2020 AQUATIC MANAGEMENT PROGRAM
ANNUAL REPORT
Lake Singletary
Millbury and Sutton, MA

Report Prepared by: Solitude Lake Management
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Please accept the following as our Year-End Report for the Aquatic Management Program performed at Lake Singletary in Millbury and Sutton. The focus of this year's program was to monitor the fanwort (*Cabomba caroliniana*), Eurasian watermilfoil (*Myriophyllum spicatum*), and variable watermilfoil (*Myriophyllum heterophyllum*) infestations and manage the growth with spot-treatment using USEPA/MA DEP registered herbicides. Activities completed as part of this project during the 2018 season are presented in the following sections.

INTRODUCTION

Monitoring and management of vegetation in Lake Singletary has been conducted annually since 1997 as part of an on-going aquatic management program developed to address non-native, invasive fanwort, Eurasian milfoil, and variable milfoil. Annual monitoring helps to track target plant distribution and abundance; monitor changes in the native plant composition; assess effectiveness of invasive plant control efforts; and guide future management goals and actions.

Recent in-lake management has consisted of targeted Reward (diquat) and Clipper (flumioxazin) herbicide treatments in 2014-2020. Half-lake copper sulfate algaecide treatments have been applied periodically to reduce algal cell densities. The following report has been prepared to document the 2020 treatment and the survey work performed by SŌLitude Lake Management this past year.

2020 TREATMENT PROGRAM

A chronology of this past year's management and brief description of events follows.

2020 Program Chronology:

- Applied for MA LTAC permit ..... April 10
- Received approved permit ..... June 22
- Pre-treatment vegetation survey ..... June 16
- Interim Survey ..... July 27
- Submersed vegetation treatment and Half Lake Algaecide Treatment ..... August 12

- Post-treatment vegetation survey ..... October 23

PRE-TREATMENT SURVEY

On June 16, 2020, a SLM biologist conducted a shoreline survey of Lake Singletary. The littoral zone was toured by boat and observations through polarized sunglasses, a throw-rake, and an underwater camera system were utilized to confirm the vegetation assemblage. Native species observed throughout the lake included thin-leaf pondweed (*Potamogeton pusillus*), tape grass (*Vallisneria americana*), Robbins pondweed (*Potamogeton robbinsii*), bushy naiad (*Najas flexilis*), clasping-leaf pondweed (*Potamogeton* perfoliatus), snail-seed pondweed (*Potamogeton bicupulatus*), stonewort (*Nitella sp.*), bladderwort (*Utricularia sp.*), and ribbon-leaf pondweed (*Potamogeton epihydrus*).

Sparse growth of fanwort was observed in the historical areas of the lake, primarily in the southern-most end, the mid-western cove, and the north-eastern cove, with patchy growth along the eastern shoreline (**Figure 1**). Those specific areas are consistently shallow (<13 feet) and therefore provide stable habitat for fanwort growth. Variable watermilfoil was present in the southern-most cove of the reservoir and no new infestations were observed. No Eurasian watermilfoil was observed at this time.

HERBICIDE TREATMENT SUMMARY

A single herbicide application was completed on August 12th to areas of milfoil and nuisance pondweed species Approximately 12.5-acres, coinciding with the presence of these species (Figure 2) were selected for treatment with the herbicide Tribune (diquat). SOLtiude in conjunction with the Association decided not to address areas of fanwort growth as it was sparse and non-problematic in most areas this year. Another reason for holding off on treatment was the state requirement that areas can only be treated with Clipper (flumioxaxin) once every four years. Additionally, based on the sporadic observations of blue-green algae and the warm weather conditions expected to continue, a half-lake copper algaecide treatment was also conducted on this day.

Treatments were performed using a 20-foot Jon Boat and calibrated spray system. On-board GPS was utilized to provide real-time tracking of the treatment boat and ensure even application of the herbicide throughout the designated treatment areas. Prior to treatments, notification was submitted to both the Millbury and Sutton Conservation Commissions. SŌLitude provided the LSWA with hi-visibility posters to put up around the lake detailing the treatment date and water-use restrictions to be imposed following treatments.

POST-TREATMENT SURVEY

The post-treatment survey was conducted on October 23rd (Figure 4 & 5). At this time, no Eurasian or variable watermilfoil was observed and within treatment areas. Fanwort was observed in the historical areas of the lake, but was found in large patches in the trouble-area of the southern-most end of the lake. No variable watermilfoil was observed in the southern-most cove and no Eurasian watermilfoil was observed within the lake. Occasional patches of thin-leaf pondweed were observed on the eastern and in the southern-most end of the lake.

