

2014 EWM Survey/Treatment Analysis

Connors Lake, Sawyer County, WI

Survey Conducted and analyzed by Ecological Integrity Service

Connors Lake, Sawyer County WI-Fall EWM Survey Summary

Connors Lake was surveyed on Sept 22, 2014 for Eurasian watermilfoil (EWM). Figure 1 shows all locations on Connors Lake that had EWM sampled and figure 2 shows a closer look at Musky Bay, which is where all EWM was sampled. A 13-double tined rake and a Marcon HD underwater camera were used to sample/view the EWM.

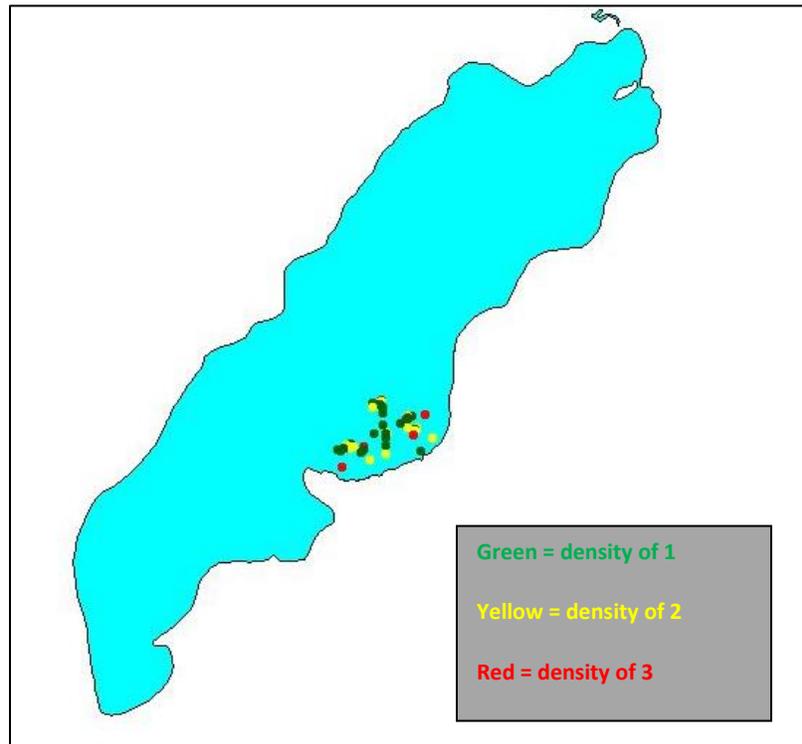


Figure 1: Map of all Eurasian watermilfoil (EWM) sampled/observed-Sept. 2014.

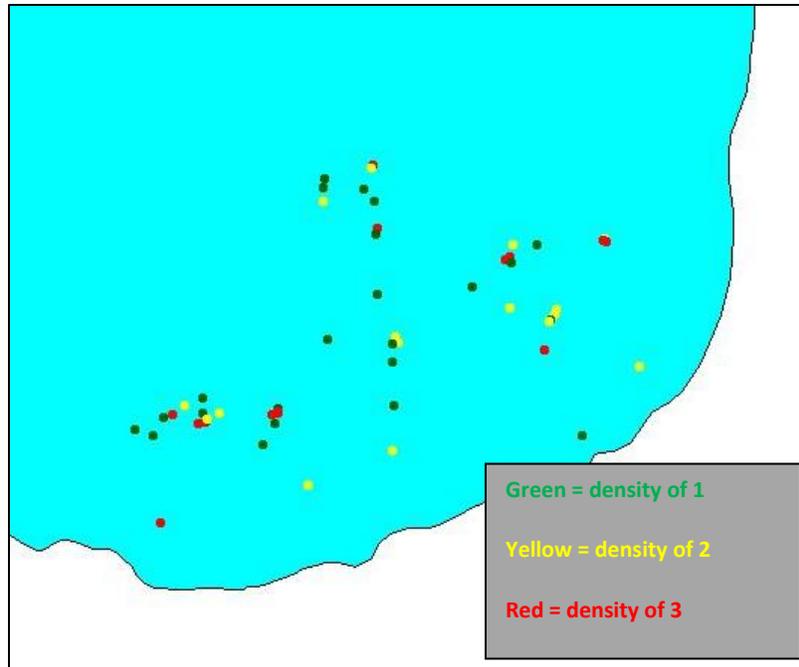


Figure 2: Map showing closer view of EWM in Musky Bay, Sept. 2014.

