

**Eurasian water-milfoil (*Myriophyllum spicatum*)  
Late Summer Bed Mapping Survey  
Trego Lake (WBIC: 2712000)  
Washburn County, Wisconsin**



Typical unhealthy EWM seen 8/25/20



EWM beds on Trego Lake 8/25/20

**Project Initiated by:**

The Trego Lake District, Lake Education and Planning Services, LLC, and the Wisconsin Department of Natural Resources (Grant AIRR-25820)



Cloud of migrant birds feeding in Northern wild rice - Trego Lake 8/25/20

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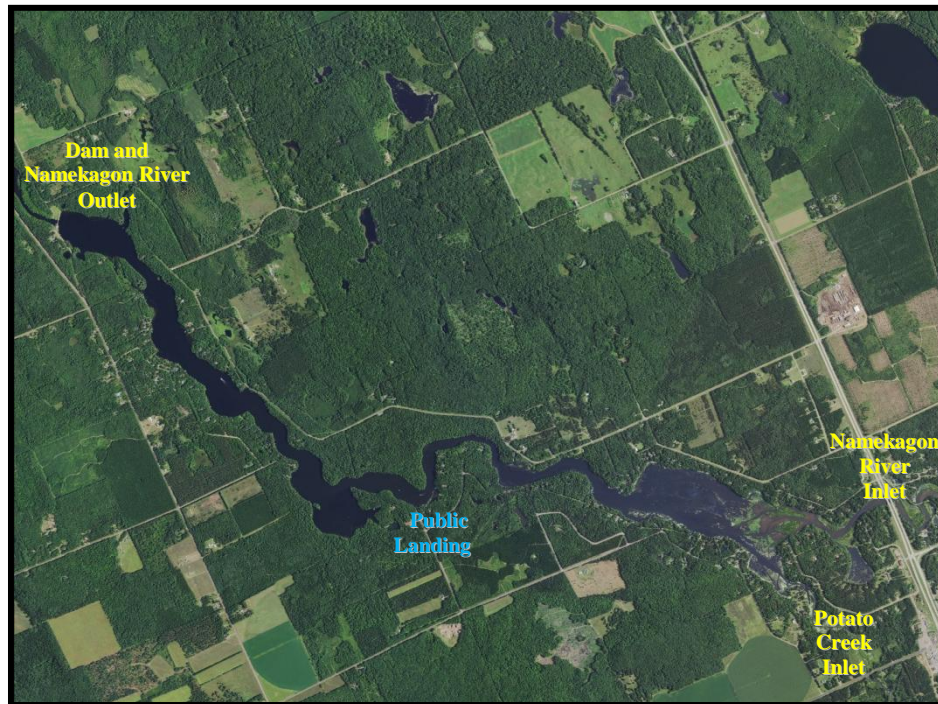
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## INTRODUCTION:

Trego Lake (WBIC 2712000) is a 383 acre flowage created by the Trego Hydro Dam on the Namekagon River in central Washburn County, Wisconsin in the Town of Trego (T40NR12W) (Figure 1). It has a maximum depth of 36ft and an average depth of 11ft. The lake is mesotrophic bordering on eutrophic in nature, and water clarity is generally fair with summer Secchi readings ranging from 5-12ft and averaging 7.9ft from 2003-2012 (the last year data was available) (WDNR 2020). The lake's bottom substrate is primarily sand along the shoreline, while sandy and organic muck dominate the deep flats and sheltered bays (Bush et al. 1966).



**Figure 1: Trego Lake Aerial Photo**

## STUDY BACKGROUND AND RATIONALE:

Eurasian water-milfoil (*Myriophyllum spicatum*) (EWM) is an exotic invasive plant species that was first identified on Trego Lake in the spring of 2019. Concern about its presence prompted the Trego Lake District (TLD) – under the direction of Dave Blumer (Lake Education and Planning Services, LLC - LEAPS) – to apply for and receive a Wisconsin Department of Natural Resources (WDNR) rapid response grant (AIRR-25820). These funds will be used to update the 2004 Aquatic Plant Management Plan (APMP) and will also outline a course of action for dealing with both EWM and the lake's well established Curly-leaf pondweed (*Potamogeton crispus*) (CLP) infestation - another exotic invasive species that is especially common in the upstream parts of the lake in May and June.

