

December 21, 2022

SUBMITTED TO: Erik Collin and Vinnie Brennan, Lake Eden

SUBMITTED BY: Emily Vulgamore - Senior Biologist/Project Manager

SOLitude Lake Management

RE: 2022 Annual Aquatic Vegetation Survey Report of Lake Eden

2022 marks the first year SOLitude Lake Management has worked with residents of Lake Eden to conduct aquatic vegetation surveys of Lake Eden, Vermont. In addition to facilitating early detection of infestations, the primary objective of surveyance is to document the presence and abundance of non-native, invasive plants. Specifically, the goal is to determine where Eurasian watermilfoil (*Myriophyllum spicatum*) is found and the density at which it is present.

The following report summarizes the results of the aquatic vegetation survey performed at Lake Eden on October 11, 2022.

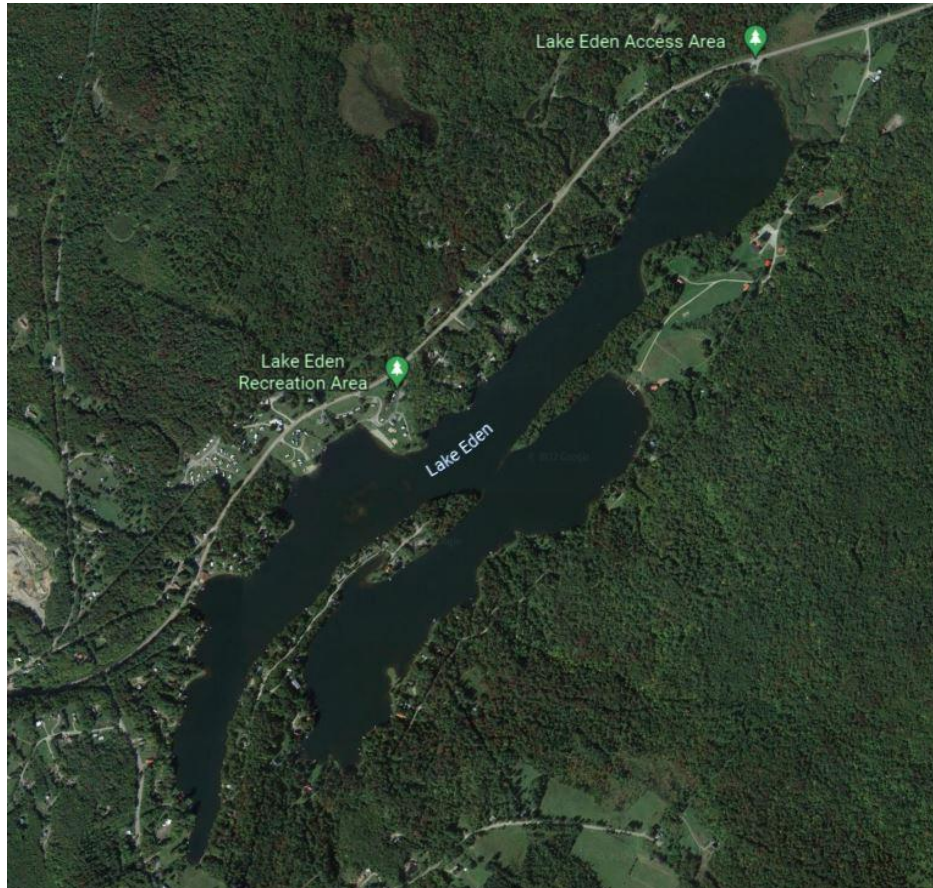
KEY FINDINGS

- Low density of trace-sparse Eurasian milfoil scattered throughout the lake.
- No significant monocultures or stands identified.
- Most Eurasian watermilfoil plants were single-stem establishments.



INTRODUCTION

Lake Eden is a freshwater waterbody located in Eden, Vermont (44.72220, -72.50240). It is both recreational and residential. Lake Eden is a relatively small waterbody with approximately 194 surface acres and six miles of shoreline. Apparent average depth is 10 feet classifying the waterbody as relatively shallow.



AQUATIC VEGETATION SURVEY RESULTS

An aquatic vegetation survey focused on identifying Eurasian watermilfoil was conducted on October 11, 2022. Weather was sunny with a 40°F temperature and no winds. Water temperature was 54.5°F with good visibility into the water.

The survey was conducted by Emily Vulgamore and another SŌlitude biologist. A 14-foot boat was used to systematically tour the littoral zone area of the lake extending from the shoreline to a depth of approximately 15 feet, or the maximum depth at which most Eurasian watermilfoil grows at. A throw-rake was used to collect and identify vegetation and aided in visualization when appropriate.



