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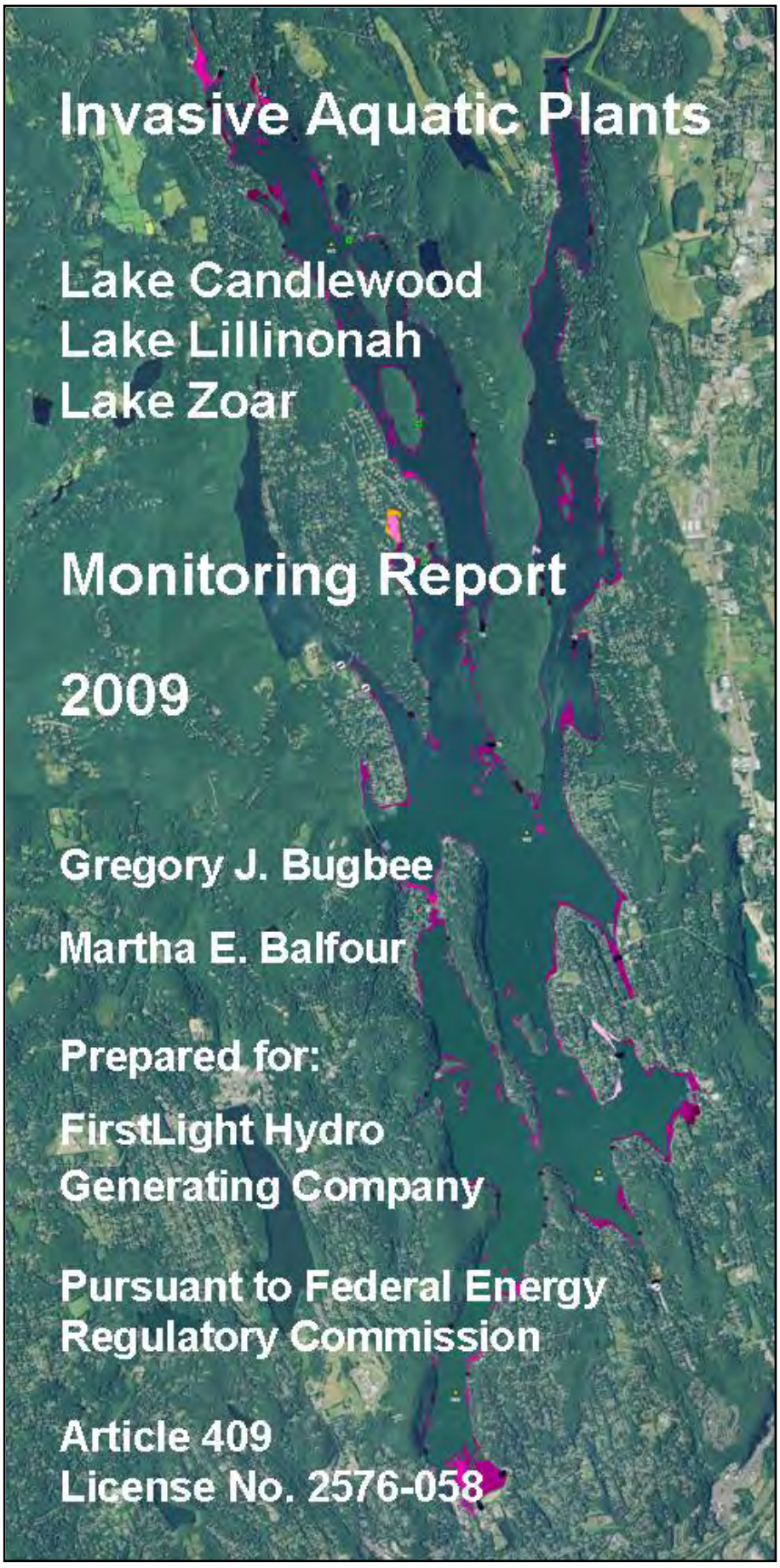
New Haven, CT



Bulletin

1036

February 2010

The Connecticut Agricultural Experiment Station was founded in 1875. It is chartered by the General Assembly to make scientific inquiries and conduct experiments regarding plants and their pests, insects, soil and water, and to perform analyses for state agencies. Station laboratories are in New Haven and Windsor, and research farms in Hamden and Griswold.

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Introduction

This report represents the third year of the Connecticut Agricultural Experiment Station's (CAES) surveillance of Lakes Candlewood, Lillinonah and Zoar for invasive aquatic vegetation. Invasive species represent severe ecological and economic threats (Wilcove et al. 1998, Pimintel et al. 2000). Because invasive species are not native, they have few natural enemies to limit their growth. They can clog water intakes, decrease recreational opportunities, reduce local real estate values and alter native plant communities (Connecticut Aquatic Nuisance Species Working Group, 2006, Fishman et al. 1998). Currently, invasive aquatic plants are found in approximately two-thirds of Connecticut's lakes and ponds (CAES IAPP, 2009).

Previous CAES Invasive Aquatic Plant Program (IAPP) studies found Lakes Candlewood, Lillinonah and Zoar to have similar plant communities (Bugbee and Reeps, 2009, Bugbee et al. 2008). A total of 16, 15 and 18 species, respectively, occur in these lakes. The invasive species *Myriophyllum spicatum* (Eurasian watermilfoil)*, Najas minor* (minor naiad) and *Potamogeton crispus* (curly leaf pondweed) occur in the three lakes with Lake Zoar containing a small population of *Marsilea quadrifolia* (European waterclover). *M. spicatum* covers the largest area in the lakes followed by *N. minor* and *P. crispus*. *P. crispus* may be underestimated because it dies back during our summer survey period (Catling and Dobson, 1985). *M. spicatum* is managed in Lake Candlewood by drawdown and occasional hand-harvesting (Tarsi, 2006). In Lake Lillinonah, it is controlled by harvesting and herbicides while in Lake Zoar it is managed by harvesting. The Federal Energy Regulatory Commission (FERC) Article 409 requires annual invasive aquatic plant monitoring for Lakes Candlewood, Lillinonah and Zoar (Northeast Generating Company, 2005).

Objectives:

Survey and map invasive aquatic plants in Lakes Candlewood, Lillinonah and Zoar to fulfill the FERC nuisance plant monitoring requirement in Article 409. Provide scientifically valid information to stakeholders to assist in the management of invasive aquatic vegetation and enhancement of native species.

Materials and Methods:

Using established methods (CAES IAPP, 2009), we conducted aquatic vegetation surveys from July through early September. We recorded invasive plants with Trimble® global positioning systems (accuracy <1 meter). If plants were in distinct patches, they were circumnavigated thereby forming a polygon. Patches less than one square meter were recorded as a point and assigned an area of 0.0002 acres (1 m^2). Depth was measured by rake handle, drop line or digital depth finder. Plant samples were obtained in shallow water with a rake and in deeper water with a grapple. When field identification was questionable, samples were brought back to the lab for review using the taxonomy of Crow and Hellquist (2000*a*, 2000*b*). After the field season, we post-processed and imported the GPS data into ArcGIS® 9.3.1 (ESRI, Redlands, CA), where it was further geo-corrected. We overlaid the data onto 2008 aerial imagery supplied by the United States Department of Agriculture (USDA) National Agriculture Imagery Program (NAIP).

We collected occurrence and abundance information on invasive and native aquatic plants on ten transects per lake on points positioned 0, 5, 10, 20, 30, 40, 50, 60, 70 and 80 m from shore. In Candlewood Lake, these transects contained at least one occurrence of each native and invasive plant species previously found in previous years (Bugbee et al., 2008). In Lakes Lillinonah and Zoar previously established transects were used but not all species found in the earlier surveys were present. We ranked abundance of each species on a scale of 1 – 5 (1 = single stem; 2 = few stems; 3 = common; 4 = abundant; 5 = extremely abundant). Data were analyzed using methods described by Madsen (1999). Frequency of occurrence of plant species along transects was determined using Pearson's Chi-square. Changes in species composition were determined using parametric statistics, t-test (two years) and Analysis of Variance (>2 years).

Table 1. Invasive and native plants in Candlewood Lake. Frequency of Occurrence along transects and total area covered.

