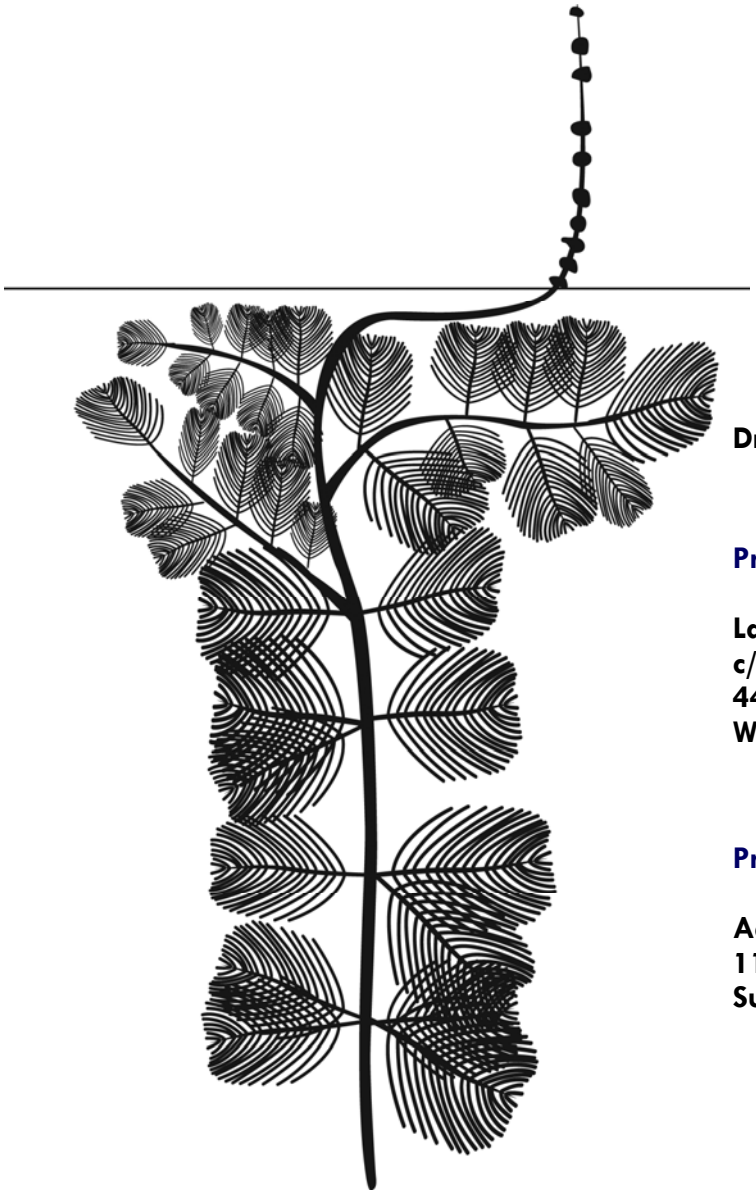
Lake St. Catherine

Aquatic Vegetation Management Program
2009 - Year Six Report



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INTRODUCTION

The 2009 season represented the sixth year of Aquatic Control's involvement in the Integrated Management Plan at Lake St. Catherine aimed at the control of non-native Eurasian watermilfoil in the lake. Management for milfoil was initiated in 2004 with a whole-lake Sonar (fluridone) application. The 2004 treatment was successful, significantly reducing milfoil coverage throughout the system; however, in the years following milfoil growth persisted, requiring additional management. Consistent with the initial Five Year management Plan (2004-2008) developed for Lake St. Catherine, management following the 2004 Sonar application focused on the control of milfoil in problematic and high-priority areas of the lake using area-specific spot-treatments with Renovate (triclopyr) herbicide coupled with diver assisted suction harvesting and hand-pulling. Following the conclusion of the original Five Year Management Plan in 2008 a second Five Year Management Plan (2009-2013) was prepared with the continued focus on control of Eurasian watermilfoil in the lake.

Management actions in 2009 included spot-treatment of seven areas totaling approximately 140 acres as well as diver hand-pulling and diver assisted suction harvesting. The following report summarizes the results of 2009 Treatment Program and details findings from the comprehensive aquatic plant survey. Recommendations for the 2010 season have also been included based on the results of the work performed in 2009. Specific information on the 2009 diver hand-pulling and diver assisted suction harvesting efforts will be provided by the Lake St. Catherine Association (LSCA) under a separate cover.

HERBICIDE TREATMENT PROGRAM - 2009

Program Chronology

A chronology of the 2009 treatment program is provided below:

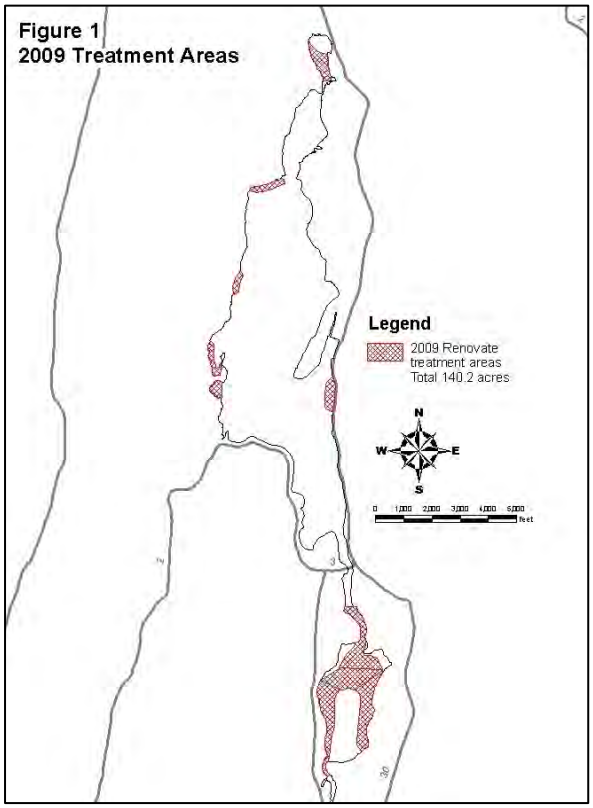
- DEC permit issuance (ANC 2009-C02)..... May 16
- Pre-treatment inspection and finalize treatment areas..... May 29
- Treatment of approximately 140 acres with Renovate OTF & Renovate 3..... June 16
- Herbicide residue monitoring..... June 17, June 26, July 13, July 29 & Sept. 2
- Post-treatment inspections .....July 16
- Comprehensive aquatic plant survey ..... September 17-18

2009 Treatment Scope

Potential treatment areas for the 2009 season were based on the milfoil distribution identified during the late season survey in 2008 and were prioritized by several factors including: the potential for increased milfoil spread; the potential for effective treatment; and the overall benefit of milfoil control with respect to the lake, lake residents and other potential users.

Initially 12 areas, totaling approximately 125 acres were identified as potential treatment areas following the September 2008 survey. Lily Pond, the channel between the main lake and Little Lake, the north end of Little Lake, and several shoreline areas in the main lake were considered.

A pre-treatment survey was performed on May 29, 2009. At the time of the inspection the milfoil was actively growing and in most areas was 3-5 feet tall. Final decisions regarding the 2009 treatment areas were made based on the observations made during the May 29 survey. Determining factors included: targeting high-use areas to reduce the potential for fragmentation and further milfoil spread; targeting areas that were not judged to be effective for hand-pulling or suction harvesting; and priority areas identified by LSCA in consideration of budgetary constraints.



Final treatment areas (Figure 1) were located along the western shoreline and in both Lily Pond and Little Lake; only one area along the eastern shore was targeted for treatment. The final treatment scope included 7 treatment areas ranging from 3.5 acres to 101 acres. In total, approximately 140 acres were targeted for treatment. Based on the morphology of treatment areas both liquid Renovate 3 and granular Renovate OTF were selected for use in 2009. Renovate 3 liquid was applied in both Lily Pond and Little Lake. The herbicide was applied at 0.75 ppm calculated on the entire water column. Renovate OTF granular was used in the more exposed areas in Lake St. Catherine to minimize dilution and maximize herbicide contact time in these areas. Renovate OTF was applied at 2.25 ppm based on the bottom four feet of the water column.

Summary of 2009 Treatment

The treatment date of Tuesday, June 16, 2009 was selected to allow enough time to comply with the notification requirements of ANC Permit #2009-C02 and so that the two-day swimming restriction (day of treatment and one additional day) would not be imposed over a weekend.

Weather conditions on the day of treatment were partly sunny, with an air temperature ranging between 69-72° F. Wind was out of the east, estimated at <5 mph and did not interfere with treatment. Prior to treatment, water temperature was measured using a YSI Temperature/Dissolved Oxygen meter. Within treatment areas, water temperatures were nearly uniform at 69-71° F to depths of 15 feet.

The treatment was conducted using two boats, one airboat and one aluminum work skiff. The airboat was equipped with a calibrated spray system to inject a diluted solution of Renovate 3 liquid subsurface through weighted hoses. The skiff was outfitted with a granular eductor spray system that fed the granular herbicide into a stream of water using a calibrated venturi-type eductor. The mixture was then sprayed off the stern of the boat using fan-pattern nozzles. This system allowed for the granular herbicide to be evenly distributed throughout the treatment areas and "flash-mixing" the granules with water before application significantly reduced the potential for airborne dust and off-target drift. Both boats were equipped with Differential/WAAS GPS navigation systems to insure that the herbicide was evenly applied to the designated treatment areas. A total of 303 gallons of Renovate 3 (liquid) and 6,720 pounds of Renovate OTF (granular) were applied to the designated treatment areas. The herbicide was applied in approximately 8 hours.

Herbicide Residue Testing

In compliance with conditions of the ANC Permit #2009-C02, water samples were collected from 14 locations within and immediately downstream of Lake St. Catherine following treatment for analysis of triclopyr concentrations. Sampling was required 24 hours following treatment and then at least monthly until concentrations at all sample locations dropped below 75 ppb, which was the drinking water

restriction imposed by DEC. Additional sampling was then required until concentrations were <1 ppb before the irrigation restriction could be lifted.

A map of the sampling locations is attached to the end of this report (Appendix A). Sampling instructions and sample bottles were provided to LSCA representatives by ACT and SePRO. Collected samples were shipped via overnight delivery to SePRO's laboratory in Whittakers, North Carolina.

Samples were collected on June 17, June 26, July 13, July 29 & September 2. The highest in-lake concentration detected during the 24-hour sampling round was 1.17 ppm in Lily Pond, which was the most enclosed treatment area. The in-lake average for all sampled areas 24-hours post-treatment averaged roughly 0.19 ppm or 190 ppb. On June 26, which was 11 days post-treatment the in-lake concentrations had dropped significantly to 0.057 ppm or 57 ppb and were uniform in many of the sampled locations. Concentrations, however, did not drop below the 75 ppb drinking water threshold in all sample locations until the July 29 sampling round. Finally, on September 2, 78 days post-treatment the concentration was <1 ppb at all sites tested and all water use restrictions were lifted.

In 2008, the in-lake concentrations dropped to <1 ppb within 30 days of treatment. While approximately 25% more Renovate OTF was applied in 2009 as compared to 2008, the time required to drop to non-detect levels nearly tripled. Similarly slow degradation rates were seen at Lake Morey and Saratoga Lake in 2009. One possible explanation is that this was partially caused by the cloudy and rainy conditions experienced during the months of June and July

Post –Treatment Surveys

Treatment areas were surveyed on July 16 by Marc Bellaud with Sarah Miller from SePRO. All of the treatment areas were toured by boat to visually evaluate impacts to the targeted milfoil and to the non-target plants.

At the time of the survey, milfoil throughout the treatment areas was showing signs of impact. In Lily Pond and Little Lake, where Renovate 3 liquid was used, milfoil plants were mostly gone. Remaining milfoil plants were considerably damaged. Milfoil control in the main basin varied between treatment plots, but was generally greater in the larger cove areas where dilution was less significant. Treatment impact in the more exposed treatment plots along the northwestern shoreline was less dramatic where scattered milfoil remained erect in the water column. Most of the remaining plants did, however, show signs of epinasty (bending and twisting associated with triclopyr exposure). In general, the native plant community within the respective treatment areas appeared to be healthy and not adversely impacted by the treatment. Several species were observed including but not limited to: *Potamogeton amplifolius, P. Illinoensis, Elodea canadensis, P. epihydrus, P. zosteriformis* and *P. robbinsii*.

LATE SEASON COMPREHENSIVE AQUATIC VEGETATION SURVEY

Survey Methods

The late season comprehensive aquatic vegetation survey conducted on September 17 and 28, 2009 replicated the methods that were employed in the previous years of this management program.

All three major lake basins were systematically toured by boat. Transect and data point locations established in 2001, were relocated using a Differential GPS system (Appendix B – Figure 1). The following information was recorded at each data point: aquatic plants present, dominant species, percent total plant cover, plant biomass and percent milfoil cover. Water depths that were recorded during the

pre-treatment survey were checked using a high-resolution depth finder. In most cases, the water depth at the data point was within 1 foot of what was recorded during the pre-treatment inspection. The plant community was assessed through visual inspection, use of a long-handled rake and throw-rake, and with an Aqua-Vu underwater camera system. Plants were identified to genus and species level when possible. Plant cover was given a percentage rank based on the areal coverage of plants within an approximate 400 square foot area assessed at each data point. Generally, in areas with 100% cover, bottom sediments could not be seen through the vegetation. Percentages less than 100% indicated the amount of bottom area covered by plant growth. The percentage of Eurasian watermilfoil was also recorded at each data point. In addition to cover percentage, a plant biomass index was assigned at each data point to document the amount of plant growth vertically through the water column. Plant biomass was estimated on a scale of 0-4, as follows:

0 No biomass; plants generally absent
1 Low biomass; plants growing only as a low layer on the sediment
2 Moderate biomass; plants protruding well into the water column but generally not reaching the water surface
3 High biomass; plants filling enough of the water column and/or covering enough of the water surface to be considered a possible recreational nuisance or habitat impairment
4 Extremely high biomass; water column filled and/or surface completely covered, obvious nuisance conditions and habitat impairment severe

Field data recorded at each transect and data point location is provided in the Field Survey Data Table found in Appendix B.

Survey Findings

The overall distribution and quantitative measures of the aquatic plant community were comparable to prior years.

Table 1: Summary of Survey Data

LILY POND	2001	2004	2005	2006	2007	2008	2009
Total Number of Data Points	24	24	24	22	24	24	24
Total Plant Cover	90%	80%	98%	88%	91%	98%	94%
Milfoil Cover	9%	6%	2%	0%	2%	7%	<1%
Plant Biomass Index	3.1	2.5	3.3	2.5	2.8	3.3	2.7

LAKE ST. CATHERINE							
Total Number of Data Points	129	129	129	129	129	129	129
Total Plant Cover	66%	46%	51%	57%	58%	66%	58%
Milfoil Cover	43%	16%	0%	4%	11%	4%	5%
Plant Biomass Index	1.9	1.5	1.6	1.8	2.0	2.0	2.0

LITTLE LAKE							
Total Number of Data Points	43	43	43	43	43	43	43
Total Plant Cover	72%	66%	78%	83%	83%	77%	58%
Milfoil Cover	15%	0%	0%	2%	7%	10%	<1%
Plant Biomass Index	2.3	2.1	2.4	2.9	2.8	2.7	2.2

Table 2: Species List and Frequency of Occurrence (entire lake system)

Macrophyte Species	Common Name	2001	2004	2005	2006	2007	2008	2009
Potamogeton robbinsii	Pondweed	52%	76%	88%	74%	77%	68%	84%
Myriophyllum spicatum	Eurasian watermilfoil	94%	44%	17%	33%	74%	65%	38%
Potamogeton amplifolius	Large-leaf	33%	38%	43%	49%	52%	53%	51%
Najas flexilis	Naiad	22%	0%	8%	39%	34%	22%	15%
Potamogeton illinoensis	Illinois pondweed	4%	1%	2%	9%	23%	39%	29%
Potamogeton zosteriformis	Flat-stem pondweed	28%	3%	29%	29%	23%	19%	16%
Zosterella dubia	Water stargrass	1%	1%	9%	8%	23%	17%	7%
Ceratophyllum demersum	Coontail	20%	8%	11%	12%	21%	18%	17%
Nitella / Chara	Stonewort	17%	6%	36%	40%	14%	14%	13%
Nymphaea odorata	White waterlily	16%	5%	11%	10%	11%	11%	10%
Valisneria americana	Wild celery/Tapegrass	29%	13%	2%	4%	9%	8%	15%
Brasenia schreberi	Watershield	4%	8%	7%	7%	7%	6%	5%
Utricularia vulgaris	Common bladderwort	8%	9%	2%	6%	7%	7%	11%
Elodea canadensis	Waterweed	32%	1%	1%	1%	5%	43%	60%
Chlorophyta	Filamentous green algae	2%	37%	26%	7%	4%	8%	3%
Potamogeton crispus	Curly-leaf pondweed	2%	1%	7%	5%	3%	1%	0%
Potamogeton epihydrus	Ribbon-leaf pondweed	2%	6%	7%	3%	3%	5%	1%
Nuphar variegatum	Yellow waterlily	5%	5%	5%	2%	2%	1%	2%
Potamogeton gramineus	Variable pondweed	23%	1%	6%	6%	2%	4%	4%
Isoetes sp.	Quillwort	2%	6%	2%	5%	2%	3%	1%
Utricularia gibba	Creeping bladderwort	2%	0%	1%	5%	1%	1%	4%
Eleocharis sp.	Spikerush	1%	1%	1%	0%	0%	0%	0%
Lemna minor	Duckweed	7%	1%	0%	1%	0%	1%	1%
Megalodonta beckii	Water marigold	3%	0%	0%	0%	0%	0%	0%

Lily Pond

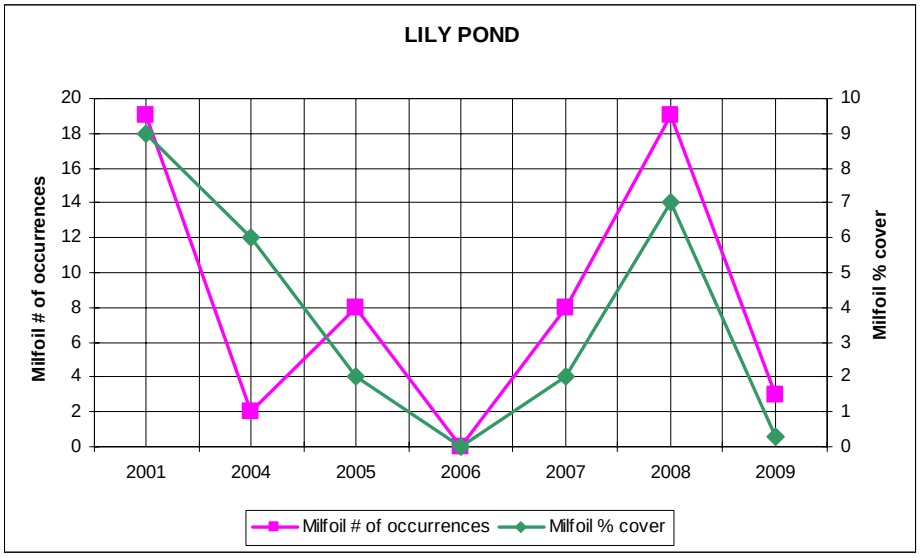
Renovate 3 liquid herbicide was applied to Lily Pond in 2009. Milfoil distribution following treatment was reduced significantly, decreasing from a pre-treatment frequency of occurrence of 79.2% to 12.5% (3 occurrences) in September 2009. Cover of milfoil was also reduced significantly from an estimated 7% to <1% following treatment. Native species in Lily Pond remained healthy following treatment with both cover and distribution similar to what has been recorded in previous years. Robbins Pondweed remained the most abundant plant in the basin followed closely by largeleaf pondweed and coontail. Although some reductions in flat-stem pondweed and water stargrass were recorded post-treatment, frequency and cover of most other native plants remained consistent with documented pre-treatment conditions.