In order to determine the level of infestation, the TLD, LEAPS, and the WDNR requested we complete a late-summer EWM bed mapping survey of the lake's visible littoral zone. These data will be used to determine the acreage and density of EWM to help guide any potential future management. This report is the summary analysis of that field survey conducted on August 25, 2020.

## METHODS:

### Eurasian Water-milfoil Bed Mapping Survey:

During the survey, we searched the visible littoral zone of the lake. By definition, a “bed” was determined to be any area where we visually estimated that EWM made up >50% of the area’s plants, was generally continuous with clearly defined borders, and was canopied or close enough to being canopied that it would likely interfere with boat traffic. After we located a bed, we motored around the perimeter taking GPS coordinates at regular intervals. We also estimated the rake density range and mean rake fullness of the bed (Figure 2), the range and mean depth of the bed, whether it was canopied, and the impact it was likely to have on navigation (**none** – easily avoidable with a natural channel around or narrow enough to motor through/**minor** – one prop clear to get through or access open water/**moderate** – several prop clears needed to navigate through/**severe** – multiple prop clears and difficult to impossible to row through). These data were then mapped using ArcMap 9.3.1, and we used the WDNR’s Forestry Tools Extension to determine the acreage of each bed to the nearest hundredth of an acre. Because the goal of the survey was to identify all areas of the lake with significant EWM, we also mapped “high density areas” where EWM plants were continuous, but didn’t meet all of the other “bed” criteria. When isolated individual EWM plants were found outside of the mapped beds and high density areas, we GPS marked them as these satellite plants could potentially become beds in the future.




<u>Rating</u>	<u>Coverage</u>	<u>Description</u>
1		A few plants on rake head
2		Rake head is about ½ full Can easily see top of rake head
3		Overflowing Cannot see top of rake head

Figure 2: Rake Fullness Ratings (UWEX 2010)

## RESULTS:

### Eurasian Water-milfoil Bed Mapping Survey:

On August 25, 2020, we searched 35.7km (22.2miles) of transects throughout the lake's visible littoral zone (Figure 3). In total, we mapped three low density beds that covered 6.37 acres (1.66% of the lake's surface area) (Table 1). Outside of these areas, we marked just nine additional isolated plants with eight of these occurring outside the beds in the "lake" area near the Namekagon River Inlet. Downstream, we located and rake removed a single plant immediately upstream from the public landing. The only evidence of EWM downstream from the landing was a single floating fragment that we found in a side channel near the dam (Figure 4) (Appendix I).