SUMMARY AND ONGOING MANAGEMENT RECOMMENDATIONS

Once again, the spot-treatment of herbicides provided sustainable management of the target species throughout the 2020 season. Native plant species were maintained in non-nuisance densities throughout the summer months; however, thin-leaf and clasping-leaf pondweed are gaining ground along the eastern cove between Old Country Road and Tuttle Road. We anticipate treating historical areas of fanwort infestation, based upon survey results, and any milfoil growth in 2021. Additionally, we recommend being prepared to perform an algaecide treatment next year, if bloom conditions arise.

We trust this report provides a concise summary of the 2020 Aquatic Management Program at Lake Singletary. We look forward to assisting the LSWA again in 2021 to manage Lake Singletary through monitoring and herbicide and/or algaecide treatments. Please feel free to contact us if you have any questions or require additional information.

Figure 1: Pre-Treatment Density & Distribution of Target Species

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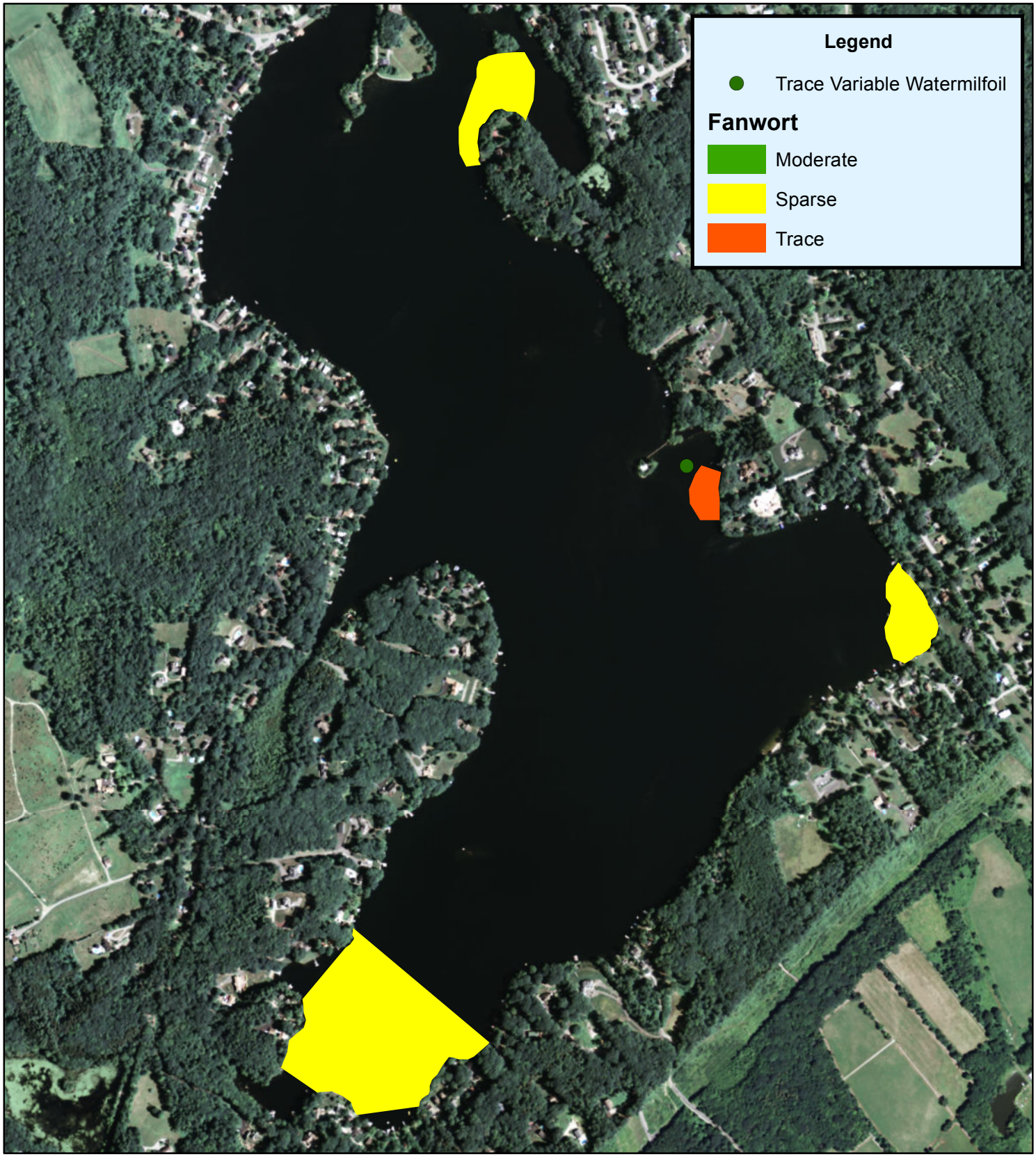