Results

Eurasian watermilfoil was found at 14 locations scattered throughout Lake Eden (Figure 1). Most Eurasian watermilfoil locations had single-stemmed plants with no branching, indicating a relatively new establishment. Only four locations had multiple multi-branched stems. The average depth at which Eurasian watermilfoil was growing was four feet (Figure 2). The average Biomass Index (BMI) was 3, indicating plants were approaching the water surface (Figure 3). Eurasian watermilfoil was not observed in moderate or dense densities, and established plants did not form monocultures. Rather, stems were distributed intermittently throughout the lake. Native plants evidently outcompeted Eurasian watermilfoil and remained healthy and abundant throughout the waterbody. In addition to aquatic vegetation, sparse Common reed (*Phragmites australis*), a terrestrial invasive species, was identified near the launch.

RECOMMENDATIONS

To effectively manage Eurasian watermilfoil and continue with an Aquatic Plant Management program, the following timeline offers recommendations to achieve waterbody goals:

Spring

- Sölitude Lake Management conducts a visual survey to assess Eurasian watermilfoil growth or regrowth and accurately document infestation locations.
- Results are communicated to Lake Eden residents for Diver and DASH purposes.

Summer

- Lake Eden conducts diver or DASH activities to manage Eurasian watermilfoil at the locations documented during the spring survey.
- Lake Eden continues and expands their boat ramp monitoring program.
- If possible, lake residents make observations regarding Eurasian watermilfoil growth and report updates to Sölitude Lake Management.

Fall

- Sölitude Lake Management conducts a comprehensive vegetation assessment of both native and non-native, invasive species.