In June and August 2014, spot herbicide treatments were completed. In June five very small polygons were treated in Musky Bay and in one location in the northern end. Figure 3 shows the small polygons treated in 2014. These areas didn't all have widespread and/or dense EWM present, but were EWM locations that were new in 2013 and/or EWM locations within the 2013 treatment areas.

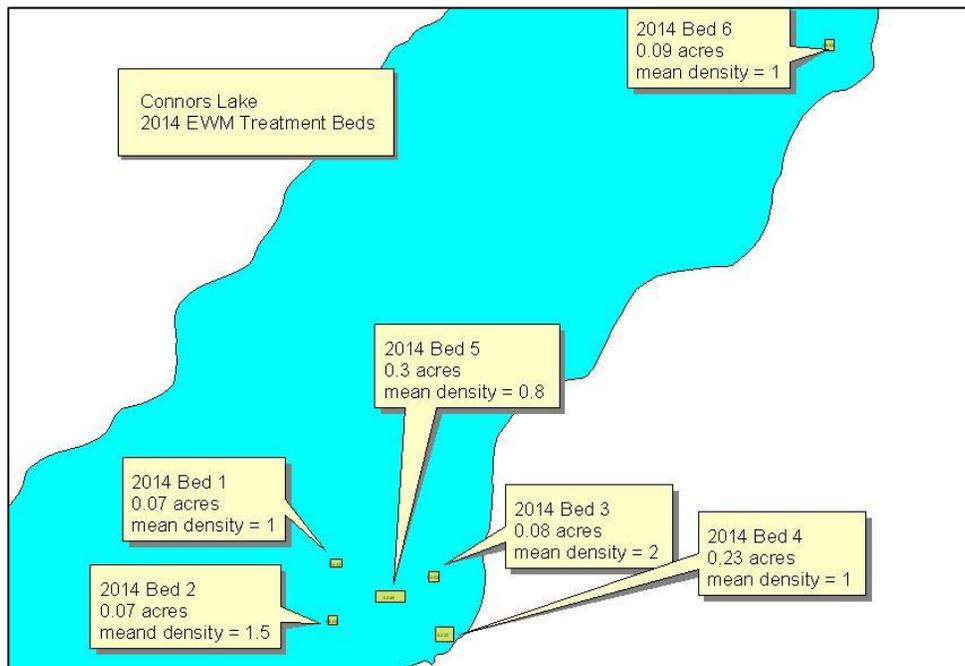


Figure 3: Map of 2014 treatment beds.