Lake Singletary
Sutton/Millbury, MA

Lake Singletary

0 840 1,680
1:10,500 Feet
N

Map Date: 06/17/2020
Prepared by: ALM
Office: SHREWSBURY, MA

Figure 2: Proposed 2020 Treatment Area

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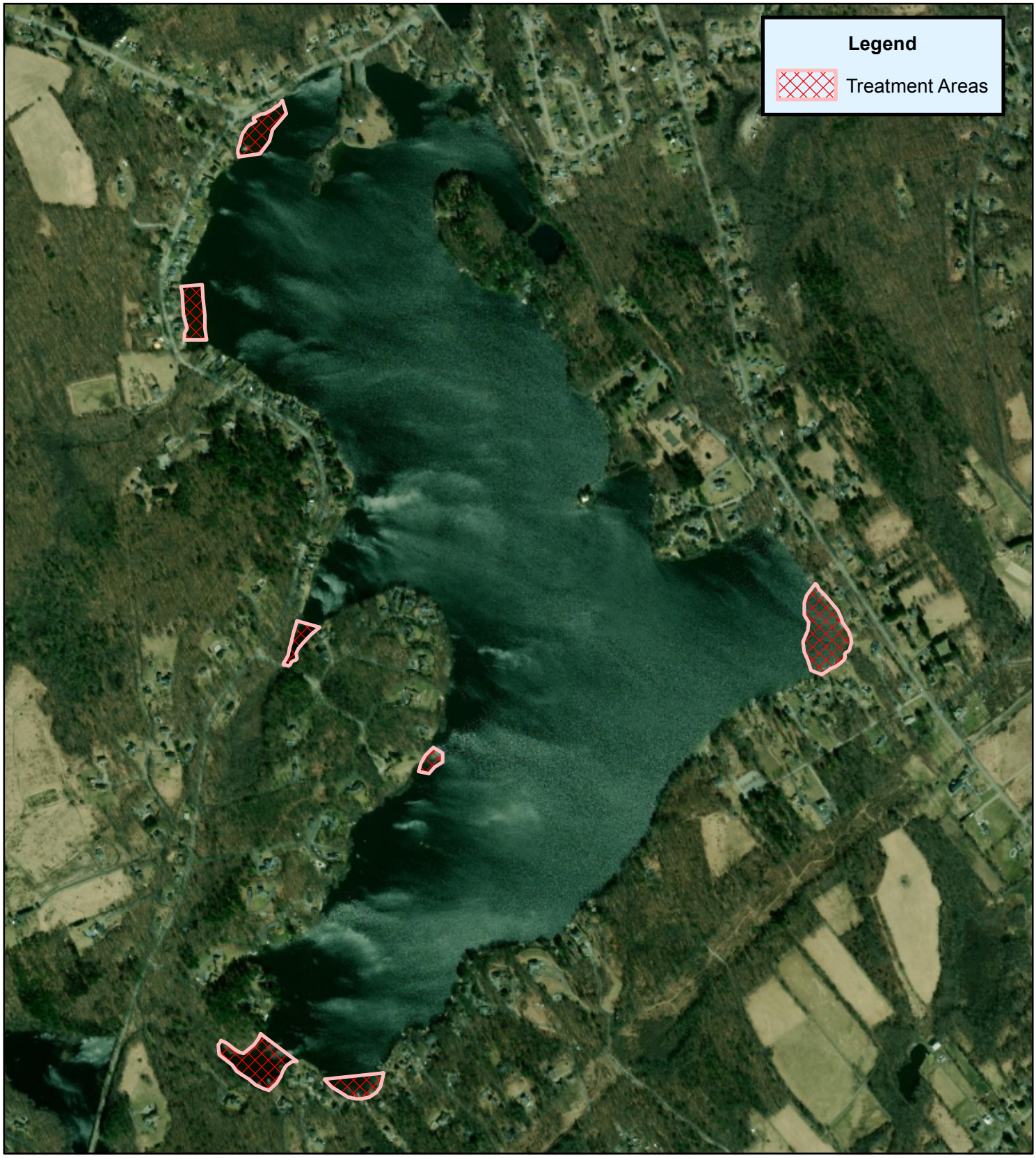