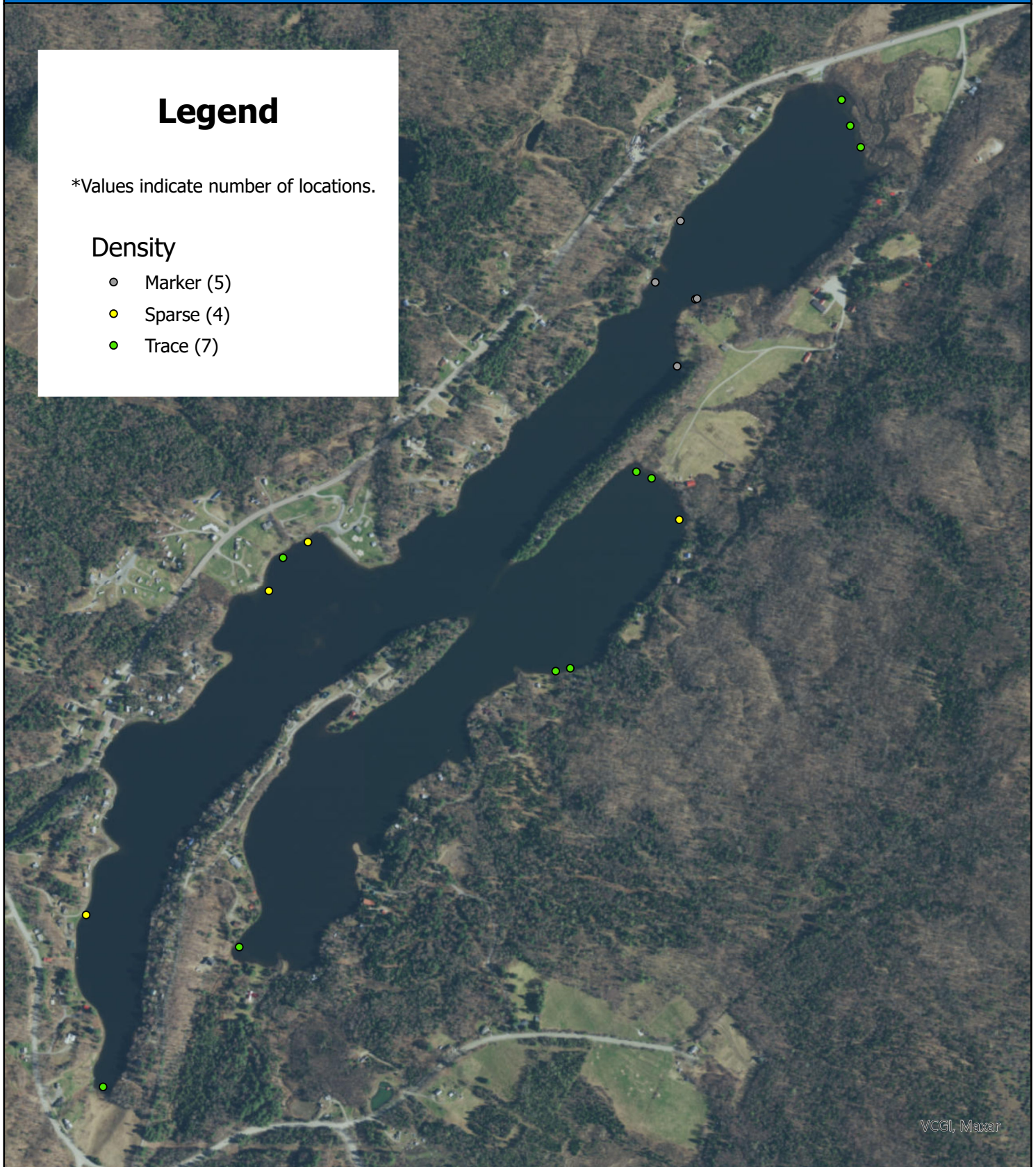
Winter

- Depending on the results of the fall comprehensive survey, management recommendations will be discussed and considered. Growth and regrowth may warrant the use of ProcellaCORT™ EC and the application and permit process may start at this time.

Additional recommendations include implementing a water quality program to assess changes in water chemistry in regard to overall health of Lake Eden.

SŌLitude Lake Management thanks the Lake Eden residents for their support in 2022 and looks forward to working together in the 2023 season.

Figure 1: 2022 Eurasian watermilfoil density and distribution including diver markers



LAKE EDEN
EDEN, VERMONT
LAMOILLE COUNTY

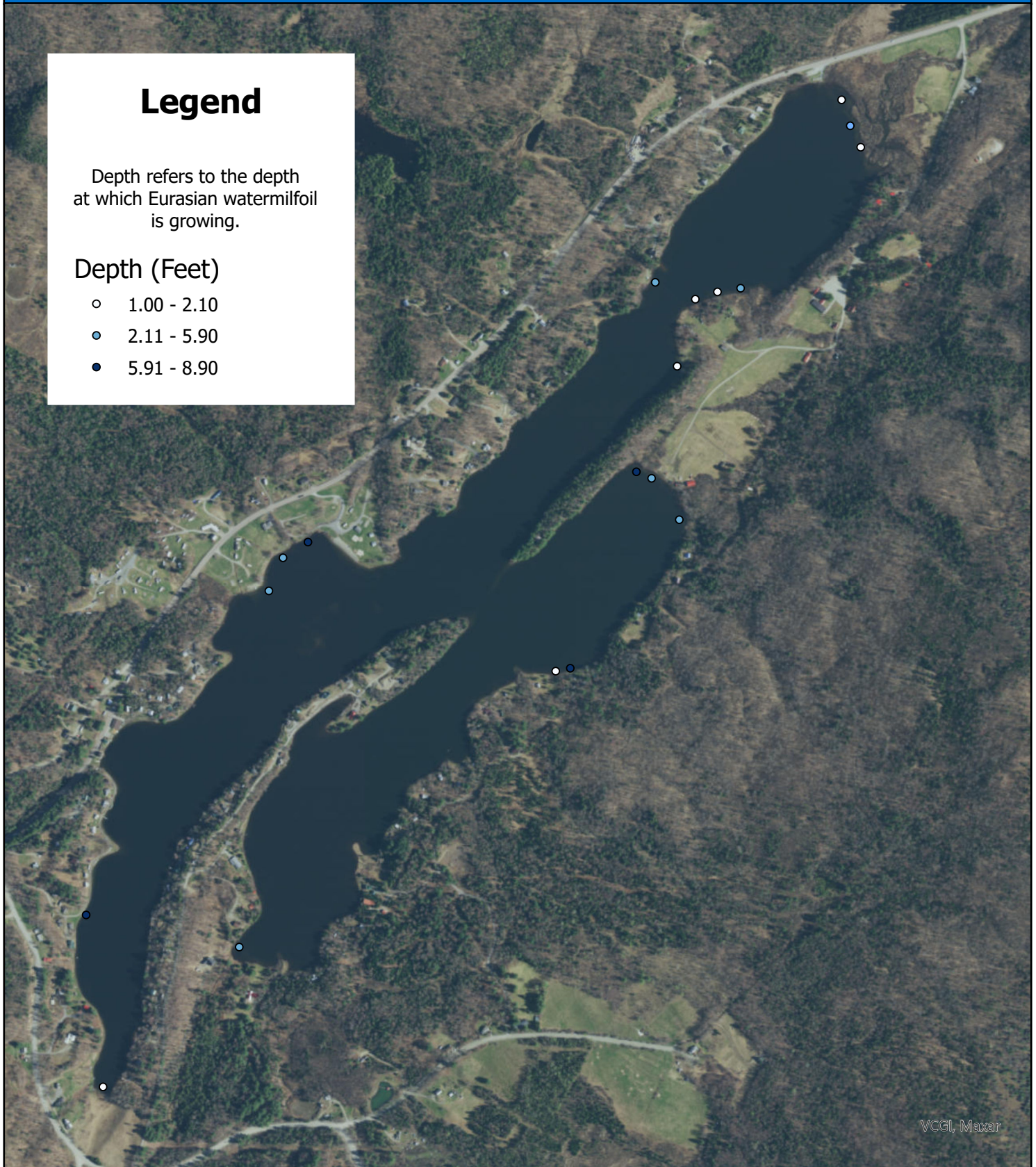


LAKE EDEN

0 0.07 0.15 0.3
Miles

Survey Date: 10/11/2022
Map Date: 12/21/2022
Map Creator: E. Vulgamore
Office: Shrewsbury, MA

