AQUATIC VEGETATION SURVEY REPORT
Year Two of *Myriophyllum spicatum* Management
LAKE FAIRLEE
Fairlee, West Fairlee & Thetford
Vermont
2011

SUBMITTED: NOVEMBER 3, 2011

BY:_____
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Contents

1.0 Introduction

Several surveys of the aquatic vegetation present within Lake Fairlee were conducted in 2011 as part of the 5-Year Eurasian Milfoil (*Myriophyllum spicatum*, E. Milfoil) Management Program initiated in 2010. These surveys ranged from cursory shoreline assessments to a detailed end-of-year survey as required by the 5-Year Aquatic Nuisance Control Permit (2009-C08 HB). The objective of these surveys was to monitor any re-growth of E. Milfoil so that effective management strategies could be implemented to reduce the spread of this invasive species.

The following sections of this report detail the efforts undertaken by Lycott Environmental, Inc. (Lycott) to assess re-growth of E. Milfoil in Lake Fairlee and to track the effects of the 2010 triclopyr (Renovate OTF®) treatment on non-target species.

2.0 Methods

The methods implemented during the surveys of Lake Fairlee during 2011 are described below.

2.1 Littoral Zone Survey

An extensive shoreline survey was conducted by Aquatic Biologists Joy Trahan-Liptak and Brittany Laginhas. Water clarity and favorable weather conditions allowed for visual observation of the plant community for the majority of the survey. Where vegetation was not readily identifiable from the surface, the rake-toss method was implemented. Aquatic plants were identified to the species level and assigned a density percentage based on observed relative abundance. The locations and extent of the aquatic plant community were marked with Global Positioning System (GPS) waypoints and field notes were later used to create GIS-based images of Lake Fairlee's littoral aquatic vegetation community.

2.2 Point-intercept Survey

The post-treatment survey was conducted on September 20th by Joy Trahan-Liptak and Clayton Edwards who replicated the survey methods used in the September 2009 and 2010 surveys (methods are detailed in Appendix A). Data for depth, density, percent cover, biomass, and percent E. Milfoil were recorded at each of the 120 pre-established littoral zone data points (raw data may be found in Appendix B). Species presence and dominance was also recorded. The survey also included SCUBA diver confirmation of findings at several random data points. The purpose of this survey was to identify and map species of aquatic vegetation throughout Lake Fairlee and to determine the effects of the Renovate OTF treatment on non-native and native species.

Several areas were chosen for further analysis by a SCUBA diver. These locations focused on areas of moderate to dense growth of E. Milfoil, while including several areas with little to no growth. The data collected for these dive locations included species presence and absence.

3.0 Survey Results

3.1 Littoral Zone Survey

Observations during the mid-June survey concluded that a healthy composition of native aquatic vegetation existed throughout the littoral zone. A total of thirteen (13) species of aquatic macrophytes were observed including Tape Grass (*Vallisneria americana*) and

several Pondweed (*Potamogeton*) species which were most prevalent. Two areas of E. Milfoil were observed – one at the Middle Brook inlet and another off of Passumpsic Point.

3.2 **Point-intercept Survey**

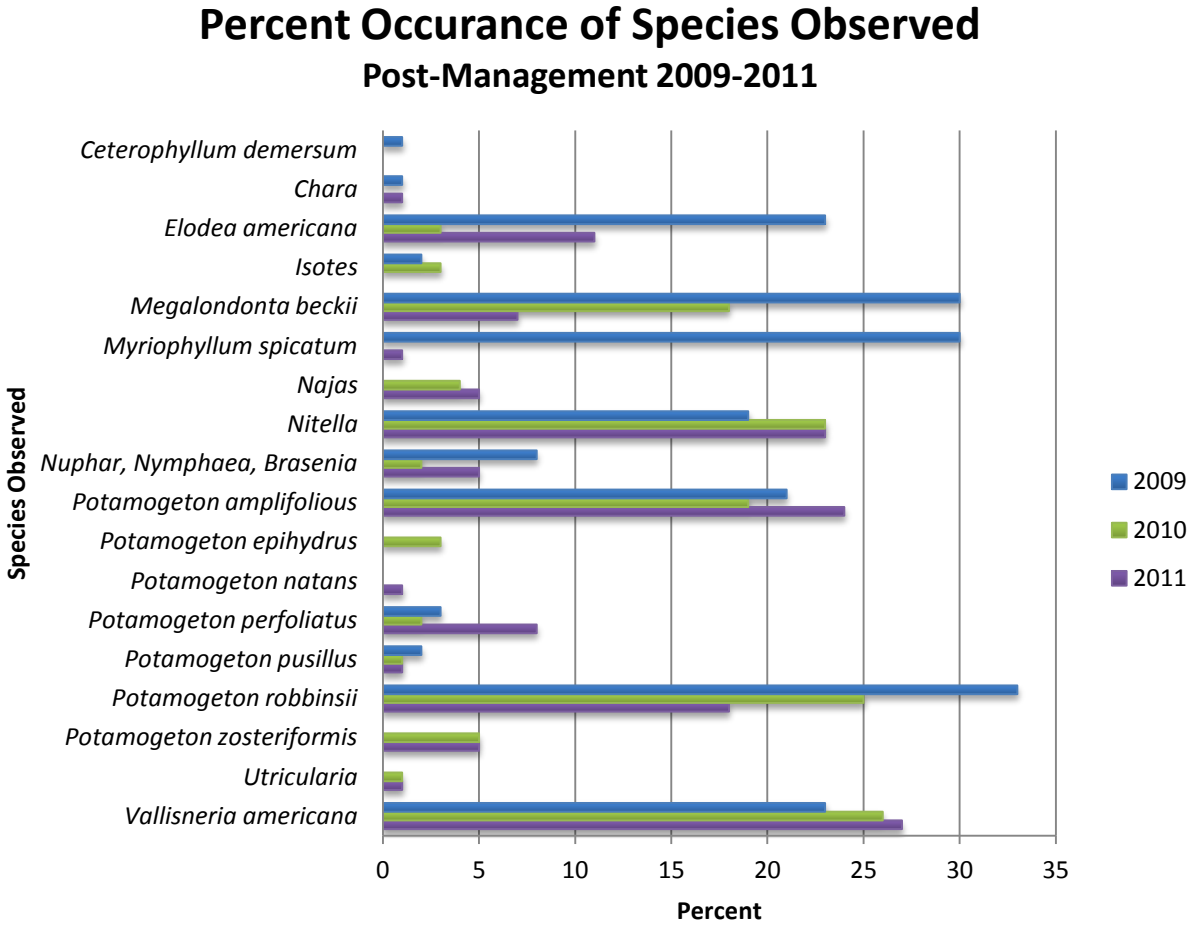
A total of fifteen (15) species of aquatic macrophytes were identified at the time of the evaluation. Tape Grass was the most prevalent species, occurring at 27% of the points surveyed, followed closely by Big-Leaf Pondweed (*Potamogeton amplifolious*) and Stonewort (*Nitella*), occurring with greater than 20% frequency. E. Milfoil was found at one survey point; however, more extensive distribution of this species was found during observations of the littoral zone.

The following table and graph details the remaining species identified during the 2009, 2010, and 2011 surveys. Maps showing presence and absence of each observed species are included in Appendix C.

