



# OWBOW ASSOCIATES, INC.

Wetlands Delineation and Permitting • Wildlife Studies • Herpetology • Vernal Pool Ecology

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March 13, 2015

Gregory Meister, Administrator  
Town of Sharon Conservation Commission  
219 Massapoag Avenue  
Sharon, MA 02067

**Re: Professional Botanical Services Summary  
Lake Massapoag Invasive Aquatic Plant Control Project  
Sharon, MA**

Dear Mr. Meister:

This letter summarizes the botanical work that Oxbow Associates, Inc. (OA), specifically B. Trowbridge, conducted on behalf of the Conservation Commission during 2014.

On May 6, 2014 OA conducted a habitat evaluation for the state-listed *Rotala ramosior* (Endangered) in the vicinity of the "South End" Sonar treatment area, within the southern portion of Lake Massapoag. Subsequently, on June 10<sup>th</sup> OA submitted a letter to the MA Department of Fisheries & Wildlife's Natural Heritage & Endangered Species Program (NHESP) that summarized our initial habitat evaluation findings and described a *R. ramosior* protection plan to be implemented during herbicide treatment within the "South End". The *R. ramosior* protection plan included water draw down to create surface water separation between treatment and habitat areas. Periodic monitoring was conducted to confirm surface water separation and installation of a physical barrier between the treatment area and habitat area was planned if confluence was anticipated or observed. Barrier materials were stockpiled on the Everwood Day Camp property, but barrier installation was not required.

OA monitored the identified habitat area and the staff gauge at the Lake's outlet structure on 6/23, 6/26, 7/3, 7/8, 7/23, 8/7, 8/20, and 10/20. OA also monitored the weather forecast for Sharon, MA throughout the treatment period so as to identify significant precipitation events that could influence the Lake's water level. The protection plan was found to be effective and flowering *R. ramosior* were detected within the protected habitat area on August 7<sup>th</sup>. Plants bearing mature seed were observed on October 20<sup>th</sup>. Complete observation information was submitted to NHESP on March 10, 2015 using their VPRS website.

On October 20, 2014 OA surveyed the entire perimeter of Lake Massapoag via kayak in search of undocumented *R. ramosior* metapopulations. Much of the Lake's shore is unsuitable for *R. ramosior* because it has been significantly altered and/or is subject to extensive recreational use. Most waterfront parcels have armored embankments to the water's edge with docks for access or have imported sand to establish beaches.

OA did identify areas that appeared to have suitable habitat conditions for *R. ramosior*; however, no additional metapopulations were observed around the Lake. Some of the potential habitat areas that were identified occur on private property and OA was disinclined to vacate the kayak to scrutinize those areas without proper landowner permission. Binocular surveillance indicated that those areas appeared to have suitable hydrological conditions and appropriate soils, with a plant composition similar to that of the known metapopulation. In addition, one potential habitat area identified in the northern lobe of Fletcher's Cove was inaccessible due to insufficient water depth for access. Access to that area would've required abandonment of the kayak within the lake or on private property or would've entailed portaging hundreds of feet across the bouldery lake bottom. Other potential habitat areas on shoals and along the margins of the Lake were not found to contain the target species. The accompanying orthofigure identifies each of the potential habitat areas found during OA's October 20<sup>th</sup> survey.

In order to better understand the relative elevation at the *R. ramosior* population, OA recorded appropriate field measurements. On October 20<sup>th</sup>, OA took a reading at the staff gauge at the Lake's outlet structure, then used a line level and measuring tape to calculate the elevation at which water from the Lake becomes confluent with the backwater that supports *R. ramosior*. At the time of the measurements, the staff gauge read 8.22 feet and water within Lake Massapoag was 1.323 feet below the elevation of 2014 *R. ramosior* occurrence. Therefore, *R. ramosior* would have been confluent with the Lake when the staff gauge read 9.54 feet.

### **Overall Summary and Recommendations**

A single area of occurrence of *R. ramosior* was confirmed along Lake Massapoag during 2014. Limited potential exists for additional metapopulations around the Lake, though additional, phenologically-appropriate surveys with appropriate access permissions are needed to confirm presence or absence within a few areas. It must be noted that *R. ramosior* is an annual plant species, and is prone to population fluctuations and migrations. According to Mattrick (2001), the tiny seeds of this species are prone to travel long distances most probably via gravity, wind, and/or water forces.

As noted above, OA believes that the 2014 *R. ramosior* protection plan was effective during 2014 herbicide treatment. According to the herbicide applicator, Aquatic Control Technology/ Lycott Environmental and the herbicide manufacturer (SePRO), the herbicide used during 2014 (Sonar) does not move freely through groundwater, and surface water separation was found to be a viable means of rare-plant protection. SePRO also indicated that Sonar is considered safe for irrigation of sensitive agricultural crops at concentrations of 5 ppb or less. However, OA was unable to find study data specific to the effects of Sonar on *R. ramosior*, so it is yet unknown whether this diminutive annual will tolerate exposure to low concentrations of the herbicide.

Based on our 2014 findings, OA believes that drawing down the Lake to an elevation of 9.37 feet (2 inches lower than *R. ramosior* occurrence) would have been sufficient to protect the known state-listed plant population. For future herbicide treatments using the same herbicide formula and application methods, we believe that the Lake need not

be drawn down to its lowest possible level for adequate protection of *R. ramosior*. However, OA recommends re-evaluating the surface water separation protection method if another herbicide is used or the Sonar formula is manipulated. In addition, an engineer's drainage analysis would be useful to better understand how the lake water depth reacts to precipitation events. Those calculations could be used to help predict whether a physical barrier will need to be installed for adequate *R. ramosior* protection when significant rain events are forecasted during herbicide treatment.