Table 3: Lily Pond – Species List and Frequency of Occurrence

Macrophyte Species	Lily Pond						
	2001	2004	2005	2006	2007	2008	2009
Potamogeton robbinsii	95.8%	91.7%	95.8%	95.5%	91.7%	87.5%	95.8%
Ceratophyllum demersum	70.8%	4.2%	50.0%	45.5%	83.3%	83.3%	83.3%
Potamogeton amplifolius	33.3%	100.0%	91.7%	77.3%	79.2%	87.5%	91.7%
Potamogeton illinoensis	0.0%	4.2%	8.3%	9.1%	45.8%	41.7%	25.0%
Myriophyllum spicatum	79.2%	8.3%	33.3%	0.0%	33.3%	79.2%	12.5%
Potamogeton zosteriformis	58.3%	8.3%	62.5%	0.0%	25.0%	45.8%	12.5%
Zosterella dubia	4.2%	0.0%	37.5%	0.0%	25.0%	20.8%	8.3%
Nymphaea odorata	62.5%	16.7%	29.2%	9.1%	20.8%	25.0%	33.3%
Potamogeton crispus	4.2%	4.2%	4.2%	4.5%	12.5%	0.0%	0.0%
Chlorophyta	0.0%	29.2%	95.8%	31.8%	8.3%	29.2%	12.5%
Elodea canadensis	29.2%	0.0%	8.3%	0.0%	8.3%	29.2%	45.8%
Utricularia vulgaris	29.2%	37.5%	0.0%	27.3%	4.2%	12.5%	16.7%
Chara sp. / Nitella sp.	0.0%	0.0%	0.0%	4.5%	4.2%	0.0%	0.0%
Wolffia sp.	0.0%	0.0%	0.0%	4.5%	4.2%	0.0%	0.0%
Potamogeton epihydrus	0.0%	12.5%	4.2%	0.0%	4.2%	4.2%	4.2%
Potamogeton gramineus	16.7%	0.0%	8.3%	0.0%	4.2%	0.0%	8.3%
Utricularia gibba	0.0%	0.0%	0.0%	40.9%	0.0%	0.0%	4.2%
Potamogeton natans	0.0%	0.0%	0.0%	9.1%	0.0%	8.3%	8.3%
Lemna minor	45.8%	8.3%	0.0%	4.5%	0.0%	0.0%	0.0%
Brasenia schreberi	4.2%	4.2%	0.0%	0.0%	0.0%	0.0%	0.0%
Isoetes sp.	0.0%	4.2%	0.0%	0.0%	0.0%	0.0%	0.0%
Najas flexilis	4.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Nuphar variegatum	16.7%	16.7%	16.7%	0.0%	0.0%	0.0%	0.0%
Vallisneria americana	33.3%	45.8%	0.0%	0.0%	0.0%	0.0%	8.3%

Milfoil frequency and cover was reduced was throughout Lily Pond being encountered at only 3 of the 24 (12.5%) data point locations. Milfoil cover where found was very low generally consisting of only a few widely scattered plants.

Chart 1: *Myriophyllum spicatum* Number of Occurrences and Percent Cover



Lake St. Catherine (Main Basin)

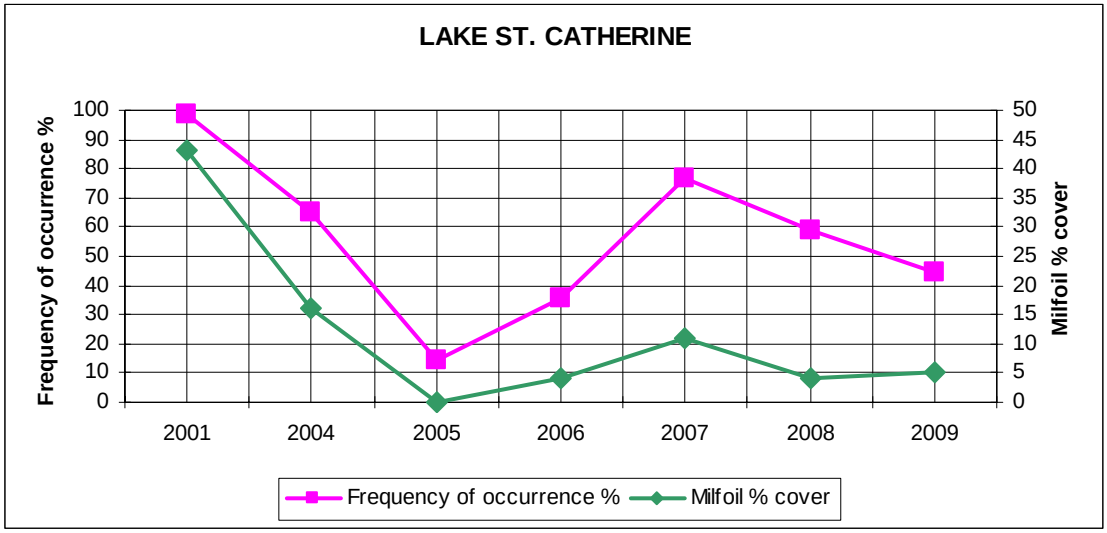
The distribution of native plant species in the main basin of Lake St. Catherine was consistent with previous findings. Again, the most notable change in the vegetative community was the continued expansion in both density and distribution of *Elodea canadensis* which increased in frequency by an additional 20% between 2008 and 2009. Elodea is now one of the most abundant aquatic plants in Lake St. Catherine increasing in frequency from almost 5% in 2007 to over 70% in 2009. A 20% increase in frequency of Robbins pondweed was also recorded in 2009 increasing from approximately 58% in 2008 to greater than 78% in 2009. Frequency and cover of other native plants remained relatively consistent with only minor fluctuations between 2008 & 2009.

Table 4: Lake St. Catherine – Species List and Frequency of Occurrence (main basin)

Macrophyte Species	Lake St. Catherine						
	2001	2004	2005	2006	2007	2008	2009
Myriophyllum spicatum	98.4%	65.1%	14.7%	35.7%	76.7%	58.9%	44.2%
Potamogeton robbinsii	31.0%	65.1%	82.2%	62.0%	66.7%	58.1%	78.3%
Najas flexilis	19.4%	0.0%	12.4%	56.6%	50.4%	34.1%	21.7%
Potamogeton amplifolius	28.7%	14.7%	25.6%	34.1%	38.8%	38.0%	41.1%
Potamogeton zosteriformis	24.0%	2.3%	31.0%	41.9%	27.9%	18.6%	19.4%
Zosterella dubia	0.0%	0.8%	4.7%	11.6%	27.9%	21.7%	7.8%
Chara sp. / Nitella sp.	1.6%	17.1%	62.0%	57.4%	20.9%	21.7%	19.4%
Potamogeton illinoensis	6.2%	0.8%	0.8%	8.5%	15.5%	34.1%	23.3%
Potamogeton pusillus	0.0%	0.0%	0.0%	5.4%	12.4%	6.3%	5.4%
Ceratophyllum demersum	10.9%	10.9%	6.2%	7.0%	10.9%	10.1%	7.8%
Vallisneria americana	14.0%	3.1%	0.8%	3.1%	8.5%	9.3%	13.2%
Elodea canadensis	27.9%	0.0%	0.0%	0.8%	4.7%	51.9%	71.3%
Nymphaea odorata	3.1%	1.6%	2.3%	3.1%	3.1%	3.1%	3.1%
Brasenia schreberi	0.0%	0.8%	0.8%	2.3%	2.3%	2.3%	2.3%
Chlorophyta	0.0%	43.4%	14.7%	3.1%	2.3%	3.9%	0.8%
Isoetes sp.	2.3%	8.5%	0.8%	6.2%	2.3%	4.7%	0.0%
Potamogeton gramineus	17.8%	0.0%	4.7%	1.6%	2.3%	6.2%	3.1%
Potamogeton crispus	1.6%	0.0%	9.3%	5.4%	1.6%	0.8%	0.0%
Potamogeton epihydrus	2.3%	3.1%	5.4%	2.3%	0.8%	3.9%	0.8%
Nuphar variegatum	0.8%	0.0%	0.0%	0.8%	0.8%	0.0%	0.0%
Utricularia vulgaris	0.8%	0.8%	0.8%	0.0%	0.0%	1.6%	0.8%
Lemna minor	1.6%	0.0%	0.0%	0.0%	0.0%	0.8%	0.8%
Megalodonta beckii	1.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

Some decrease in milfoil cover was realized between 2008 and 2009, however, milfoil was still regularly encountered, found at just over 44% of the data points surveyed in the main basin. Although milfoil remains widespread throughout much of the main basin of the lake, overall decreases in frequency are a testament to the success of the Renovate spot treatments and the suction harvesting in Lake St. Catherine. Save for a few larger, dense patches, most of the milfoil encountered in the main basin was scattered, low-density growth, averaging just 11.13% cover in the 56 data points where encountered. Averaged across the 129 data points surveyed in the main basin this represents an average milfoil cover of under 5% (4.8%). As depicted by Chart 2 (below) this represents a year-to-year decrease in milfoil frequency and a slight increase in cover where encountered.

Chart 2: *Myriophyllum spicatum* Frequency of Occurrence and Percent Cover



Little Lake

Robbins pondweed and largeleaf pondweed continue to dominate the aquatic plant community in Little Lake. These two broad-leaved pondweeds were found throughout the basin and accounted for a majority of the plant density recorded during the survey. Illinois pondweed and bladderwort were also common in Little Lake, encountered at 49% and 35% of the surveyed data points, respectively. With the exception of waterweed and tapegrass which had notable increases, the frequency of occurrence for most other native plants remained consistent with previous years.

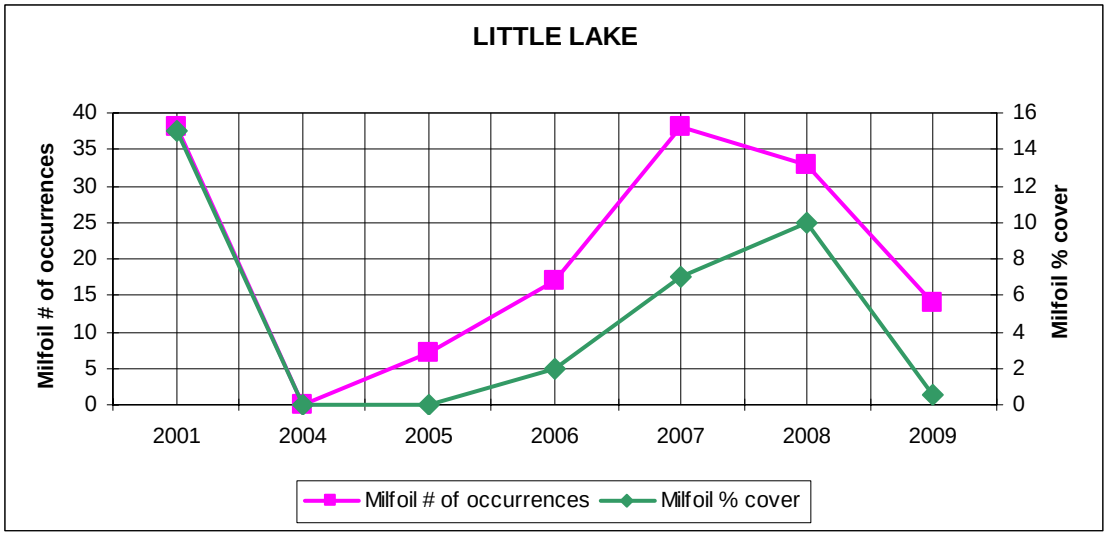
Table 5: Little Lake – Species List and Frequency of Occurrence

Macrophyte Species	Little Lake						
	2001	2004	2005	2006	2007	2008	2009
Potamogeton robbinsii	88.4%	100.0%	100.0%	100.0%	100.0%	88.4%	95.3%
Myriophyllum spicatum	88.4%	0.0%	16.3%	39.5%	88.4%	76.7%	32.6%
Potamogeton amplifolius	44.2%	72.1%	69.8%	76.7%	74.4%	76.7%	55.8%
Potamogeton illinoensis	0.0%	0.0%	0.0%	9.3%	32.6%	46.5%	48.5%
Utricularia vulgaris	16.3%	18.6%	7.0%	11.6%	30.2%	18.6%	34.9%
Nymphaea odorata	30.2%	9.3%	25.6%	30.2%	27.9%	10.1%	18.6%
Brasenia schreberi	14.0%	30.2%	30.2%	23.3%	25.6%	20.9%	14.0%
Ceratophyllum demersum	20.9%	0.0%	2.3%	9.3%	16.3%	7.0%	9.3%
Vallisneria americana	72.1%	25.6%	7.0%	9.3%	14.0%	9.3%	25.6%
Potamogeton zosteriformis	23.3%	2.3%	4.7%	4.7%	7.0%	4.7%	7.0%
Zosterella dubia	2.3%	2.3%	4.7%	0.0%	7.0%	2.3%	4.7%
Potamogeton pusillus	0.0%	0.0%	0.0%	2.3%	7.0%	2.3%	0.0%
Chlorophyta	7.0%	20.9%	20.9%	4.7%	7.0%	9.3%	2.3%
Nuphar variegatum	9.3%	14.0%	11.6%	7.0%	7.0%	2.3%	7.0%
Potamogeton epihydrus	0.0%	11.6%	14.0%	7.0%	7.0%	7.0%	0.0%
Utricularia gibba	7.0%	0.0%	2.3%	0.0%	4.7%	2.3%	14.0%
Najas flexilis	39.5%	0.0%	0.0%	4.7%	2.3%	0.0%	4.7%

Macrophyte Species	Little Lake						
	2001	2004	2005	2006	2007	2008	2009
Elodea canadensis	46.5%	4.7%	0.0%	0.0%	2.3%	23.3%	34.9%
Chara sp. / Nitella sp.	7.0%	4.7%	7.0%	11.6%	0.0%	0.0%	2.3%
Potamogeton gramineus	41.9%	4.7%	9.3%	23.3%	0.0%	0.0%	4.7%
Isoetes sp.	0.0%	0.0%	4.7%	2.3%	0.0%	0.0%	2.3%
Potamogeton crispus	0.0%	0.0%	0.0%	2.3%	0.0%	0.0%	0.0%
Polygonum sp.	0.0%	0.0%	0.0%	2.3%	0.0%	0.0%	0.0%
Eleocharis sp.	4.7%	4.7%	4.7%	0.0%	0.0%	0.0%	0.0%
Megalodonta beckii	7.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

Although treated with Renovate 3 some low density milfoil growth remained in Little Lake following treatment. Where encountered milfoil growth was immature and low growing, generally consisting of one or a few scattered plants. Though somewhat widespread, cover of milfoil in the basin was very low (<1%).

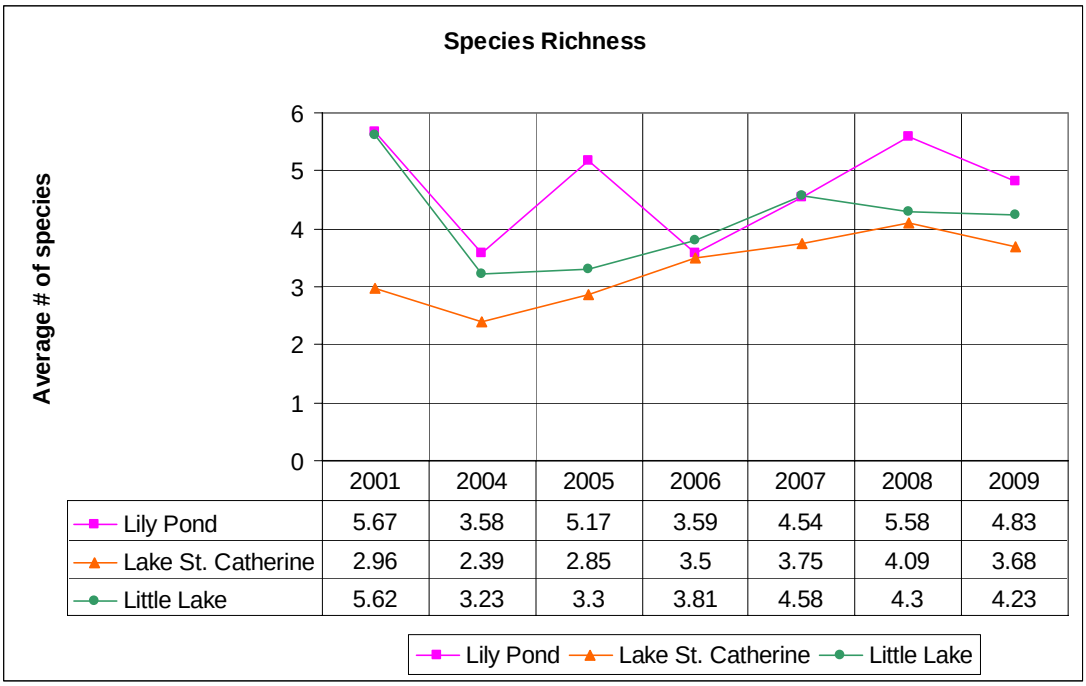
Chart 3: *Myriophyllum spicatum* Number of Occurrences and Percent Cover



Species Richness

Species richness was consistent in all three basins findings from the past three years. It does not appear that the triclopyr herbicide treatments have adversely impacted species richness or native plant diversity.

Table 6: Species Richness by Basin



Evaluation of 2009 Treatment Areas

Overall treatment in 2009 provided very good control of milfoil in the treated areas. Although milfoil was slow to die in some of the more exposed treatment areas in the main basin, near complete control was achieved in all of the treatment plots by the time that the September survey was conducted. Some low-density, widely scattered milfoil regrowth was seen in both Lily Pond and Little Lake in September, but both the frequency and percent cover observed were extremely low. Milfoil did persist in varying densities in untreated portions of the main basin.