Lake Singletary
Sutton/Millbury, MA

Lake Singletary

0 890 1,780
1:11,646 Feet

N

Map Date: 7/16/2020
Prepared by: DMM
Office: SHREWSBURY, MA

Figure 3: July Density & Distribution of Target Species

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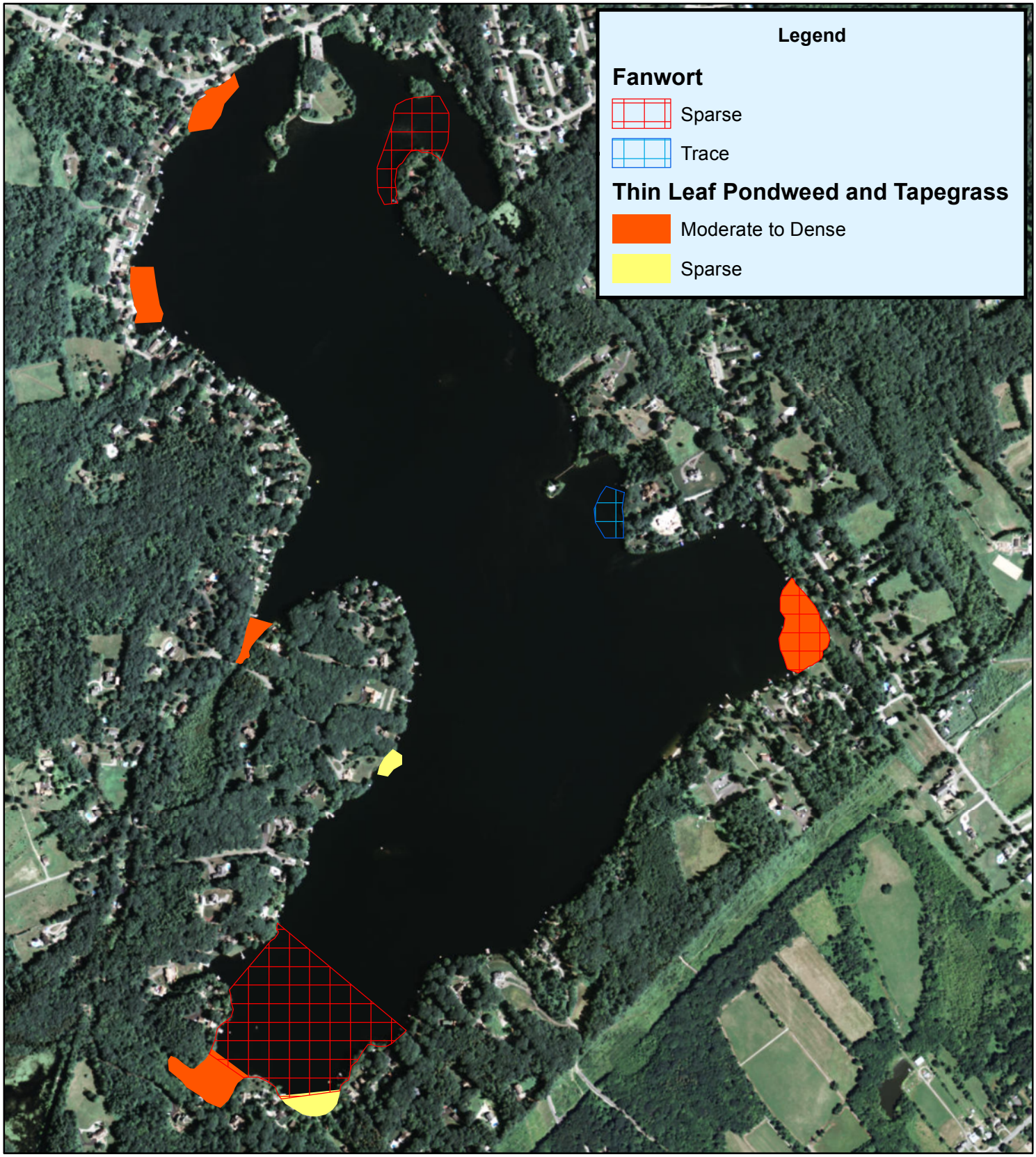