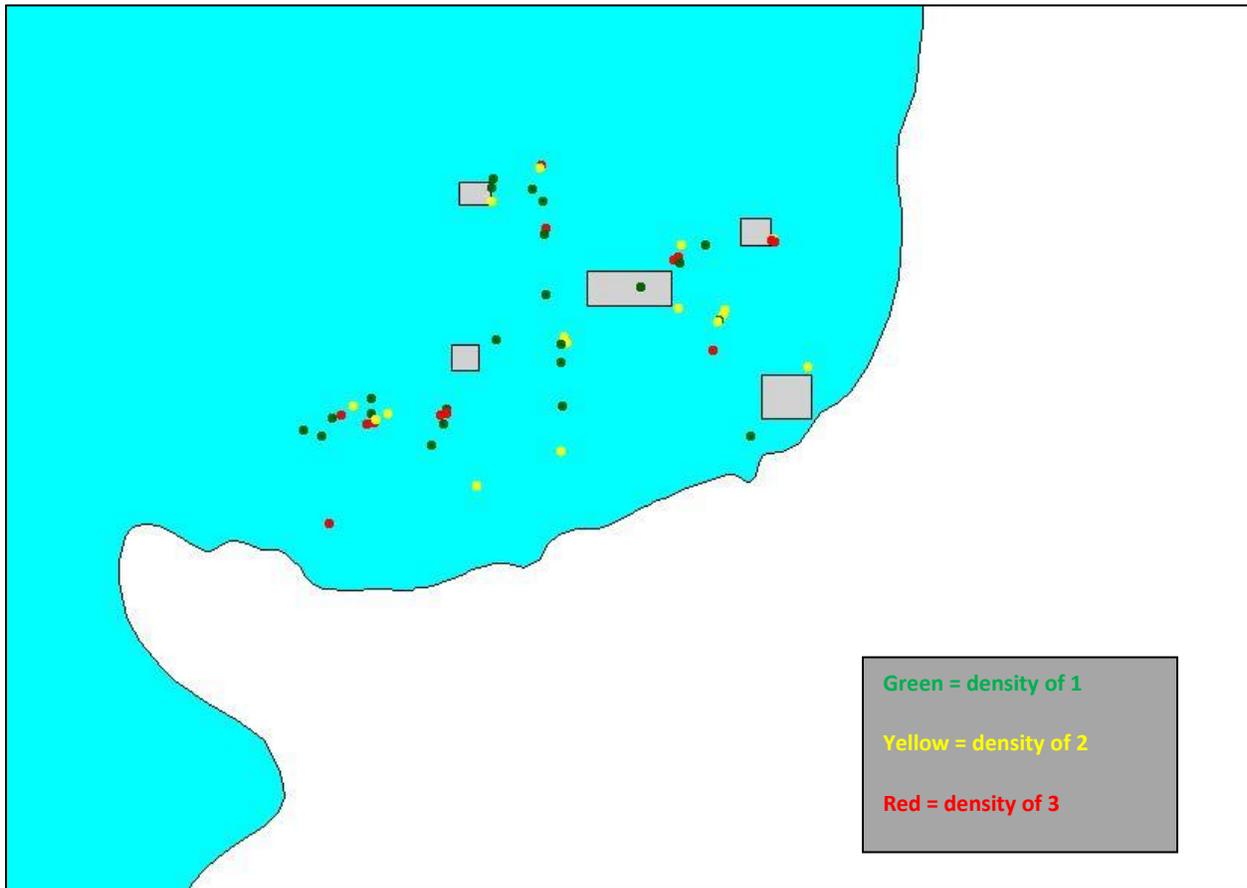


Figure 4: Map of 2014 treatment beds and EWM sampled in Sept. 2014 (after treatment).

Treatment Bed	Frequency 2013 (%)	Frequency 2014 (%)	Mean Density 2013	Mean Density 2014
1	100 (2/2)	0 (0/2)*	1.0	0 (*1.33)
2	100 (2/2)	0 (0/2)	1.5	0
3	100 (3/3)	33 (1/3)	2.0	1.0
4	100 (4/4)	0 (0/4)	1.0	0
5	67 (4/6)	17 (1/6)	0.8	0.17
6	100 (2/2)	0 (0/2)	1.0	0

*Bed 1 had no EWM in same locations as 2013, but had 3 locations on the very edge of the treatment area.

Table 1: Summary of EWM in treatment beds 2014.

The treatment beds for 2014 had very little EWM present after treatment (see Table 1) within the beds. These treated beds were very small and typically herbicide effectiveness decreases as the treatment area gets smaller. It appears the treatment was effective. No native species analysis was completed in this survey.

