

Project Name | CLFLWD AIS Program

Date | 09/15/2015

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Regarding | Sylvan Lake Purple Loosestrife Survey – July 27, 2015

Following is a summary of the purple loosestrife (*Lythrum salicaria*) survey conducted at Sylvan Lake including recommendations for population management.

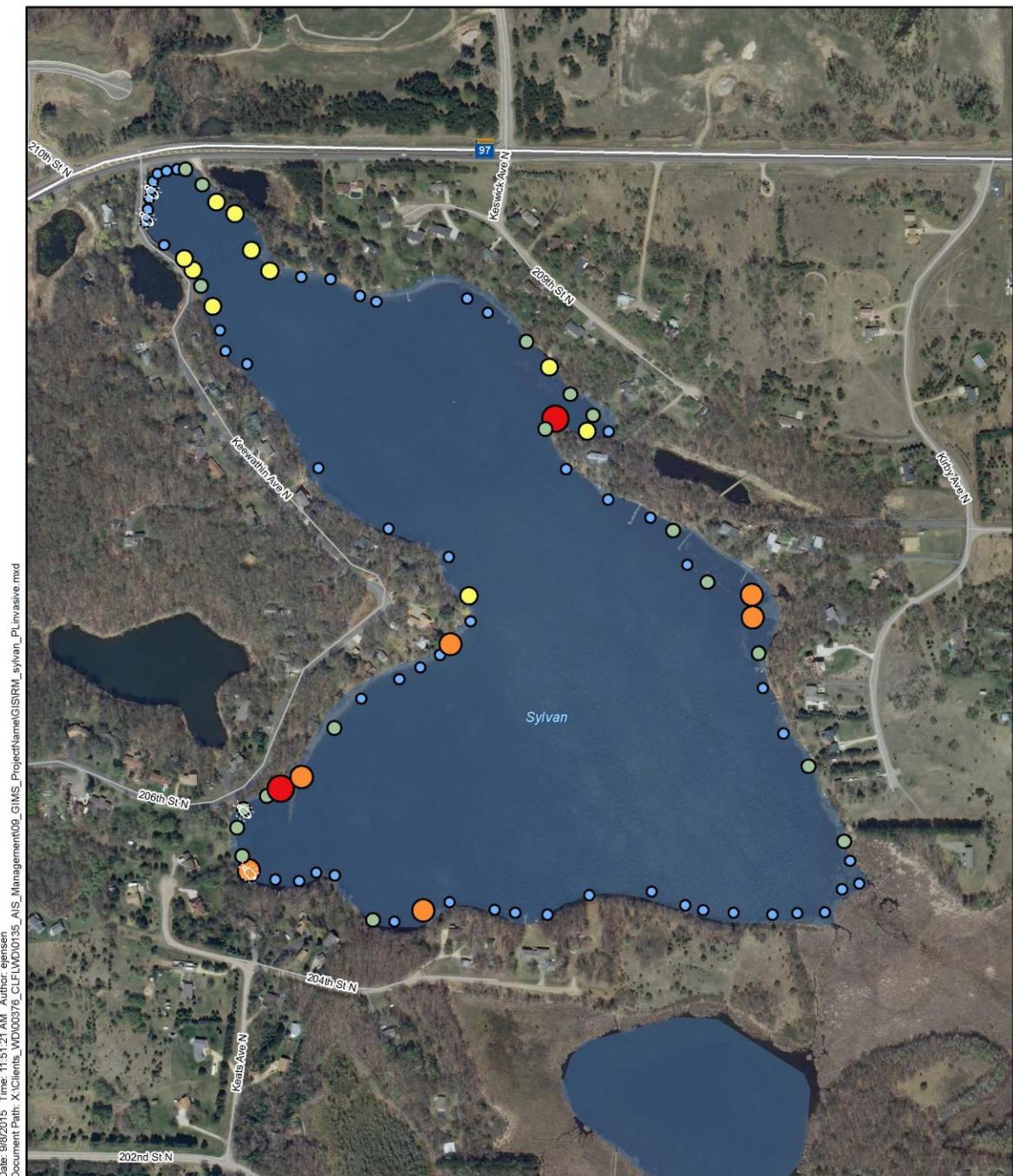
Methodology

A purple loosestrife survey was conducted on Sylvan Lake by EOR and District staff (Emily Schmitz) on July 27, 2015. The shoreline and littoral zones around the lake were surveyed from a canoe using submeter GPS equipment. Individual survey points were collected around the entire perimeter of the lake, with the spacing between the survey points dependent on the density of purple loosestrife plants. Plant densities were estimated based on the percent cover of purple loosestrife occurring along the shoreline and near shore littoral zone. In addition, any evidence of defoliation from leaf-eating beetles was noted and affected plants were inspected for adult beetles.