Table 1: Aquatic Vegetation and Frequency of Occurrence

		2009		2010		2011		Comparison*	
		Occurrences	Frequency (%)	Occurrences	Frequency (%)	Occurrences	Frequency (%)	2009 to 2011	2010 to 2011
Ceterophyllum demersum	Coontail	1	1	0	0	0	0	↓	–
Chara	Muskgrass	1	1	0	0	1	1	–	↑
Elodea	Waterweed	27	23	3	3	13	11	↓	↑
Isotes	Quillwort	2	2	3	3	0	0	↓	↓
Megalondonta beckii	Water Marigold	36	30	21	18	8	7	↓	↓
Myriophyllum spicatum	Eurasian Milfoil	36	30	0	0	1	1	↓	↑
Najas	Bushy Pondweed	0	0	5	4	6	5	↑	↑
Nitella	Stonewort	23	19	27	23	27	23	↑	–
Nuphar, Nymphaea, Brasenia	Water Lilies	8	8	2	2	6	5	↓	↓
Potamogeton amplifolious	Big-Leaf Pondweed	25	21	23	19	29	24	↑	↑
Potamogeton epihydrus	Ribbon-Leaf Pondweed	0	0	4	3	0	0	–	↓
Potamogeton natans	Floating-Leaf Pondweed	0	0	0	0	1	1	↑	↑
Potamogeton perfoliatus	Clasping-Leaf Pondweed	4	3	2	2	9	8	↑	↓
Potamogeton pusillus	Tiny Pondweed	2	2	1	1	1	1	↓	–
Potamogeton robbinsii	Fern-Leaf Pondweed	40	33	30	25	22	18	↓	↓
Potamogeton zosteriformis	Flat-Stem Pondweed	0	0	6	5	6	5	↑	–
Utricularia	Bladderwort	0	0	1	1	1	1	↑	–
Vallisneria americana	Tape Grass	27	23	31	26	32	27	↑	↑

* Increase (↑), Decrease (↓), or Same (–) compared to occurrence in specified year



In general, vegetative coverage throughout the littoral zone was considered moderate (25-50% coverage), with areas of dense growth common in shallow areas, especially the Middle Brook and Blood Brook inlets. The majority of plant growth was found in depths up to twelve (12) feet.

4.0 **Conclusion**

The surveys conducted in 2011, the year following herbicide treatment of 120 acres of E. Milfoil in the littoral zone of Lake Fairlee, show that the treatment both significantly reduced the distribution of E. Milfoil and allowed for continued growth of non-target, native species. Of the thirteen (13) species observed during the 2009 pre-management survey, more than half were observed at the same or greater densities during the September 2011 survey.

Although E. Milfoil was documented at only one of the data points surveyed during September 2011, growth of this invasive species extends beyond this single point. Additional work conducted by Lycott as part of the Lake Fairlee Association's management efforts, including diver surveys and hand-pulling efforts, have further mapped distribution of E. Milfoil. The details of these surveys and additional management efforts conducted under 2009-C08 HB will be provided with the forthcoming 'Final Report for Year Two of Eurasian Milfoil Management in Lake Fairlee'.

Appendix A

Survey Methods

Client: Lake Fairlee Association
PO Box 102
Fairlee, VT 05045

Representative: Lycott Environmental, Inc.
600 Charlton Street
Southbridge, MA 01550

APPENDIX A
Survey Methods

Lake Fairlee 2009-2011

Collection of quantitative data is an important element of environmental management. Quantitative data provides an objective analysis of management requirements and outcomes, while allowing comparability of data between multiple observers. Data collection for management of aquatic vegetation may use point intercept methods, line intercept methods, or a combination thereof. Due to the large size of Lake Fairlee, the point intercept method was chosen as the primary data collection technique. This method allows for analysis of many points, providing an accurate representation of species presence/absence, as well as species diversity. Several areas were chosen for further analysis by a SCUBA diver. These locations focused on areas of moderate to dense growth of the target species (in this case E. Milfoil), while including several areas with little to no growth of the target species. The data collected for these dive locations included species presence and absence.

Point Intercept Method

Prior to the survey, an 80 m (~260 ft) grid was generated and applied to the outline of Lake Fairlee. A total of 120 points were randomly selected within a 100 m buffer around the entire shoreline. This buffer area includes the extent of the lake's littoral zone, to approximately 6 m (20 ft) deep. The 120 points were uploaded to a high-sensitivity GPS unit, and printed on data sheets for use in the field.

During the survey, a small boat was used to navigate to each predetermined point. The following data was collected at each point:

Species Identification

The rake toss method, based on protocols developed by Cornell University, was used to retrieve submersed aquatic vegetation from either side of the survey vessel. Two rake tosses were done at each point, one on either side of the survey vessel. Each species found on the rake was identified and recorded. Plant species observed in the immediate area, but not found on either rake toss were also recorded. Any species not readily identified *in situ* was placed into a plastic bag labeled with the data point number and returned to the lab for further analysis. Once all species were recorded, the most prevalent species was recorded as dominant for later use in presence/absence maps.

Relative Abundance

The abundance scale, developed by the US Army Corps of Engineers and modified by Cornell, was used to categorize total growth.

Notation	Description
Z	*Zero*: no plants on rake
T	*Trace*: fingerful on rake
S	*Sparse*: handful on rake
M	*Moderate*: rakeful of plants
D	*Dense*: difficult to bring into boat

Percent Cover

Percent cover is defined as the percent of bottom sediments obscured by vegetation. In general, an area in which no sediments are visible is classified at 100% cover; at times however bottom sediments are not visible due to water clarity, regardless of vegetative growth. These points were given a null (∅) designation, for data recording purposes.

Biomass Index

The biomass for each data point was recorded on a scale from zero to four:

0	No biomass	No plants
1	Low biomass	Very low growth
2	Moderate biomass	Growth extending up, into water column
3	High biomass	Growth in water column and possibly to surface, may be considered a recreational or habitat nuisance
4	Very high biomass	Growth filling the water column and covering the surface

Eurasian Milfoil Percentage

The immediate area around the boat was observed for growth of E. Milfoil and each point was assigned a percentage.

<u>Presence/Absence Confirmation – SCUBA Observation</u>

Locations were identified in the field to confirm vegetative cover and species distribution with a scuba diver. Locations were selected based on dense cover of E. Milfoil or other canopy species which obscured smaller plant growth from surface observation. A few areas with little to no growth of the target species were also included to provide a comparison of diversity and abundance.

A diver swam approximately ten to fifteen minutes at each location within the littoral zone and any dense E. Milfoil beds. Routes were selected based on environmental factors such as depth, vegetative cover, and bathymetry of the individual locations.

Diver locations were marked with GPS and the description of the route and depth were recorded on a separate data sheet for each location. Samples were identified *in* situ or collected and placed in bags to be cataloged within twelve hours.

Milfoil Bed Identification

In order to identify target species bed perimeters, a boat was used to navigate around the lake while surveyors recorded the visual density of each bed. A GPS unit was used to track the boat as it moved around plant beds. This GPS track was then uploaded to an ESRI mapping program and used to develop a pre-treatment map detailing the overall milfoil situation in Lake Fairlee including relative densities of beds.