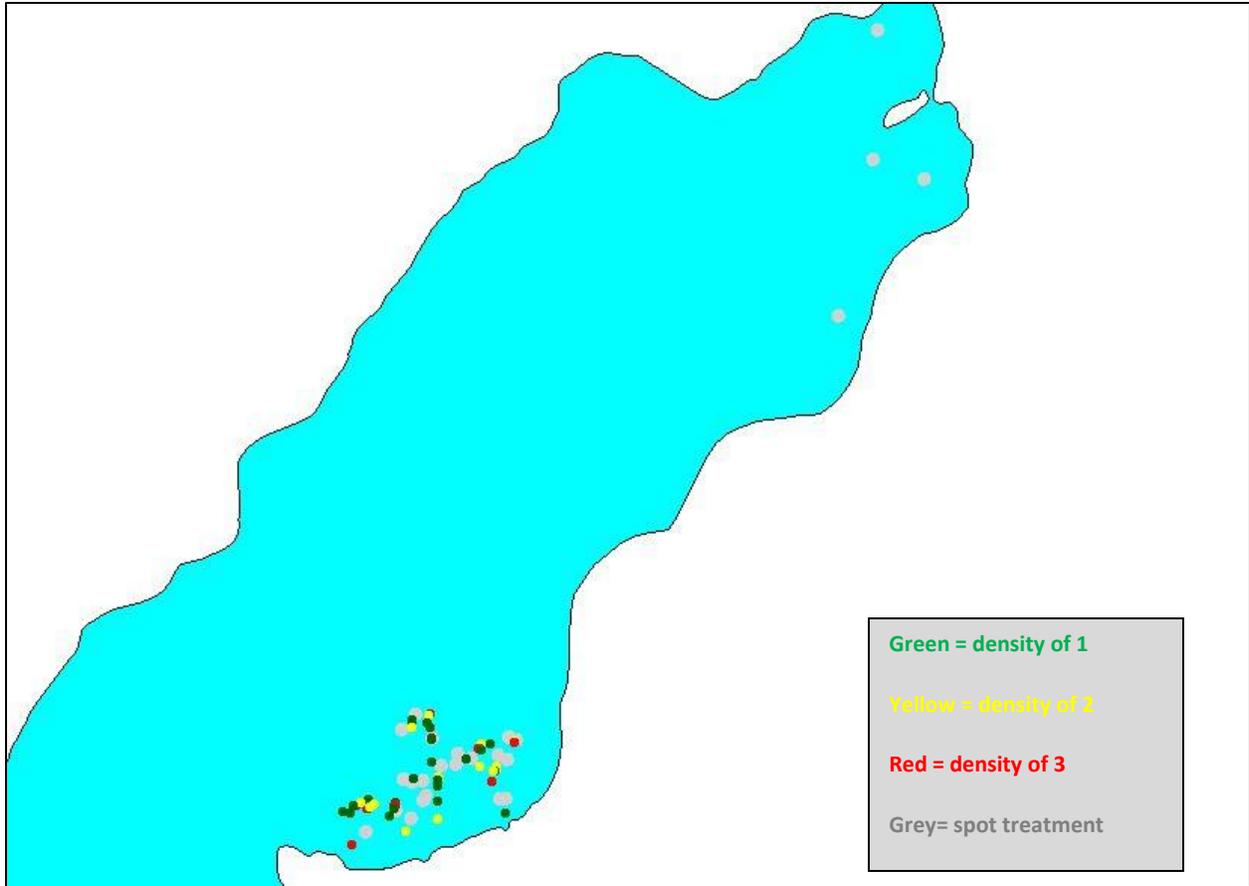


Figure 5: Map of “spot treatment” locations, August 2014 and EWM sampled/observed Sept. 2014.

In August, a spot treatment was conducted. Figure 5 shows the locations that spot treatment occurred (grey dots). Included in this map is the EWM that was sampled in September, 2014. No EWM was sampled in the four spot treatment locations in the north end of the lake. There were several EWM locations adjacent and a few overlapping the spot treatments in Musky Bay. The effectiveness of spot treatment is difficult to analyze.

It should be noted that much of the EWM sampled/observed in Sept. 2014 was below the surface and difficult to view from the surface.

Discussion/Recommendations

The treatment of EWM in June appears effective, although the EWM was not terribly dense or widespread prior to treatment. The treatment polygons were established to better control EWM through a larger application area. The effectiveness of spot treatment is difficult to analyze, so the effectiveness of this method is debatable. The Wisconsin DNR data from EWM treatments in various lakes around Wisconsin indicate that larger areas treated are more effective than small areas.

EWM in fall 2014 was only observed/sampled in Musky Bay. The treatments from 2013 and 2014 appear to have reduced EWM so much that it was not sampled in September 2014. There were numerous locations in Musky Bay that had EWM growing, with some locations quite dense. Most EWM was well below the surface and not easily observed from the surface. Most of these EWM locations in Musky Bay were not within 2014 treatment areas. There were several locations of native milfoil mixed in with other natives and EWM in Musky Bay. A large amount of native milfoil was observed all around the littoral zone in Connors lake, some quite dense. It is imperative that efforts are taken to preserve this native milfoil, as it can aid in keeping EWM more contained.

It is recommended that Musky Bay EWM be treated in spring 2015. The most effective approach is to delineate treatment beds based upon the EWM sampled in September 2014. By delineating these beds, the treatment areas are larger and will increase effectiveness. The EWM treatment beds should be verified prior to the 2015 treatment (spring) to make sure there is EWM in those locations. Since native milfoil was observed in many locations, it is important to safeguard against reducing these native plants. Verification will assure that the treatment is limited to EWM and still effective by treating the largest areas needed. Figure 6 is a map showing the recommended treatment beds. The number listed in or adjacent to the bed is the area of the bed in acres. Table 2 summarizes information about the beds.

