

## Baddacook Pond and Duck Pond, Groton, Massachusetts 2016-17 Bathymetric Study Report

6/29/17

Report Prepared for: Great Pond Advisory Committee  
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This report summarizes the bathymetric and vegetation surveys performed by SOLitude Lake Management on two of Groton's waterbodies, Baddacook Pond and Duck Pond. The objective of this study was to document the current statistics of the ponds and dominant vegetation in Duck Pond.

### Bathymetric Methods and Results

Mapping efforts employed by SOLitude involved data collection, post-processing by ciBioBase, and analysis. Both waterbodies were mapped on separate days in May and June 2017. The high water levels allowed for access throughout the waterbodies. Data is collected by a Lawrence transducer hydro-acoustically and geo-referenced. Transects of approximately 100 feet ensured complete coverage of the waterbody and the ability to detect any unique contours, such as channels. The recorded data is processed by ciBioBase and compiled into formats compatible with ArcGIS. Those shapefiles are used on Figures 1 and 2.

Through postprocessing, numerous waterbody statistics are computed. These are provided in the following table:

Waterbody	Surface Area (Acres)	Maximum Depth (Feet)	Average Depth (Feet)	Total Volume (Acre-Feet)
Baddacook Pond	83.5	47.4	15.4	1,299
Duck Pond	26.6	8.8	3.6	106

### Duck Pond Vegetation Survey

Duck Pond was surveyed by canoe by a SOLitude Biologist on October 24, 2016. Due to drought conditions in New England, the pond had very low water levels. The vegetation present in the pond is adapted to thrive under low water level conditions. A healthy native species population can be found in sparse to moderate densities throughout. The most common species present were patches of white waterlily (*Nymphaea odorata*), yellow waterlily (*Nuphar variegata*), and watershield (*Brasenia schreberi*), found along the shoreline. Scattered submersed vegetation was observed in the deeper portions of the pond. These included snail-seed pondweed (*Potamogeton bicupulatus*), thin-leaf pondweed (*Potamogeton pusillis*), coontail (*Ceratophyllum demersum*), purple bladderwort (*Utricularia*

