2013 Invasive aquatic plant harvest report for Tuxedo Park, NY

Submitted by:

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Submitted to:

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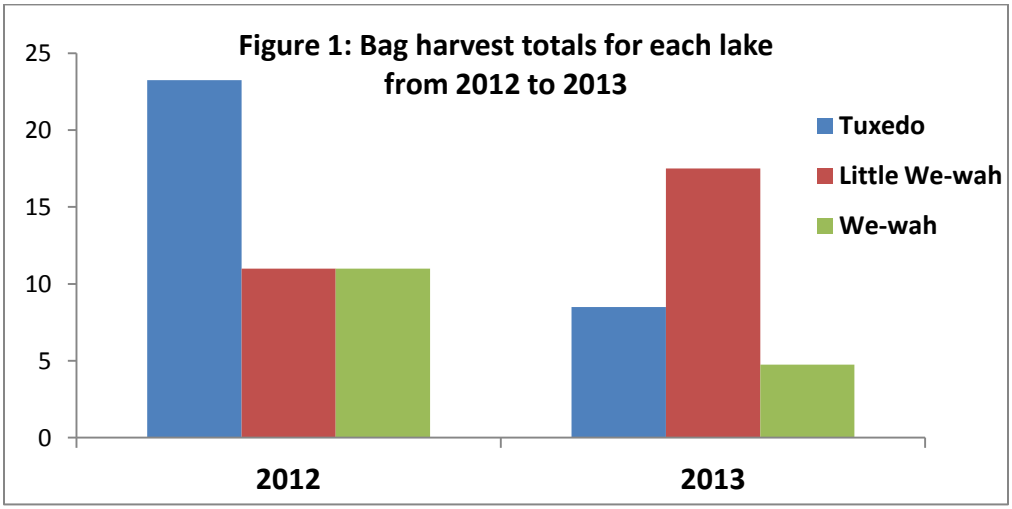
Introduction

2013 marked the second consecutive year of AIM, LLC operations on the three lakes in Tuxedo Park (Tuxedo Lake, Wee-wah and Little Wee-wah). This report will review pertinent data from these years and will forecast the future of operations on the lake. It will conclude with recommendations for 2014.

Methods

In 2013 AIM spent a total of three weeks removing milfoil from the Tuxedo Park lakes. Each week consisted of forty hours worked with a three person crew (two divers and one surface tender). The weeks were spread out over the course of the aquatic plant growing season. In each week, the crew's stated goals were to harvest all priority areas (areas known to have milfoil growth) of each of the three lakes. Special attention would then be paid to the most problematic areas identified as time went on.

Data



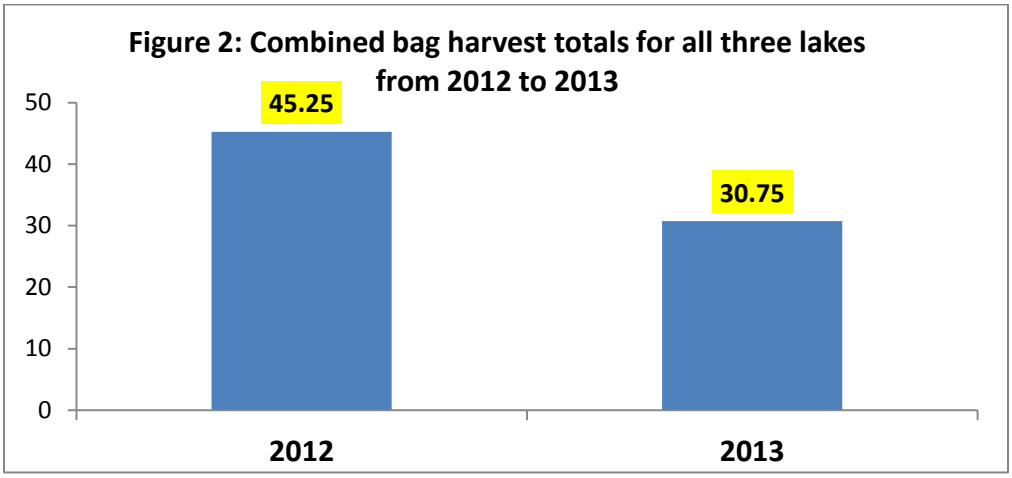


Figure 3: Map of all Eurasian milfoil harvest locations from the Tuxedo Park Lakes in 2012