			Frequency of Occurrence (percent**)			Area (acres)			
Scientific Name	**Common Name**	**Abbrev.**	**2005**	**2008**	**2009**	**2005/2006**	**2007**	**2008**	**2009**
Callitiche sp.	Water starwort	CalSp	1.0	0.0	0.0	ND***	ND	ND	ND
Ceratophyllum demersum	Coontail	CerDem	3.1	33.3	11.3	ND	ND	ND	ND
Elatine sp.	Waterwort	ElaSp	0	1	3.1	ND	ND	ND	ND
Eleocharis sp.	Spikerush	EleSp	0	0	3.1	ND	ND	ND	ND
Elodea nuttallii	Waterweed	EloNut	4.2	0.0	0.0	ND	ND	ND	ND
Lemna minor	Duckweed	LemMin	2.1	6.3	1.0	ND	ND	ND	ND
*Myriophyllum spicatum**	Eurasian watermilfoil	MyrSpi	51.0	79.2	64.9	275	221	451	373
Najas flexilis	Nodding waternymph	NajFle	7.3	1.0	1.0	ND	ND	ND	ND
*Najas minor**	Brittle waternymph	NajMin	12.5	6.3	8.2	ND	11.8	10.5	26.1
Nymphaea odorata	White water lily	NymOdo	1.0	1.0	0.0	ND	ND	ND	ND
Potamogeton bicupulatus	Snailseed pondweed	PotBic	0.0	1.0	0.0	ND	ND	ND	ND
*Potamogeton crispus**	Curly leaf pondweed	PotCri	13.5	1.0	0.0	ND	0.1	0.1	0.7
Potamogeton foliosus	Leafy pondweed	PotFol	3.1	0.0	0.0	ND	ND	ND	ND
Potamogeton gramineus	Variable leaf pondweed	PotGra	2.1	0.0	0.0	ND	ND	ND	ND
Potamogeton pusillus	Small pondweed	PotPus	3.1	1.0	0.0	ND	ND	ND	ND
Potamogeton perfoliatus	Clasping leaf pondweed	PotPer	1.0	2.1	1.0	ND	ND	ND	ND
Spirodela polyrhiza	Great duckweed	SpiPol	1.0	0.0	0.0	ND	ND	ND	ND
Stuckenia pectinatus	Sago pondweed	StuPec	6.3	1.0	0.0	ND	ND	ND	ND
Vallisneria americana	Eel grass	ValAme	2.1	2.1	4.1	ND	ND	ND	ND
Zannichellia palustrus	Horned pondweed	ZanPal	11.5	3.1	0.0	ND	ND	ND	ND

*Invasive plant
**Percent occurrence on 97 points in 10 transects
***Not determined

The Candlewood Lake plant survey occurred from August 6 – September 2 and the transect data were obtained from August 27 – August 31 (appendix). Lake Lillinonah was surveyed from July 30 – August 24 and the transect data were collected from July 27 – July 29. The Lake Zoar transect data were obtained August 25 - August 26. Detailed information regarding our “on-lake” time is also located in the Appendix.

We measured water temperature and dissolved oxygen at a depth of 0.5 m and then at 1 m intervals to the bottom of deep areas of each lake (CT DEP, 2009) with a YSI® 58 meter (YSI Inc., Yellow Springs, Ohio). Samples were taken from Lake Candlewood on June 24 and August 31, from Lake Lillinonah on August 24 and from Lake Zoar on August 26. We collected water samples from 0.5 m below the surface and 0.5 m from the bottom. Using a Secchi disk, we measured transparency. We stored water samples at 3 degrees Celsius until they were analyzed for pH, alkalinity, conductivity and total phosphorus. We measured conductivity and pH with a Fisher-Accumet® AR20 meter (Fisher Scientific International Inc., Hampton, NH) and quantified alkalinity by titration with 0.16 N H_2SO_4 to a pH 4.5 end point. Finally, we analyzed total phosphorus with spectroscopy using the ascorbic acid method with potassium persulfate digestion (American Public Health Association, 1995).

Table 2. Yearly comparisons of invasive species patch number and size in Candlewood Lake.

	Patch Size (acres)											
	2007				2008				2009			
Scientific Name	Number	(min)	(max)	(mean)	Number	(min)	(max)	(mean)	Number	(min)	(max)	(mean)
Myriophyllum spicatum	489	0.0002	24.9	0.45	469	0.0002	28.1	0.96	489	0.0002	39.6	0.76
Najas minor	31	0.0003	4.99	0.38	26	0.0006	5.46	0.40	50	0.0002	7.9	0.52
Potamogeton crispus	1	0.07	0.07	0.07	5	0.0002	0.10	0.03	1	0.67	0.67	0.67

Table 3. Yearly comparisons of invasive patch abundance in Candlewood Lake.

	Patch Abundance (1 = sparse - 5 = dense)								
	2007			2008			2009		
Scientific Name	(min)	(max)	(mean)	(min)	(max)	(mean)	(min)	(max)	(mean)
Myriophyllum spicatum	1	5	2.9	1	5	3.0	1	5	2.1
Najas minor	1	4	2.1	2	4	1.5	1	4	1.9
Potamogeton crispus	2	2	2.0	1	1	1.0	1	1	1.0

Results and Discussion

Lake Candlewood

As in previous surveys, the three invasive species found in Candlewood Lake in 2009 were *Myriophyllum spicatum*, *Najas minor* and *Potamogeton crispus* (Maps 1 - 9). *M. spicatum* continued to be the most prevalent invasive species covering 373 acres (Table 1). This compares to 221 acres in 2007 and 451 acres in 2008. The frequency of occurrence of *M. spicatum* on transects was 64.9% in 2009 compared to 51% in 2005 and 79.2% in 2008 (Table 1). No statistical difference was found between 2008 and 2009; however, both years had significantly more *M. spicatum* than in 2005 ($p \leq 0.05$). There were 489 patches of *M. spicatum* in 2009 (Table 2) which is the same as found in 2007 and greater than the 469 found in 2008. This suggests that the deeper winter drawdown in 2009 split up the patches that had coalesced from 2007 – 2008 (Bugbee and Reeps, 2009). The largest patch found in 2009 was 39.6 acres and occurred in Danbury Cove (Map 9). This was the largest patch found to date. The minimum patch size remained at 0.0002 acres which is equal to one square meter and is typically assigned to solitary plants. The average patch size was 0.76 acres and was not significantly different from 2007 or 2008. Average abundance of *M. spicatum* in patches decreased from 2.9 in 2007 and 3.0 in 2008 to 2.1 in 2009 (Table 3). *N. minor* covered 26.1 acres in 2009, which is a marked increase from 11.8 acres in 2007

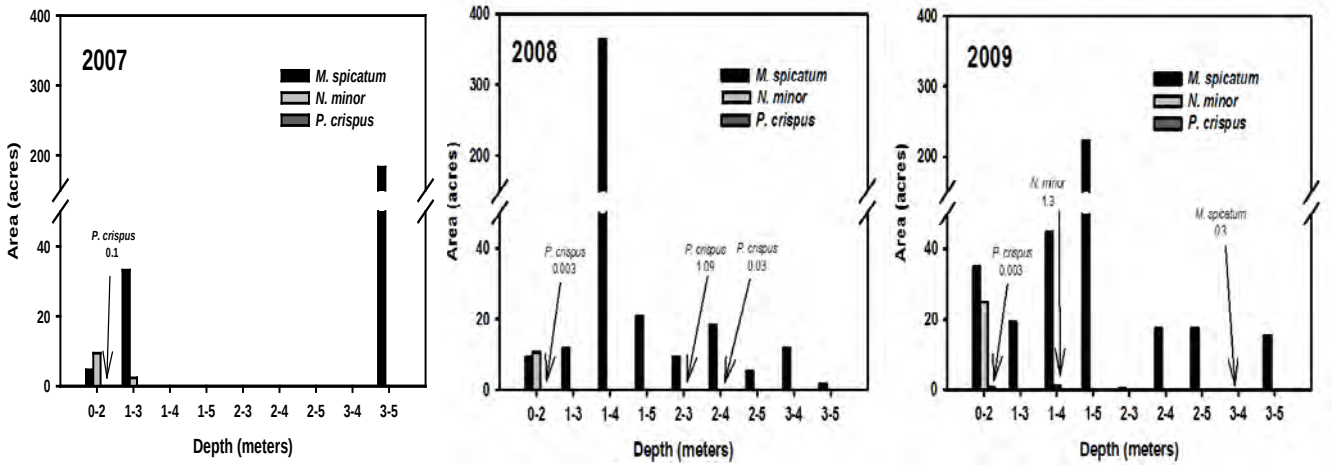


Figure 1. Depth preferences of invasive plants in Candlewood Lake.