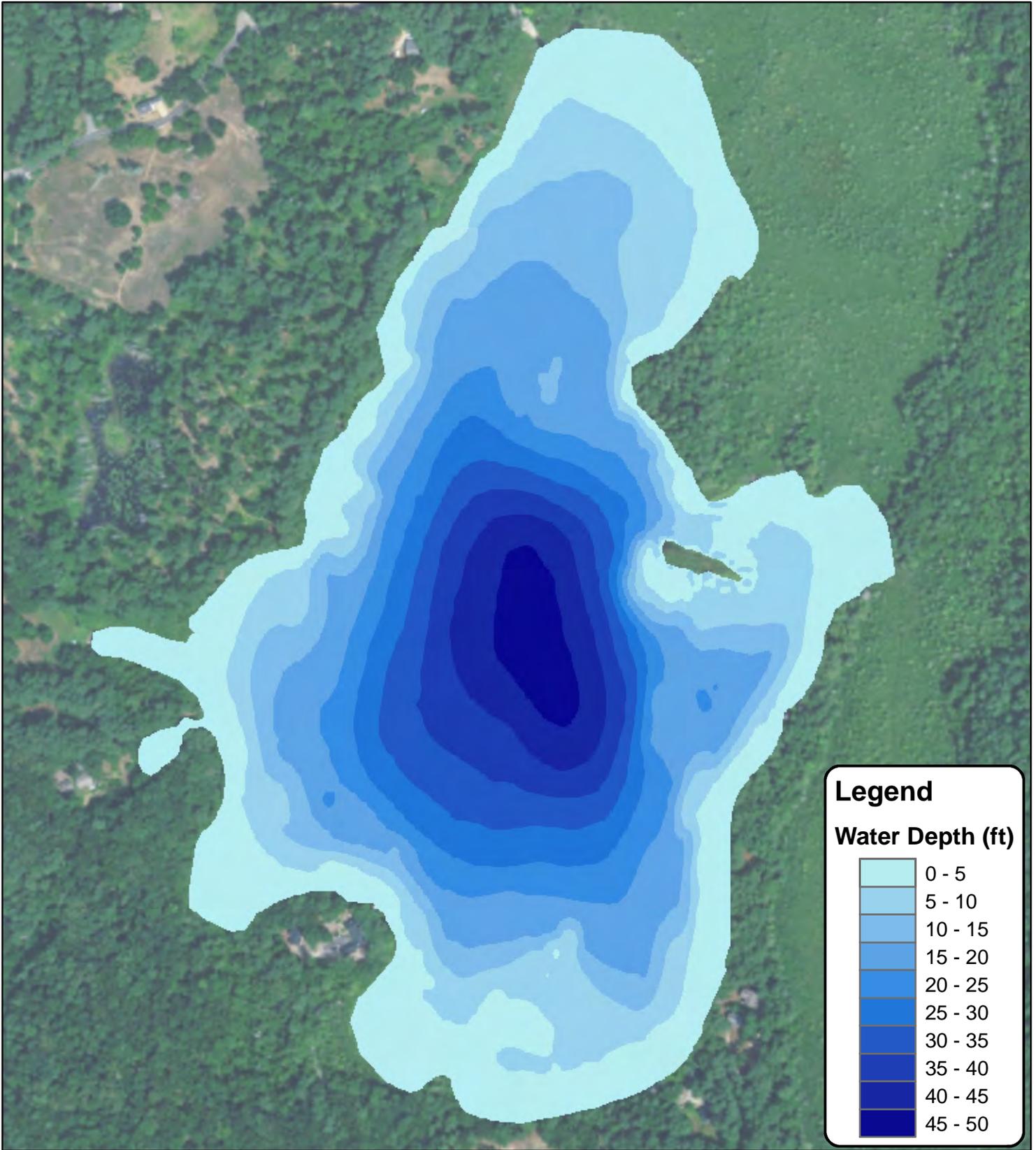
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*purpurea*), and humped bladderwort (*Utricularia gibba*). A benthic filamentous alga was observed throughout the pond in non-nuisance densities. No non-native or invasive species were observed in Duck Pond. Both temperature and dissolved oxygen concentrations were within the desirable range, 11.8°C (53.2°F) and 7.8 mg/L. The bottom composition of the pond is comprised of rich organic matter and leaf debris. Duck Pond supports a healthy native aquatic vegetation assemblage composed of species commonly found in shallow waterbodies with nutrient-rich sediment.

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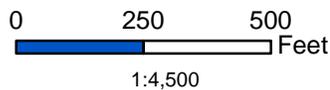
FIGURE 1: Baddacook Pond Bathymetry