Lake Singletary
Sutton/Millbury, MA

Lake Singletary

0 900 1,800
1:11,115 Feet
N

Map Date: 07/27/2020
Prepared by: ALM
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Figure 4: Post-Treatment Density & Distribution of Invasive Species

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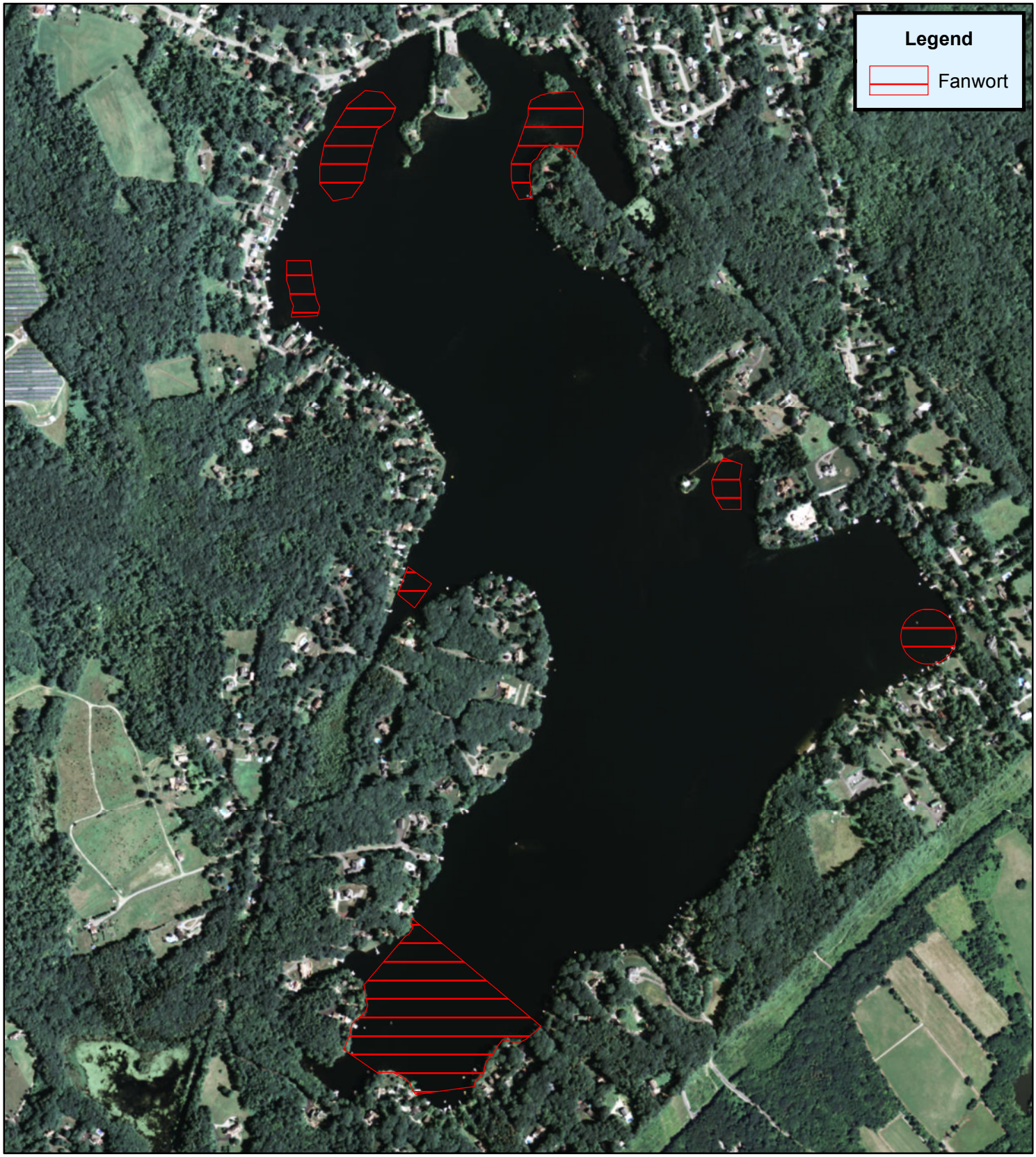