and 10.5 acres in 2008. It was most prevalent in Allen's Cove (Map 1), the coves east of Holiday Point (Map 1), west of Great Neck (Map 3) and in Lattin's Cove (Map 8). In 2009, the frequency of occurrence of *N. minor* on transects was 8.2% compared to 6.3% in 2008 and 12.5% in 2005. *N. minor* data were too sparse along transects for us to statistically compare. In 2009, there were a total of 50 patches of *N. minor*, almost double the 26 observed in 2008. Shelter Harbor contained the largest patch of *N. minor* (7.9 acres) found to date. *N. minor* patches averaged 0.52 acres in 2009 compared to 0.38 acres in 2007 and 0.40 acres in 2008. *N. minor's* average patch abundance increased to 1.9 in 2009 from 1.5 in 2008. Both years were lower than the 2.1 average abundance observed in 2007. *P. crispus* acreage increased from 0.1 in 2007 and 2008 to 0.7 in 2009. *P. crispus*, was not found along transects in 2008 or 2009. In 2008 there were five patches with an average size of 0.03 acres. The single patch of *P. crispus* in 2009 had an abundance rating of 1. This follows the low abundance levels observed in 2007 and 2008 and may be related to the low vigor this plant naturally exhibits in the summertime.

The depth preferences of invasive species changed from 2007 - 2009 (Figure 1), probably in response to the previous winter drawdown. In 2009 the greatest area of *M. spicatum* (222 acres, 59.5% of the total) was in 1-5 meters of water while in 2008 it was in 1-4 meters of water (375 acres, 83.0% of total). In 2007 the greatest area was in 3-5 meters of water (182 acres, 82.6% of the total). In 2009, milfoil was typically most abundant in 3-5 meters of water and sparse to moderately abundant in 1-3 meters of water. Because these areas of differing abundance occurred in the same patch, the abundances are averaged. Water

Figure 2. Comparison of Candlewood Lake's *M. spicatum* stands in 2007, 2008 and 2009. In 2009 milfoil was moderately abundant but difficult to see from the surface.

clarity and the associated light restriction at depths of greater than 5 meters is the likely cause for *M. spicatum* to be absent at greater depths. *N. minor* and *P. crispus* generally were found at depths of less than three meters in all years. The restriction of *N. minor* to shallow water is likely because it rarely grows more than 1 m in height and becomes light-limited at deeper depths. Also, it is an annual that reproduces from seeds that seem to prefer the shallower, quiescent coves. *P. crispu*s senesces in the summer months (Catling and Dobson, 1985), thus a considerable amount is not observable during our surveys.

Changes in milfoil coverage, patch number, size and abundance are likely related to differences in drawdown practices and corresponding weather conditions during the drawdown. Effective drawdowns must expose the plant roots to drying or freezing conditions for a sufficient length of time. The exact length of time is poorly understood. In 2007 and 2009, the winter drawdown was approximately nine feet; however, the time the lake was maintained at the lowest depth was only about four weeks in 2009 compared to eight weeks in 2007 (Figure 3) (Marsicano, 2009). The shorter drawdown time increases the chances for less than optimal conditions for controlling vegetation and may explain the differences in plant coverage, abundance etc. In 2008, a four foot drawdown lasted from late December until early February. This shallower drawdown apparently allowed large-scale reinfestation of *M. spicatum* into shallower depths. Close-up yearly comparisons of *M. spicatum* in Allen's Cove and Echo Bay (Figure 4) illustrate the year to year expansion and contraction of the plant.

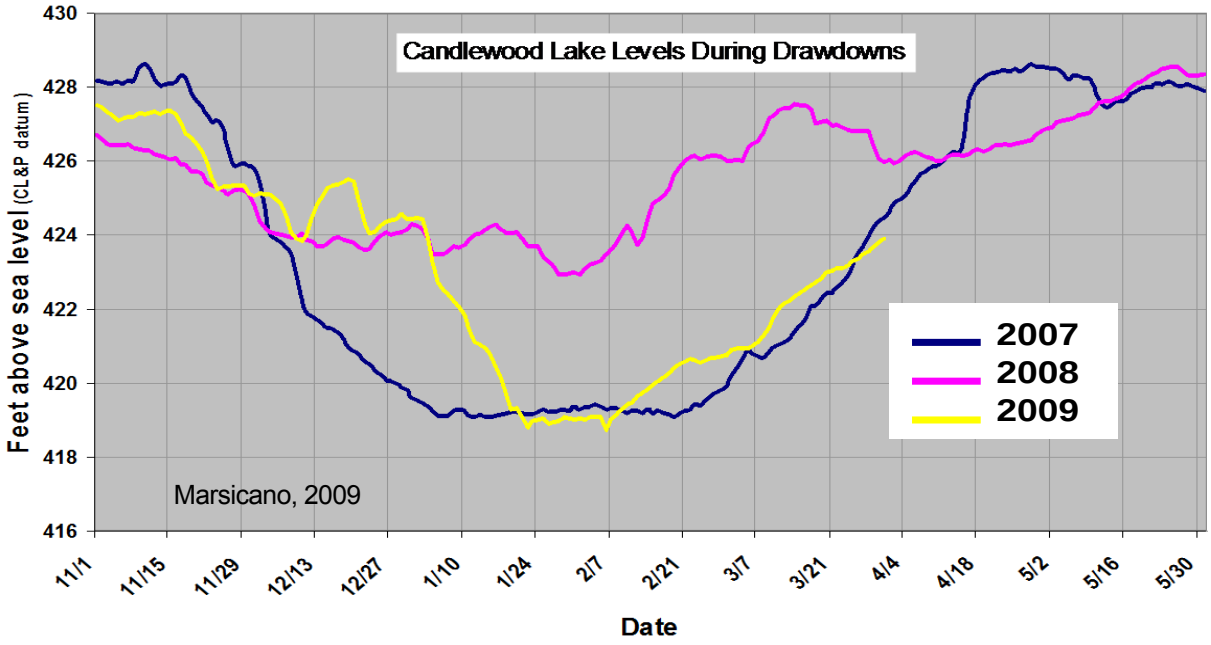


Figure 3. Depth and timing of winter drawdown in 2007, 2008 and 2009.

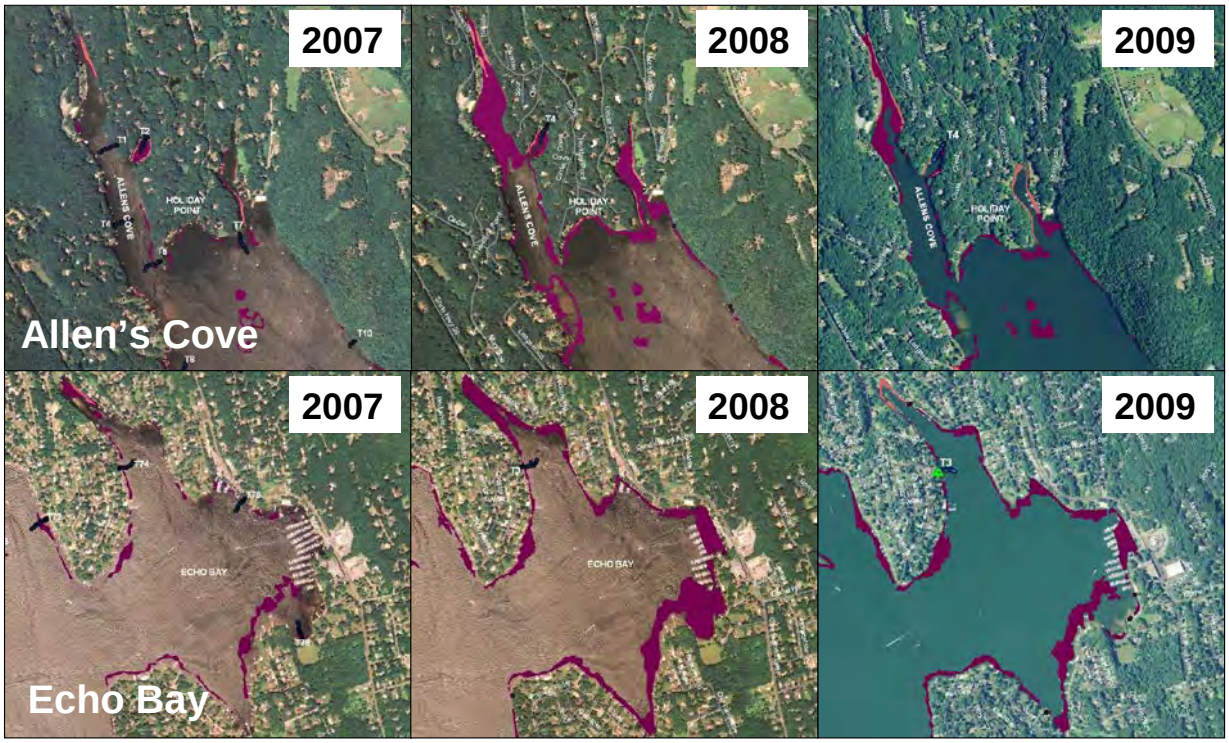


Figure 4. Comparison of *M. spicatum* coverage in Allen's Cove and Echo Bay.