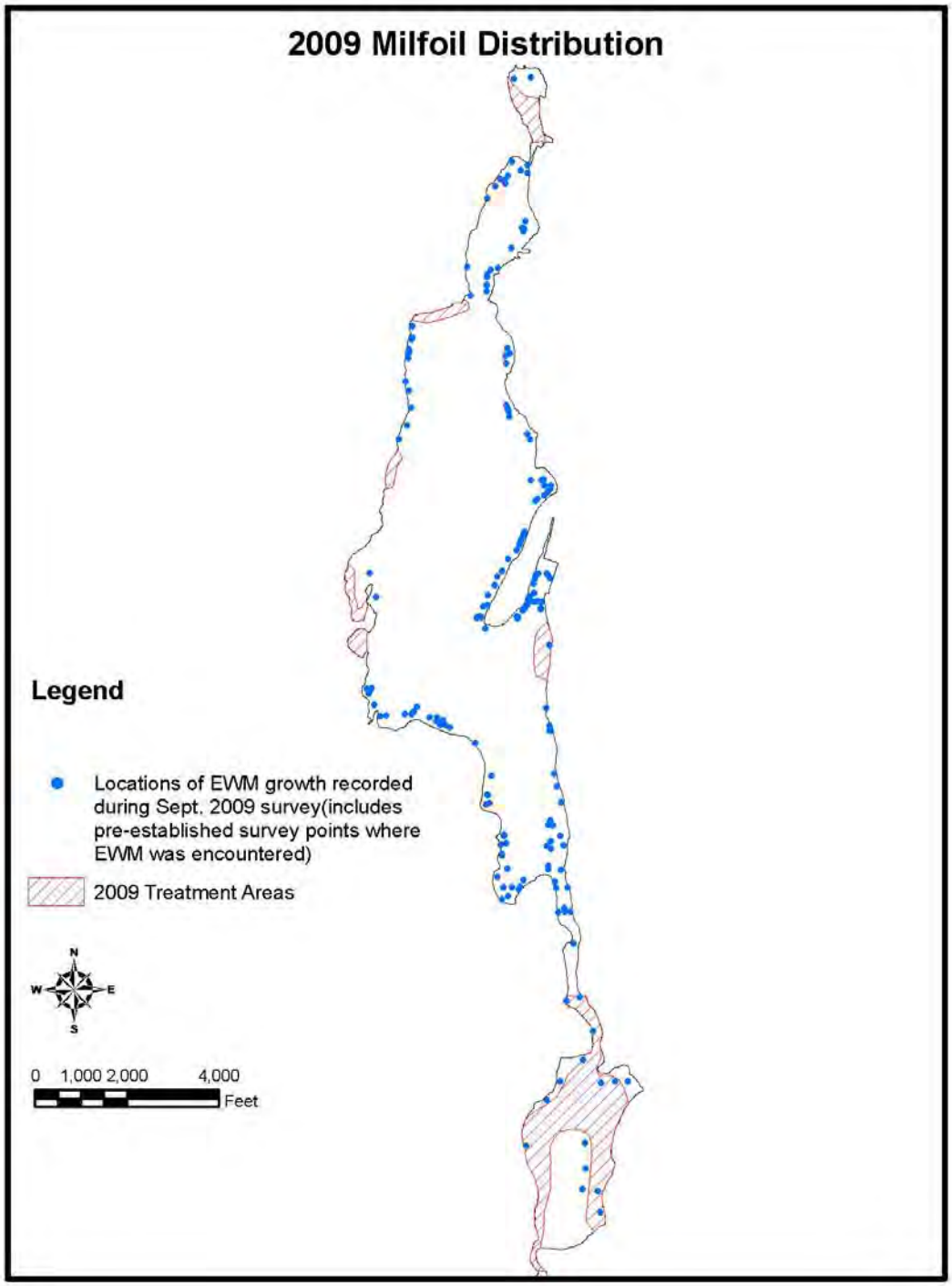
Comparing 2008 and 2009 late season survey data from the 60 data points located within the 2009 treatment areas (including Lily Pond, the Main Lake and Little Lake), it is apparent that treatment in 2009 provided significant reductions of both distribution and density of milfoil across the targeted treatment areas. Milfoil frequency of occurrence in the treated areas was reduced from 83.3% in 2008 to 11.7% in 2009. All seven survey points where milfoil was encountered in 2009 were found in Little Lake. No milfoil was recorded at survey points found in the treatment areas in Lily Pond or in the Main Lake.

Native plant frequencies of occurrence values within the treatment areas were largely unchanged between the 2008 and 2009 data sets. Plants with increases of >10% included: *Potamogeton robbinsii*, *Elodea canadensis* and *Vallisneria americana*. Plants with decreases of >10% included: *Potamogeton illinoensis* and *Potamogeton zosteriformis.*

Late Season Milfoil Bed Mapping

Milfoil beds were visually surveyed and mapped during the late season survey. Gusting winds made visibility difficult in some exposed areas, but generally visibility for milfoil identification was fair to good. As with past mapping efforts areas of milfoil growth were recorded using a GPS unit. A map of the GPS referenced milfoil locations is shown in Figure 2.

Figure 2: Late season Eurasian watermilfoil distribution



SUMMARY OF 2009 AQUATIC VEGETATION MANAGEMENT PROGRAM

Renovate Herbicide Treatments

Results of the 2009 Renovate OTF herbicide treatment were significantly improved from 2008. The frequency of occurrence of milfoil in the 2009 treatment areas dropped from 83% in September 2008 to 12% in September 2009, and the estimated milfoil cover was less than 1%. While some scattered milfoil persisted in Little Lake following treatment, mostly around the perimeter of the treatment areas, control in most other treatment areas was nearly complete.

The improved efficacy of treatment with comparison to 2008 is probably most attributable to the later treatment date. The 2009 treatment occurred approximately four weeks later than the 2008 treatment and there was more active milfoil growth at the time of treatment for herbicide uptake. An increased application rate was also used in the Renovate OTF (granular) treatment areas; from 1.85 ppm to 2.25 ppm based on the bottom four feet. This undoubtedly provided increased exposure time to lethal concentrations of triclopyr. Improved results seen at Lake Morey in Fairlee, VT in 2009 were also largely attributed to the later treatment date and higher application rate of Renovate OTF.

Renovate remained highly selective for milfoil despite the increased dosage and later treatment timing. Measured indices of native plant cover were consistent with previous years. While there were some fluctuations in the frequency of occurrence and species richness indices, no major shifts in plant composition were documented following treatment. The 0.75 ppm concentration of Renovate 3 (liquid) used in Lily Pond and Little Lake provided nearly complete control of milfoil within the treatment areas, without significant impact to the native plant populations that were seen following the 1.5 ppm treatment of Lily Pond in 2006.

Spread Prevention and Non-Chemical Control Activities

As required by the DEC Permit, non-chemical milfoil control activities continued at Lake St. Catherine during the 2009 season. Efforts included volunteer monitoring, volunteer and paid hand harvesting and diver assisted suction harvesting. Details of the non-chemical control efforts will be provided by LSCA under separate cover.

RECOMMENDATIONS FOR 2010 AND BEYOND

Although wide-spread milfoil cover remains significantly reduced from what was documented in Lake St. Catherine prior to the 2004 Sonar treatment, (estimated total cover of all three basins 2001 - 49%, 2009 - 3%), but the spatial distribution of milfoil increased steadily through the 2008 season. The partial-lake or spot-treatments with Renovate 3 (liquid) and Renovate OTF (granular) performed over the past four years have demonstrated the potential for effective and highly-selective milfoil control. Spot-treatment with Renovate herbicide continues to be the recommended strategy for management of widespread, high density milfoil growth at Lake St. Catherine. Continued use of non-chemical control strategies, specifically diver hand-pulling and suction harvesting, are recommended for areas of lower-density milfoil growth. Hand-pulling and suction harvesting should also be focused along steeply sloped and exposed areas like what is found along much of the western shoreline. It will be challenging to maintain sufficiently lethal herbicide concentrations in these areas that are subject to so much dilution from untreated lake water.

Based on the results of the September 2009 survey, and the anticipated duration of control following treatment with Renovate, treatment is not expected to be needed in either Lily Pond or Little Lake for

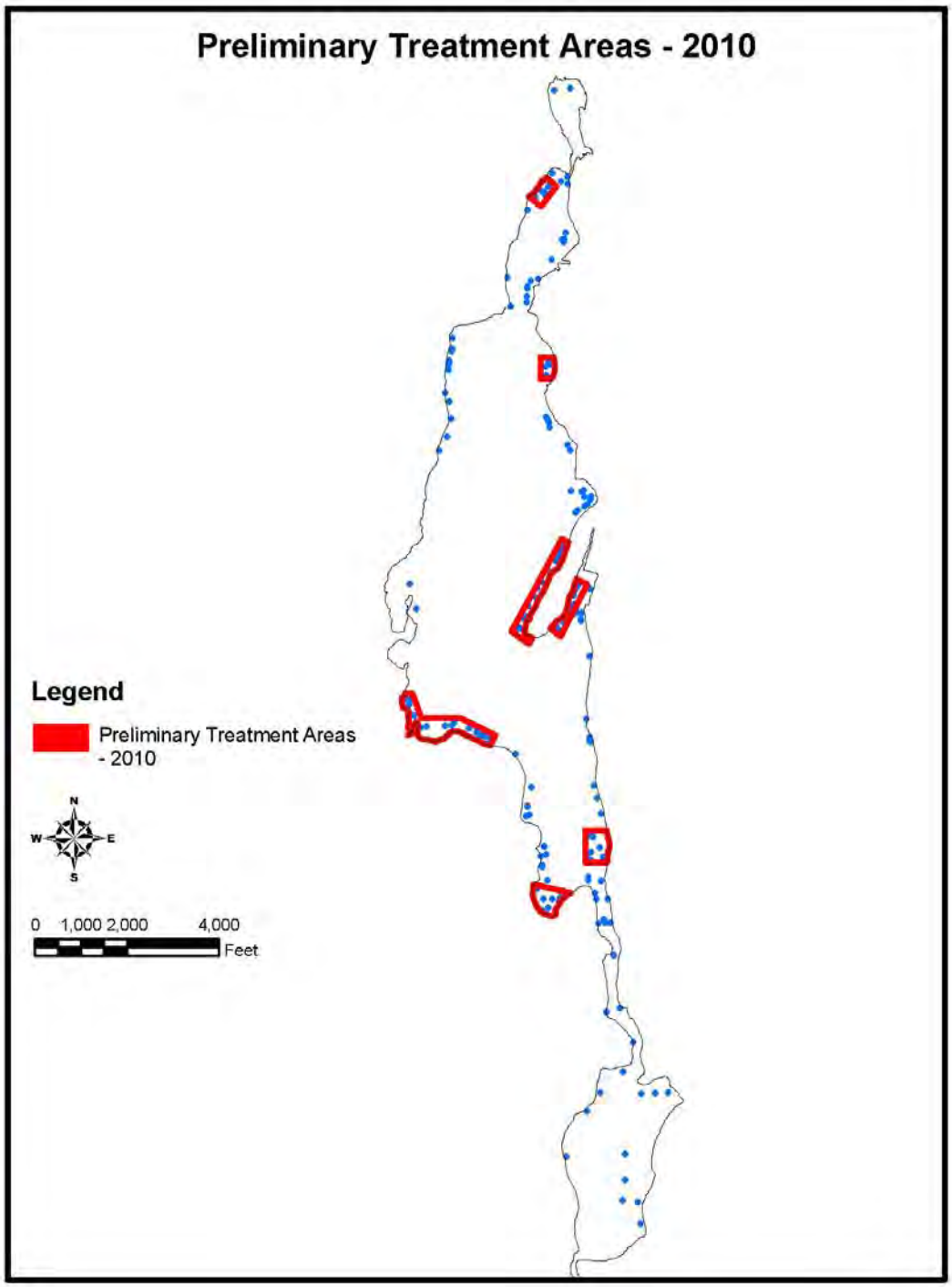
milfoil control in 2010. While some milfoil re-growth was observed in these basins following treatment in 2009, densities were extremely low. It is expected that some continued re-growth will be apparent in these basins in 2010, so diligent monitoring and hand-pulling should occur to the extent that is feasible.

Additional spot-treatment of dense milfoil growth in the main basin of Lake St. Catherine is recommended for 2010. Areas in the main basin treated with Renovate OTF responded very well in 2009 and continued improvement in treatment efficacy is anticipated. Treatment timing and plant maturity proved to be critical to successful milfoil control when using Renovate OTF based on the adjustments that were made during the 2009 treatment program. The higher application rate was undoubtedly another contributing factor. Slower response and possibly reduced efficacy was seen along the steeply sloped western shorelines and where treatment areas less than 5 contiguous acres were treated. Future treatments should target larger treatment blocks (> 5 acres) where possible.

Another modification that may be worth considering in future Renovate OTF treatments at Lake St. Catherine is the use of split-application approach to increase herbicide concentration-exposure-time. This would involve applying half the dose to target areas, waiting several hours and then applying the remaining half. Some trial application using this approach was tried along steeply sloped shorelines in Lake Morey in 2009. SePRO performed extensive post-treatment herbicide residue monitoring to observe herbicide concentration levels and dissipation following treatment. Excellent milfoil control was achieved in these areas and preliminary findings from SePRO suggest that that split-application approach may be beneficial in certain situations. Additional findings from the SePRO study are expected towards the end of the year.

Figure 3 depicts preliminary 2010 treatment areas in the main basin. These areas will need to be verified following an early season survey and prioritized after further consultation with LSCA.

Figure 3: Preliminary 2010 Renovate treatment areas

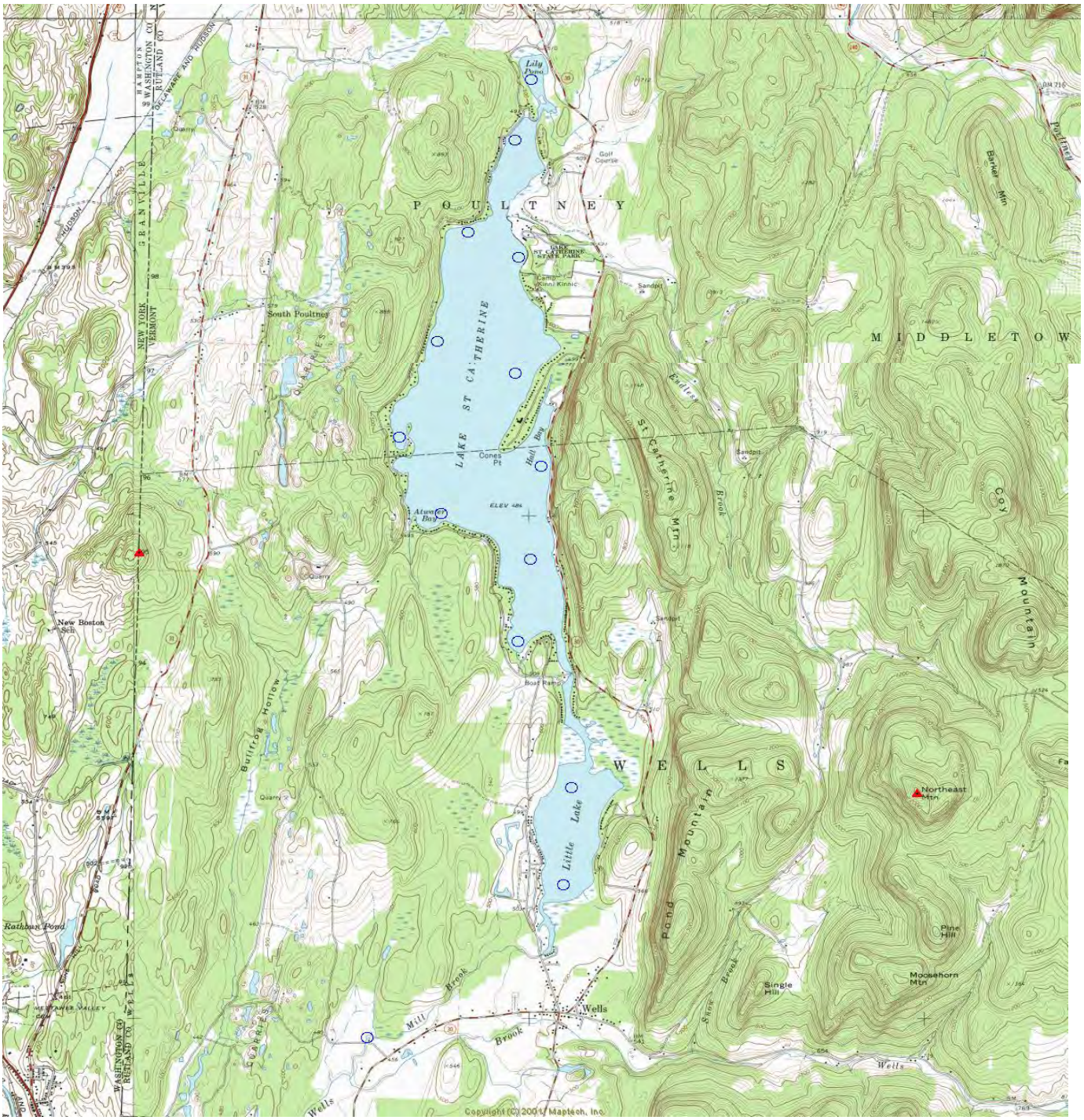


APPENDIX A

Herbicide Residue Testing Results

- Sampling Location Map – Attachment D of ANC 2009-C02 prepared by DEC
- SePRO Laboratory Report – 6/17/09 sampling round
- SePRO Laboratory Report – 6/26/09 sampling round
- SePRO Laboratory Report – 7/2/09 sampling round
- SePRO Laboratory Report – 7/29/09 sampling round
- SePRO Laboratory Report – 9/2/09 sampling round

Page 45 of 49
Attachment D - Sampling Site Locations (to be updated as needed)
Specific Sampling Locations for 2009



O denotes 14 Sample Sites (note sample site where Mill Brook/Geer Rd. intersect)

Lake St. Catherine 2009 Renovate Assay Results

Treatment date: 6/16/2009

	Residue (ppm)				
Collection Date	**6/17**	**6/26**	**7/13**	**7/29**	**9/1**
1	1.170	0.104	0.077	0.021	0.001
2	0.020	0.017		0.002	
3	0.130	0.018		0.001	
4	0.003	0.018		0.002	
5	0.020	0.020		0.002	
6	0.020	0.022		0.002	
7	0.090	0.024		0.001	
8	0.140	0.024		0.002	
9	0.001	0.021		0.001	
10	0.001	0.024		0.001	
11	0.001	0.025		0.002	
12	0.910	0.042	0.003	0.001	
13	0.040	0.023	0.015	0.001	
14	0.260	0.023	0.014	<1 ppb	
Lake Average (1-13)	0.196	0.029	0.032	0.003	0.001
Days after treatment	1	10	27	43	76

FasTEST Results Confidential - Not For Distribution

Cooperator:	Aquatic Control Technology, Inc	**Phone:**	**Fax:**
Gerald Smith	11 John Rd	(508) 865-1000	(508) 865-1220
Territory: Sarah Miller	Sutton MA 01590-		

Sample	Date(s) Treated	Herbicide	Date Collected	Rate Applied	Acres Treated	Sample Location Description	Results	UOM
1.	06/16/09	Renovate	6/17/2009	2.25 (ACT)	LSC	14	0.26	ppm
2.						12	0.91	ppm
3.						13	0.04	ppm
4.						11	<1.0	ppb
5.						10	<1.0	ppb
6.						9	<1.0	ppb
7.						7	0.14	ppm
8.						8	0.09	ppm
9.						6	0.02	ppm
10.						5	0.02	ppm

Depth Sample Collected:

Date Sample Received: 6/18/2009

Storage Conditions: Analyzed upon receipt

Condition of Sample(s) Box/Water Containers: Excellent

Date Shipped to SePRO: 6/17/2009

Date Analysis was Performed: 6/19/2009

Run #: TR0112 **% Control Rec:** 106 **Correlation:** 0.997

Date Results Sent to Cooperator: 6/19/2009

Back of Data Sheet

Name of Waterbody: Lake St. Catherine

Average Depth in Feet: 12

Back of Data Sheet

Size of Waterbody in Acres: 1165

Target Plant(s) to Control: Eurasian watermilfoil

FasTEST Results Confidential - Not For Distribution

Cooperator:	Aquatic Control Technology, Inc	**Phone:**	**Fax:**
Gerald Smith	11 John Rd	(508) 865-1000	(508) 865-1220
Territory: Sarah Miller	Sutton MA 01590-		

Sample	Date(s) Treated	Herbicide	Date Collected	Rate Applied	Acres Treated	Sample Location Description	Results	UOM
1.	06/16/09	Renovate	6/17/2009	2.25 (ACT)	LSC	4	0.003	ppm
2.						3	0.13	ppm
3.						2	0.01	ppm
4.						1	1.17	ppm
5.								
6.								
7.								
8.								
9.								
10.								

