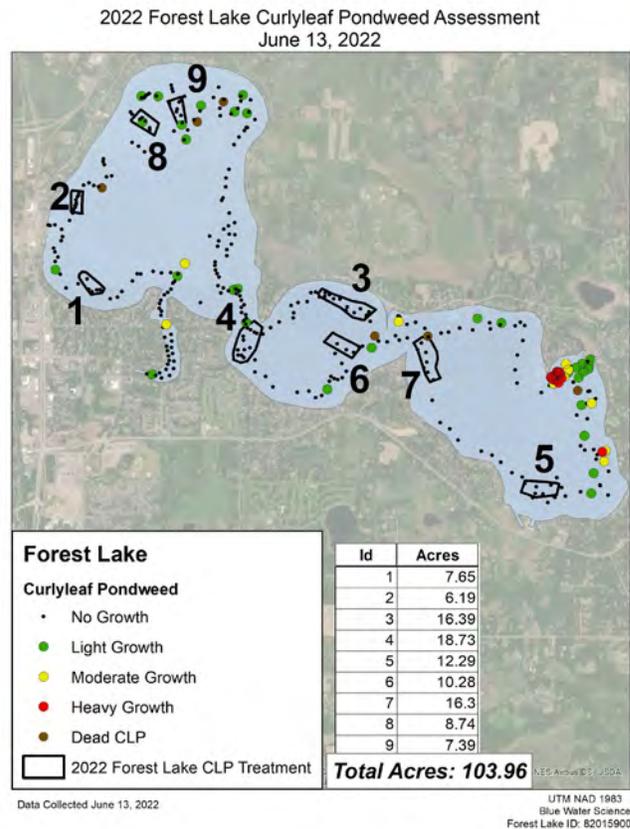
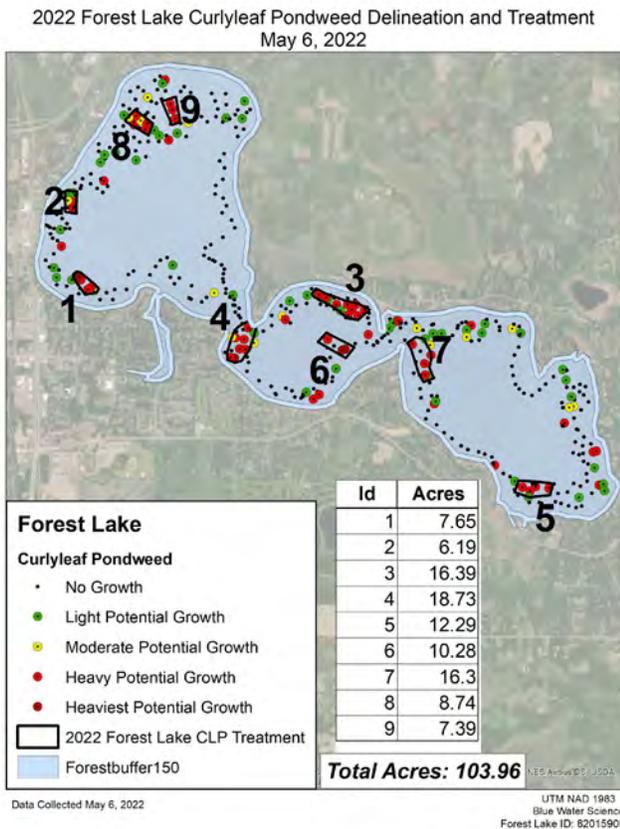


Figure S1. [top] DELINEATION: Map of curlyleaf pondweed distribution from the May 6, 2022 survey. Approximately 103.96 acres were delineated for CLP treatment.

[bottom] ASSESSMENT: Map of curlyleaf pondweed assessment sites for June 13, 2022.

Key: green dots = light growth, yellow dots = moderate growth, red dots = heavy growth, and black dots = no curlyleaf growth. Orange shaded areas indicates treatment areas.

Eurasian Watermilfoil (EWM) Delineation, Treatment, and Assessment: EWM distribution and abundance were evaluated June 13, 2022. EWM growth was light and based on that delineation, no treatment was recommended at that time (Figure S2).

Later in the summer, another EWM delineation was conducted on August 9, 2022 and a few EWM locations were found that could be treated. Based on this delineation, an initial treatment area of 9.15 acres was constructed. Subsequently, areas with 2 or more sites of light growth were delineated for treatment and a total of 22.3 acres of EWM were treated in 2022.