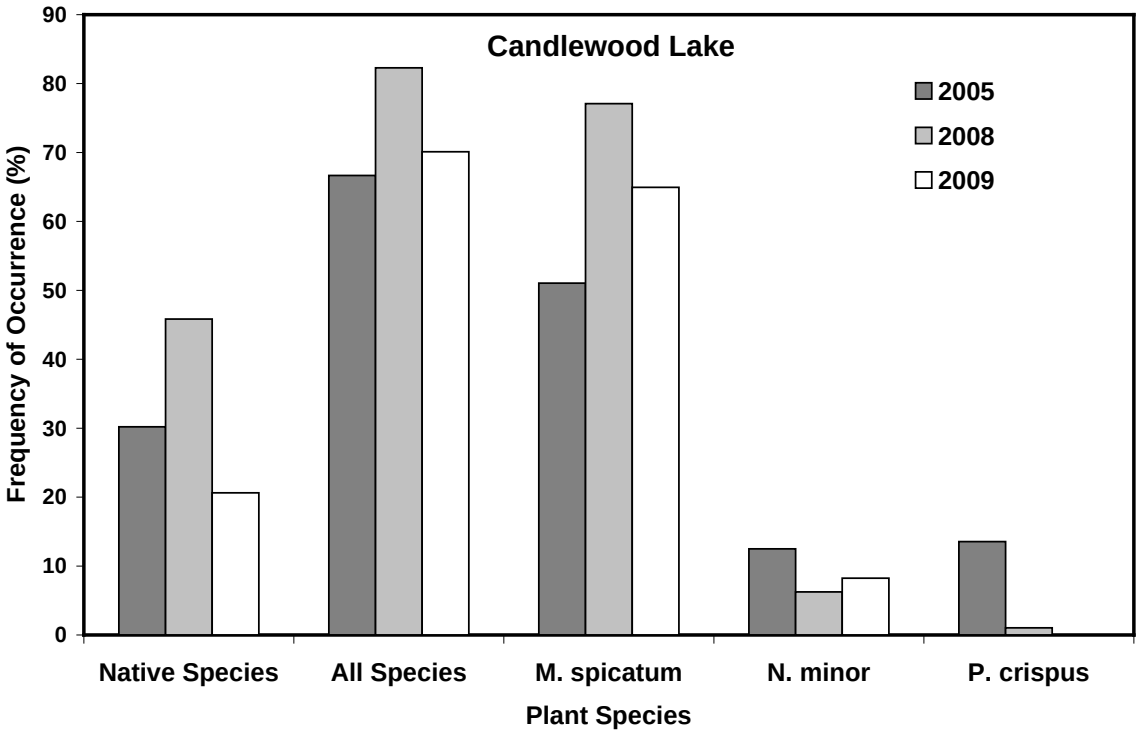


Figure 5. Comparison of frequency of occurrence of aquatic vegetation on transects in Candlewood Lake.

Species richness (number of plant species) of the native plant community, as found on the reference transects, was reduced from 14 in 2005 and 11 in 2008 to 7 in 2009 (Table 1). Native species occurring on transects in 2005 but not in 2009 were *Callitriche sp.*, *Elodea nuttallii*, *Nymphaea odorata, Potamogeton foliosus*, *Potamogeton gramineus*, *Potamogeton pusillus, Spirodela polyrhiza, Stuckenia pectinatus, and Zannichellia palustris*. *Eleocharis sp.* was found for the first time on a Candlewood transect in 2009. Year to year differences in species richness can be the result of natural variability and management factors such as drawdown or imperfections in survey technique. The frequency of occurrence of all species, decreased significantly from 82.3% in 2008 to 70.1% in 2009 ($p = 0.037$, Figure 5). There was no statistical difference in the frequency of occurrence between 2005 and 2009. The frequency of occurrence of native species decreased significantly from 45.8% in 2008 to 20.6% in 2009 ($p = 0.001$). There was no statistical difference in the frequency of occurrence of native species between 2005 and 2009.