Depth Sample Collected:

Date Sample Received: 6/18/2009

Storage Conditions: Analyzed upon receipt

Condition of Sample(s) Box/Water Containers: Excellent

Date Shipped to SePRO: 6/17/2009

Date Analysis was Performed: 6/19/2009

Run #: TR0112 **% Control Rec:** 106 **Correlation:** 0.997

Date Results Sent to Cooperator: 6/19/2009

Back of Data Sheet

Name of Waterbody: Lake St. Catherine

Average Depth in Feet: 12

Back of Data Sheet

Size of Waterbody in Acres: 1165

Target Plant(s) to Control: Eurasian watermilfoil

FasTEST Results Confidential - Not For Distribution

Cooperator:	Aquatic Control Technology, Inc	**Phone:**	**Fax:**
Gerald Smith	11 John Rd	(508) 865-1000	(508) 865-1220
Territory: Sarah Miller	Sutton MA 01590-		

Sample	Date(s) Treated	Herbicide	Date Collected	Rate Applied	Acres Treated	Sample Location Description	Results	UOM
1.		Renovate 3	6/26/2009			01	0.104	ppm
2.		Renovate 3	6/26/2009			02	0.017	ppm
3.		Renovate 3	6/26/2009			03	0.018	ppm
4.		Renovate 3	6/26/2009			04	0.018	ppm
5.		Renovate 3	6/26/2009			05	0.020	ppm
6.		Renovate 3	6/26/2009			06	0.022	ppm
7.		Renovate 3	6/26/2009			07	0.024	ppm
8.		Renovate 3	6/26/2009			08	0.024	ppm
9.		Renovate 3	6/26/2009			09	0.021	ppm
10.		Renovate 3	6/26/2009			10	0.024	ppm

Depth Sample Collected:

Date Sample Received: 6/30/2009

Storage Conditions: Refrigerated

Condition of Sample(s) Box/Water Containers: Excellent — excellent

Date Shipped to SePRO: 6/29/2009

Date Analysis was Performed: 7/1/2009

Run #: TR0117 **% Control Rec:** 115 **Correlation:** 0.991

Date Results Sent to Cooperator: 7/1/2009

Back of Data Sheet

Name of Waterbody: St. Catherine

Average Depth in Feet: 0

Back of Data Sheet

Size of Waterbody in Acres:

Target Plant(s) to Control:

FasTEST Results Confidential - Not For Distribution

Cooperator:	Aquatic Control Technology, Inc	**Phone:**	**Fax:**
Gerald Smith	11 John Rd	(508) 865-1000	(508) 865-1220
Territory: Sarah Miller	Sutton MA 01590-		

Sample	Date(s) Treated	Herbicide	Date Collected	Rate Applied	Acres Treated	Sample Location Description	Results	UOM
1.		Renovate 3	6/26/2009			11	0.025	ppm
2.		Renovate 3	6/26/2009			12	0.042	ppm
3.		Renovate 3	6/26/2009			13	0.229	ppm
4.		Renovate 3	6/26/2009			14	0.227	ppm
5.								
6.								
7.								
8.								
9.								
10.								

Depth Sample Collected:

Date Sample Received: 6/30/2009

Storage Conditions: Refrigerated

Condition of Sample(s) Box/Water Containers: Excellent / excellent

Date Shipped to SePRO: 6/29/2009

Date Analysis was Performed: 7/1/2009

Run #: TR0117 **% Control Rec:** 115 **Correlation:** 0.991

Date Results Sent to Cooperator: 7/1/2009

Back of Data Sheet

Name of Waterbody: St. Catherine

Average Depth in Feet: 0

Back of Data Sheet

Size of Waterbody in Acres:

Target Plant(s) to Control:

FasTEST Results Confidential - Not For Distribution

Cooperator:	Aquatic Control Technology, Inc	**Phone:**	**Fax:**
Gerald Smith	11 John Rd	(508) 865-1000	(508) 865-1220
Territory: Sarah Miller	Sutton MA 01590-		

Sample	Date(s) Treated	Herbicide	Date Collected	Rate Applied	Acres Treated	Sample Location Description	Results	UOM
1.		Renovate	7/13/2009			1	0.077	ppm
2.						12	0.003	ppm
3.						13	0.015	ppm
4.						14	0.014	ppm
5.								
6.								
7.								
8.								
9.								
10.								

Depth Sample Collected:

Date Sample Received: 7/14/2009

Storage Conditions: Analyzed upon receipt

Condition of Sample(s) Box/Water Containers: Excellent

Date Shipped to SePRO: 7/13/2009

Date Analysis was Performed: 7/14/2009

Run #: TR0122 **% Control Rec:** 92 **Correlation:** 0.997

Date Results Sent to Cooperator: 7/14/2009

Back of Data Sheet

Name of Waterbody: Lake St. Catherine

Average Depth in Feet: 0

Back of Data Sheet

Size of Waterbody in Acres:

Target Plant(s) to Control:

FasTEST Results Confidential - Not For Distribution

Cooperator:	Aquatic Control Technology, Inc	**Phone:**	**Fax:**
Gerald Smith	11 John Rd	(508) 865-1000	(508) 865-1220
Territory: Sarah Miller	Sutton MA 01590-		

Sample	Date(s) Treated	Herbicide	Date Collected	Rate Applied	Acres Treated	Sample Location Description	Results	UOM
1.		Renovate	7/29/2009			1	0.021	ppm
2.						2	0.002	ppm
3.						3	0.001	ppm
4.						4	0.002	ppm
5.						5	0.002	ppm
6.						6	0.002	ppm
7.						7	0.001	ppm
8.						8	0.002	ppm
9.						9	0.001	ppm
10.						10	0.001	ppm

Depth Sample Collected:

Date Sample Received: 7/30/2009

Storage Conditions: Analyzed upon receipt

Condition of Sample(s) Box/Water Containers: Excellent

Date Shipped to SePRO: 7/29/2009

Date Analysis was Performed: 7/30/2009

Run #: TR0133 **% Control Rec:** 104 **Correlation:** 0.998

Date Results Sent to Cooperator: 7/31/2009

Back of Data Sheet

Name of Waterbody: Lake St. Catherine

Average Depth in Feet:

Back of Data Sheet

Size of Waterbody in Acres:

Target Plant(s) to Control:

FasTEST Results Confidential - Not For Distribution

Cooperator:	Aquatic Control Technology, Inc		**Phone:**	**Fax:**
Gerald Smith	11 John Rd		(508) 865-1000	(508) 865-1220
Territory: Sarah Miller	Sutton	MA 01590-		

Sample	Date(s) Treated	Herbicide	Date Collected	Rate Applied	Acres Treated	Sample Location Description	Results	UOM
1.	06/16/09	Renovate 3	9/2/2009	2.25 ppm		1	0.001	ppm
2.								
3.								
4.								
5.								
6.								
7.								
8.								
9.								
10.								

Depth Sample Collected:

Storage Conditions: Analyzed upon receipt

Date Shipped to SePRO: 9/2/2009

Run #: TR0164 **% Control Rec:** 109 **Correlation:** 0.999

Date Sample Received: 9/3/2009

Condition of Sample(s) Box/Water Containers: Excellent

Date Analysis was Performed: 9/4/2009

Date Results Sent to Cooperator: 9/4/2009

Back of Data Sheet

Name of Waterbody: Lake St. Catherine

Average Depth in Feet: 0

Back of Data Sheet

Size of Waterbody in Acres:

Target Plant(s) to Control: milfoil

FasTEST Results Confidential - Not For Distribution

Cooperator:	Aquatic Control Technology, Inc	**Phone:**	**Fax:**
Gerald Smith	11 John Rd	(508) 865-1000	(508) 865-1220
Territory: Sarah Miller	Sutton MA 01590-		

Sample	Date(s) Treated	Herbicide	Date Collected	Rate Applied	Acres Treated	Sample Location Description	Results	UOM
1.		Renovate	7/29/2009			11	0.002	ppm
2.						12	0.001	ppm
3.						13	0.001	ppm
4.						14	<1.0	ppb
5.								
6.								
7.								
8.								
9.								
10.								

Depth Sample Collected:

Date Sample Received: 7/30/2009

Storage Conditions: Analyzed upon receipt

Condition of Sample(s) Box/Water Containers: Excellent

Date Shipped to SePRO: 7/29/2009

Date Analysis was Performed: 7/30/2009

Run #: TR0133 **% Control Rec:** 104 **Correlation:** 0.998

Date Results Sent to Cooperator: 7/31/2009

Back of Data Sheet

Name of Waterbody: Lake St. Catherine

Average Depth in Feet:

Back of Data Sheet

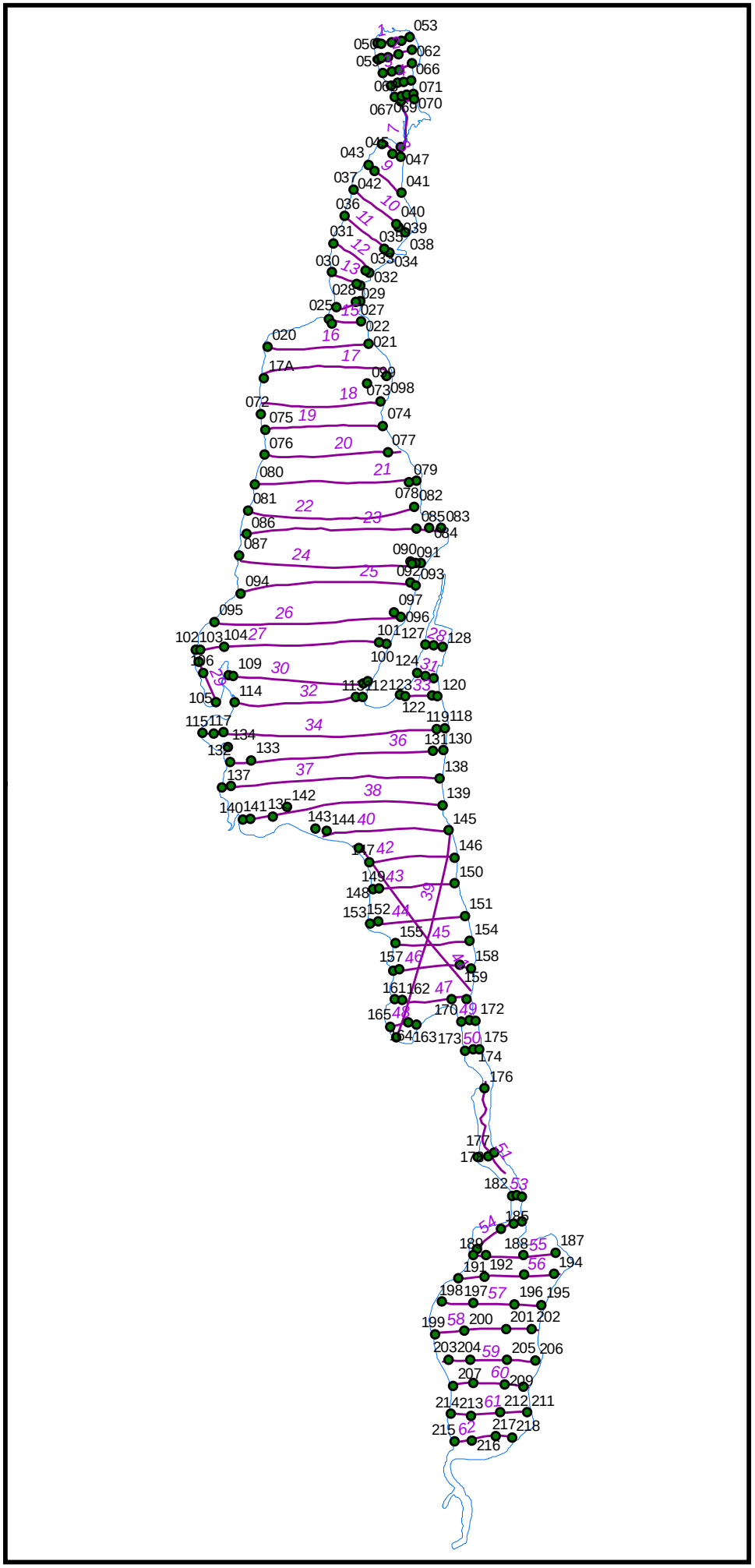
Size of Waterbody in Acres:

Target Plant(s) to Control:

APPENDIX B

Comprehensive Aquatic Vegetation Survey Information

- Data Point Sampling Location Map
- Field Data Table
- Overall Vegetation Density Map
- Vegetation Species Distribution Maps (presented in decreasing order of abundance)
- Late Season Milfoil Distribution - 2009
- Proposed Treatment Areas - 2010



Lake St. Catherine

Poultney & Wells, VT

Transects & Data Point Locations for Vegetation Survey

FIGURE:	SURVEY DATE:	MAP DATE:
B-1	9/17 - 9/18/09	11/20/09

Legend

Data point locations recorded with GPs unit during ACT/ ReMetrix 2001 survey. Sampling replicated during ACT 2007 survey. Data points relocated with DGPS unit with sub-meter accuracy.

Transects recorded during ACT/ ReMetrix 2001 survey using DGPS.

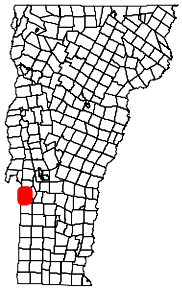
N

W E

S

0 500 1,000 2,000 3,000

Feet



AQUATIC CONTROL TECHNOLOGY, INC.

11 JOHN ROAD
SUTTON, MASSACHUSETTS 01590
PHONE: (508) 865-1000
FAX: (508) 865-1220
WEB: WWW.AQUATICCONTROLTECH.COM

Lily Pond

Transect	Point #	Distance from Shore	Depth (ft)	% Cover	% Ms Cover	Biomass	Species/ Point (Richness)	Pr	Ms	Pa	Ec	Pi	Nf	Pz	Cd	Zd	Ca	Ny	V	Fa	Pp	Uv	B	Pe	Pg	I	Pn	Ug	Nu	Lm	Ngram	Mv
1	49	25	3	100	0	3	4	D		X					X			X														
1	50	100	3	100	1	3	5	D	X	X				X	X																	
1	51	MID	3	100	0	2	4	D		X	X				X																	
1	52	150	3	100	1	4	6	D	X	X					X			X				X										
1	53	30	3	100	0	4	5	X		X					X			D									X					
2	54	40	3	100	0	2	3	D		X					X																	
2	55	25	3	80	0	2	2	D		X																						
2	56	180	5	90	0	3	4	D		X					X										X							
2	57	60	3	100	0	4	7	D			X	X			X			X			X					X					
2	58	150	6	90	0	2	3	D		X					X																	
3	59	25	3	90	0	2	3	D		X					X																	
3	60	120	4	90	0	2	4	D		X		X			X																	
3	61	MID	4	100	0	3	5	D		X		X			X							X										
3	62	15	3	100	0	4	7	D		X	X	X						X		X	X											
4	63	20	4	80	0	2	5	X		X	X	X			X																	
4	64	100	5	90	0	2	5	D		X	X	X			X																	
4	65	100	4	100	0	2	6	D		X	X				X	X									X							
4	66	30	3	90	0	2	6	D		X	X				X	X												X				
5	68	60	3	100	0	2	4	D		X	X				X																	
5	69	50	3	85	0	2	6	D		X	X			X	X			X														
5	71	15	1	100	0	4	4	X							D			X		X												
6	67	10	2	80	0	2	4	D		X	X											X										
6	70	20	3	100	0	4	8	D		X	X			X	X			X	X	X												
7	47	30	3	100	5	3	6	D	X	X									X			X		X								
		Average	**3.3**	**94.4**	**0.3**	**2.7**	**4.8**																									

Lily Pond Totals

	Pr	Ms	Pa	Ec	Pi	Nf	Pz	Cd	Zd	Ca	Ny	V	Fa	Pp	Uv	B	Pe	Pg	I	Pn	Ug	Nu	Lm	Ngram	Mv
Present	3	3	22	11	6	0	3	19	2	0	7	2	3	2	4	0	1	2	0	2	1	0	0	0	0
Dominant	20	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	23	3	22	11	6	0	3	20	2	0	8	2	3	2	4	0	1	2	0	2	1	0	0	0	0
% frequency	95.8%	12.5%	91.7%	45.8%	25.0%	0.0%	12.5%	83.3%	8.3%	0.0%	33.3%	8.3%	12.5%	8.3%	16.7%	0.0%	4.2%	8.3%	0.0%	8.3%	4.2%	0.0%	0.0%	0.0%	0.0%