Appendix B

Raw Data from September 2011 Survey

Client: Lake Fairlee Association
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Lake Fairlee Vermont
September 2011

Point Information			Point Data				Species Data (x=present, d=dominant)														
Point #	Latitude	Longitude	depth	Density	% cover	Biomass Index (0-4)	*Myriophyllum spicatum*	*Megalondonta beckii*	*Elodea*	*Chara*	*Najas*	*Nitella*	*Nymphaea / Nuphar / Brasenia spp.*	*Potamogeton amplifolious*	*Potamogeton natans*	*Potamogeton perfoliatus*	*Potamogeton pusillus*	*Potamogeton robbinsii*	*Potamogeton zosteriformis*	*Utricularia*	*Vallisneria americana*
1	43.88985	-72.2259	18.5	T	<5	1						x									
2	43.88907	-72.2259	30	Z	0	0															
3	43.8883	-72.2248	8.5	S	<5	1						x									
4	43.88753	-72.2248	25	Z	0	0															
5	43.88753	-72.2237	28.7	Z	0	0															
6	43.88753	-72.2227	27	Z	0	0															
7	43.8883	-72.2227	17	Z	0	0															
8	43.88907	-72.2227	13	S	20	2			x			d		x							
9	43.88983	-72.2216	23.4	Z	0	0															
10	43.8906	-72.2216	11	Z	0	0															
11	43.8906	-72.2205	26	Z	0	0															
12	43.89137	-72.2205	12.7	T	<5	1						x									
13	43.89137	-72.2195	11.8	M	35	2						x						d			
14	43.89137	-72.2184	11.8	S	45	2						x		x					x		
15	43.89213	-72.2174	24.4	Z	0	0															
16	43.8929	-72.2174	13	M	70	2			d					x				x			
17	43.89367	-72.2173	6.9	S	20	1						x									
18	43.89367	-72.2163	9.1	M	75	2			x												
19	43.89365	-72.2152	26.9	Z	0	0															
20	43.89443	-72.2152	17.9	Z	0	0															
21	43.89518	-72.2142	14	Z	0	0															
22	43.89595	-72.2131	11.7	M	40	1						x									
23	43.89597	-72.2141	13.3	Z	0	0															
24	43.89673	-72.2141	10.6	M	40	2			x			x							x		
25	43.8975	-72.2141	17	Z	0	0															

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Point #	Latitude	Longitude	depth	Density	% cover	Biomass Index (0-4)	*Myriophyllum spicatum*	*Megalondonta beckii*	*Elodea*	*Chara*	*Najas*	*Nitella*	*Nymphaea / Nuphar / Brasenia spp.*	*Potamogeton amplifolious*	*Potamogeton natans*	*Potamogeton perfoliatus*	*Potamogeton pusillus*	*Potamogeton robbinsii*	*Potamogeton zosteriformis*	*Utricularia*	*Vallisneria americana*
26	43.89827	-72.2131	27.5	Z	0	0															
27	43.89903	-72.2131	26.8	Z	0	0															
28	43.8998	-72.2131	5.1	M	85	3			x					x				d			
29	43.8998	-72.212	12.7	M	85	3						x		x				d			
30	43.90057	-72.2109	2	D	95	4		x					x	x				x			d
31	43.89978	-72.2109	20.4	Z	0	0															
32	43.89902	-72.2099	4.9	M	85	3						x		x				d	x		x
33	43.89825	-72.2099	22.6	Z	0	0															
34	43.89748	-72.2099	19	Z	0	0															
35	43.89672	-72.2099	5.5	D	95	3		x	x									d			x
36	43.89595	-72.2099	5.7	D	100	3		x				x	x	x		x		x			d
37	43.89518	-72.211	26.8	Z	0	0															
38	43.89442	-72.211	15.9	T	<5	1						x									
39	43.89442	-72.212	29.1	Z	0	0															
40	43.89365	-72.212	24	Z	0	0															
41	43.89365	-72.2131	31.5	Z	0	0															
42	43.89288	-72.2131	6.6	M	90	3			x					d		x		x			x
43	43.89212	-72.2131	6.9	0	90	3		x	x							x	x				d
44	43.89212	-72.2142	30.5	Z	0	0															
45	43.89135	-72.2152	23.8	Z	0	0															
46	43.89058	-72.2163	30.1	Z	0	0															
47	43.88982	-72.2163	28.5	Z	0	0															
48	43.88905	-72.2163	6	M	70	3			d									x			x
49	43.88905	-72.2174	32.9	Z	0	0															
50	43.88828	-72.2174	25.7	Z	0	0															
51	43.88828	-72.2184	35.4	Z	0	0															

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Point #	Latitude	Longitude	depth	Density	% cover	Biomass Index (0-4)	*Myriophyllum spicatum*	*Megalondonta beckii*	*Elodea*	*Chara*	*Najas*	*Nitella*	*Nymphaea / Nuphar / Brasenia spp.*	*Potamogeton amplifolious*	*Potamogeton natans*	*Potamogeton perfoliatus*	*Potamogeton pusillus*	*Potamogeton robbinsii*	*Potamogeton zosteriformis*	*Utricularia*	*Vallisneria americana*
52	43.88752	-72.2184	6.2	M	75	3			x					x		x		x			d
53	43.88752	-72.2195	4	M	75	3			x					x		x		x			d
54	43.88675	-72.2206	1.5	Z	0	0															
55	43.88677	-72.2216	26	Z	0	0															
56	43.88598	-72.2216	6.4	M	75	3			x		x	x							x		
57	43.886	-72.2238	8.6	Z	0	0															
58	43.88523	-72.2248	38	Z	0	0															
59	43.88523	-72.2259	35.5	Z	0	0															
60	43.88447	-72.2259	14	S	25	1				x		x									
61	43.88447	-72.2269	20	Z	0	0															
62	43.8837	-72.227	18	Z	0	0															
63	43.8837	-72.228	37.7	Z	0	0															
64	43.88293	-72.228	25.8	Z	0	0															
65	43.88293	-72.2291	42.2	Z	0	0															
66	43.88217	-72.2291	8.8	Z	0	0															
67	43.88217	-72.2301	47.6	Z	0	0															
68	43.8814	-72.2301	46.8	Z	0	0															
69	43.88063	-72.2302	16	Z	0	0															
70	43.88063	-72.2312	42.4	Z	0	0															
71	43.87987	-72.2312	33.8	Z	0	0															
72	43.87987	-72.2323	26.7	Z	0	0															
73	43.87987	-72.2333	26.4	Z	0	0															
74	43.87912	-72.2344	2	D	100	4							x	x							d
75	43.87988	-72.2344	8.2	S	5	1						x									
76	43.88065	-72.2344	3.9	S	25	3								x							
77	43.88142	-72.2333	32.5	Z	0	0															

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Point #	Latitude	Longitude	depth	Density	% cover	Biomass Index (0-4)	*Myriophyllum spicatum*	*Megalondonta beckii*	*Elodea*	*Chara*	*Najas*	*Nitella*	*Nymphaea / Nuphar / Brasenia spp.*	*Potamogeton amplifolious*	*Potamogeton natans*	*Potamogeton perfoliatus*	*Potamogeton pusillus*	*Potamogeton robbinsii*	*Potamogeton zosteriformis*	*Utricularia*	*Vallisneria americana*
78	43.88218	-72.2333	34.8	Z	0	0															
79	43.88142	-72.2344	5.1	Z	0	0															
80	43.88218	-72.2344	18.1	S	15	3								x							
81	43.88142	-72.2355	13.8	S	25	3						x		d							x
82	43.88218	-72.2355	23.2	Z	0	0															
83	43.88218	-72.2365	18.3	Z	0	0															
84	43.88218	-72.2376	5.8	M	60	3													x		d
85	43.88297	-72.2386	18.1	T	<5	1						x									
86	43.88297	-72.2397	9.8	S	20	1					x	x									
87	43.8822	-72.2408	7.6	S	20	2												x			
88	43.88297	-72.2408	9.9	S	30	2					x	x		d							
89	43.88297	-72.2418	8.6	M	50	2												x			
90	43.8822	-72.2429	3.9	D	95	3								d				x			x
91	43.88297	-72.2429	6.6	D	95	3						x		d							x
92	43.88373	-72.2429	4.6	T	<5	2								x							
93	43.88373	-72.2439	3	Z	0	0															
94	43.88373	-72.245	2	S	15	4							x								d
95	43.8845	-72.2429	6.3	M	50	3					x			d							
96	43.88527	-72.2429	6.1	M	30	3						x									d
97	43.88603	-72.2429	3.6	S	20	3										d					x
98	43.88603	-72.2418	5.1	D	75	3						x		x				d		x	x
99	43.88603	-72.2407	6.4	M	20	3												x			
100	43.8868	-72.2407	5	M	50	3								x				d			x
101	43.88603	-72.2397	9.8	M	50	3					x			d				x			x
102	43.8868	-72.2397	9.2	D	85	2												x			
103	43.88603	-72.2386	14.2	M	55	2								x							