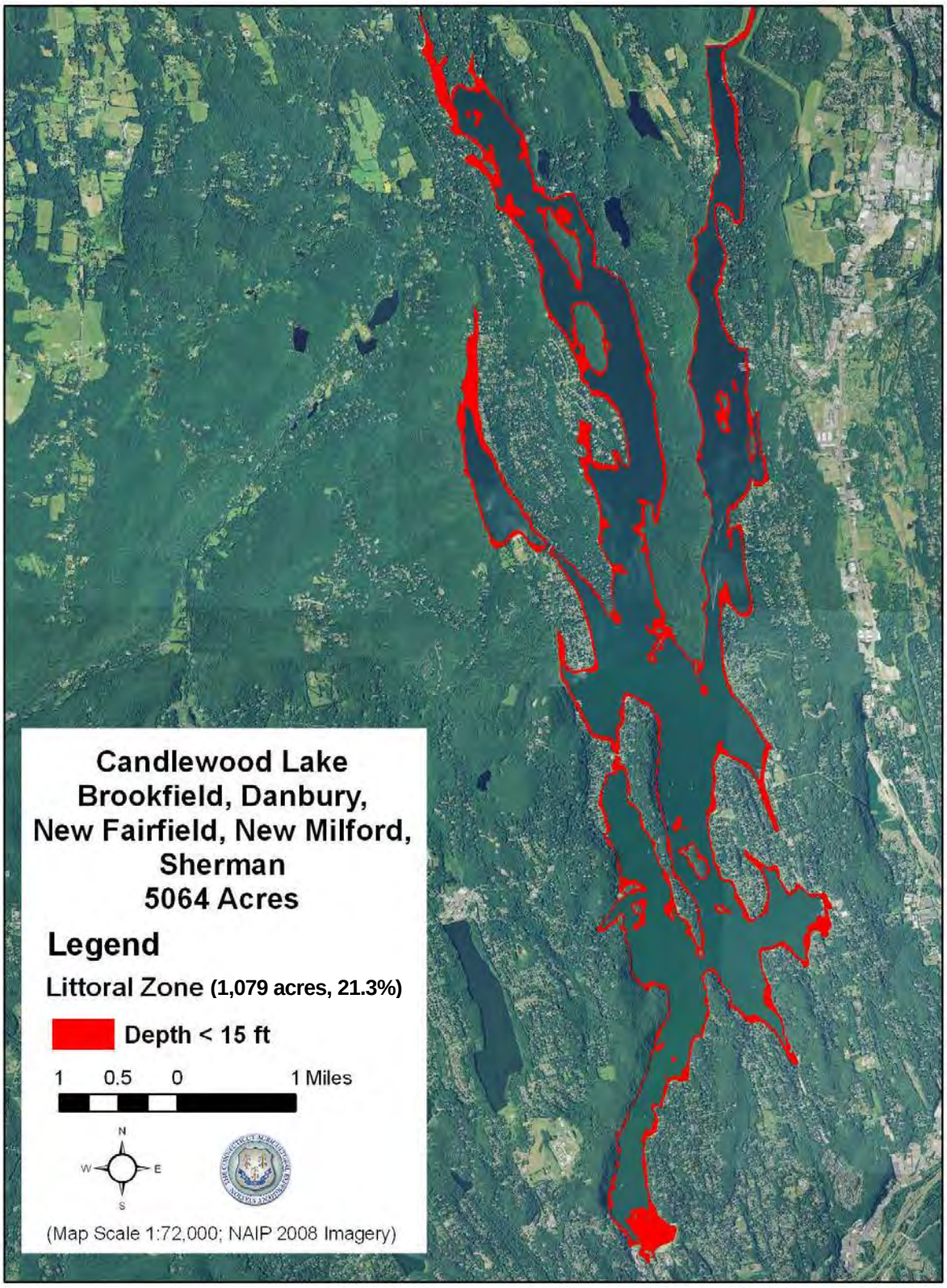
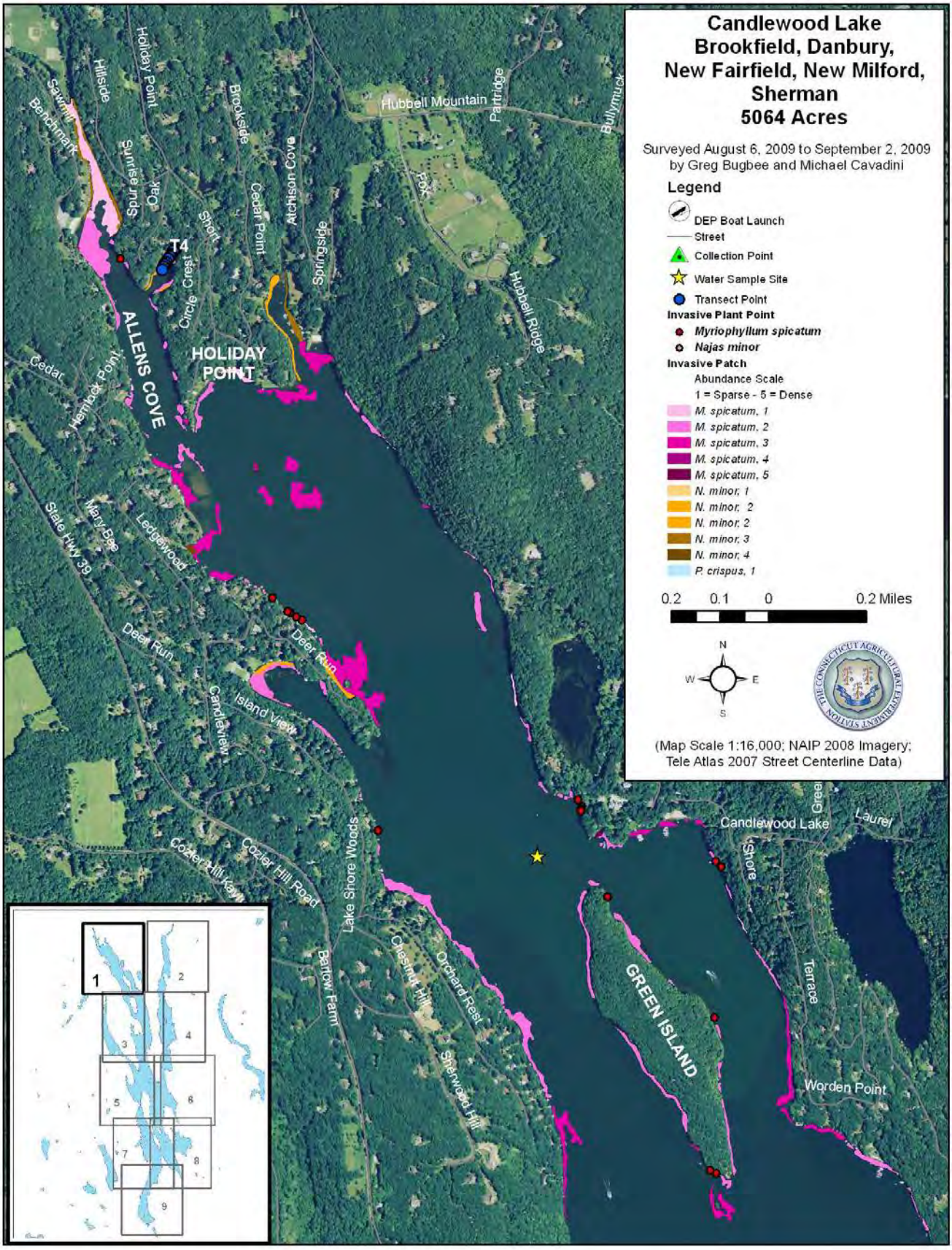


Figure 6. Candlewood Lake's littoral zone (< 4.5 meters, 15 feet).

Table 4. Yearly comparisons of Candlewood Lake's littoral zone covered by invasive plants.

Scientific Name	Common Name	Year	Area (%)
Myriophyllum spicatum	Eurasian watermilfoil	2007	20.5
		2008	41.9
		2009	35.0
Najas minor	Brittle waternymph	2007	1.1
		2008	1.0
		2009	2.4
Potamogeton crispus	Curly leaf pondweed	2007	>0.1
		2008	>0.1
		2009	>0.1

The littoral zone is the area where depth does not limit plant growth. The percentage of this zone covered by aquatic vegetation is sometimes used to infer whether optimum habitat is available for fish and other aquatic organisms. From 20 to 40 percent vegetative cover of the littoral zone is stated as optimal in Connecticut lakes (Jacobs and O'Donnell, 2002). This range does not take into account whether the vegetation inhabits the entire water column, as is often the case with *M. spicatum,* or whether it hugs the bottom as is common with many native plants. We used 4.5 meters (15 feet) of depth as the littoral zone limit because it corresponds to our field observations and is delineated in the CT DEP (2009) bathymetry data. The littoral zone of Candlewood Lake is 1,079 acres or 21.3 percent of the total lake area (Figure 6). In 2009, *M. spicatum* occupied 35.0% of the zone while in 2007 and 2008 it occupied 20.5% and 41.9%, respectively (Table 4). The area of littoral zone containing *N. minor* in 2009 was 2.4% compared to 1.0% in 2008 and 1.1% in 2007. *P. crispus* changed little during the three survey years covering less than 0.1 percent of the littoral zone. CAES IAPP research suggests over 75 percent of the plant cover in Candlewood Lake is comprised of invasive species (CAES, 2008). Thus even in 2007, when the lowest area of invasive species occurred, the 20 percent low end of the preferred coverage was satisfied. In years, 2008 and 2009, more than 40 percent of the littoral zone had vegetative coverage, thus exceeding the optimal amount.


