INTRODUCTION

Boulder Lake, Oconto County, is 370 acres, with a maximum depth of 11 feet. The lake is eutrophic, relatively shallow and spring-fed. A majority of the shoreline is privately owned with the exception of a portion that is owned by the US Forest Service, which includes a campground, swimming beach, and boat ramp on the south shore. The lake receives significant recreational use during the summer months.

Eurasian water milfoil (*Myriophyllum spicatum*; EWM) was first discovered in Boulder Lake in 2012. Following this discovery, The Boulder Lake Private Home Association (BLPHA) secured grant funds through the Wisconsin Department of Natural Resources (WDNR) to initiate a monitoring and control plan.

In the fall of 2012, the BLA contracted with an aquatic herbicide applicator to target the newly discovered EWM in the lake. An herbicide treatment of 2.7 acres was conducted in the fall of 2012 in the northeast corner of the lake. In early 2013, Onterra, LLC was contracted by the Boulder Lake Association to monitor a potential spring 2013 herbicide application as well as to conduct an EWM peak-biomass survey in the late summer to assess the peak growth of the exotic population throughout the lake. Pre-treatment surveys conducted in the spring of 2013 determined that the EWM levels in the lake were too low to warrant control with herbicides and instead a hand-removal effort with continued monitoring was recommended.

Surveys conducted by Onterra in the late summer of 2013 indicated that the population of EWM within Boulder Lake was at a very low density and continued hand-removal efforts and monitoring were recommended for 2014. Continued monitoring in 2014 by Onterra as well as volunteers from the BLPHA showed that levels of EWM in the lake remained low following the manual removal efforts. Once again, continued monitoring and hand-removal of EWM were recommended for 2015 on Boulder Lake.

2015 LATE-SUMMER PEAK-BIOMASS SURVEY RESULTS

The Late-Summer EWM Peak-Biomass Survey was conducted on September 18, 2015. During the survey, the EWM population was to be mapped using sub-meter GPS technology by using either 1) point-based or 2) area-based methodologies. Large colonies >40 feet in diameter would be mapped using polygons (areas) and qualitatively attributed a density rating based upon a five-tiered scale from *Highly Scattered* to *Surface Matting*. Point-based techniques would be applied to EWM locations that are considered as *Small Plant Colonies* (<40 feet in diameter), *Clumps of Plants*, or *Single or Few Plants*.

Field crews noted that during the survey the weather conditions were favorable with full sun and light winds leading to excellent visibility. Two members of the BLPHA met with Onterra ecologists to discuss the survey and the ongoing monitoring and control efforts being undertaken on the lake. No EWM was found during the September 2015 survey on Boulder Lake.

CONCLUSIONS AND DISCUSSION

Since it was discovered in 2012, the EWM in Boulder Lake has been effectively controlled through the vigilant efforts of BLPHA volunteers in monitoring and hand-removing EWM along with annual professional monitoring surveys. Although EWM was not found during the 2015 late-summer survey,

there remains a fair likely-hood that some very low density occurrences of EWM escaped detection and EWM continues to be present within Boulder Lake. Many lakes that were unmanaged for EWM in 2015 experienced a decline in EWM despite a lack of any control efforts. Environmental factors in the state may have been less than optimal in 2015 for EWM growth and it is possible that was the case for Boulder Lake as well. Continued monitoring in 2016 and beyond will ensure that any EWM in Boulder Lake remains under control.

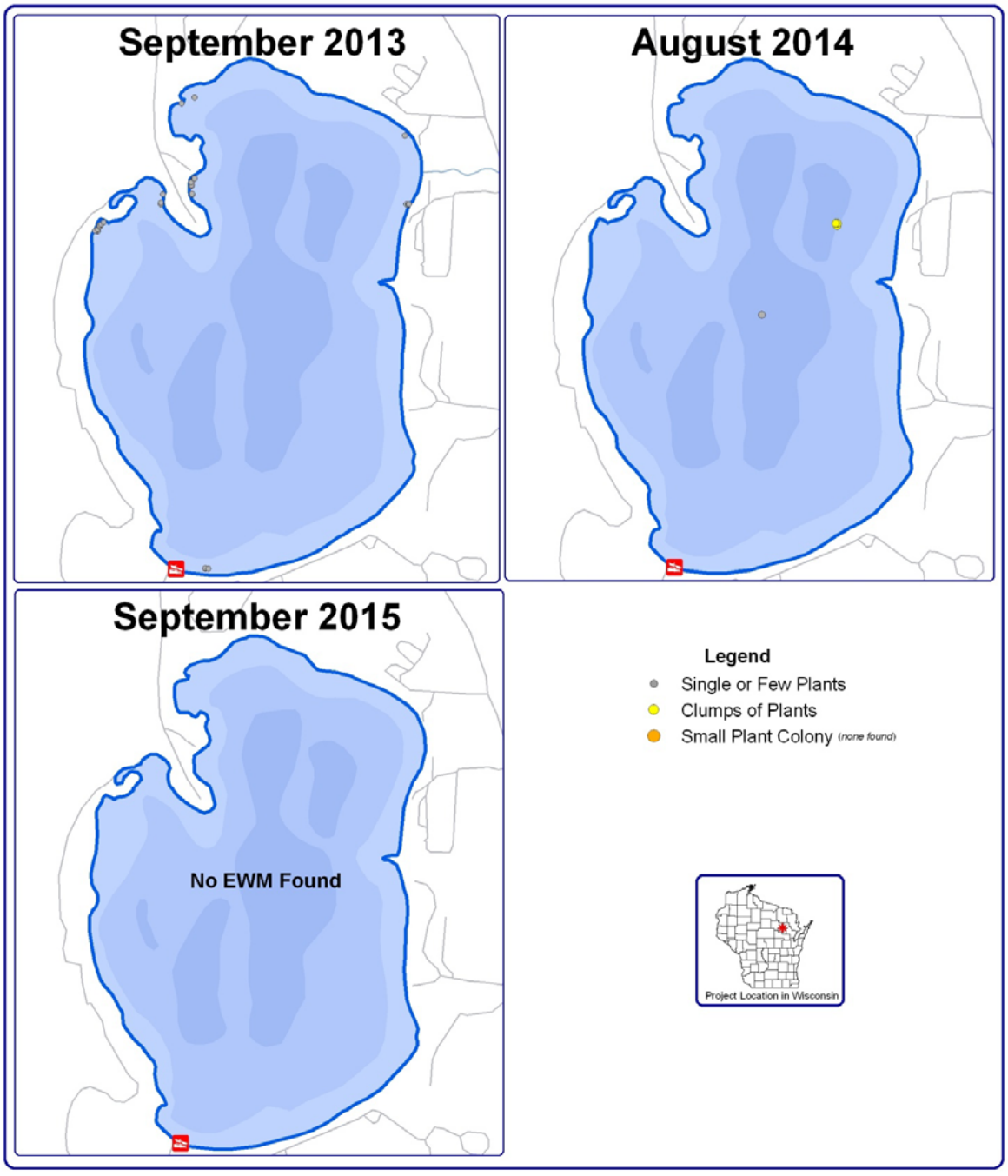

Figure 1. Onterra EWM peak-biomass survey results in Boulder Lake from 2013-2015.