Summary of Monitoring at Boat Landings and Water Inlets for Eurasian Water-milfoil (*Myriophyllum spicatum*) and Other AIS on Wood (Big Wood) Lake (WBIC: 2649800) Burnett County, WI

Beetle herbivory on central island Purple loosestrife 7/25/20

Northeast island during fall shoreline survey 10/11/20

Project Initiated by:

The Big Wood Lake Association

EWM Scan (Berg 2007)

Close up of Purple Loosestrife flowers

Landing Monitoring Conducted by and Report Prepared by:

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June-October, 2020

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INTRODUCTION:

During the summers of 2006, 2013, and 2020, intensive point-intercept plant surveys found no evidence of Eurasian water-milfoil (*Myriophyllum spicatum*) in Wood Lake (Figure 1). As part of the last Aquatic Plant Management Plan (APMP), the Wood Lake Association and Harmony Environmental decided that monthly transect surveys at the lake's boat landings and water inlets would be a prudent measure considering the increasing number of neighboring lakes that EWM has invaded (Round Lake, Long Trade, Big Trade, and Little Trade Lakes). When the APMP is updated in 2021, whether or not to continue these monitoring surveys will be reexamined.

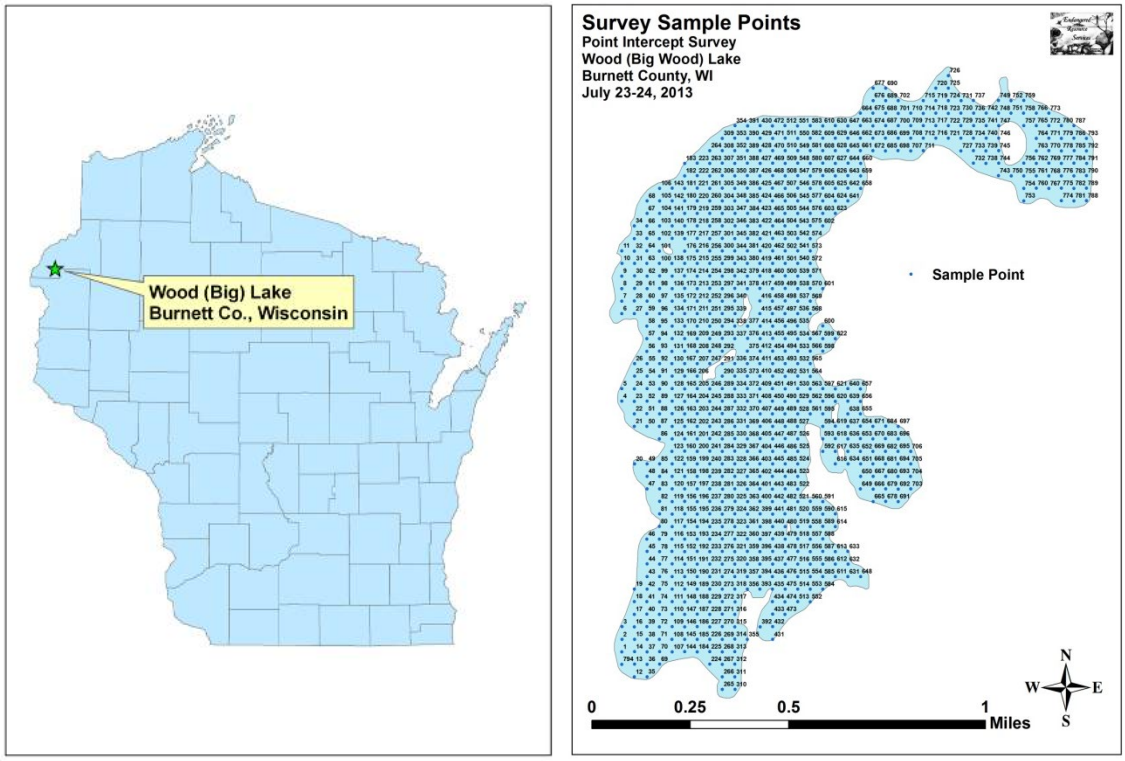

Figure 1: Wood Lake, Burnett Co., WI and Point Intercept Points

METHODS:

During the 2020 aquatic macrophyte growing season (June-October), we conducted five landing inspections at the Thoreson Park and east side boat landings, and at the Wood River and Spirit Creek Inlets (Figure 2). Using three 100-150m parallel transects approximately 15, 30 and 45m from shore; we motored at idle speed looking for any evidence of EWM's characteristic red growth top. Once we had finished the three transects, we returned to our starting point using a stitch pattern that crossed back and forth over all three lines to look for any plants we may have missed between the transects. During the June and October surveys, we also conducted a boat survey along the shoreline of the entire lake to look for EWM in the zone of growth it would most likely be found in (Figure 2). We especially focused on the north and east shores as these are places that floating fragments would likely get blown to by the prevailing southwest winds before settling to the lake bottom.