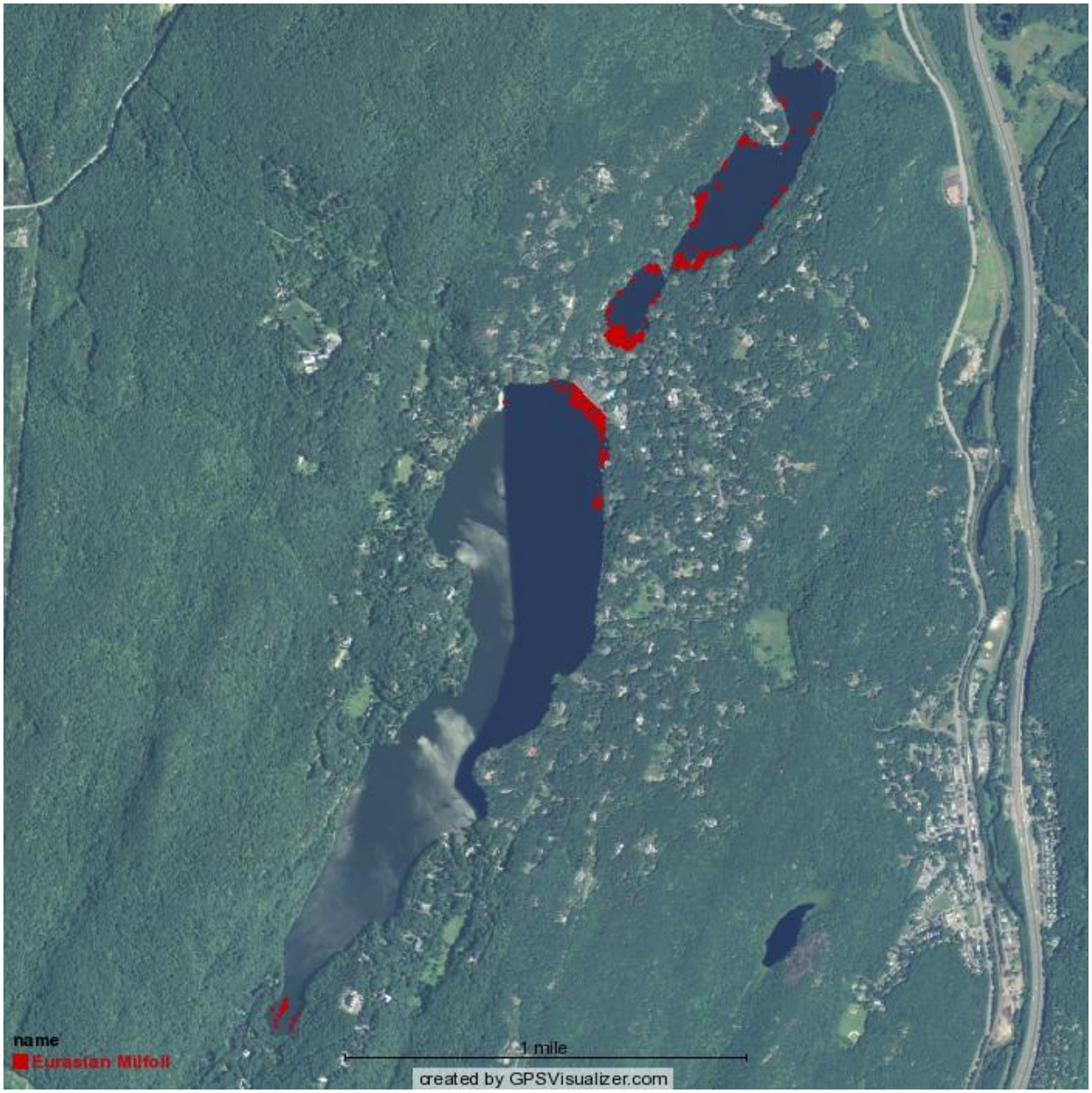
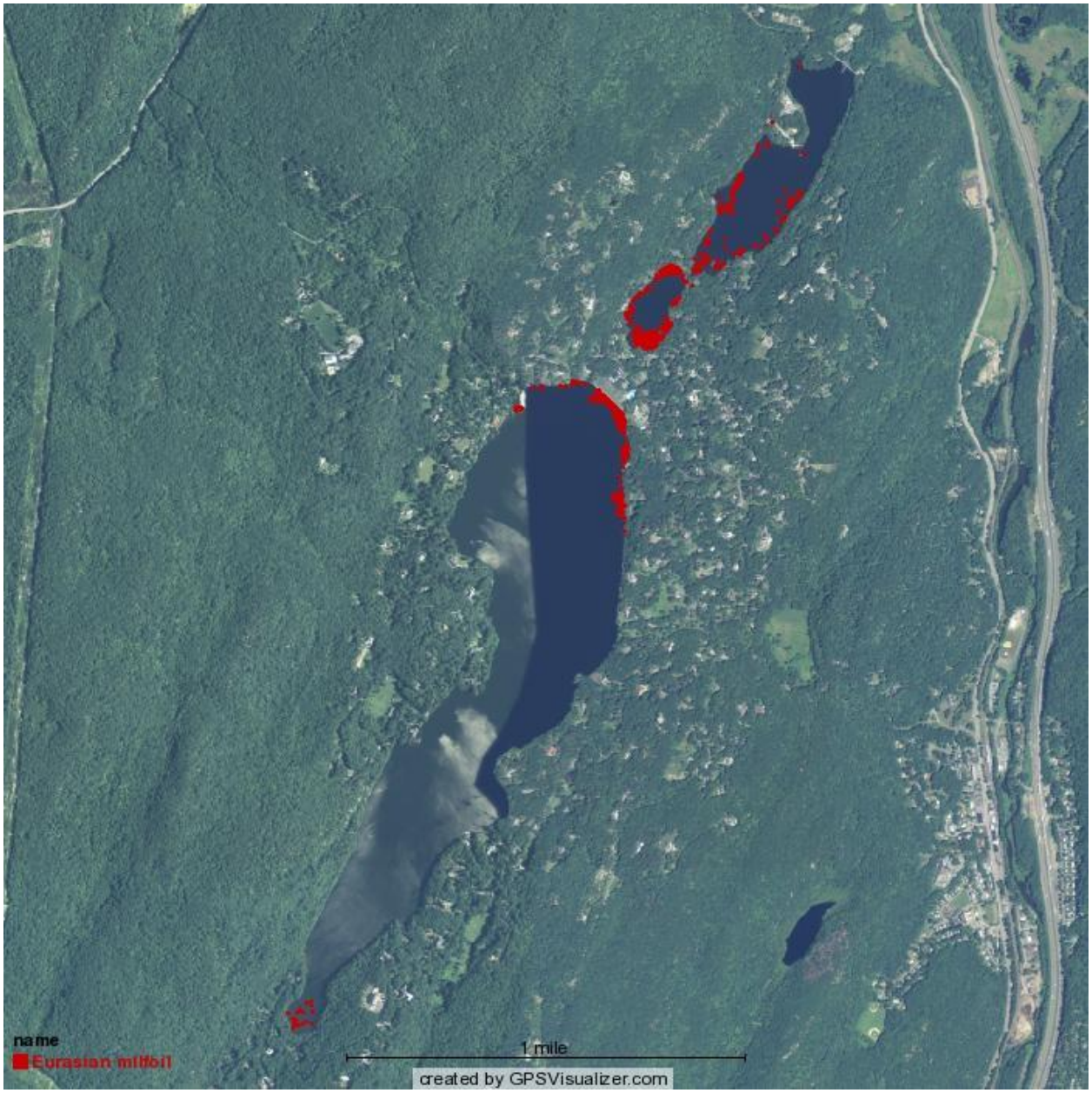