Lake Singletary
Sutton/Millbury, MA

Lake Singletary

0 900 1,800
1:11,115 Feet
N

Map Date:11/12/2020
Prepared by: ALM
Office: SHREWSBURY, MA

Figure 5: Distribution of Native Aquatic Vegetation

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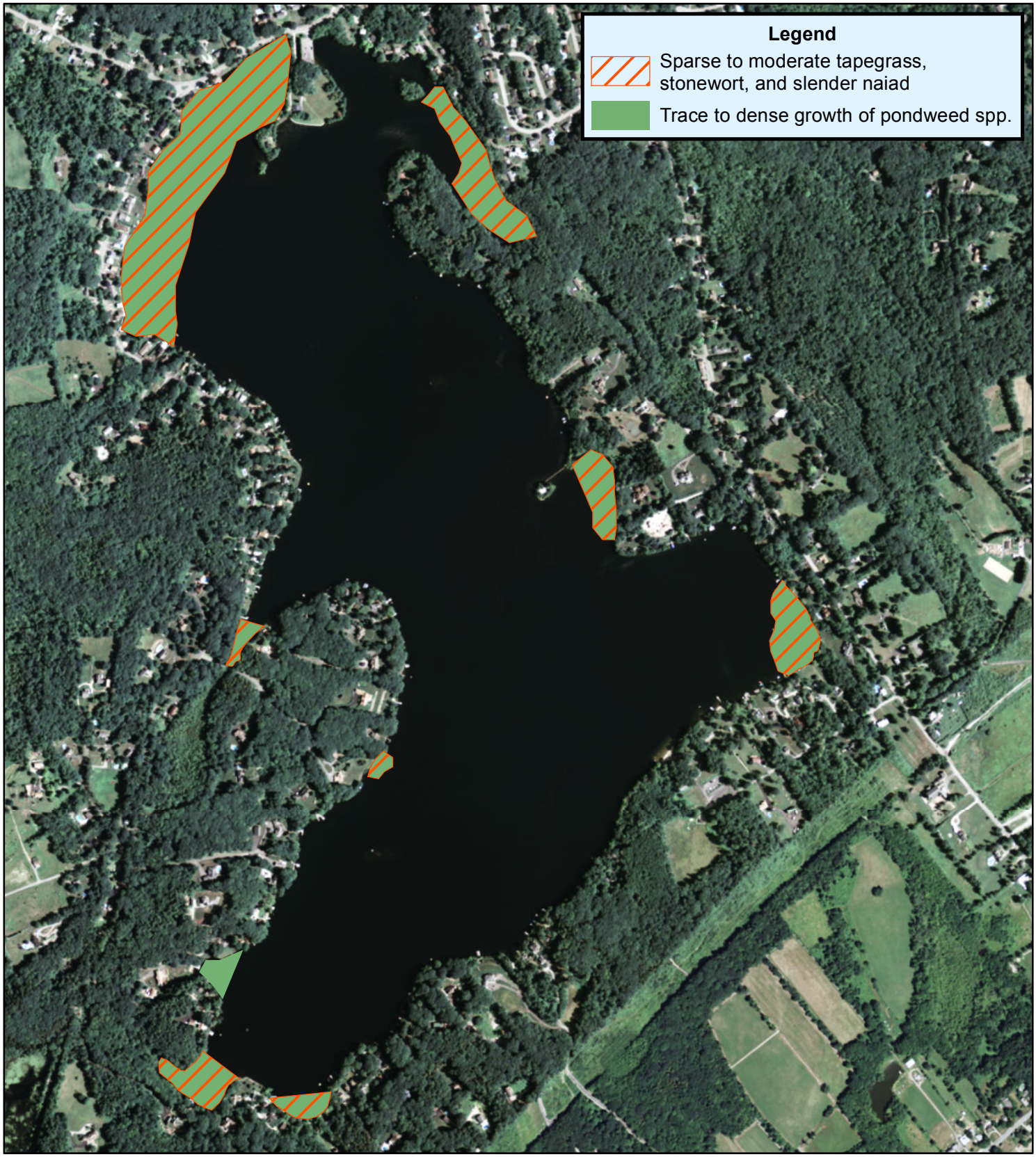

Lake Singletary
Sutton/Millbury, MA

Lake Singletary

0 900 1,800
1:11,115 Feet
N

Map Date:11/12/2020
Prepared by: ALM
Office: SHREWSBURY, MA