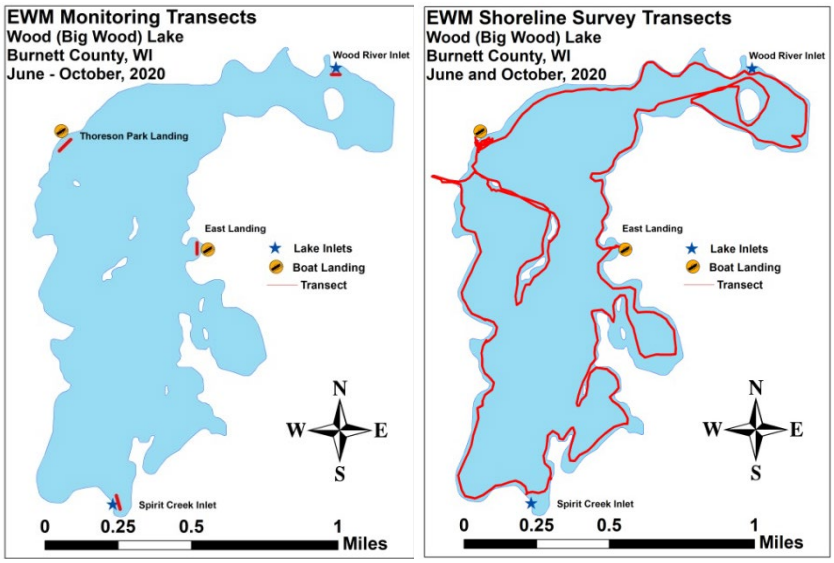

Figure 2: Boat Landing, Inlet, and Shoreline AIS Survey Transects

RESULTS AND DISCUSSION:

Eurasian Water-milfoil:

We completed landing transect surveys on June 1st, July 1st, July 25th, August 29th, and October 11th. We also did whole shoreline surveys on June 1st and October 11th. **We did NOT find Eurasian Water-milfoil anywhere in Big Wood Lake**. However, in 2020 the lake again supported a moderately high population of the similar looking native species Northern water-milfoil (*Myriophyllum sibiricum*). NWM is widely distributed throughout Big Wood in all habitats, but does best over sandy and organic muck. Despite its superficial resemblance to EWM, Northern water-milfoil can be told apart by its leaflets numbering <24 whereas EWM normally has >26 (Figure 3). EWM also tends to have a bright red growth tip on the top of the plant whereas NWM has a bright lime green growth tip. In the fall, NWM also forms winter buds on the tips of shoots whereas EWM has none (Figure 4). These were evident on all NWM plants during the October survey.

Eurasian water-milfoil | Northern water-milfoil

Figure 3: EWM and Northern Water-milfoil Identification (Berg 2007)

Figure 4: Overwintering Turions on Dying Northern Water-milfoil (Berg 2016)

Purple Loosestrife:

Purple loosestrife (*Lythrum salicaria*), another exotic invasive plant, was present in the wetlands adjacent to and along the immediate shoreline of the lake. Although this species prefers mucky soils and is most common among the Cattails (*Typha* spp.) and Northern wild rice (*Zizania palustris*) near the Spirit Creek Inlet and just south of the Wood River Outlet, we also encountered scattered plants along the western midlake shorelines. Both of the central islands also had significant number of plants including a dense monotypic stand on the south end of the north wooded island. In 2015, Galerucella beetles (in imported insect species that specializes in eating PL) were raised and released by Grantsburg High School students at this location. Although beetles were visible on plants throughout the summers of 2016 and 2017, until 2018, they showed little effect on the island's PL population. However, during both the September 2, 2018 and October 4, 2019 surveys, we found the beetles had eaten all the leaves and top-killing all the plants on the point. In 2020, they were also present but showed only moderate herbivory (Figure 5). Although the beetles won't kill the roots, they usually prevent the plants from flowering and spreading. Another positive development was the natural dispersal of these micro-herbivores as we again located at least some live beetles on all loosestrife plants growing on both the islands and scattered along the western lakeshore.

Figure 5: Plants on Central Island Showing Limited Herbivory on 10/6/16 (left), Extensive Damage on 9/2/18 (middle), and Moderate Herbivory on 7/25/20 (right)

CONSIDERATIONS FOR FUTURE MANAGEMENT:

With Eurasian water-milfoil growing in nearby Round, Long Trade, Big Trade, and Little Trade Lakes, we continue to recommend that landing inspections occur on a regular basis into the foreseeable future. Early detection of EWM provides the best chance to economically contain the plant once an infestation has occurred. We also encourage any lake resident or boater that discovers a plant they even suspect may be EWM to **immediately** contact Matthew Berg, ERS, LLC Research Biologist at 715-338-7502 for identification confirmation. If possible, a specimen, a jpg, and accompanying GPS coordinates of the location should be included. Texting pictures from a smartphone is actually ideal as it gives immediate feedback. Likewise, we are happy to identify ANY plant a lake resident finds that they may want identified. ☺

Plans for GHS students to raise and release more beetles around the lakeshore in 2020 fell through due to the pandemic. Expectations are to try again in the future when public health conditions improve.