Figure 4: Map of all Eurasian milfoil harvest locations from the Tuxedo Park Lakes in 2013



Discussion of trends

Figure 1 shows the major decrease in milfoil present on both Tuxedo Lake and Wee-wah. It also shows an increase in the harvest from Little Wee-wah. Due to the nutrient rich conditions on Little Wee-wah and only one harvest completed there in 2012, we saw an increased quantity of harvest. We were able to cover the entirety of the lake and remove all known milfoil growth two times this past year and we therefore expect a significant decrease in growth going into 2014.

Figure 2 shows the total bag harvest from all three lakes combined in 2012 and 2013. Despite more time spent on the lakes in 2013 we see a decrease in bag total. This is largely due to the multiple harvest strategy. By harvesting the growth several times throughiut the season we do not allow re-emergent plant growth to get large and mature. In other words, we are always picking young plant growth that has sprung up from buried or drifting root and stem fragments. When a plant is allowed to grow large and bushy it begins auto-fragmenting. This is when it intentionally produces and sheds numerous fragments often with roots already grown to facilitate a faster spread. The more mature plants become more brittle and break apart with minimal disturbance.

Figures 3 and 4 show the GPS points collected in 2012 and 2013 to characterize the location and density of plant growth harvested on all three lakes. Subtle changes are noticeable such as a reduction in points on Tuxedo Lake and an increase on Little Wee-wah. The similarity is in the spread of growth. These maps reiterate how difficult it is to eradicate the plant from its established areas thanks to persistent fragments in the sediment and drifting on the bottom, middle depths and surface. As studies have shown these fragments are extremely hardy and can survive even total dehydration. Persistent re-harvesting of these areas is necessary for some time after initially clearing the dense growth.

Recommendations

The three week program in 2013 was successful in controlling milfoil growth on all three lakes with major reductions in growth on Tuxedo and Wee-wah. The challenge for 2014 is deciding whether to reduce our efforts or keep them the same.

If we were to reduce our efforts we would recommend a nine day harvest for 2014. This would be broken out into three separate 3 day harvests, each day being a ten hour workday. Three harvests over the course of the growing season is an ideal management plan. If a fragment is left to its own devices for over a month it will easily have grown into a large plant capable of fragmenting. Three days per harvest allows us at least one day per lake/per visit.

If we were to keep our efforts at the 2013 levels (3 full weeks or a total of 12 ten hour workdays) we would have no problem suppressing the existing growth on all three lakes and we would have available time to conduct detailed and exhaustive harvesting.

The challenge going forward will be to nail down the "maintenance phase" of our milfoil management efforts. What amount of work will keep the milfoil under control? It is likely that we will never be able to go with less than three two-day harvests (six ten hour days) to adequately manage all three water bodies. The challenge right now is to keep reducing the milfoil population to the lowest levels attainable.

Thanks

AIM would like to thank the Village of Tuxedo Park for choosing us as your milfoil management solution. We like to thank Susan Goodfellow especially for all of her help coordinating our work and keeping us informed.