Point #	Latitude	Longitude	depth	Density	% cover	Biomass Index (0-4)	*Myriophyllum spicatum*	*Megalondonta beckii*	*Elodea*	*Chara*	*Najas*	*Nitella*	*Nymphaea / Nuphar / Brasenia spp.*	*Potamogeton amplifolious*	*Potamogeton natans*	*Potamogeton perfoliatus*	*Potamogeton pusillus*	*Potamogeton robbinsii*	*Potamogeton zosteriformis*	*Utricularia*	*Vallisneria americana*
104	43.8868	-72.2386	4.4	Z	0	0															
105	43.8868	-72.2365	7.7	S	20	3												x			d
106	43.88757	-72.2354	3.4	S	20	2										d		x	x		x
107	43.88755	-72.2344	5.8	S	20	2										x					x
108	43.88755	-72.2333	11.8	S	20	2						x				x					d
109	43.88755	-72.2312	8	M	70	3		d			x	x									x
110	43.88832	-72.2312	6.3	M	50	3		x													x
111	43.88832	-72.2301	25	Z	0	0															
112	43.88908	-72.2291	20.4	Z	0	0															
113	43.88908	-72.2301	3.2	D	100	3	x		d					x							x
114	43.88985	-72.2312	1.6	D	100	4		x					x	d							
115	43.88985	-72.2301	0.8	D	85	4						x	d								x
116	43.88985	-72.229	3.2	D	85	4								x	x						x
117	43.89062	-72.229	1.3	Z	0	0								x							x
118	43.88985	-72.228	5.7	M	55	3		d				x									x
119	43.88985	-72.2269	9.1	S	20	3								d							x
120	43.88908	-72.228	33.2	Z	0	0															

Appendix C

2011 Survey Maps

Client: Lake Fairlee Association
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Fairlee, VT 05045

Representative: Lycott Environmental, Inc.
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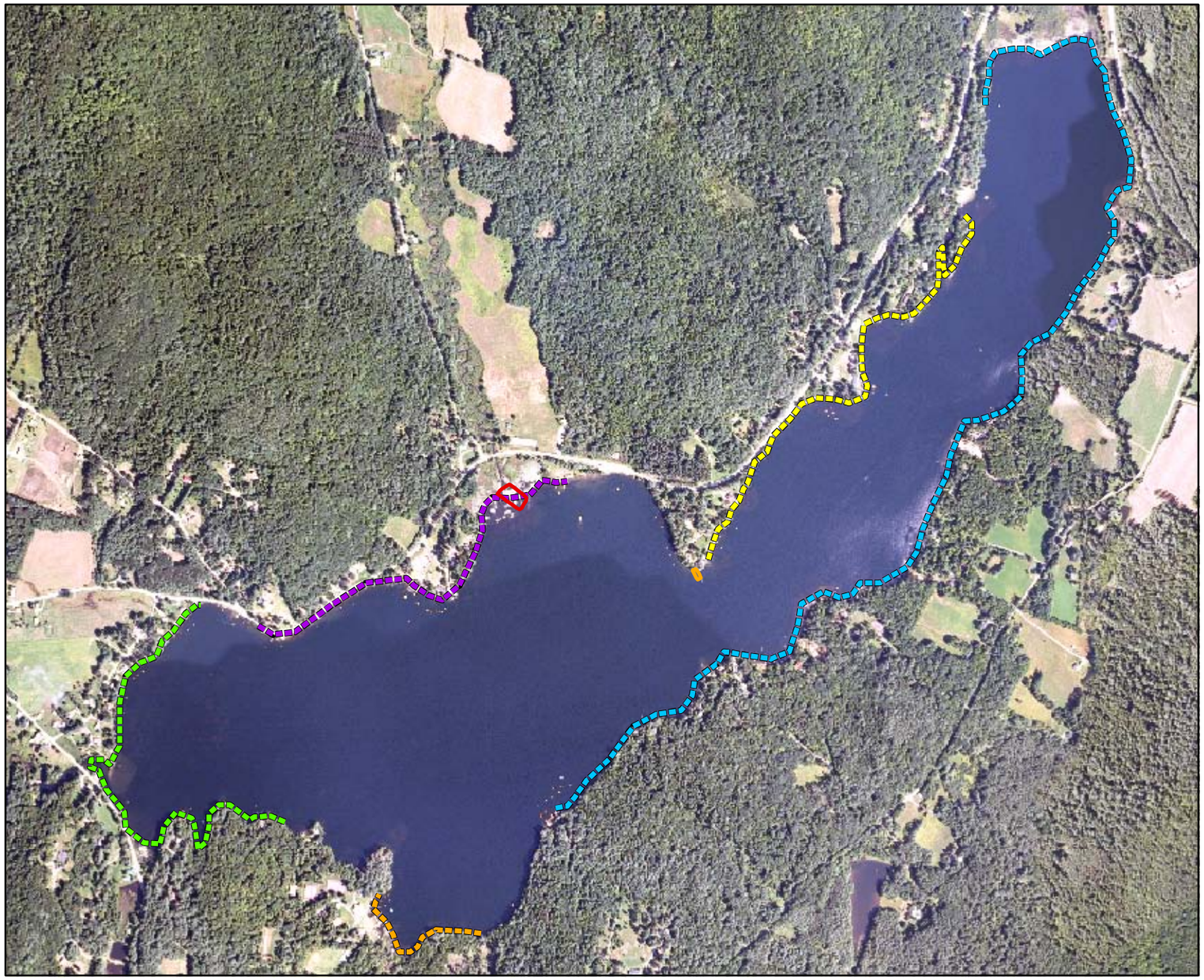
Southbridge, MA 01550

Distribution of Aquatic Vegetation within the Littoral Zone



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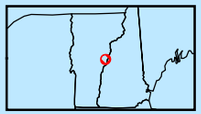

Pond Area:
462 acres

1:14,536

MassGIS
Orthoimagery
1:5,000

600 300 0 600 1,200
Feet

N

Legend

- Heavy growth of Eurasian Milfoil (Myriophyllum spicatum)
- Scattered growth of Eurasian Milfoil (M. spicatum)
- Light to moderate growth of Stonewort (Nitella spp.), Tape Grass (Vallisneria americana), Big-leaf pondweed (Potamogeton amplifolius), Fern-leaf Pondweed (Potamogeton robbinsii), American waterweed (Elodea canadensis), and Quillwort (Isoetes spp.)
- Light to heavy growth of Stonewort (Nitella spp.), Tape Grass (V. americana), Big-Leaf pondweed (P. amplifolius), Fern-Leaf Pondweed (P. robbinsii), American Waterweed (E. canadensis), Quillwort (Isoetes spp.), and Clasping-Leaf Pondweed (P. perfoliatus)
- Light to moderate growth of Stonewort (Nitella spp.) Big-Leaf Pondweed (P. amplifolius), Fern-Leaf pondweed (P. robbinsii), and Clasping-Leaf Pondweed (P. perfoliatus)
- Light to heavy growth of Floating Pondweed (P. natans), Big-Leaf Pondweed (P. amplifolius), Fern-Leaf Pondweed (P. robbinsii), and Clasping-Leaf Pondweed (P. perfoliatus).
- Light to moderate growth of Smartweed (Polygonum hydropiperoides), Marigold (Bidens beckii), Big-Leaf Pondweed (P. amplifolius), Fern-Leaf Pondweed (P. robbinsii), and Clasping-Leaf Pondweed (P. perfoliatus)

Note: The following emergent species were found in scattered densities throughout the lake: Yellow & White Waterlily (Nuphar & Nymphaea spp.), Watershield (Brasenia spp.), and Spike Rush (Elecocharis spp.).