In October, after the EWM treatment, an EWM assessment on October 18, 2022 found good control in 2 treated areas. It is assumed EWM control was very good in the other treated areas as well. Only a few scattered plants were observed outside of the treatment polygons (Figure S2).

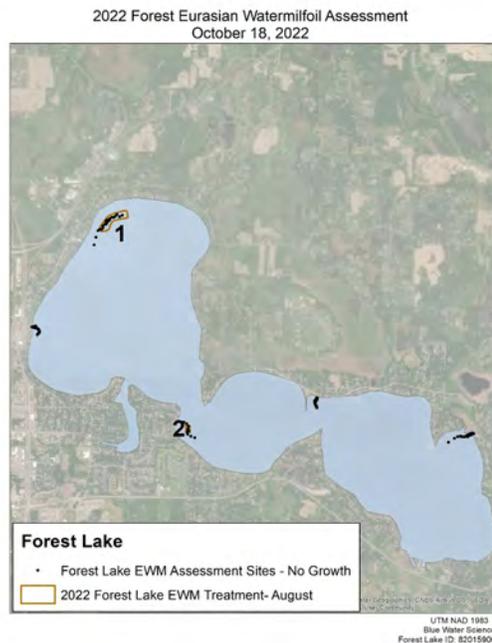
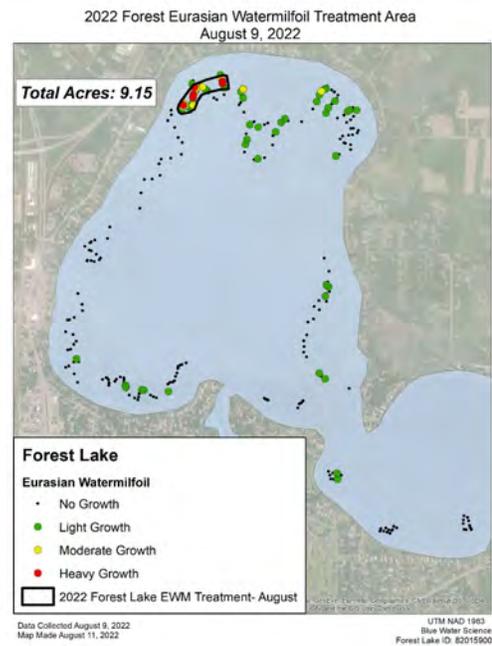
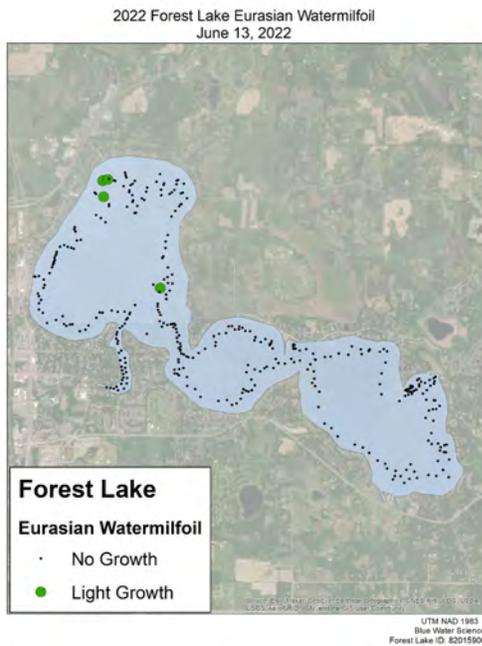


Figure S2. [top-left] DELINEATION: Map of EWM distribution from the June 13, 2022 survey. **[top-right] Proposed treatment map, August 9, 2022.** **[bottom-left] Actual treatment conducted in 2023.** **[bottom-right] ASSESSMENT:** Map of EWM assessment on October 18, 2022.

Summary of CLP and EWM Treatments from 2009-2022: Historically two non-native submerged aquatic plants were treated with herbicides and again in 2022 both curlyleaf pondweed and Eurasian watermilfoil were treated (Table S1 and Figure S3). Curlyleaf pondweed treatments have ranged from 16 to 169 acres from 2009 through 2022 with variability from year to year.

Eurasian watermilfoil was discovered in Forest Lake in 2015 and 30 acres were treated in the first year. From 2016 through 2022, EWM treatments have ranged from 8.37 acres to 53.83 acres (Table S1 and Figure S3). Eurasian watermilfoil has been confined mostly to the first lake but that is some growth in the second lake at the end of 2022. The greatest number of acres treated were in 2020 (Figure S3).

Table S1. Acres of non-native plants treated from 2009 through 2022.