**Baddacook Pond**  
Groton, MA  
Middlesex County  
42.620853°, -71.530631°

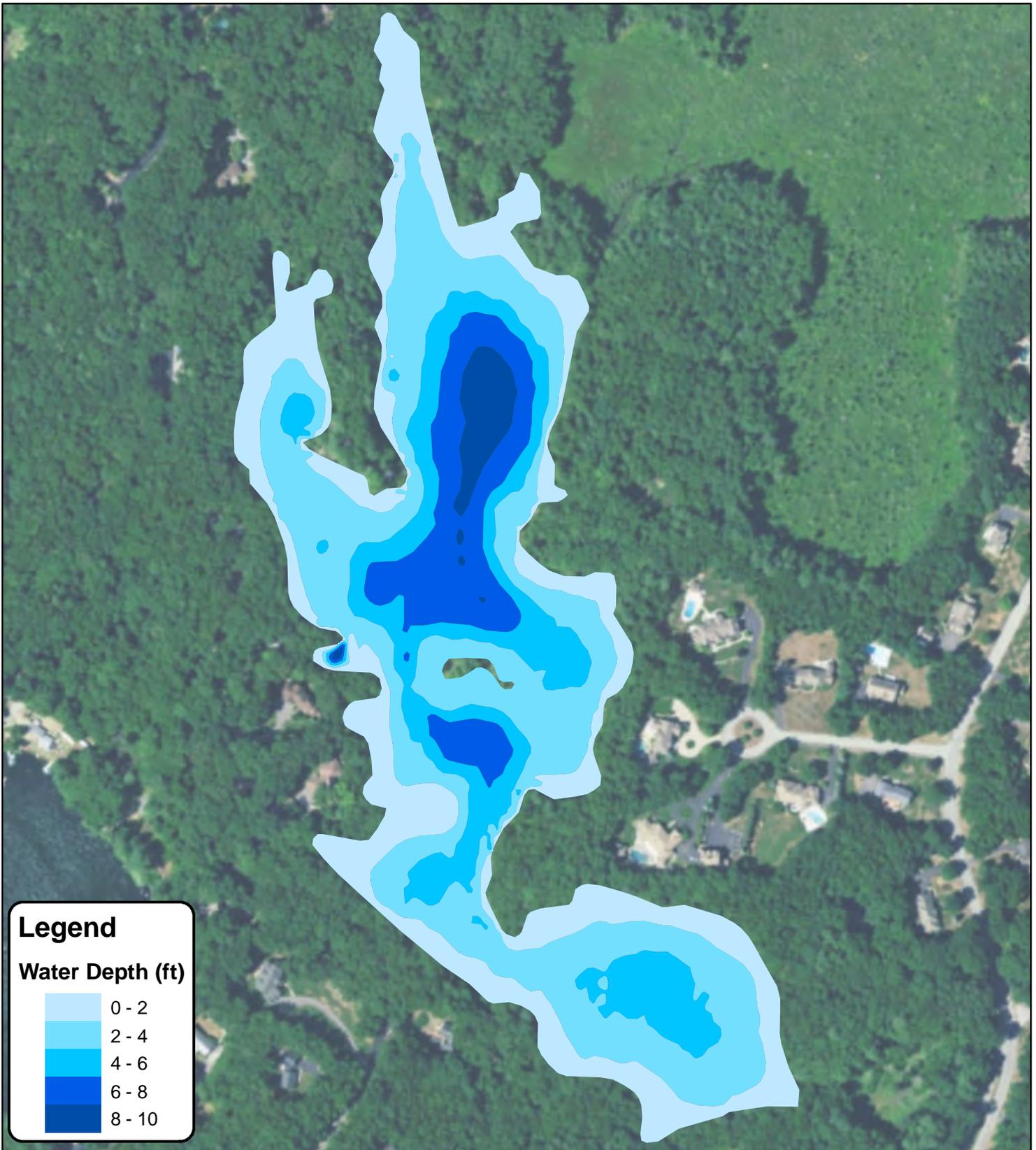


**Baddacook Pond**



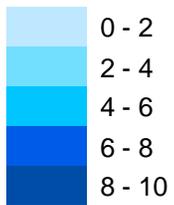
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FIGURE 2: Duck Pond Bathymetry