Candlewood Lake
Brookfield, Danbury,
New Fairfield, New Milford,
Sherman
5064 Acres
Surveyed August 6, 2009 to September 2, 2009
by Greg Bugbee and Michael Cavadini
Legend
DEP Boat Launch
Street
Collection Point
Water Sample Site
Transect Point
Invasive Plant Point
Myriophyllum spicatum
Najas minor
Invasive Patch
Abundance Scale
1 = Sparse - 5 = Dense
M. spicatum, 1
M. spicatum, 2
M. spicatum, 3
M. spicatum, 4
M. spicatum, 5
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GREEN ISLAND
Hubbell Mountain
Partridge
Bullymuck
Hillside
Holiday Point
Brookside
Atchison Cove
Fox
Springside
Hubbell Ridge
Sawmill
Benchmark
Sunrise
Oak
Short
Cedar Point
Circle Crest
Cedar
Hemlock Point
State Hwy 39
Mary Bee
Ledgewood
Deer Run
Deer Run
Candleview
Island View
Cozier Hill Road
Cozier Hill Farm
Lake Shore Woods
Barlow Farm
Chestnut Hill
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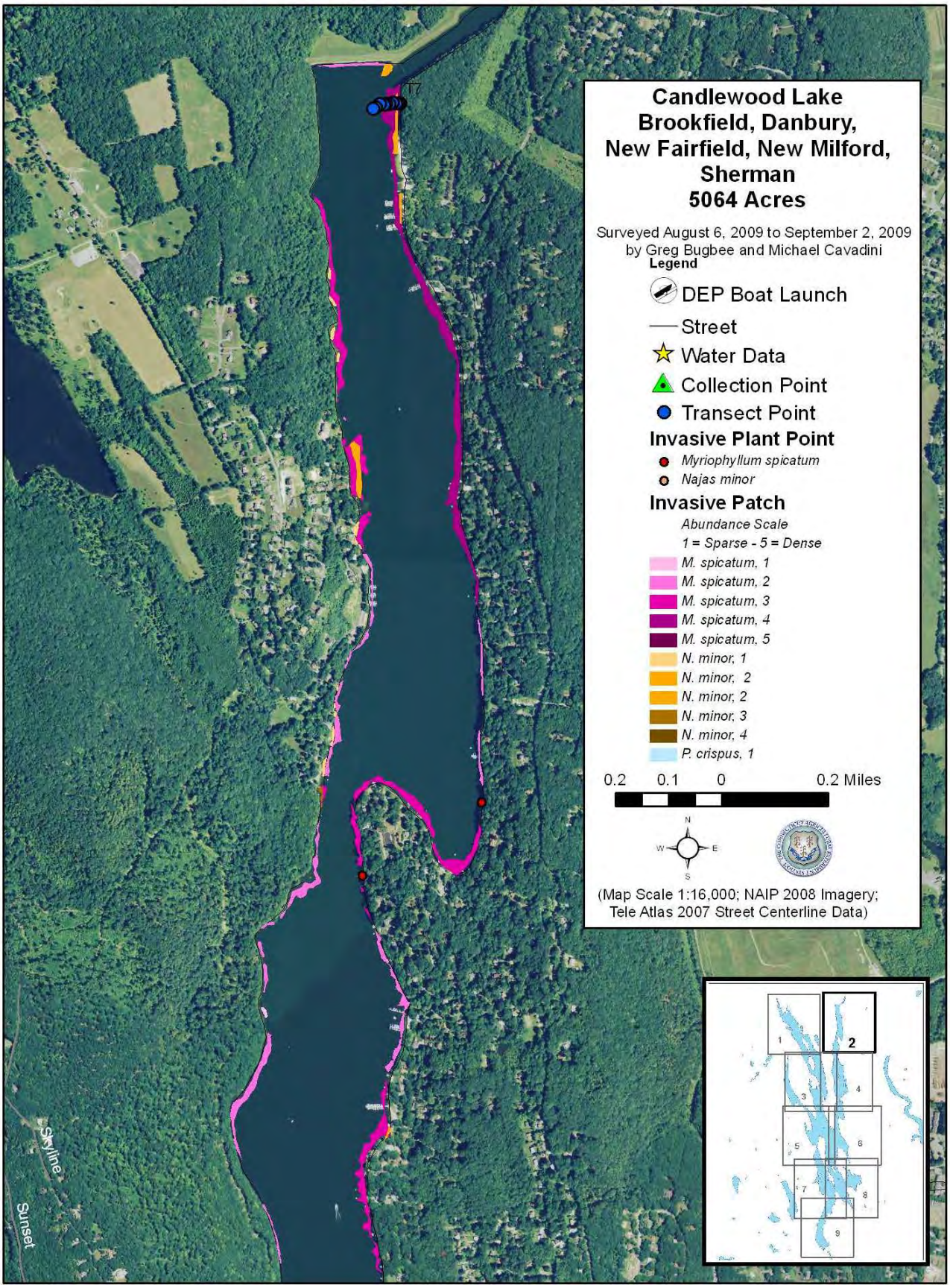
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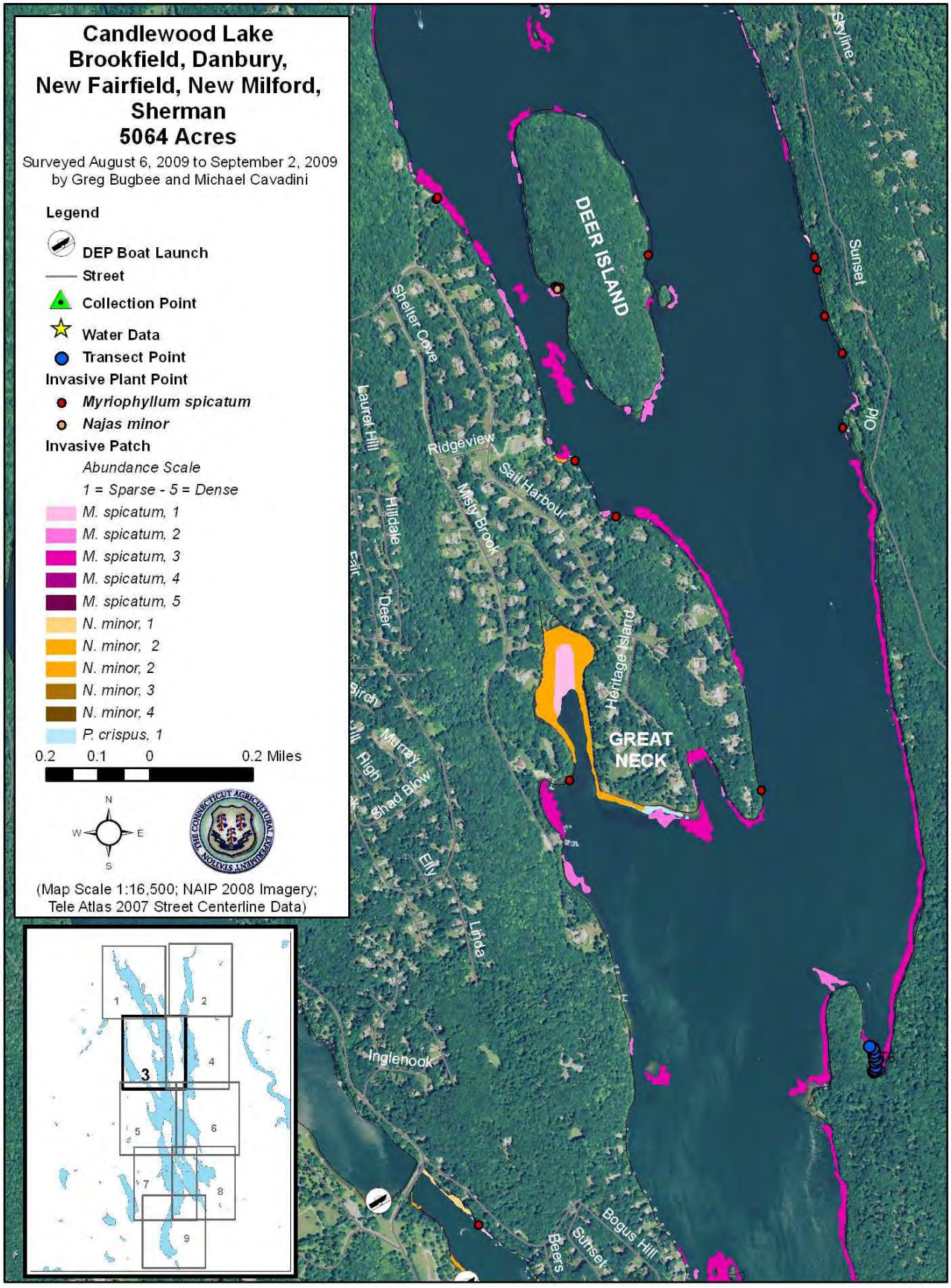
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GREAT NECK