Figure 2: 2022 Eurasian watermilfoil Depth



LAKE EDEN
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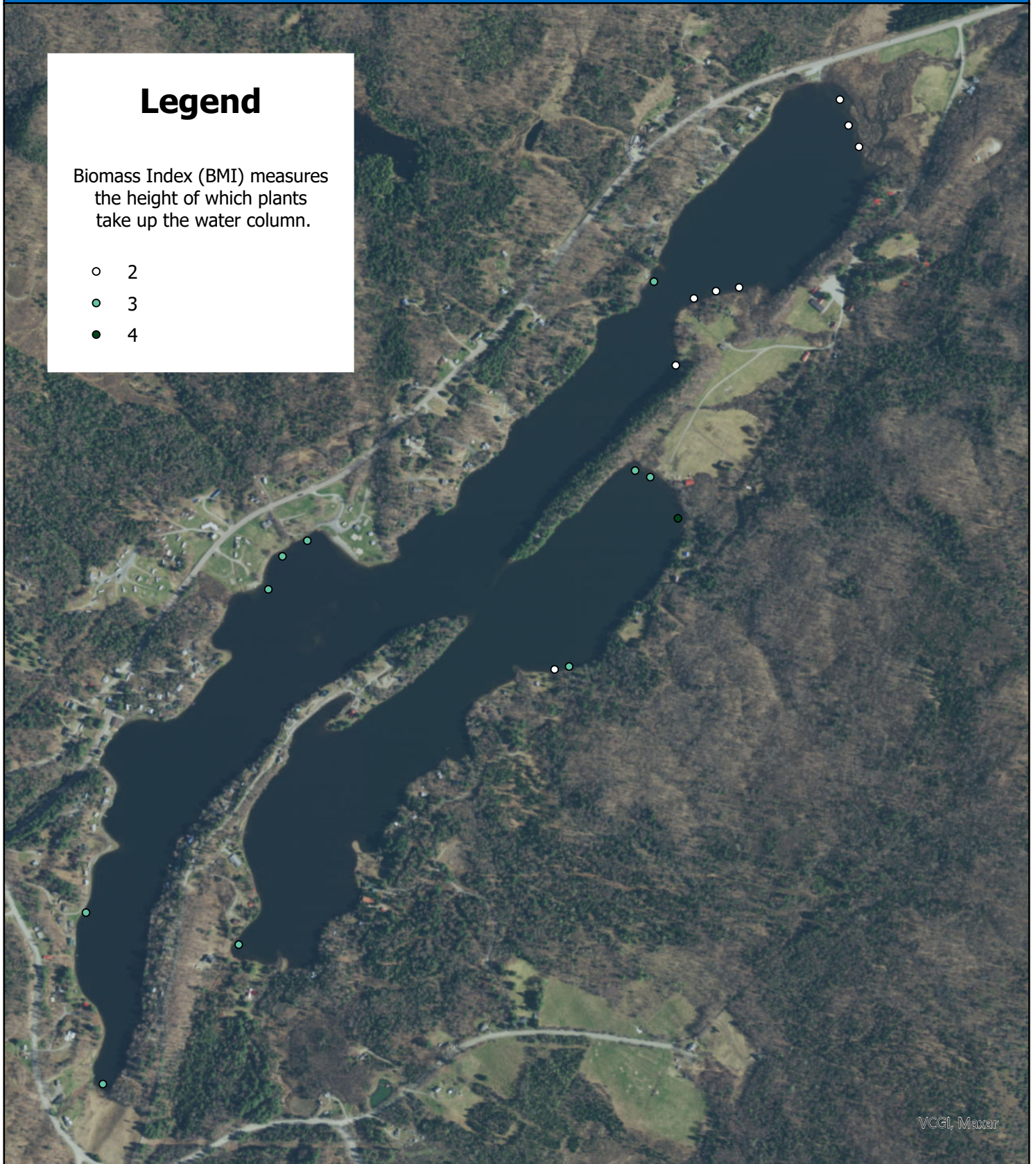
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Figure 3: 2022 Eurasian watermilfoil Biomass Index

Legend

Biomass Index (BMI) measures the height of which plants take up the water column.

- 2
- 3
- 4



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