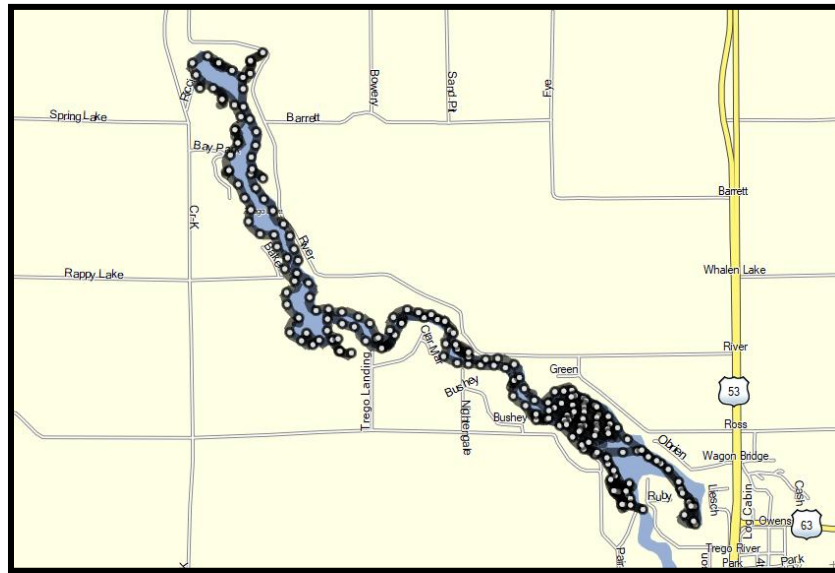


Figure 3: August 25, 2020 EWM Littoral Zone Survey – GPS Tracks

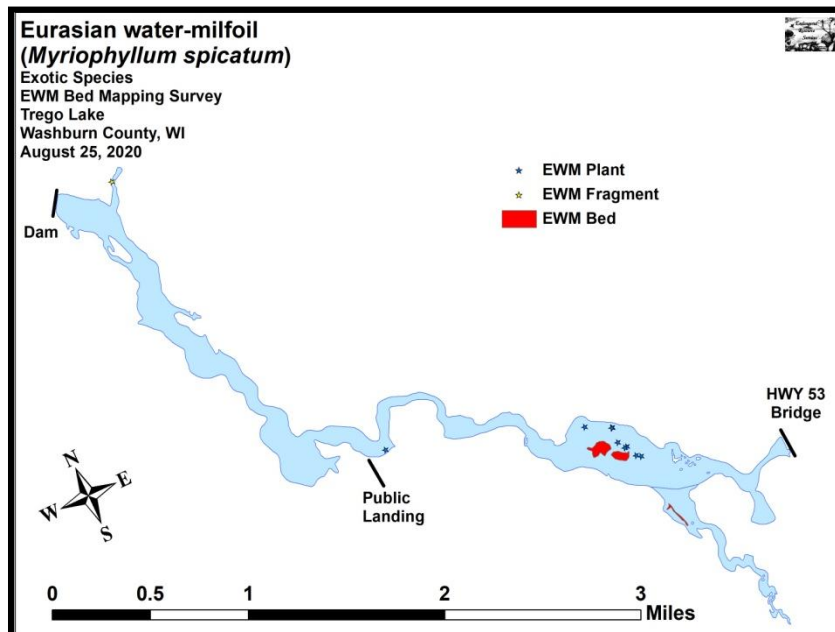


Figure 4: August 25, 2020 Eurasian Water-milfoil Map

**Table 1: Late Summer Eurasian Water-milfoil Bed Mapping Summary  
Trego Lake, Washburn County  
August 25, 2020**

<b>Bed Number</b>	<b>2020 Acreage</b>	<b>Rake Range and Mean Rake Fullness</b>	<b>Depth Range and Mean Depth</b>	<b>Canopied</b>	<b>Navigation Impairment</b>	<b>2020 Field Notes</b>
Bed 1	3.58	<<1-1; 1	3-5; 4	Yes	Minor	Mixed with NWM – Plants unhealthy, but some fragments
Bed 2	2.09	<<1-1; 1	3-5; 4	Yes	Minor	Mixed with NWM – Plants near, but not in rice beds
Bed 3	0.70	<<<1-1; <1	3-5; 4	Yes	None	Regular prop-clipped plants along navigation channels
<b>Total</b>	<b>6.37</b>					

## Descriptions of Eurasian Water-milfoil Beds:

Beds 1 and 2 – For management purposes, these beds could be considered a single bed although there was a significant gap between them where we didn't see any plants (Figure 5) (Appendix II). Eurasian water-milfoil inside these areas was low density, but nearly continuous. Plants were mixed with Northern water-milfoil (*Myriophyllum sibiricum*), and both species appeared to be very unhealthy as they were black and most leaflets along the stem were disintegrating (see front cover of the report). Despite this, the very tips of the plants at the surface were usually green and growing, and we did find regular floating EWM fragments within and around the beds. Interestingly, although a few scattered rice plants occurred among the EWM beds, we didn't see any evidence of EWM growing in the dense rice bed areas during this survey or the point-intercept surveys conducted in June/July.

Bed 3 – This area was better described as a “High Density Area” as EWM was regular, but not continuous. However, this may be because it was growing in and immediately adjacent to navigation channels that regular boat traffic was keeping open. Most plants were prop-clipped, and floating fragments were scattered among rooted plants. Interestingly, away from the disturbed sediments in the channel, we didn't see any evidence of EWM, and, similar to Beds 1 and 2, most individuals did not look especially healthy.