Lake St. Cathreine

Transect	Point #	Distance from Shore	Depth (ft)	% Cover	% Ms Cover	Biomass	Species/Point (Richness)	Pr	Ms	Pa	Ec	Pi	Nf	Pz	Cd	Zd	Ca	Ny	V	Fa	Pp	Uv	B	Pe	Pg	I	Pn	Ug	Nu	Lm	Ngram	Mv
7	48	MID	4	60	0	2	4	X		X					X							D										
8	44	50	3	100	5	3	7	D	X	X	X			X		X											X					
8	45	MID	4	100	1	3	5	D	X	X	X											X										
8	46	25	3	100	1	3	4	D	X	X	X																					
9	41	15	3	30	0	2	5	X			D	X	X						X													
9	42	150	10	100	30	3	4	D	X		X			X																		
9	43	40	1	100	1	3	5	D	X		X	X							X													
10	38	40	4	100	0	3	3	X		D	X																					
10	39	150	9	90	5	2	4	D	X	X	X																					
10	40	220	12	70	10	2	3		X		D				X																	
11	34	20	3	100	0	4	3	D		X													X									
11	35	100	7	100	25	3	3	D	X	X																						
11	36	30	5	60	0	2	3	D		X	X																					
11	37	35	6	90	1	2	4	X	X	X	D																					
12	31	25	6	50	0	2	2	D		X																						
12	32	25	4	100	1	4	6	X	X	D	X							X					X									
12	33	75	8	100	0	4	2	D		X																						
13	28	35	4	80	0	3	4	D		X	X	X																				
13	29	120	8	100	80	3	3	X	D		X																					
13	30	25	7	50	1	2	4	D	X	X	X																					
14	25	20	4	50	1	2	4	D	X		X	X																				
14	26	30	3	80	0	3	5	X		X	X	D				X																
14	27	60	12	80	5	2	4	X	X	X	D																					
15	22	75	5	60	0	2	3	X		D	X																					
15	23	50	4	70	0	2	3	D		X									X													
15	24	125	10	60	0	2	3	X		X	D																					
16A	20	100	7	60	10	3	4	D	X	X	X																					
16B	21	70	8	5	0	1	1										D															
17A	17A	25	8	30	5	2	5	X	X		D		X	X																		
17	98	80	8	100	10	3	4	X	X	D	X																					
18	72	15	9	50	15	2	3	D	X		X																					

Transect	Point #	Distance from Shore	Depth (ft)	% Cover	% Ms Cover	Biomass	Species/ Point (Richness)	Pr	Ms	Pa	Ec	Pi	Nf	Pz	Cd	Zd	Ca	Ny	V	Fa	Pp	Uv	B	Pe	Pg	I	Pn	Ug	Nu	Lm	Ngram	Mv
18	73	30	10	75	0	2	5	D		X	X			X		X																
19	74	25	5	60	0	2	4	X		X	X										D											
19	75	25	13	15	0	1	3	X			D			X																		
20	76	20	7	15	0	1	2				X						D															
20	77	125	11	75	5	2	5	D	X	X			X	X																		
21	78	40	6	30	0	1	3	X				X							D													
21	79	80	9	60	0	1	4	X			X		X				X															
21	80	15	6	40	1	2	4	X	X		X								D													
22	81	30	6	10	0	1	2					X					D															
22	82	30	8	25	0	1	4	D			X	X	X																			
23	83	25	3	25	0	1	3	D								X									X							
23	84	120	5	60	5	2	4	D	X			X							X													
23	85	200	6	25	5	1	4		X				D				X			X												
23	86	40	10	40	0	1	3	D			X						X															
24	87	40	8	5	0	1	2						X				D															
24	88	25	3	15	0	1	3				X			X			D															
24	90	100	10	10	0	1	4	X		X	D		X																			
25	92	70	11	50	0	1	4	D					X								X										X	
25	93	15	4	30	0	1	3						D				X				X											
25	94	20	11	50	0	1	3	D			X								X													
26	95	50	5		0		0																									
26	96	100	4	30	0	2	4					X	X								D										X	
26	97	175	12	60	0	1	6	X			X		D				X				X										X	
27	102	20	4	75	0	4	4	X		X		X						D														
27	103	70	10	15	0	2	3	D				X							X													
27	104	225	10	40	25	2	2		D		X																					
27	100	20	5		0		0																									
27	101	150	8		0		0																									
28	127	30	4	80	1	2	4	X	X	X	D																					
28	129	MID	6	80	0	2	5	D		X	X	X			X																	
28	128	40	4	100	1	3	8	D	X	X	X			X				X					X						X			
29	107	30	5	60	0	2	5	X		X	D					X			X													
29	106	30	13	70	0	1	3	D			X						X															
29	105	30	6	60	0	3	5	D		X	X	X				X																
30	108	25	5	15	0	1	4	X				X							D						X							
30	109	100	12	25	1	1	4		X		X		D				X															
30	111	150	10	70	10	2	6		X	X	D		X				X				X											
30	110	50	4	40	10	2	3	X	X					D																		
31	124	25	5	60	1	2	5	D	X	X	X			X																		
31	125	MID	8	100	25	3	4	X	X		D			X																		
31	126	30	5	90	0	3	3	D		X		X																				
32	114	15	6	10	0	1	2						X				D															
32	113	125	8	60	5	2	3	X	X		D																					
32	112	30	4	10	0	1	3					X	D				X															
33	122	30	4	25	0	1	3	X			D								X													
33	123	120	10	100	20	3	4	D	X		X	X																				
33	121	125	13	70	0	2	5	X			D	X	X	X																		
33	120	50	6	10	0	1	3	X					X				D															
34	115	40	5	80	0	2	3	D		X	X																					
34	116	150	10	60	0	1	3	D			X						X															
34	117	250	12	50	0	2	3	X			D						X															
34	119	150	6	60	0	2	5	D			X	X	X		X																	
34	118	30	3	20	0	2	5	D		X	X		X				X															
35	134	50	7	5	0	1	1						D																			
35	135	125	14	60	1	2	5	X	X		D		X	X																		
36	132	25	8		0		0																									
36	133	300	10		0		0																									
36	131	250	12	70	0	2	3	X			D		X																			
36	130	50	7	50	0	2	4	D		X	X	X																				
37	138	15	10		0		0																									
37	136	100	13	75	25	3	5	D	X		X			X	X																	
37	137	25	6	90	0	2	4	D		X				X											X							
38	140	120	5	30	1	2	4		X				X			X	D															
38	141	300	6	30	10	2	3		X		X		D																			
38	142	300	6	50	5	2	4		X		X		D				X															
38	139	10	7	15	0	1	2	X			D																					
39	166	50	3	100	5	2	6	X	X	X	D			X					X													
40	143	100	6	90	70	4	3		D	X	X																					
40	144	100	10	80	60	3	3		D		X	X																				

Transect	Point #	Distance from Shore	Depth (ft)	% Cover	% Ms Cover	Biomass	Species/ Point (Richness)	Pr	Ms	Pa	Ec	Pi	Nf	Pz	Cd	Zd	Ca	Ny	V	Fa	Pp	Uv	B	Pe	Pg	I	Pn	Ug	Nu	Lm	Ngram	Mv
40	145	20	10	40	1	2	6	D	X		X	X	X	X																		
41	168	50	6	90	5	2	6	X	X	X	D	X			X																	
42	147	35	9	10	0	1	3	X		X							D															
42	146	10	12	30	0	1	3				X						D		X													
43	148	35	7	70	0	2	5	X		X	D							X	X													
43	149	100	13	60	1	1	3	X	X		D																					
43	150	30	7	25	5	2	4	D	X		X			X																		
44	153	75	5	100	0	3	5	D		X	X				X	X																
44	152	175	10	80	10	2	4	X	X		D				X																	
44	151	20	7	25	0	1	2	X			D																					
45	155	25	8	90	0	1	3	X			D			X																		
45	154	20	6	30	0	1	3	X			D	X																				
46	156	60	4	15	5	1	3	D	X		X																					
46	157	200	9	70	20	2	3	X	X		D																					
46	159	175	13	50	0	2	4	X			D		X	X																		
46	158	35	7	50	0	2	6	X			D	X		X			X				X											
47	161	25	4	20	0	1	3	X									D							X							
47	162	125	10	60	10	2	4	X	X		D			X																		
47	169	150	7	60	10	2	6	X	X	X	D	X			X																	
47	160	100	3	60	20	2	4	X	X	X	D																					
48	165	40	5	50	0	2	3	X		X	D																					
48	164	MID	11	80	1	1	6	X	X		D			X	X										X							
48	163	45	5	90	20	3	4	X	X		D	X																				
49	170	25	5	50	0	1	5	X	X	D				X					X													
49	171	MID	8	80	0	2	3			X	D	X																				
49	172	15	4	80	5	3	7	X	X	X	D	X				X			X													
50	173	20	3	90	5	2	6	X	X		D			X		X			X													
50	174	MID	7	90	5	2	4	X	X	X	D																					
50	175	20	6	90	1	3	4	D	X	X	X																					
		Average	**7.1**	**58.1**	**4.8**	**2.0**	**3.7**																									

St. Catherine Totals

	Pr	Ms	Pa	Ec	Pi	Nf	Pz	Cd	Zd	Ca	Ny	V	Fa	Pp	Uv	B	Pe	Pg	I	Pn	Ug	Nu	Lm	Ngram	Mv
Present	56	53	48	52	29	20	24	10	10	14	3	14	1	5	1	3	1	4	0	1	0	0	1	3	0
Dominant	45	4	5	40	1	8	1	0	0	11	1	3	0	2	0	0	0	0	0	0	0	0	0	0	0
Total	101	57	53	92	30	28	25	10	10	25	4	17	1	7	1	3	1	4	0	1	0	0	1	3	0
% frequency	78.3%	44.2%	41.1%	71.3%	23.3%	21.7%	19.4%	7.8%	7.8%	19.4%	3.1%	13.2%	0.8%	5.4%	0.8%	2.3%	0.8%	3.1%	0.0%	0.8%	0.0%	0.0%	0.8%	2.3%	0.0%

Little Pond

Transect	Point #	Distance from Shore	Depth (ft)	% Cover	% Ms Cover	Biomass	Species/ Point (Richness)	Pr	Ms	Pa	Ec	Pi	Nf	Pz	Cd	Zd	Ca	Ny	V	Fa	Pp	Uv	B	Pe	Pg	I	Pn	Ug	Nu	Lm	Ngram	Mv
51	176	MID	6	90	1	1	5	X	X	X	D								X													
52	179	30	3	100	1	4	4	D	X	X													X									
52	178	MID	5	40	0	1	4	X		X	D			X																		
52	177	20	4	100	5	4	7	D	X	X		X						X	X				X									
53	182	20	3	100	0	4	11	D		X	X			X	X			X	X			X	X						X			X
53	181	MID	5	70	0	1	5	D			X		X	X								X										
53	180	20	3	100	0	4	7	D			X	X			X							X	X						X			
54	183	25	3	100	0	4	6	D			X							X				X			X				X			
54	184	40	5	20	0	1	3	D			X											X										
54	185	MID	4	100	1	4	6	D	X		X					X		X				X										
54	186	100	3	100	0	4	6	D		X	X				X			X				X										
55	190	75	3	60	0	4	7	X	X			X						D				X						X				X
55	189	250	3	100	0	3	3	D		X		X																				
55	188	150	3	90	1	2	4	D	X	X	X																					
55	187	100	3	100	1	3	9	D	X	X		X				X		X				X						X				X
56	194	50	3	100	0	3	4	D		X		X							X													
56	193	500	3	10	0	1	1	D																								
56	192	400	3	40	0	2	3	D				X										X										
56	191	30	3	100	1	3	6	D	X	X	X	X																X				
57	198	120	3	60	0	2	4	D										X				X						X				
57	197	600	3	25	0	1	3	X				X							D													
57	196	500	3	60	0	2	5	D		X		X										X						X				
57	195	75	4	80	0	1	4	D		X		X							X													
58	202	60	6	100	0	1	1	D																								
58	201	600	3	50	1	2	4	D	X	X		X																				
58	200	700	3	30	0	2	4	X		X		X							D													

Transect	Point #	Distance from Shore	Depth (ft)	% Cover	% Ms Cover	Biomass	Species/ Point (Richness)	Pr	Ms	Pa	Ec	Pi	Nf	Pz	Cd	Zd	Ca	Ny	V	Fa	Pp	Uv	B	Pe	Pg	I	Pn	Ug	Nu	Lm	Ngram	Mv
58	199	40	3	10	1	2	4	D	X	X									X													
59	203	35	3	30	0	2	4	D		X		X							X													
59	204	700	3	30	0	2	3	D		X		X																				
59	205	500	4	80	1	4	5	D	X	X		X										X										
59	206	125	5	10	0	1	1	D																								
60	210	75	5	70	1	1	2	D	X																							
60	209	450	4	60	1	2	5	D	X	X	X		X																			
60	208	500	4	20	0	1	3	D		X	X																					
60	207	100	4	50	0	1	3	D			X									X												
61	214	40	3	5	0	1	1	D																								
61	213	300	4	5	0	1	1	D																								
61	212	800	5	5	0	1	2	D				X																				
61	211	75	3	60	5	2	7	D	X	X	X	X			X				X													
62	215	50	3	50	0	2	6	D		X		X							X				X			X						
62	216	700	5	1	0	1	1	D																								
62	217	120	4	5	0	1	2															D			X							
62	218	30	3	60	0	4	6			X		X					D					X	X					X				
		Average	**3.7**	**57.6**	**0.5**	**2.2**	**4.2**																									

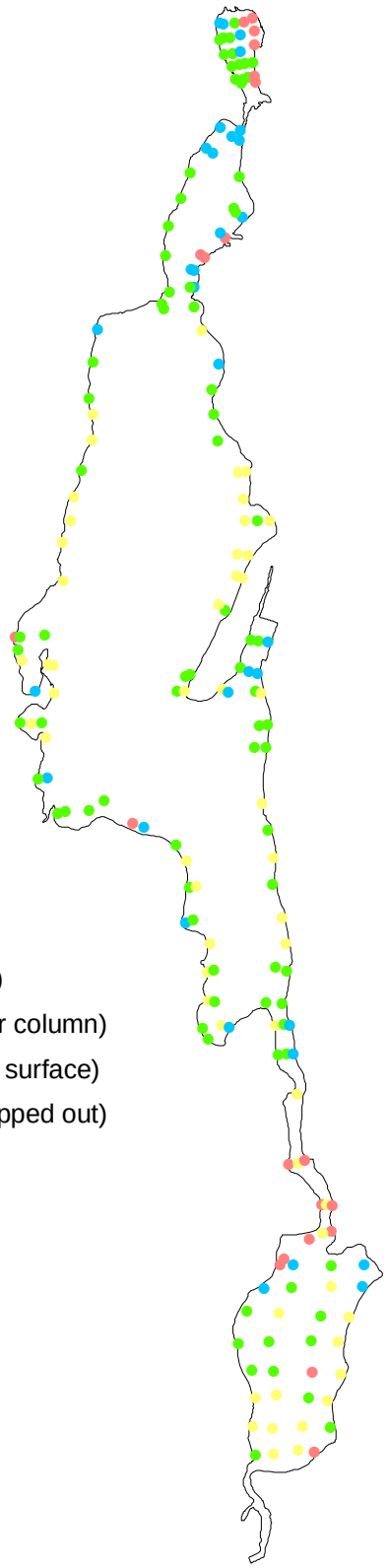
Little Lake Totals

	Pr	Ms	Pa	Ec	Pi	Nf	Pz	Cd	Zd	Ca	Ny	V	Fa	Pp	Uv	B	Pe	Pg	I	Pn	Ug	Nu	Lm	Ngram	Mv
Present	5	14	24	13	20	2	3	4	2	0	7	9	1	0	14	6	0	2	1	0	6	3	0	0	3
Dominant	36	0	0	2	0	0	0	0	0	1	1	2	0	0	1	0	0	0	0	0	0	0	0	0	0
Total	41	14	24	15	20	2	3	4	2	1	8	11	1	0	15	6	0	2	1	0	6	3	0	0	3
% frequency	95.3%	32.6%	55.8%	34.9%	46.5%	4.7%	7.0%	9.3%	4.7%	2.3%	18.6%	25.6%	2.3%	0.0%	34.9%	14.0%	0.0%	4.7%	2.3%	0.0%	14.0%	7.0%	0.0%	0.0%	7.0%

LAKE TOTALS

	Pr	Ms	Pa	Ec	Pi	Nf	Pz	Cd	Zd	Ca	Ny	V	Fa	Pp	Uv	B	Pe	Pg	I	Pn	Ug	Nu	Lm	Ngram	Mv
Present	64	70	94	76	55	22	30	33	14	14	17	25	5	7	19	9	2	8	1	3	7	3	1	3	3
Dominant	101	4	5	42	1	8	1	1	0	12	3	5	0	2	2	0	0	0	0	0	0	0	0	0	0
Total	165	74	99	118	56	30	31	34	14	26	20	30	5	9	21	9	2	8	1	3	7	3	1	3	3
% frequency	84.2%	37.8%	50.5%	60.2%	28.6%	15.3%	15.8%	17.3%	7.1%	13.3%	10.2%	15.3%	2.6%	4.6%	10.7%	4.6%	1.0%	4.1%	0.5%	1.5%	3.6%	1.5%	0.5%	1.5%	1.5%

2009 TOTAL VEGETATION BIOMASS



Legend

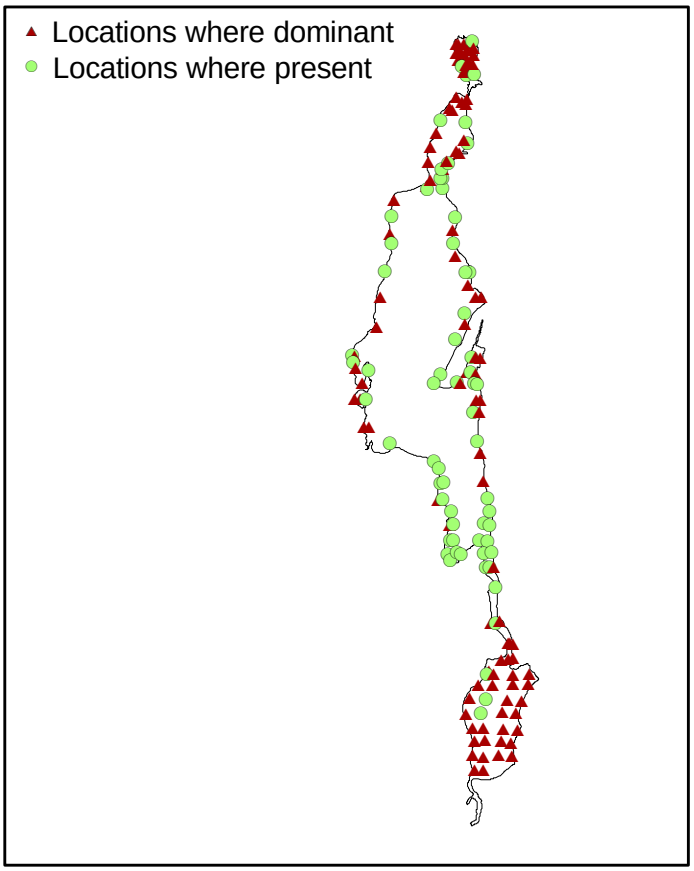
Biomass indices reported
during 9/17 & 9/18/09 survey