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Laurel Hill
Ridgeview
Sail Harbour
Misty Brook
Hilldale
Deer
Heritage Island
Birch
Murray
High
Shad Blow
Elly
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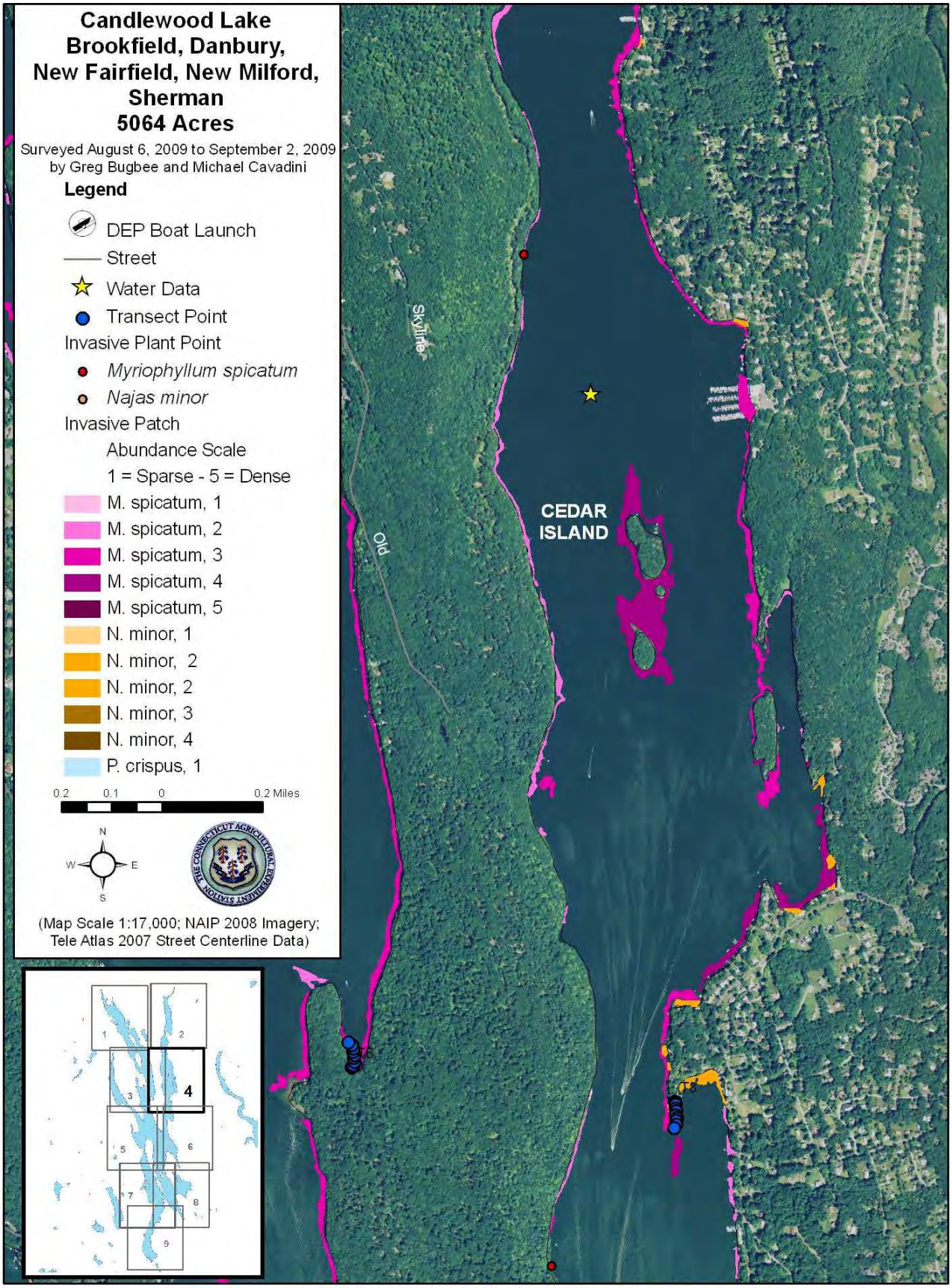
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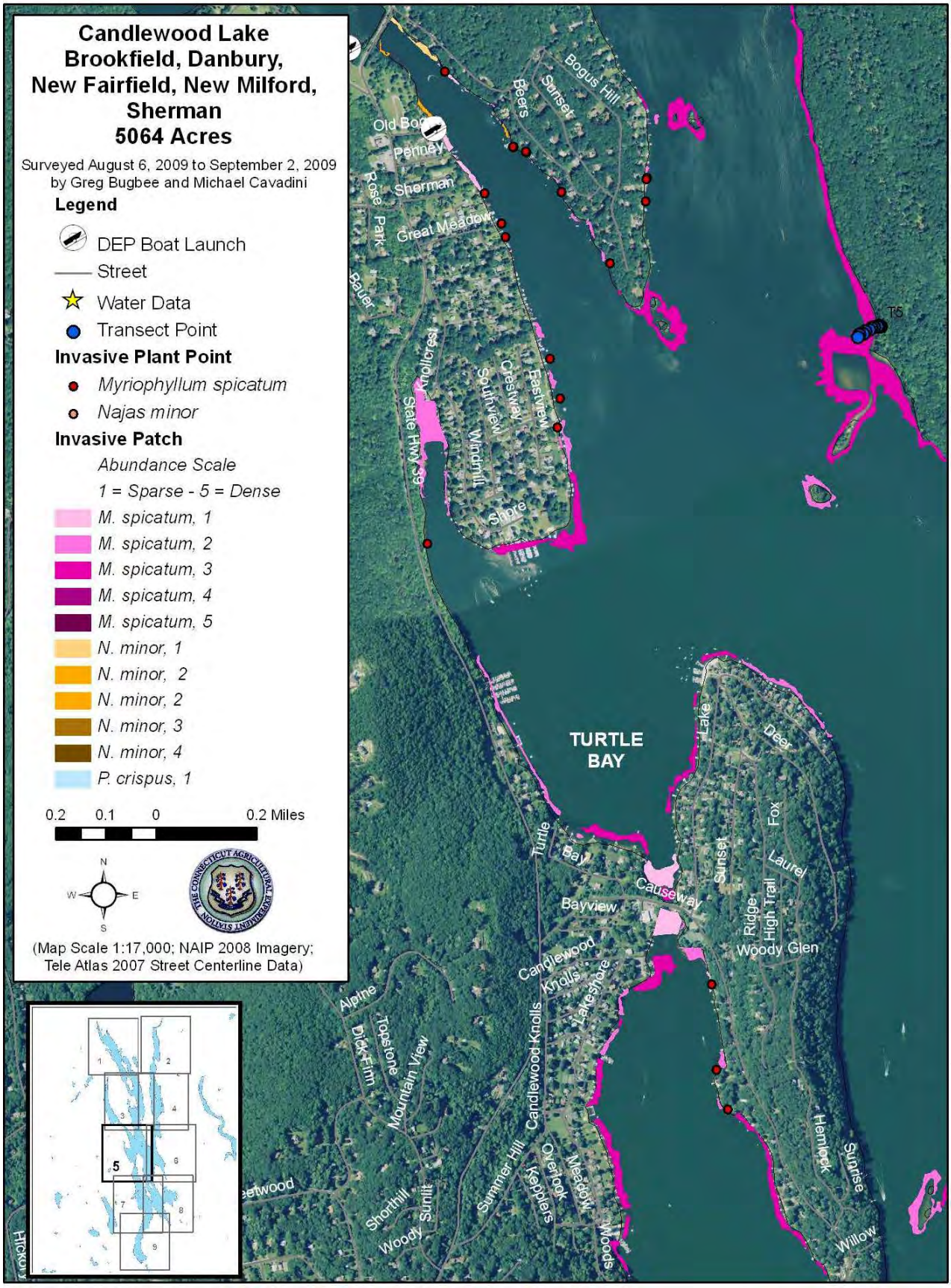
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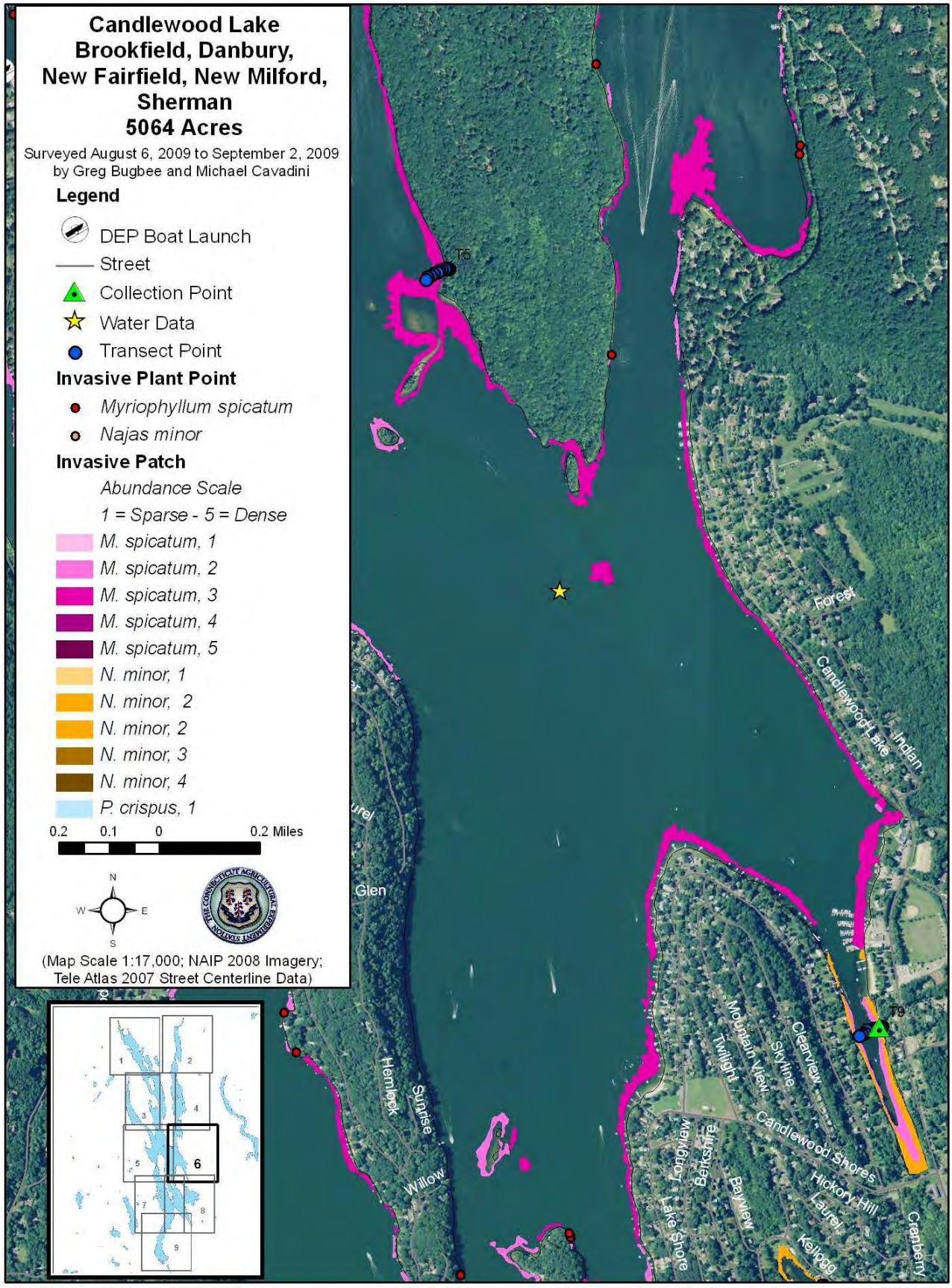
Invasive Patch
Abundance Scale
1 = Sparse - 5 = Dense
M. spicatum, 1
M. spicatum, 2
M. spicatum, 3
M. spicatum, 4
M. spicatum, 5
N. minor, 1
N. minor, 2
N. minor, 2
N. minor, 3
N. minor, 4
P. crispus, 1
0.2 0.1 0 0.2 Miles
N
W E
S
(Map Scale 1:17,000; NAIP 2008 Imagery;
Tele Atlas 2007 Street Centerline Data)
TURTLE
BAY
Bogus Hill
Beers
Sunset
Penney
Sherman
Rose Park
Great Meadow
Bauer
Knollcrest
Southview
Crestway
Eastview
Woodhill
Shore
T5
Lake
Deer
Fox
Laurel
Sunset
Ridge
High Trail
Woody Glen
Causeway
Bayview
Turtle
Bay
Candlewood
Knolls
Lakeshore
Alpine
Dick Finn
Topstone
Mountain View
Candlewood Knolls
Summer Hill
Overlook
Meadow
Woods
Shorthill
Sunhill
Woody
Hemlock
Sunrise
Willow
Hickory