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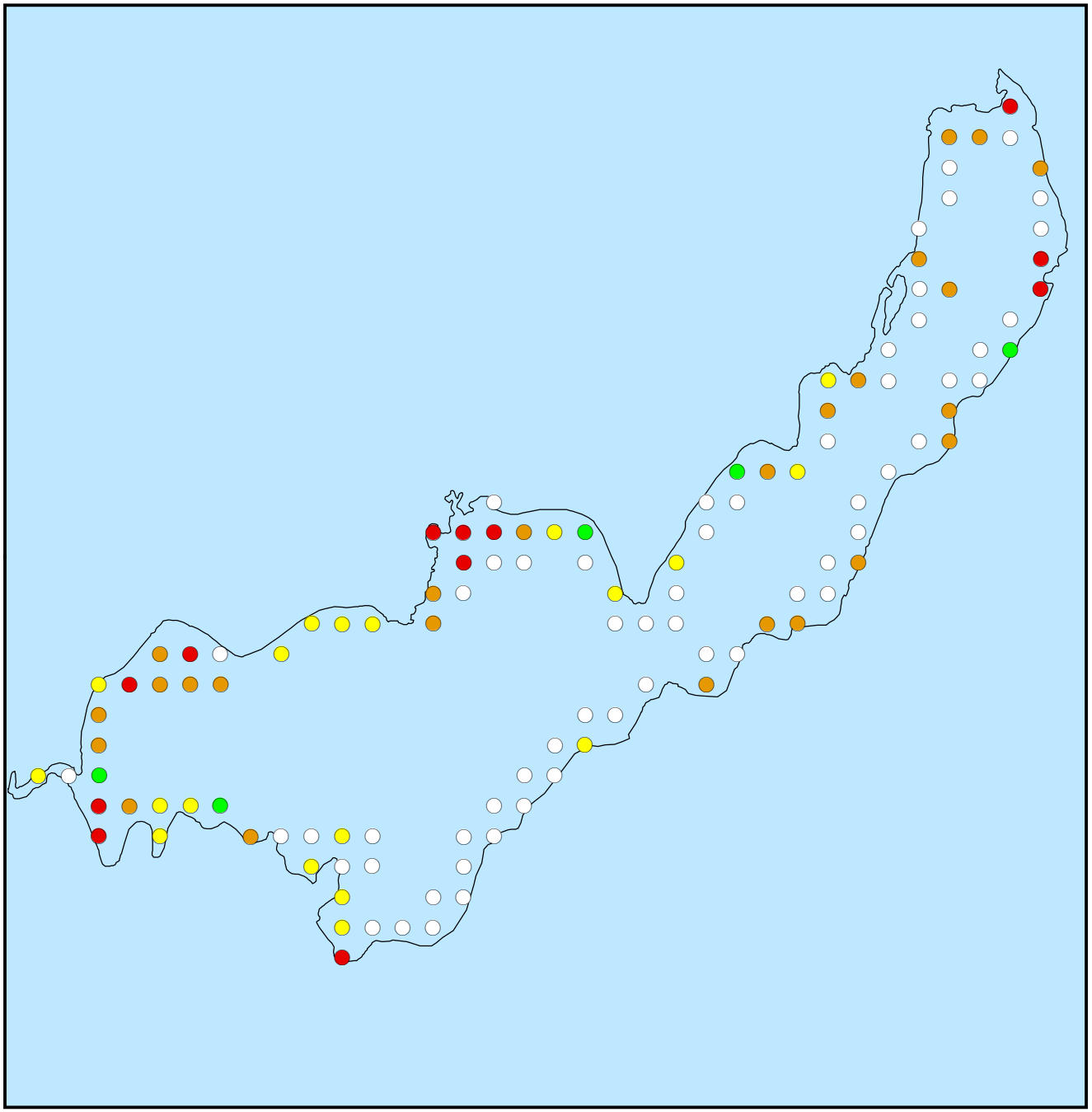
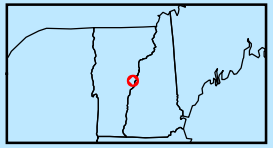
Total Density at Individual Survey Points



Lake Fairlee
Fairlee, Thetford, West Fairlee
Vermont



September 2011

Total Area: 547 acres

VT NAIP 2009 Ortho Imagery (1m)

1:17,500

0 800 1,600 2,400

Feet

N

Legend

- Zero
- Trace
- Sparse
- Moderate
- Dense

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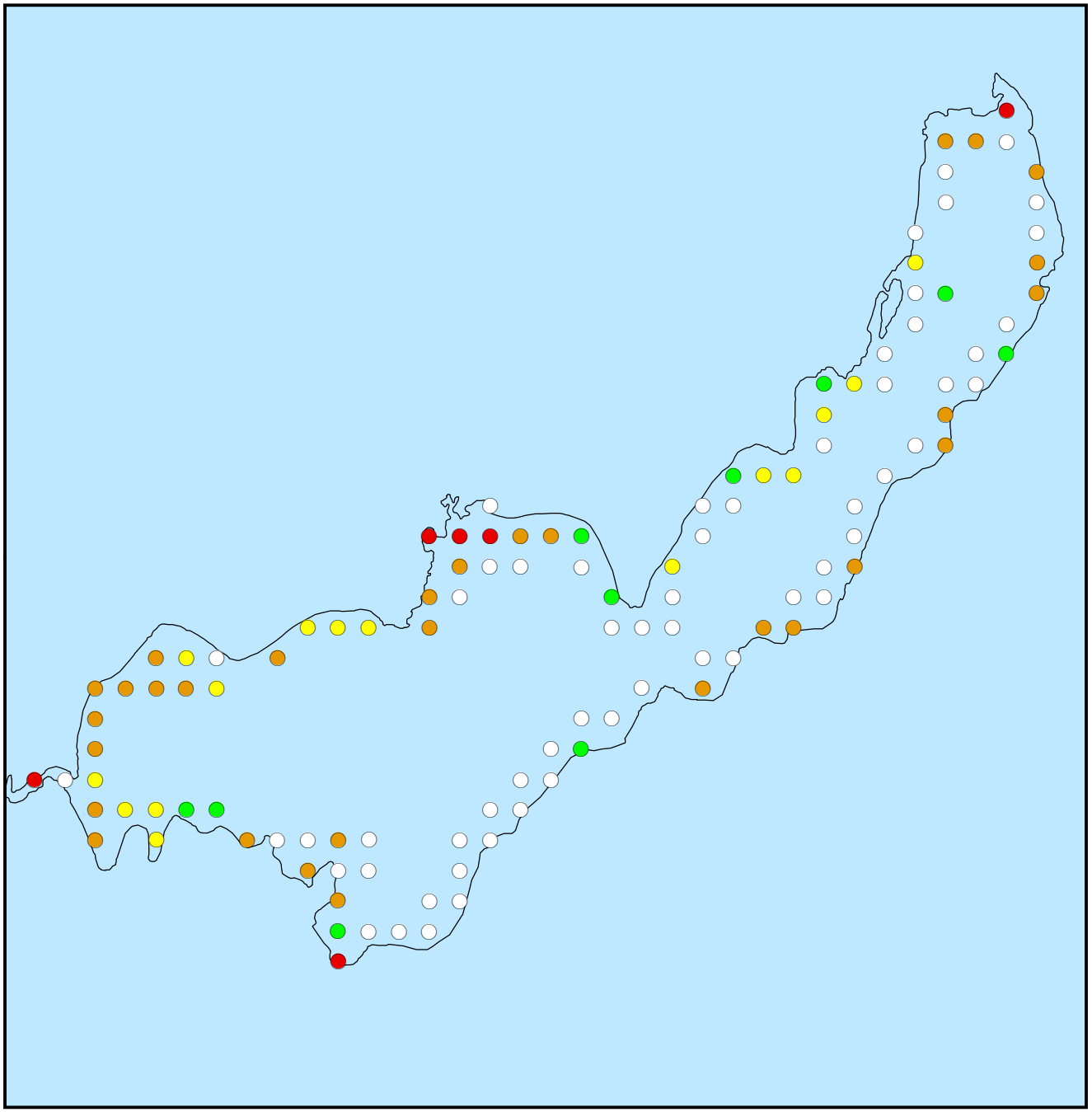
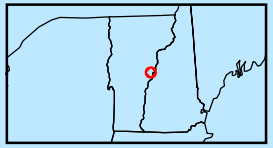
Total Biomass