- 1 - low biomass (along bottom)
- 2 - moderate biomass (in water column)
- 3 - high biomass (approaching surface)
- 4 - extremely high biomass (topped out)

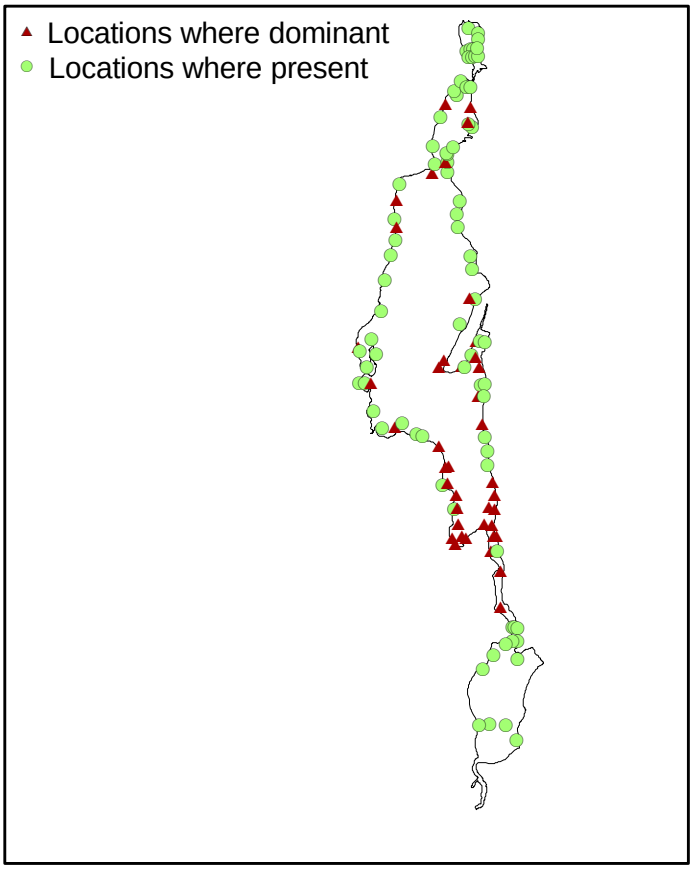
N
W E
S

0 1,0002,000 4,000 6,000
Feet

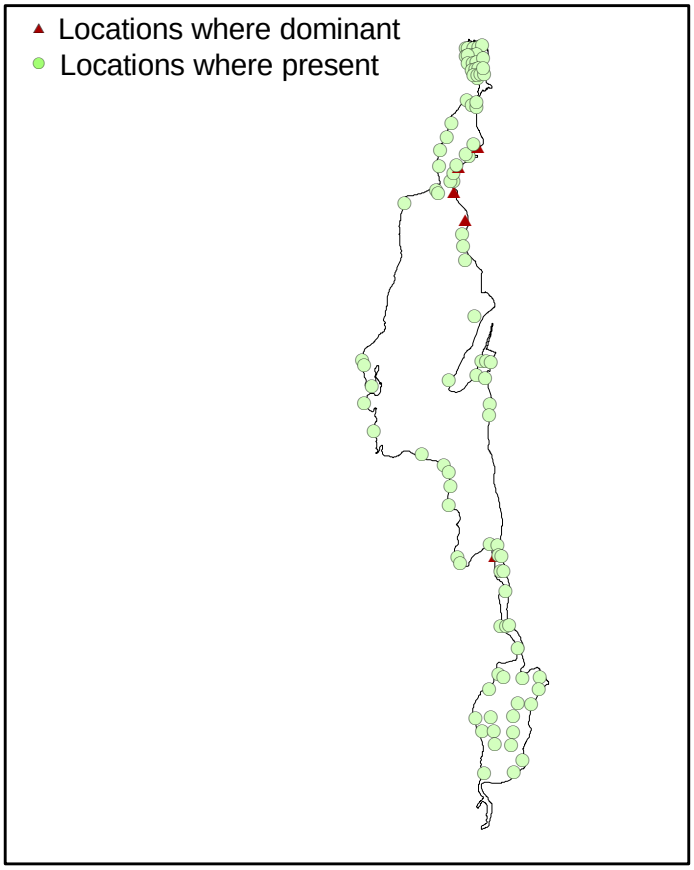
Distribution of *Potamogeton robbinsii*



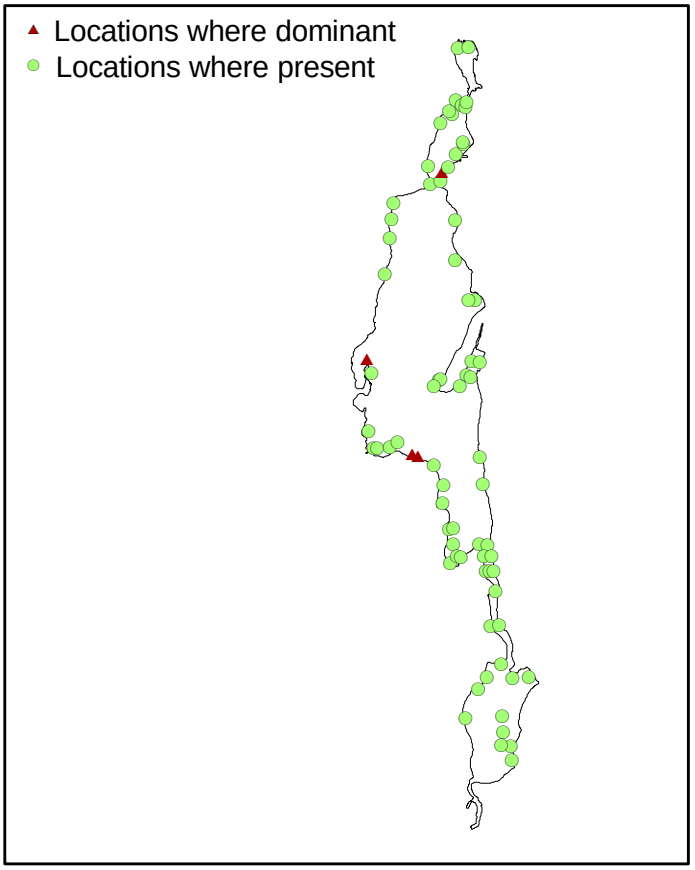
Distribution of *Elodea canadensis*



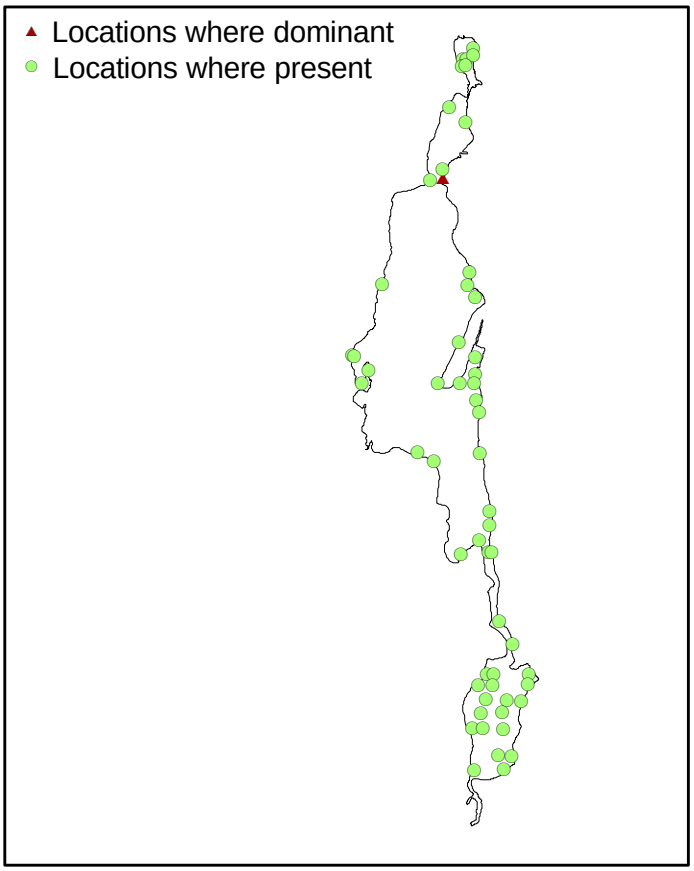
Distribution of *Potamogeton amplifolius*



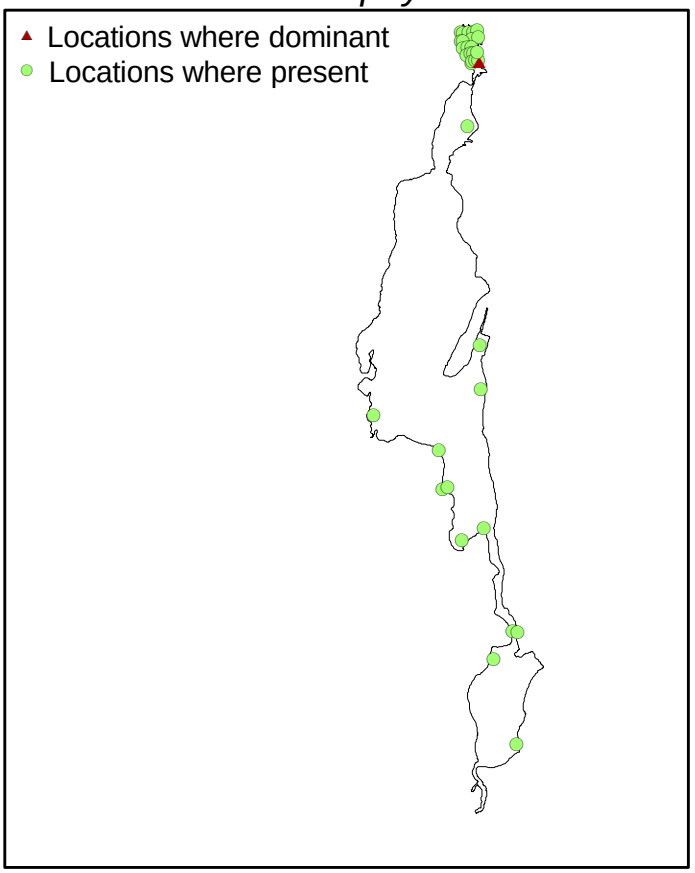
Distribution of *Myriophyllum spicatum*



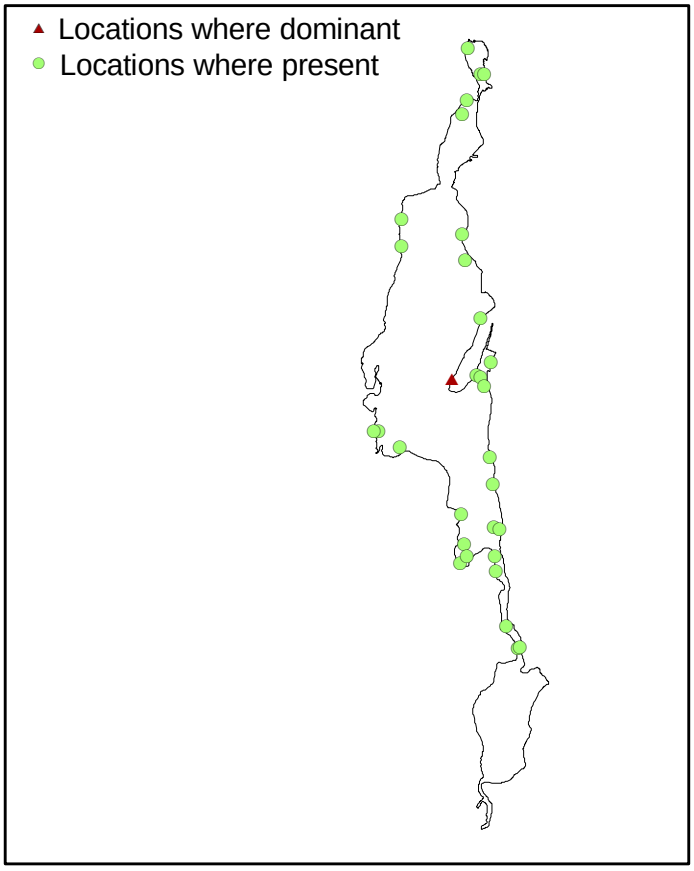
Distribution of *Potamogeton illionensis*



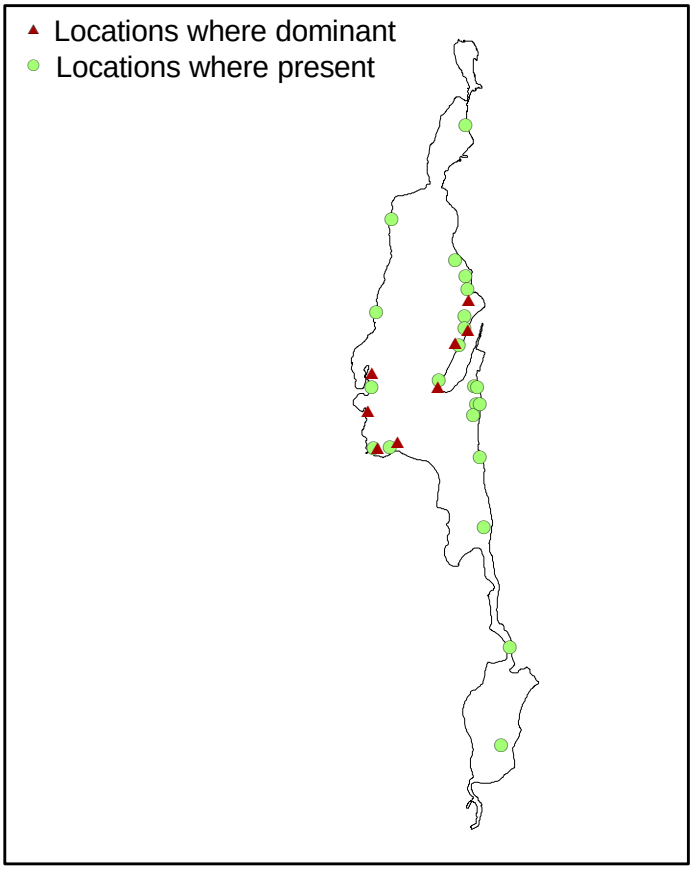
Distribution of *Ceratophyllum demersum*



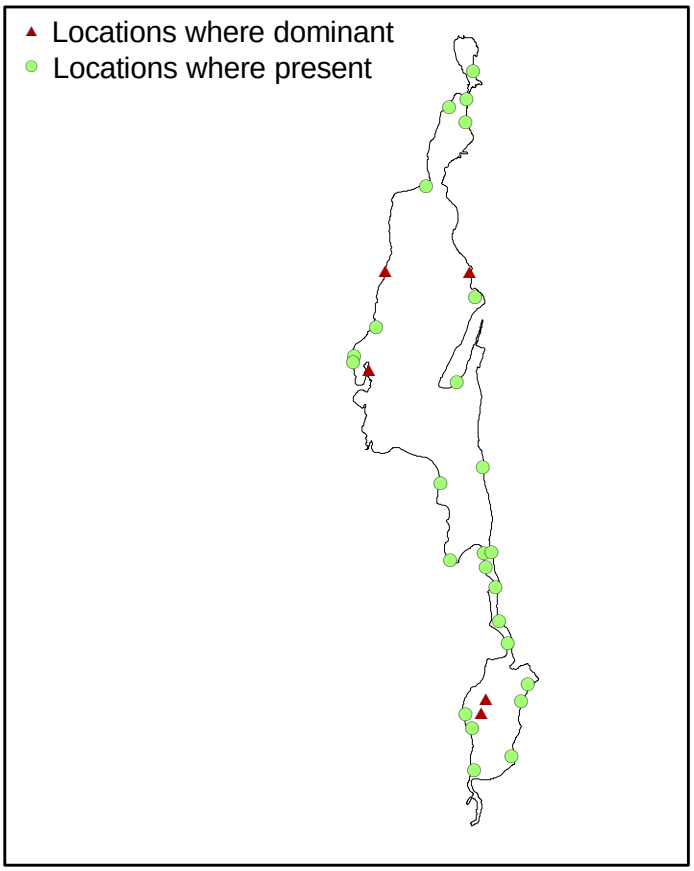
Distribution of *Potamogeton zosterformis*