	CLP (acres)	EWM (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

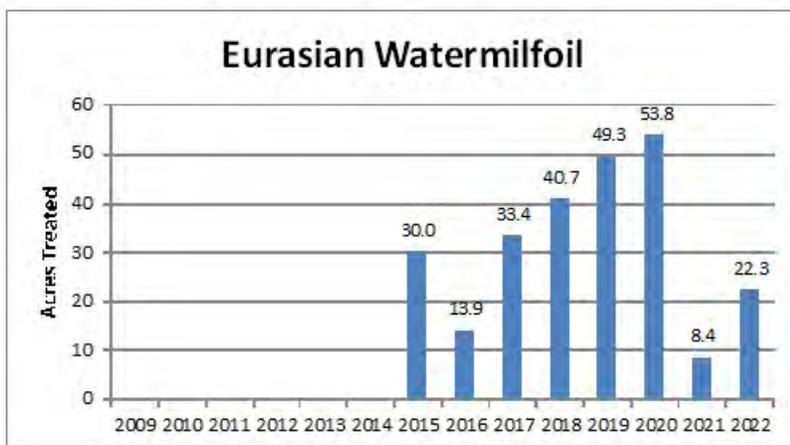
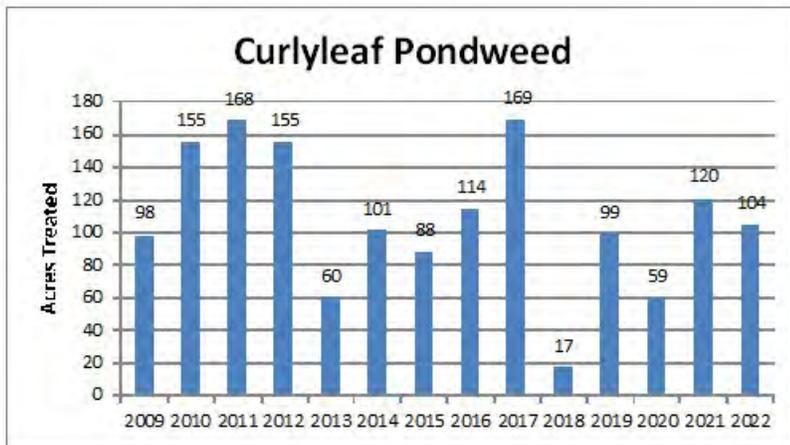


Figure S3. [top] Curlyleaf pondweed treated from 2009-2022. [bottom] Eurasian watermilfoil treated from 2015-2022. Eurasian watermilfoil was first found in Forest Lake in 2015.

A hotspot map of curlyleaf pondweed treatment areas over the last 10 years is shown in Figure S4. There appears to be about 100 acres of persistent curlyleaf in the 3 basins. The actual acreage of curlyleaf treated varies from year to year based on climatic factors. A hotspot map of EWM areas that have been treated from 2015 to 2022 is shown in Figure S4. EWM is found primarily in the 1st lake.