Lake Fairlee
Fairlee, Thetford, West Fairlee
Vermont



September 2011

Total Area: 547 acres

VT NAIP 2009 Orthoimagery (1m)

1:17,500

0 750 1,500 2,250

Feet

N

Legend

- No plants
- Low-growing plants
- Plants extending into water column
- Plants in water column
- Plants filling water column

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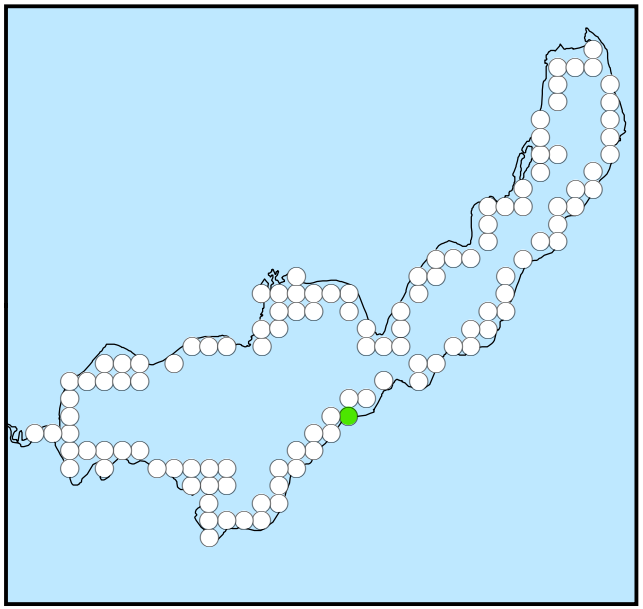
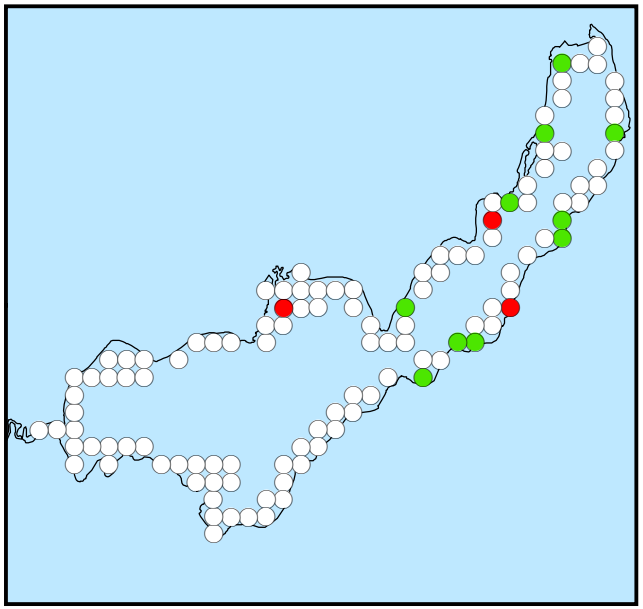
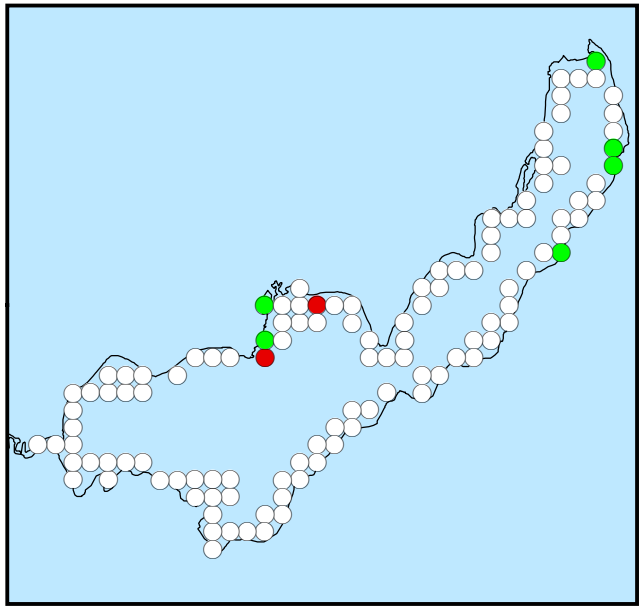
Presence / Absence of Observed Species



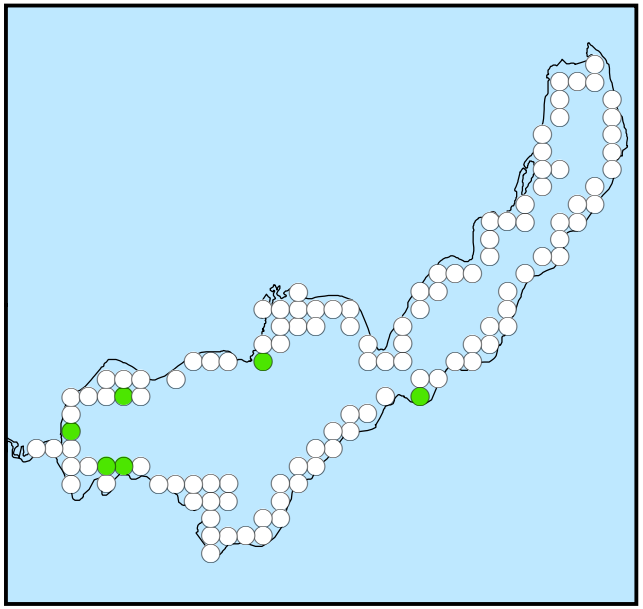
Muskgrass (*Chara*)
Occurs at 1% of points surveyed



Waterweed (*Elodea*)
Occurs at less than 11% of points surveyed

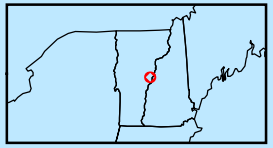


Water Marigold (*Megalondonta beckii*)
Occurs at 7% of points surveyed



Bushy Pondweed (*Najas*)
Occurs at 5% of points surveyed

Lake Fairlee
Fairlee, Thetford, West Fairlee
Vermont



September 2011

Total Area: 547 acres

VT NAIP 2009 Orthoimagery (1m)