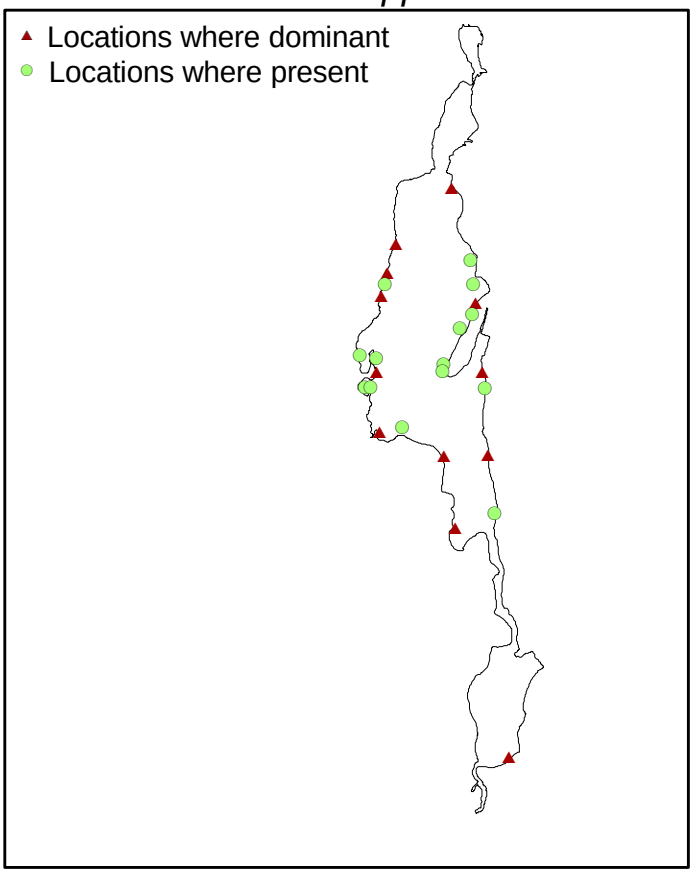
Distribution of *Najas flexilis*



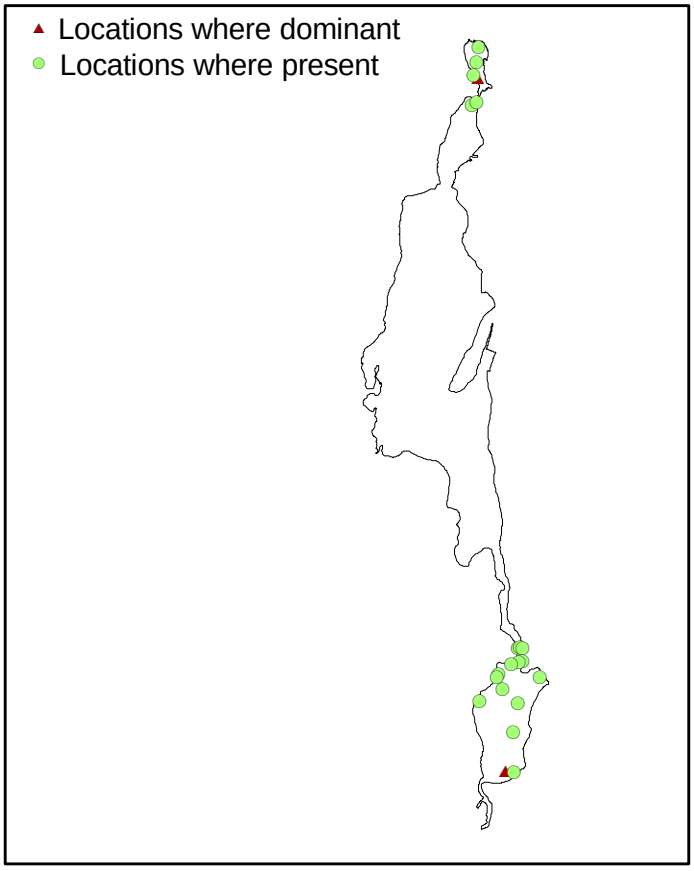
Distribution of *Vallisneria americana*



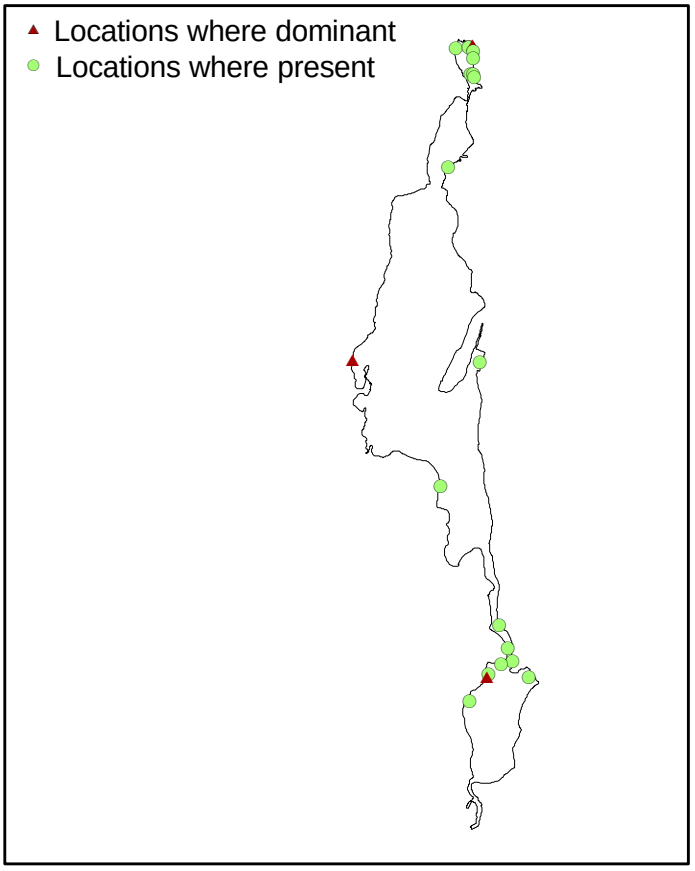
Distribution of *Chara spp.*



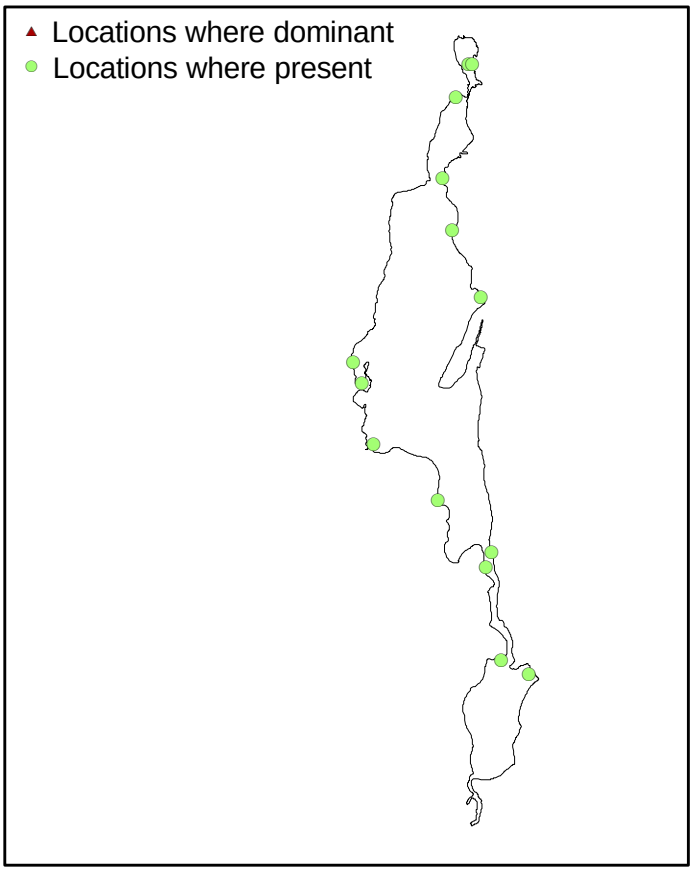
Distribution of *Utricularia vulgaris*



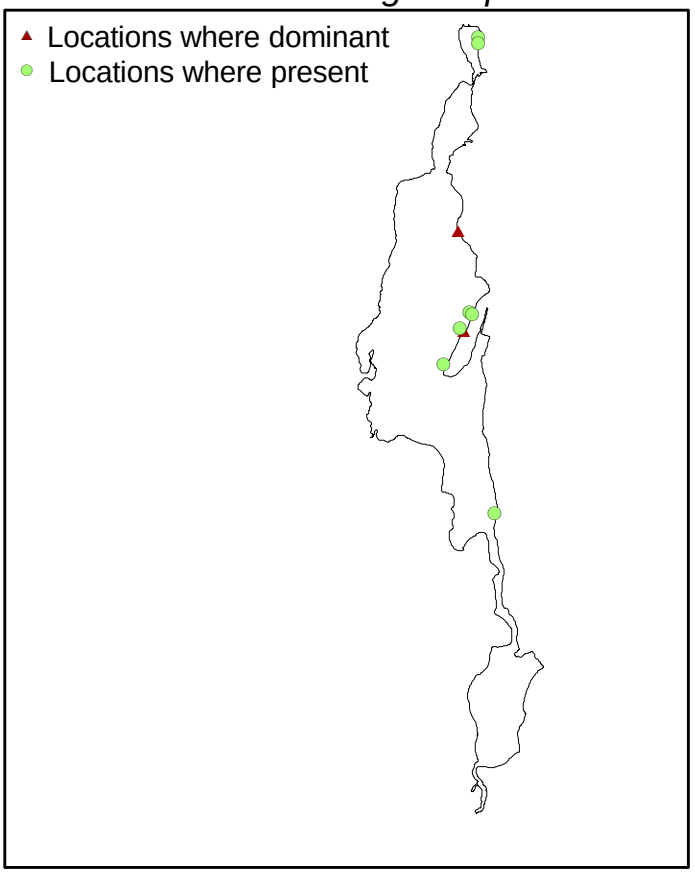
Distribution of *Nymphaea odorata*



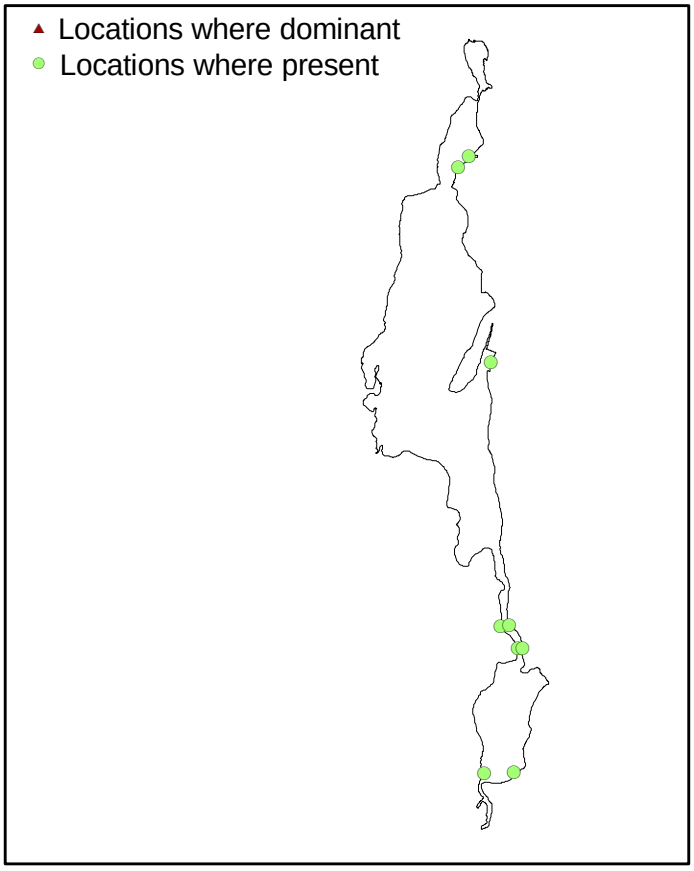
Distribution of *Zosterella dubia*



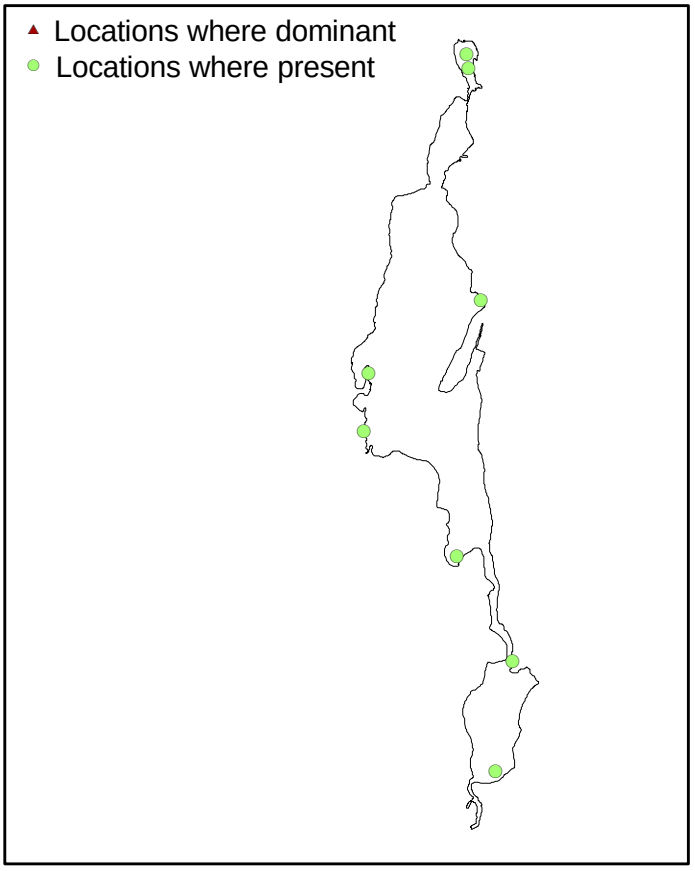
Distribution of *Potamogeton pusillus*



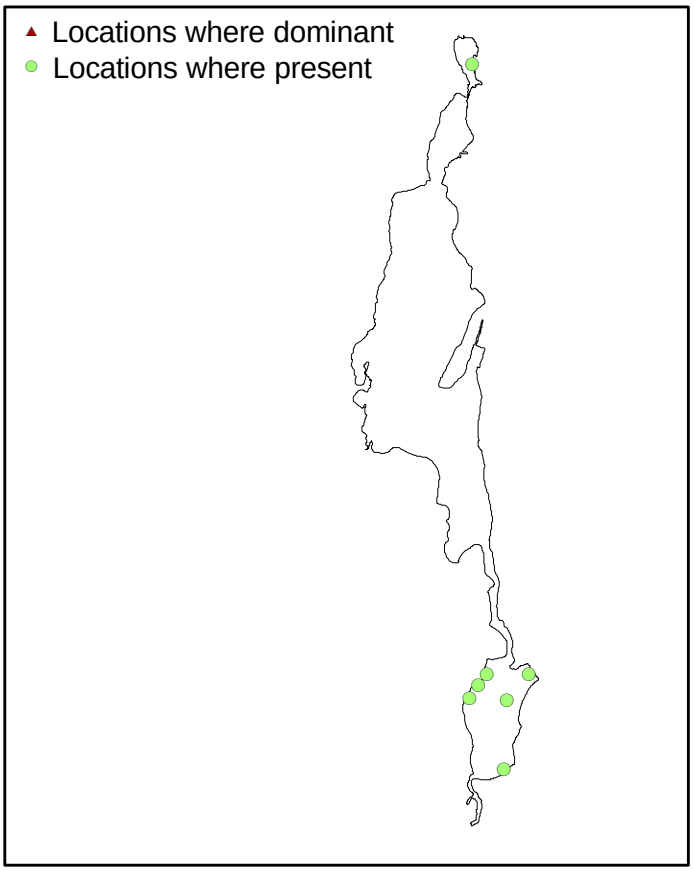
Distribution of *Brasenia schreberi*



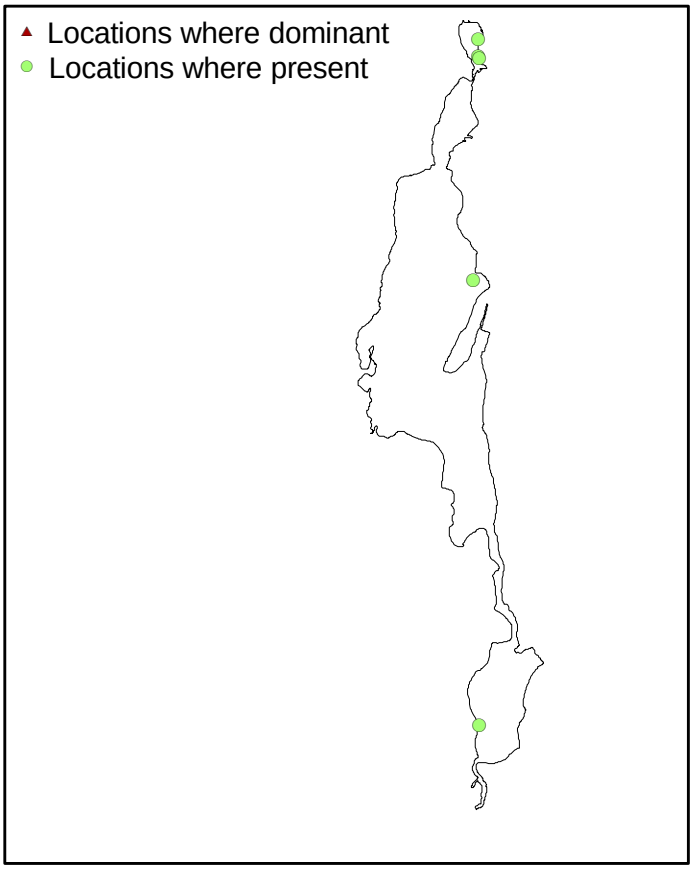
Distribution of *Potamogeton gramineus*



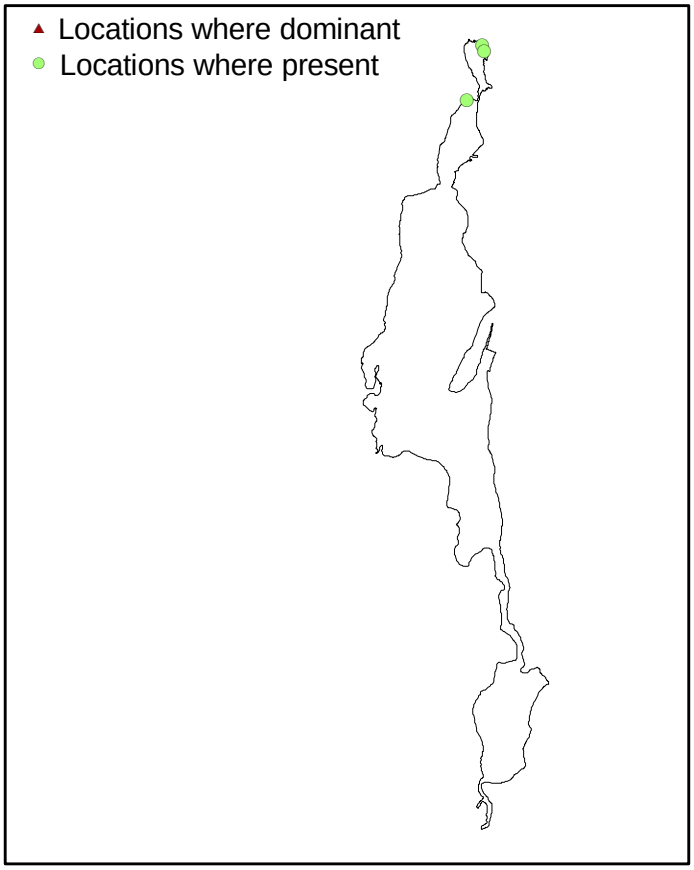
Distribution of *Utricularia gibba*



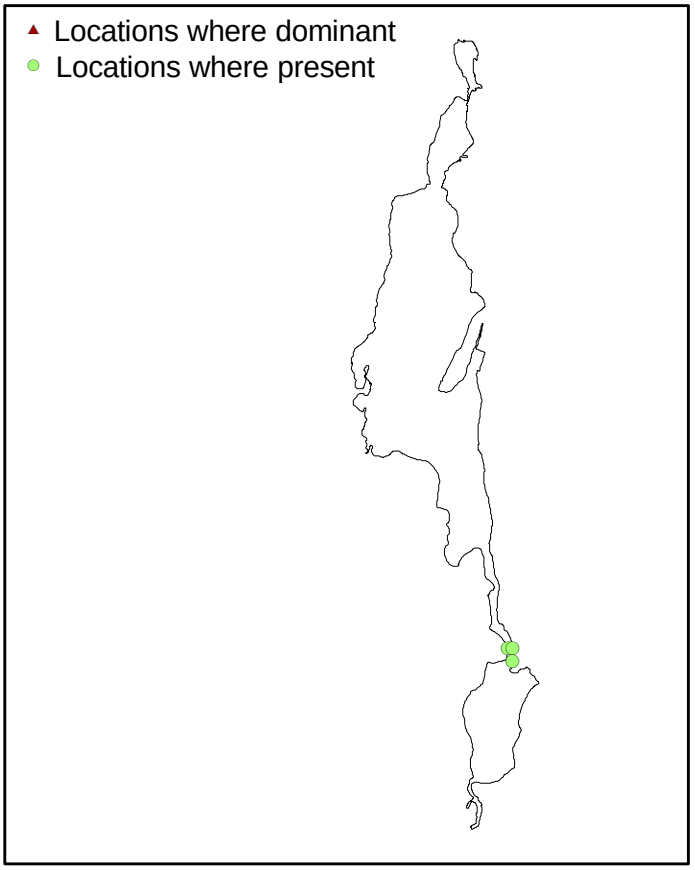
Distribution of Filamentous algae