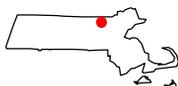


**Legend**

**Water Depth (ft)**



**Duck Pond**  
Groton, MA  
Middlesex County  
42.591898°, -71.516245°

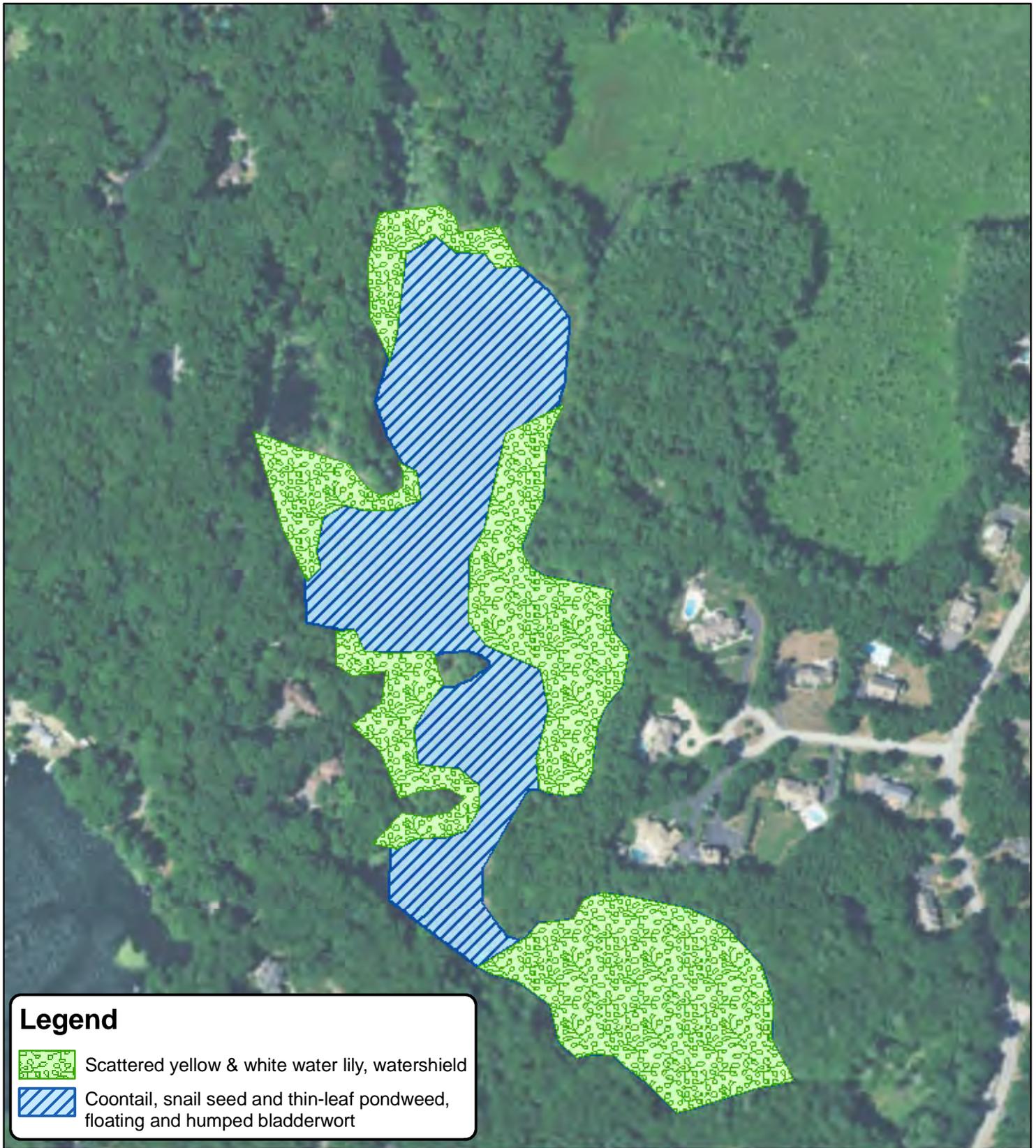


**Duck Pond**



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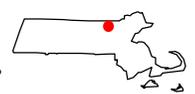
FIGURE 3: Duck Pond Vegetation Assemblage (October 2016)



**Legend**

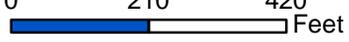
-  Scattered yellow & white water lily, watershield
-  Coontail, snail seed and thin-leaf pondweed, floating and humped bladderwort

**Duck Pond**  
Groton, MA  
Middlesex County  
42.591898°, -71.516245°



**Duck Pond**

0 210 420 Feet



1:3,500



Map Date: 6/30/17  
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