1:37,000

0 1,500 3,000 4,500

Feet

N

Legend

- Not Present
- Present
- Dominant

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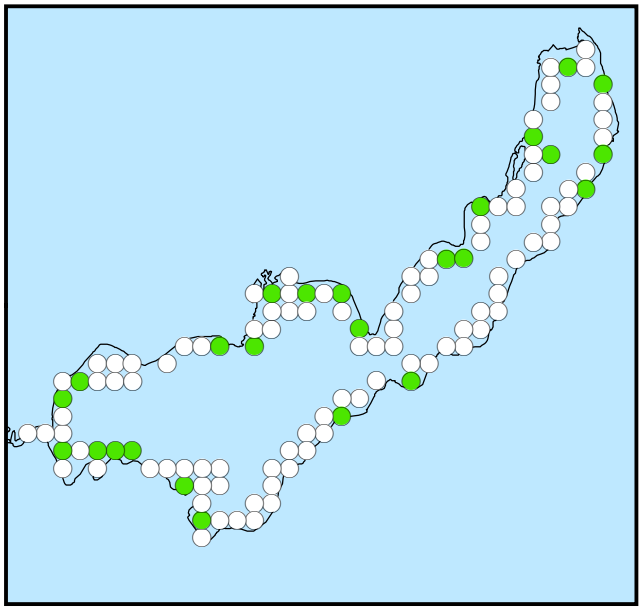
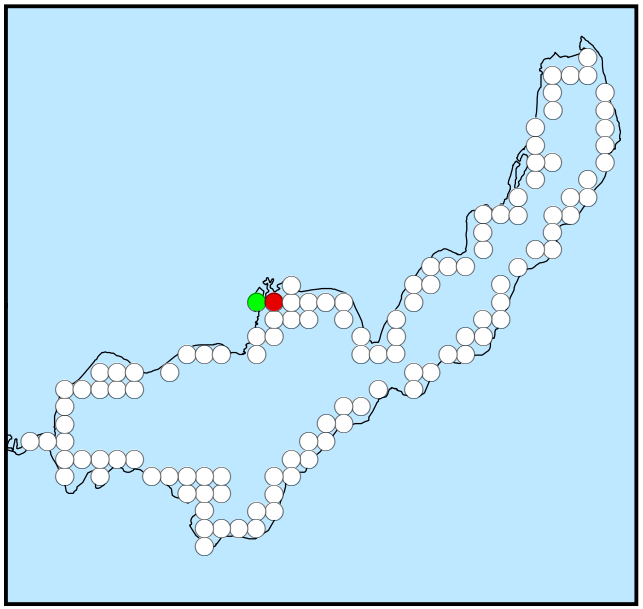
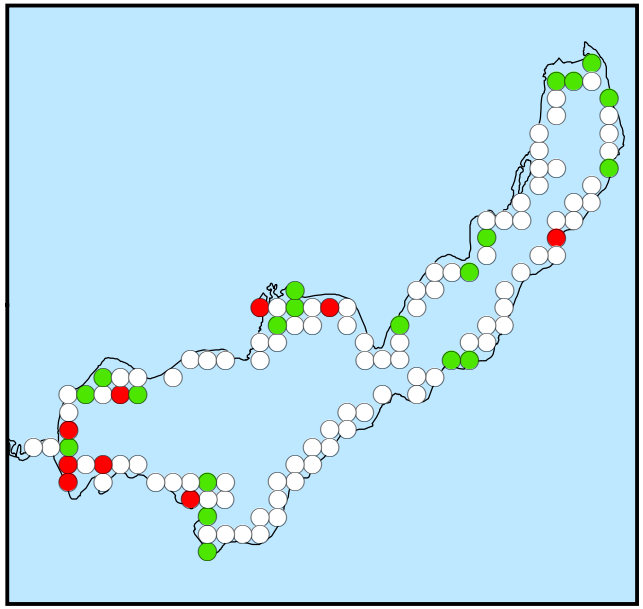
Presence / Absence of Observed Species



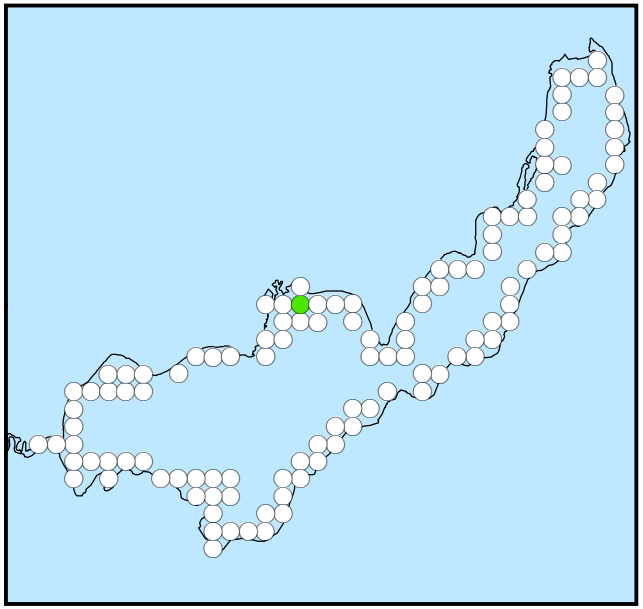
Stonewort (*Nitella* spp.)
Occurs at 22% of points surveyed



Water Lilies (*Nymphaea* and *Nuphar* spp.)
Occurs at 5% of points surveyed



Big-Leaf Pondweed (*Potamogeton amplifolious*)
Occurs at 24% of points surveyed



Floating-Leaf Pondweed (*Potamogeton natans*)
Occurs at 1% of points surveyed

Lake Fairlee
Fairlee, Thetford, West Fairlee
Vermont

September 2011

Total Area: 547 acres

VT NAIP 2009 Orthoimagery (1m)

1:37,000

0 1,600 3,200 4,800

Feet

N

Legend

- Not Present
- Present
- Dominant

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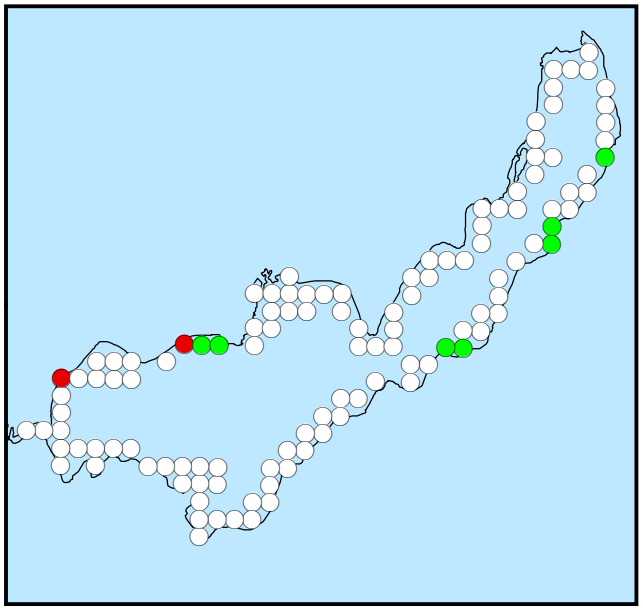
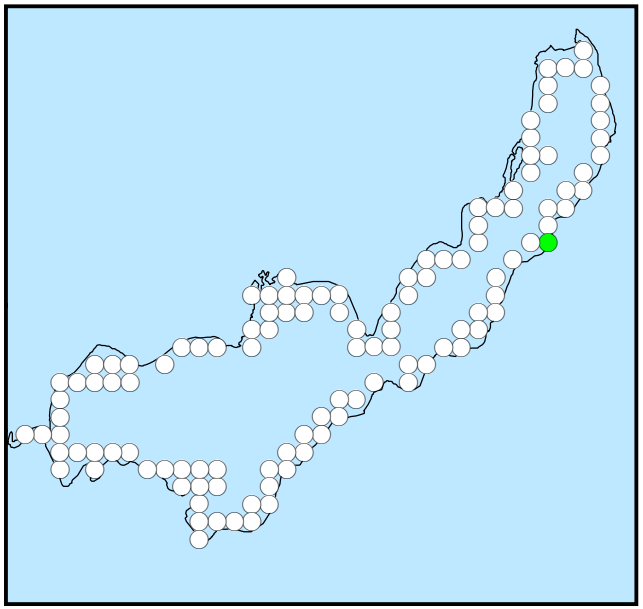
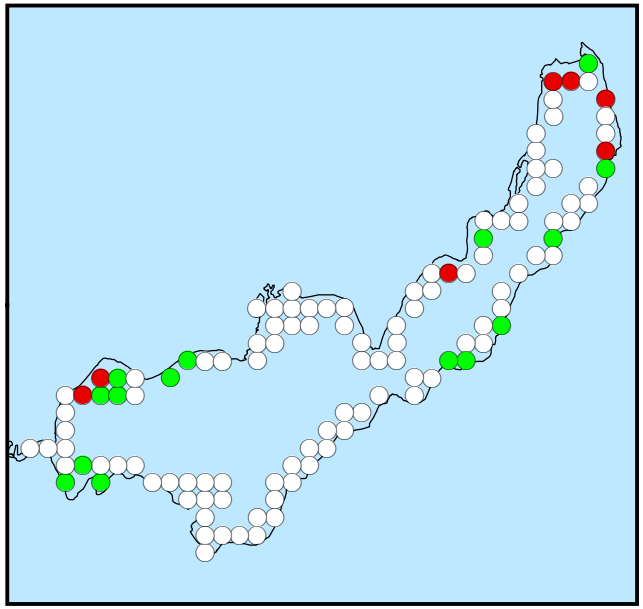
Presence / Absence of Observed Species