Thank you for the opportunity to provide professional botanical services on behalf of the Town of Sharon. Please feel free to contact me at any time if you have questions.

Sincerely,



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Field Biologist  
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[Brett@oxbowassociates.com](mailto:Brett@oxbowassociates.com)

**CC:** Misty-Anne Marold, NHESP  
Brittany Laginhas, Aquatic Control Technology/ Lycott Environmental  
Peter Hipl, Everwood Day Camp

#### **Attachments**

*Rotala ramosior* Habitat Evaluation, Lake Massapoag, Sharon, MA (2013 orthofigure)

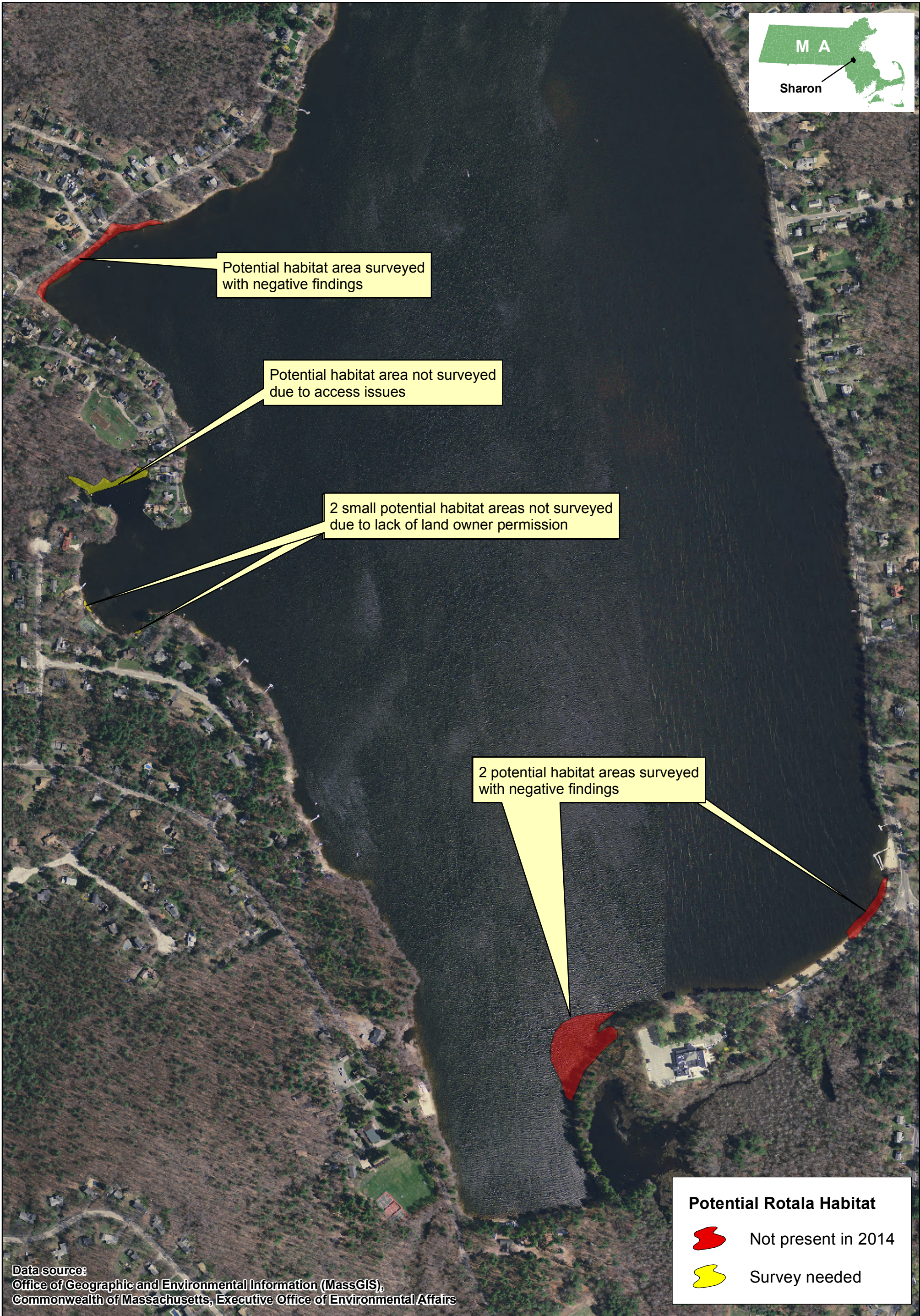
#### **Document References**

June 10, 2014 Letter from Oxbow Associates, Inc.

NHESP VPRS *Rotala ramosior* observation form (3/10/15 by Brett Trowbridge)

Mattrick, C. 2001. *Rotala ramosior* (L.) Koehne (Toothcup) Conservation and Research Plan. New England Wild Flower Society, Framingham, Massachusetts, USA.







Potential habitat area surveyed with negative findings

Potential habitat area not surveyed due to access issues

2 small potential habitat areas not surveyed due to lack of land owner permission

2 potential habitat areas surveyed with negative findings

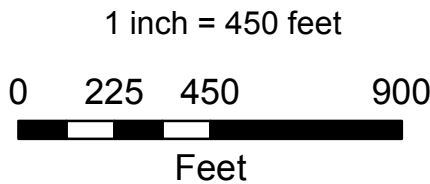
**Potential Rotala Habitat**

-  Not present in 2014
-  Survey needed

Data source:  
Office of Geographic and Environmental Information (MassGIS),  
Commonwealth of Massachusetts, Executive Office of Environmental Affairs

# Rotala ramosoir Habitat Evaluation Lake Massapoag Sharon, MA

Survey Date: October 20, 2014



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