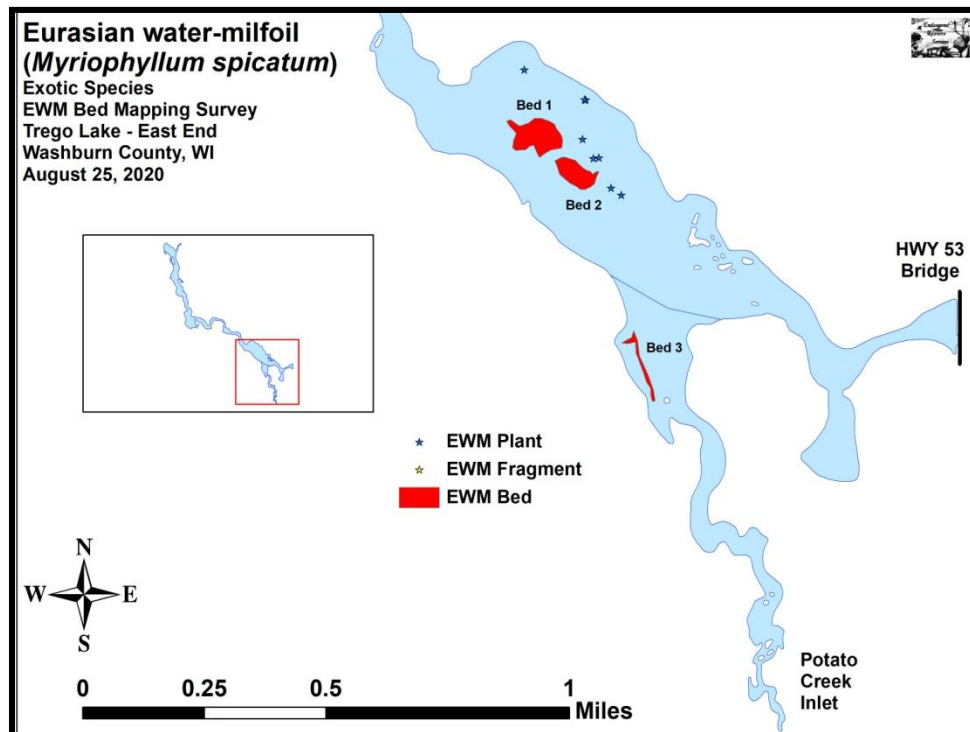


Figure 5: Beds 1-3 – Southeast End of the Lake



## **DISCUSSION AND CONSIDERATIONS FOR MANAGEMENT:**

Eurasian water-milfoil currently occupies a small percentage of Trego Lake's surface area, but it is well established making eradication an unrealistic expectation. During our 2020 surveys, we noted that EWM seemed to be struggling to gain a foothold on the lake. Although it was widely distributed and we saw numerous floating fragments in the upstream "lake" region near the Namekagon Inlet, we noted that rooted plants were almost universally unhealthy. It may be that the lake's stained water is the main reason for this poor growth, or it could be that the low-nutrient sandy muck is suboptimal for EWM. Strong competition from canopied mats of Curly-leaf pondweed in the spring and dense native plant growth later in the summer might also be factors in EWM's limited coverage. Regardless if it's one of these factors, a combination of them, or something different entirely, EWM seemed to be unable to take advantage of the large patches of substrate left barren after CLP's early summer senescence. As it currently stands, EWM is more of a nuisance in the "lake" region than a true navigation impairment in the way that CLP is in the spring. Because of this, active management beyond the current harvesting program may be unnecessary.

Downstream from the "lake" region, the narrow littoral zone and sugar sand shorelines don't appear to offer EWM much habitat. Although we saw fragments in July as far downstream as the boat landing and in August just upstream from the dam, it seems likely most of these fragments are either going over the dam or dying in the depths. Despite this, EWM will likely continue to slowly spread downstream and become more common in the few sheltered bays that exist. However, it seems equally unlikely that these plants will ever grow dense enough to cause significant navigation impairment for residents as the best habitat in these downstream areas occur along largely uninhabited shorelines. Because of this, continued monitoring with no active management is the most likely course of action in these areas – at least in the near future.

## **LITERATURE CITED**

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- WDNR. [online]. 2020. Trego Lake - Citizen Lake Water Quality Monitoring Database. Available from <https://dnr.wi.gov/lakes/lakepages/LakeDetail.aspx?wbic=2712000&page=waterquality> (2020 September).
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## **Appendix I: 2020 Eurasian Water-milfoil Bed Maps**

# Eurasian water-milfoil (*Myriophyllum spicatum*)

Exotic Species  
EWM Bed Mapping Survey  
Trego Lake  
Washburn County, WI  
August 25, 2020