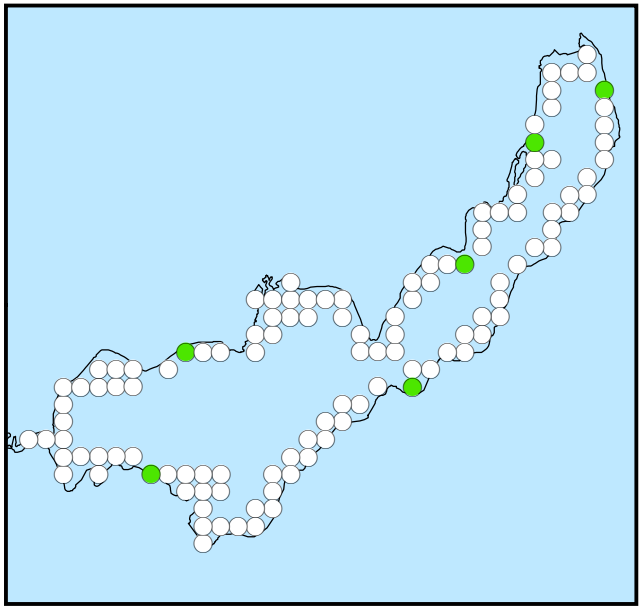
Clasping-Leaf Pondweed (*Potamogeton perfoliatus*)
Occurs at 8% of points surveyed



Tiny Pondweed (*Potamogeton pusillus*)
Occurs at less than 1% of points surveyed

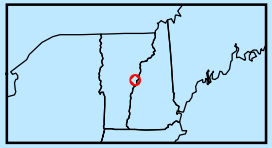


Fern-Leaf Pondweed (*Potamogeton robbinsii*)
Occurs at 18% of points surveyed



Flat-Stem Pondweed (*Potamogeton zosteriformis*)
Occurs at less than 5% of points surveyed

Lake Fairlee
Fairlee, Thetford, West Fairlee
Vermont



September 2011

Total Area: 547 acres

VT NAIP 2009 Orthoimagery (1m)

1:37,000

0 1,500 3,000 4,500

Feet

N

Legend

- Not Present
- Present
- Dominant

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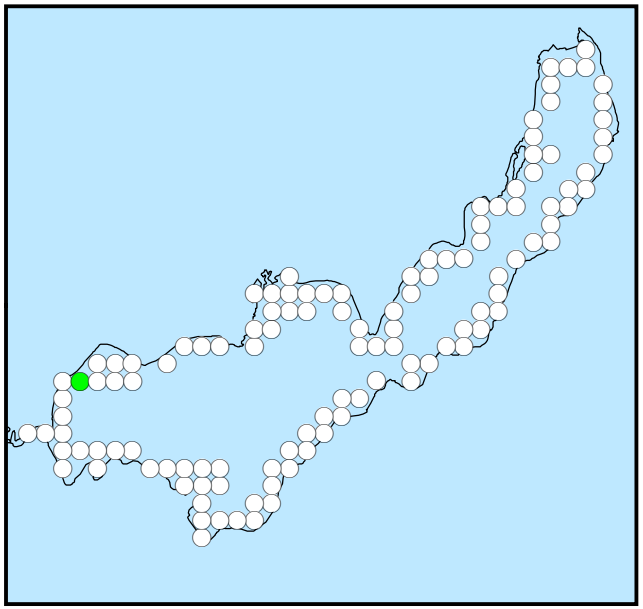
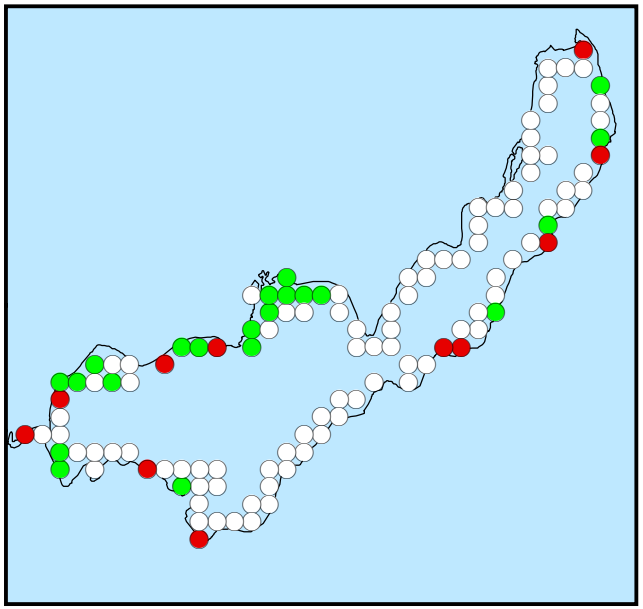
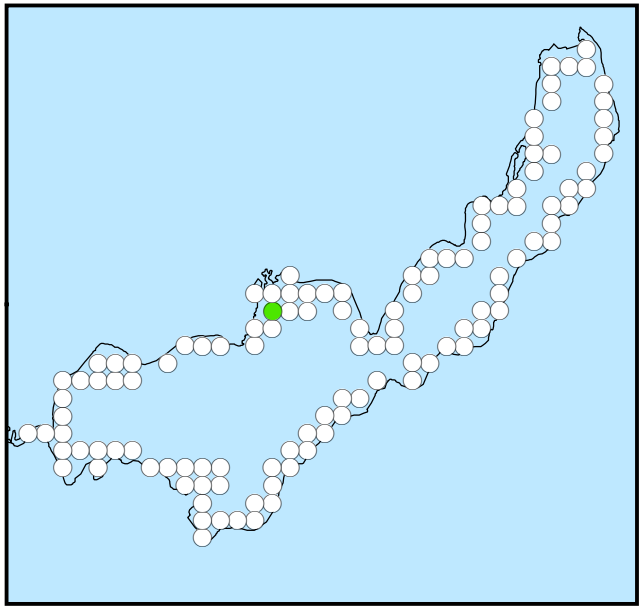
Presence / Absence of Observed Species



Bladderwort (*Utricularia* spp.)
Occurs at less than 1% of points surveyed

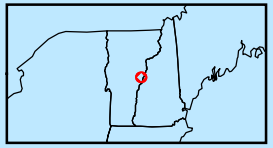


Tape Grass (*Vallisneria americana*)
Occurs at 27% of points surveyed



Eurasian Milfoil (*Myriophyllum spicatum* spp.)
Occurs at less than 1% of points surveyed

Lake Fairlee
Fairlee, Thetford, West Fairlee
Vermont



September 2011

Total Area: 547 acres

VT NAIP 2009 Orthoimagery (1m)

0 1,500 3,000 4,500
Feet

N

Legend

- Not Present
- Present
- Dominant

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