Results

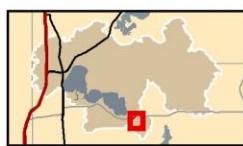
A total of 90 survey points were collected around the perimeter of the lake (Figure 1). Of those, 57 points contained a purple loosestrife density of 5% or less and individual plants were tallied. One to 15 plants per survey point were tallied at most of these locations. In areas where the plant density was greater than 5%, individual plants were not tallied and an estimated plant density was determined. The greatest densities found occurred along the small peninsula at the southwest corner of the lake and off the point along the eastern shoreline (Figure 1). There appeared to be no pattern of occurrence around the perimeter of the lake, with the highest plant densities spaced relatively evenly along the shoreline. The lowest plant densities were observed along the northwestern shoreline.

Purple loosestrife is easiest to identify from July-early September when most plants are blooming; however, the vast majority of plants identified during the survey were not in bloom (Figure 2). Most non-blooming plants appeared healthy and contained flower buds so it is likely many of the plants were experiencing a delayed bloom period this year. Several plants found during the survey appeared unhealthy due to leaf defoliation. Evidence of beetle defoliation was observed on several plants at four separate locations around the lake (Figure 3). All plants with defoliated leaves were found along the western shoreline near Keewahtin Avenue North/ 206th Street North (Figure 1). No adult leaf-eating beetles were observed on the affected plants.



Legend

- | | |
|--|-----------|
| | 21% - 30% |
| | 31% - 50% |
| | 51% - 75% |
| | 6% - 20% |
| | > 5% |



Sylvan Lake
Purple Loosestrife
Surveyed July 27, 2015

0 Feet 500

Figure 1. Percent coverage of purple loosestrife in Sylvan Lake.



Figure 2. Purple loosestrife in Sylvan Lake, pre-bloom period.



Figure 3. Defoliation of purple loosestrife (note the brown, curled leaves with holes).

Discussion

In 1992, leaf-eating beetles in the genus *Galerucella* were introduced into Minnesota as a biological control agent to help manage populations of purple loosestrife. A cursory review of beetle release sites revealed that beetles have been released at 3 locations near Forest Lake. There is no record of a beetle release at Sylvan Lake, but it is likely the beetles have migrated in from the nearby release sites. It has been found that leaf-eating beetles can travel over 12 miles from their release sites to find unmanaged purple loosestrife populations.

Recommendations

Based on the extent of purple loosestrife in the lake and associated native plant communities in the littoral zone, it is recommended that biological control measures should be used to control the purple loosestrife population in Sylvan Lake. Although a small population of leaf-eating beetles may be present along the western shoreline, new populations of beetles should be released in the highest plant density locations to expedite the process of beetle spread around the lake and increase the rate of defoliation. The Minnesota Department of Natural Resources will need to be contacted to determine if leaf-eating beetles can be obtained for this effort. In areas with low plant densities, hand-pulling of individual plants may be effective to further reduce the population, but care must be taken to avoid dispersal of seeds from old stems. Any hand-pulling should occur before the bloom period to limit the chance of pollination and seed development.

The macrophyte community within the littoral zone is diverse with many native aquatic plant species observed during the survey including bladderwort, water shield, yellow water lily, white water lily, coontail, Canada waterweed, and several species of pondweed. Therefore, the use of herbicides is not recommended in these areas since incidental contact from the treatment can negatively impact the native plants growing within the stands of purple loosestrife.

Sources

<http://www.dnr.state.mn.us/invasives/aquaticplants/purpleloosestrife/biocontrol.html>