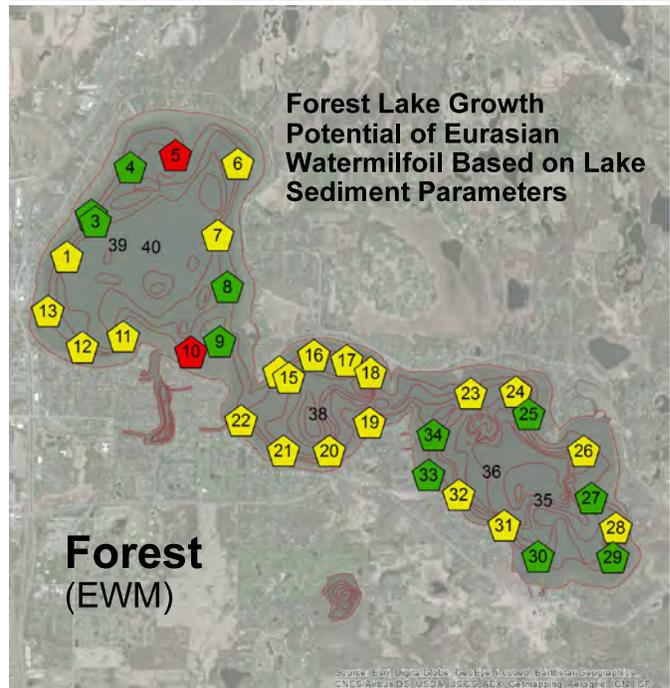
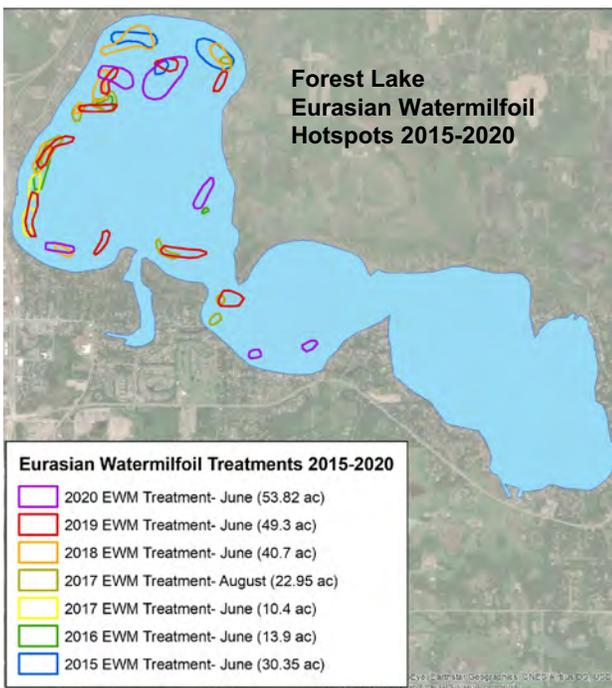
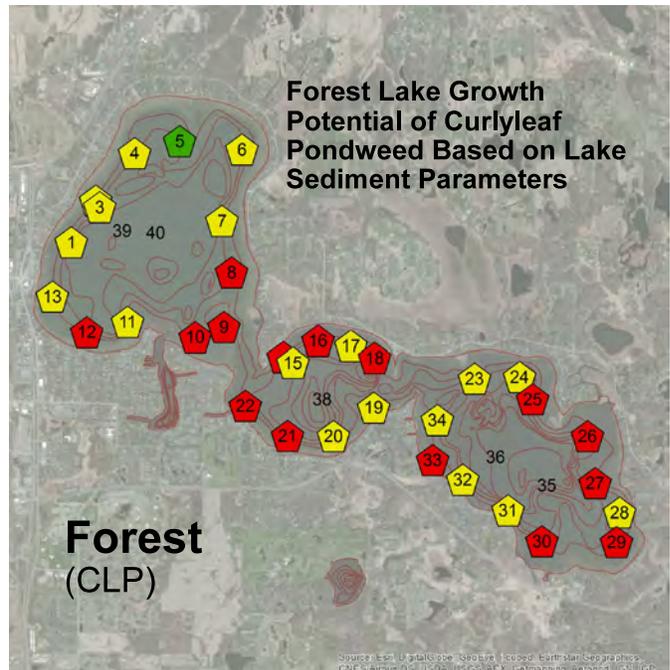
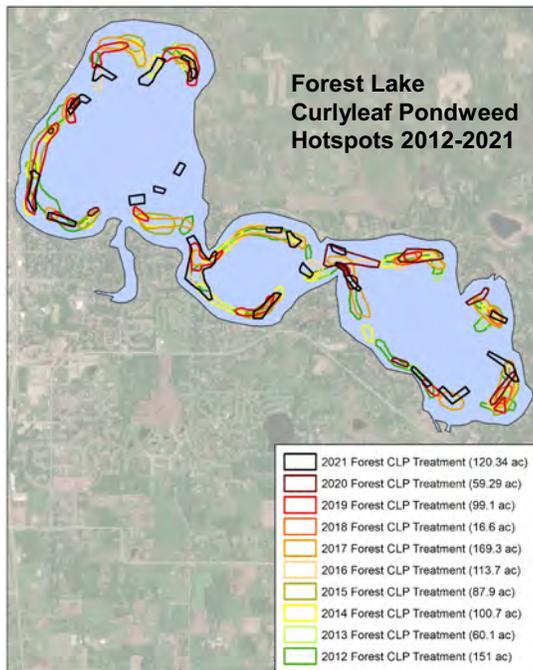


Figure S4. [top-left] Map of historical treatment of curlyleaf pondweed in Forest Lake, 2012-2021. [top-right] Curlyleaf potential growth based on lake sediment analyses for Forest Lake. Key: green = light growth, yellow = moderate growth, and red = heavy growth. [bottom-left] Map of historical treatment of Eurasian watermilfoil in Forest Lake, 2015-2020. [bottom-right] Eurasian watermilfoil potential growth based on lake sediment analyses for Forest Lake. Key: green = light growth, yellow = moderate growth, and red = heavy growth.