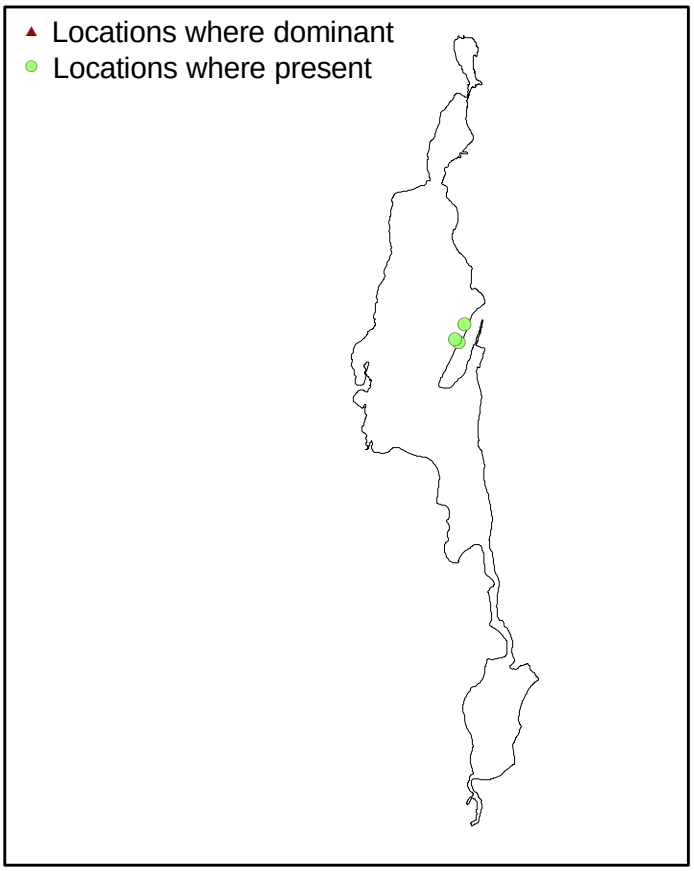
Distribution of *Potamogeton natans*



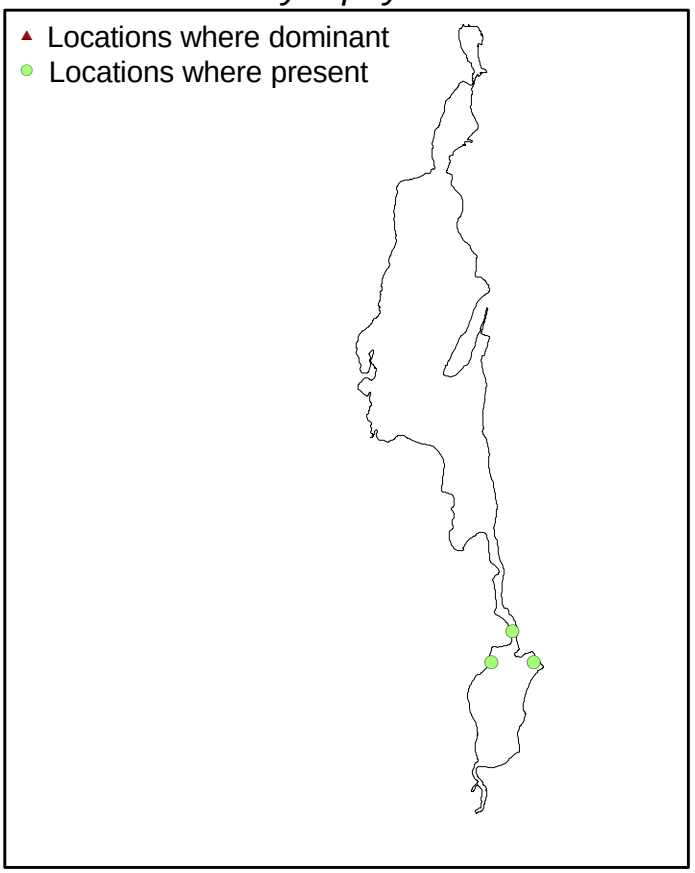
Distribution of *Nuphar variegatum*



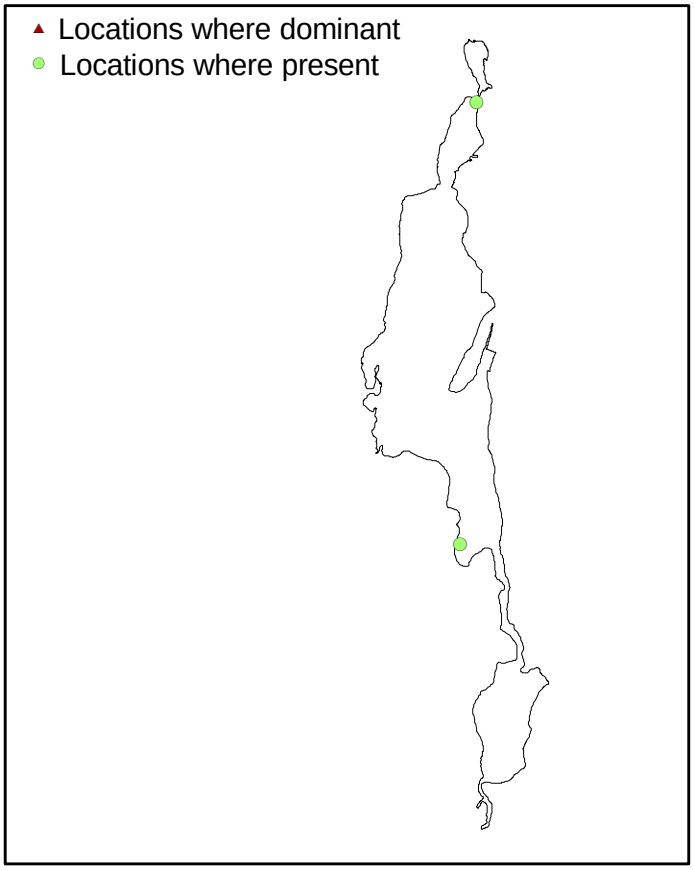
Distribution of *Najas gracillima*



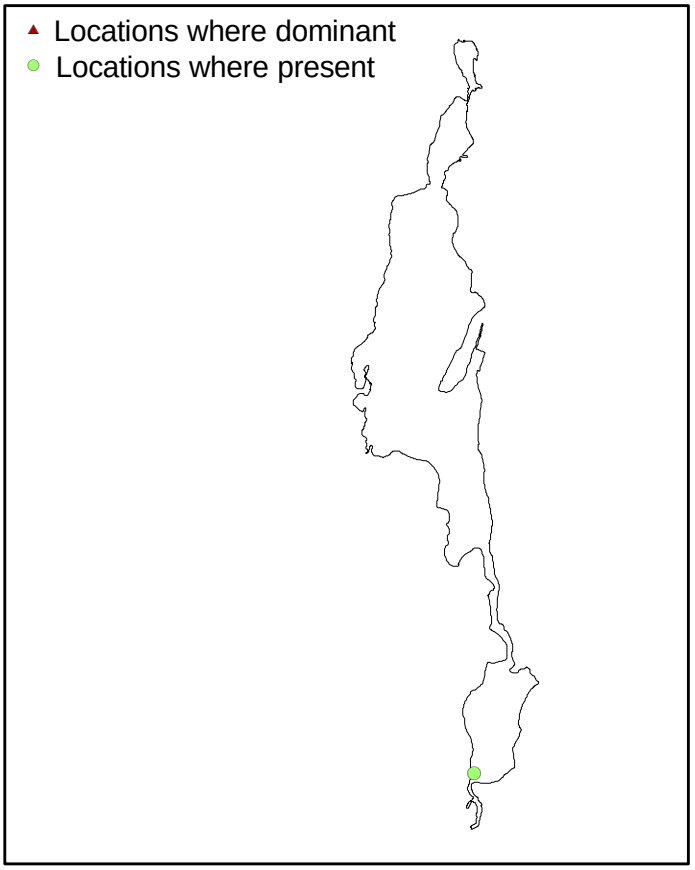
Distribution of *Myriophyllum verticillatum*



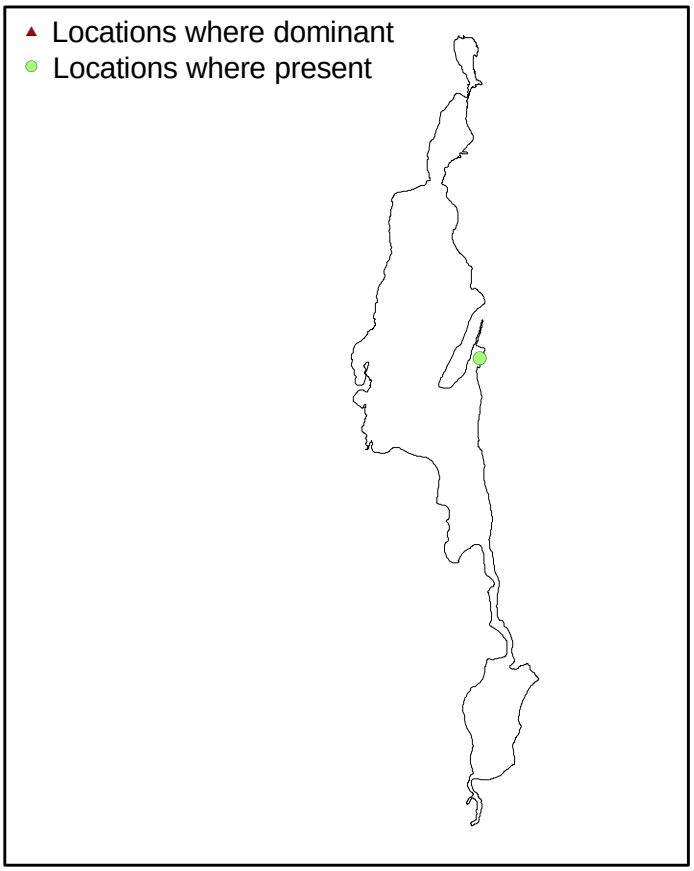
Distribution of *Potamogeton epihydrus*



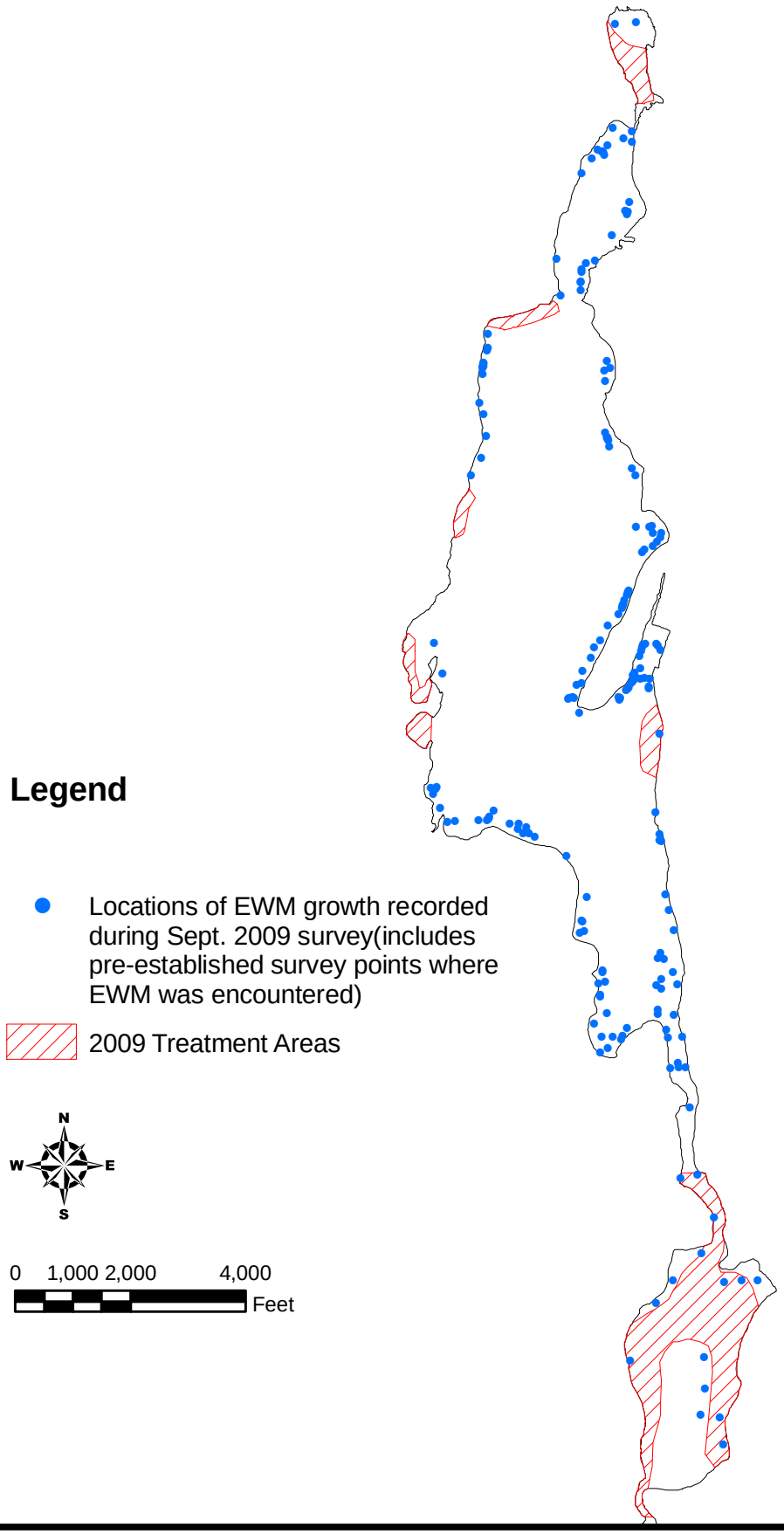
Distribution of *Isoetes spp.*



Distribution of *Lemna spp.*



2009 Milfoil Distribution



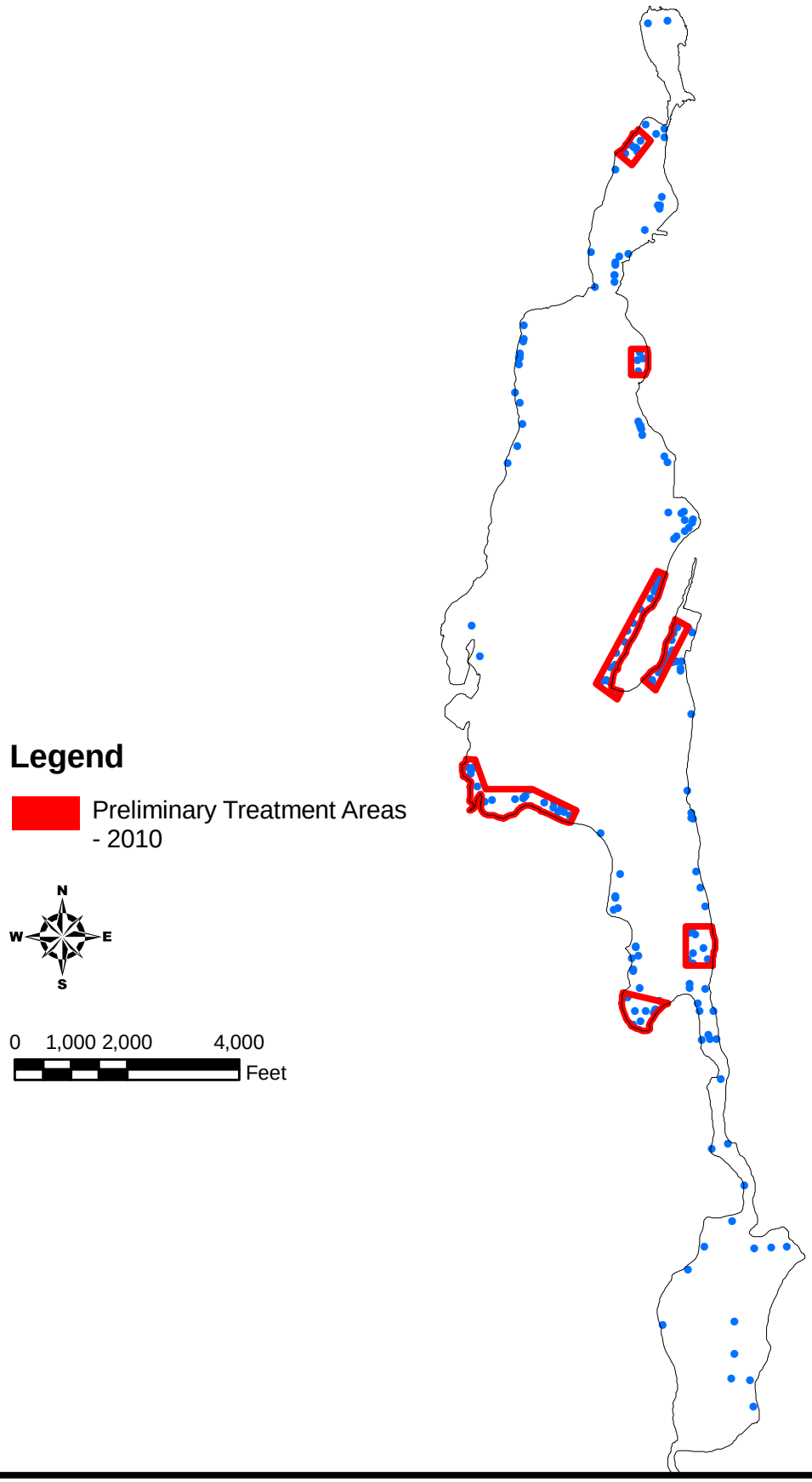
Legend

- Locations of EWM growth recorded during Sept. 2009 survey(includes pre-established survey points where EWM was encountered)
- 2009 Treatment Areas

N
W E
S

0 1,000 2,000 4,000
Feet

Preliminary Treatment Areas - 2010



Legend

Preliminary Treatment Areas - 2010

N
W E
S

0 1,000 2,000 4,000

Feet