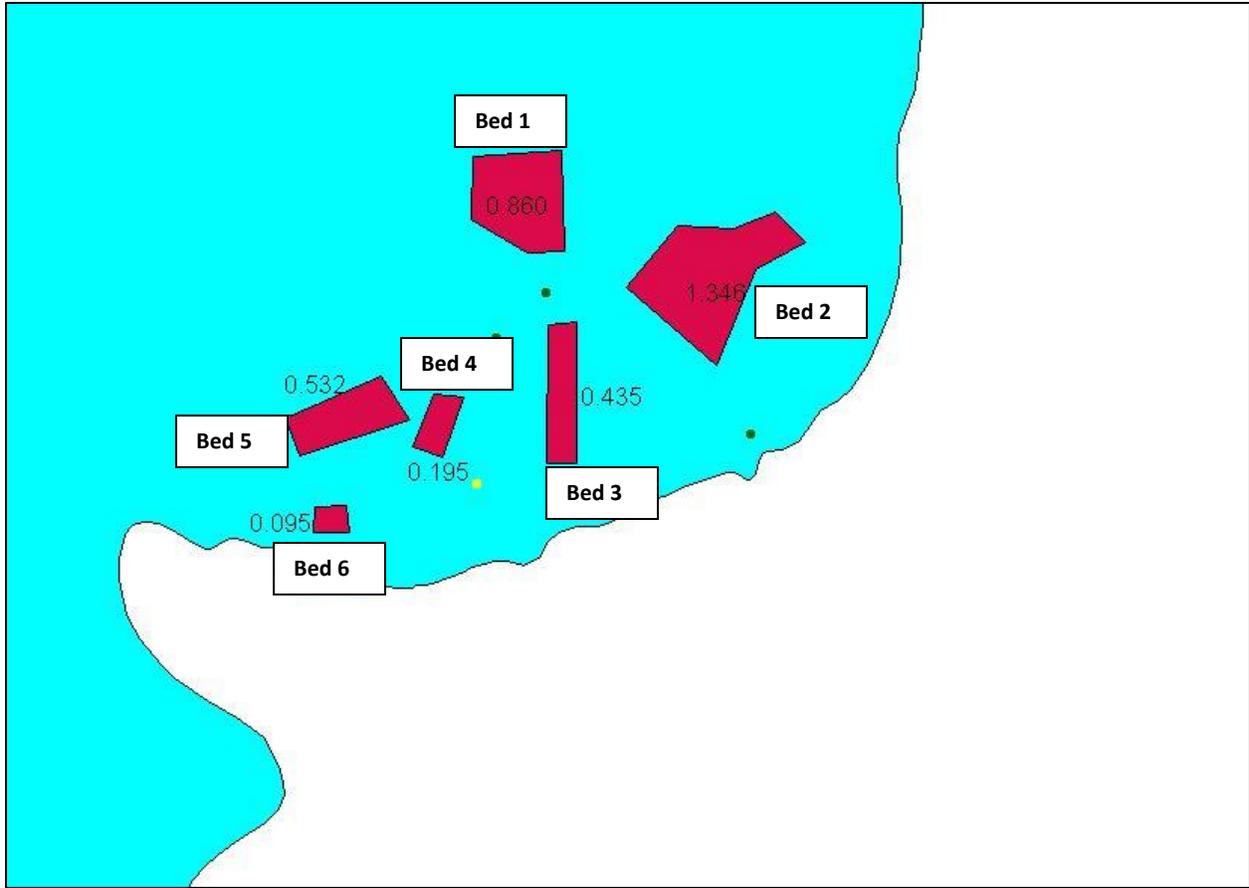


Figure 6: Recommended treatment beds for Musky Bay, spring 2015.

2015 Recommended Bed	Area (acres)	Mean Density (rating 0-3)
1	0.86	1.7
2	1.35	2.1
3	0.44	1.5
4	0.20	1.8
5	0.53	1.6
6	0.09	3.0 (one small clump)
Total	3.47	1.8

Table 2: Summary of recommended 2015 treatment beds.