Candlewood Lake
Brookfield, Danbury,
New Fairfield, New Milford,
Sherman
5064 Acres
Surveyed August 6, 2009 to September 2, 2009
by Greg Bugbee and Michael Cavadini
Legend
DEP Boat Launch
Street
Collection Point
Water Data
Transect Point
Invasive Plant Point
Myriophyllum spicatum
Najas minor
Invasive Patch
Abundance Scale
1 = Sparse - 5 = Dense
M. spicatum, 1
M. spicatum, 2
M. spicatum, 3
M. spicatum, 4
M. spicatum, 5
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N. minor, 2
N. minor, 2
N. minor, 3
N. minor, 4
P. crispus, 1
0.2 0.1 0 0.2 Miles
N
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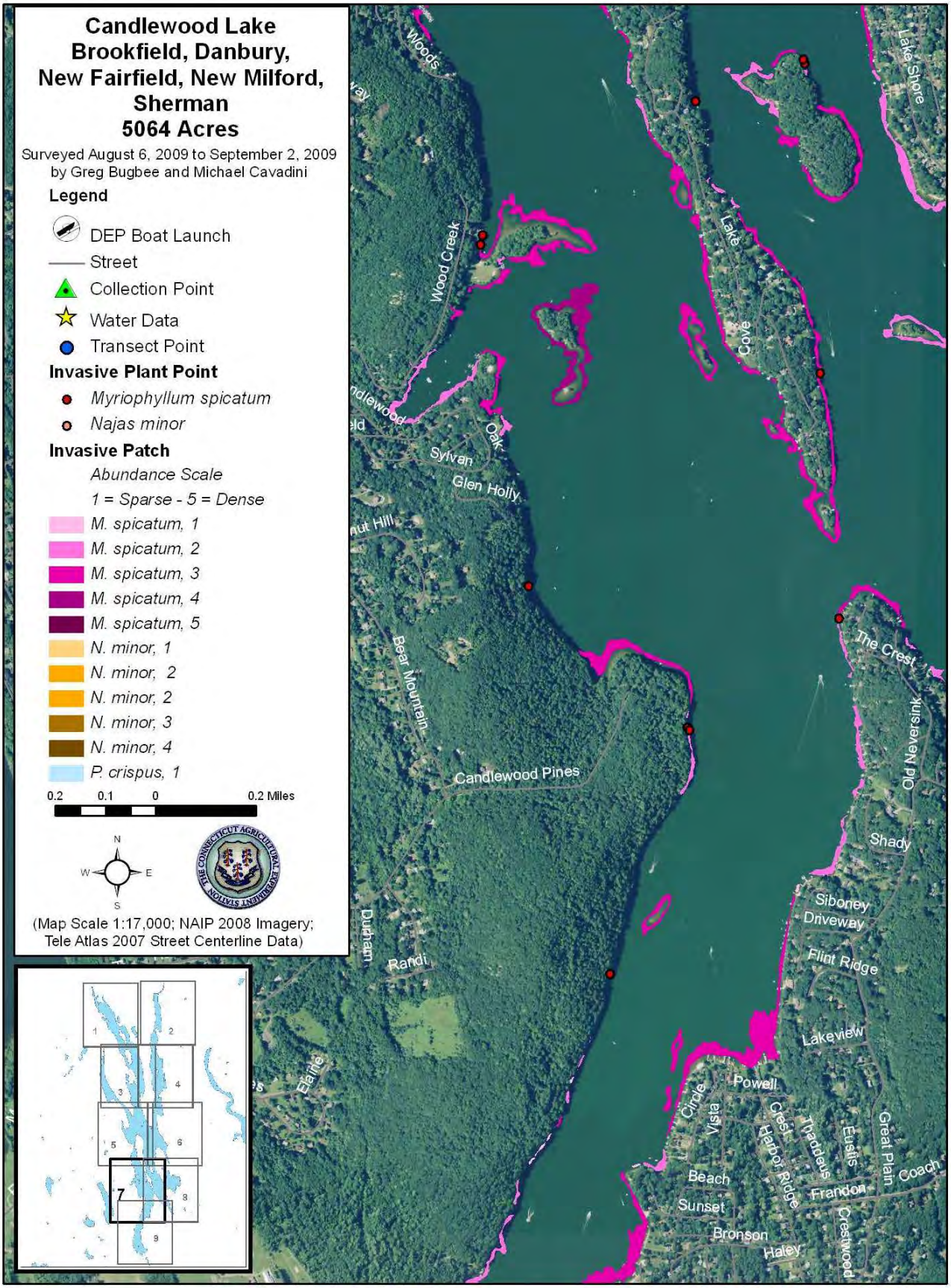
E
S
(Map Scale 1:17,000; NAIP 2008 Imagery;
Tele Atlas 2007 Street Centerline Data)
T5
T9
Forest
Candlewood Lake
Indian
Glen
Hemlock
Sunrise
Willow
Mountain View
Twilight
Skyline
Clearview
Candlewood Shores
Hickory Hill
Laurel
Cranberry
Kellogg
Bayview
Lake Shore
Berkshire
Newbridge
1
2
3
4
5
6
7
8
9


Candlewood Lake
Brookfield, Danbury,
New Fairfield, New Milford,
Sherman
5064 Acres
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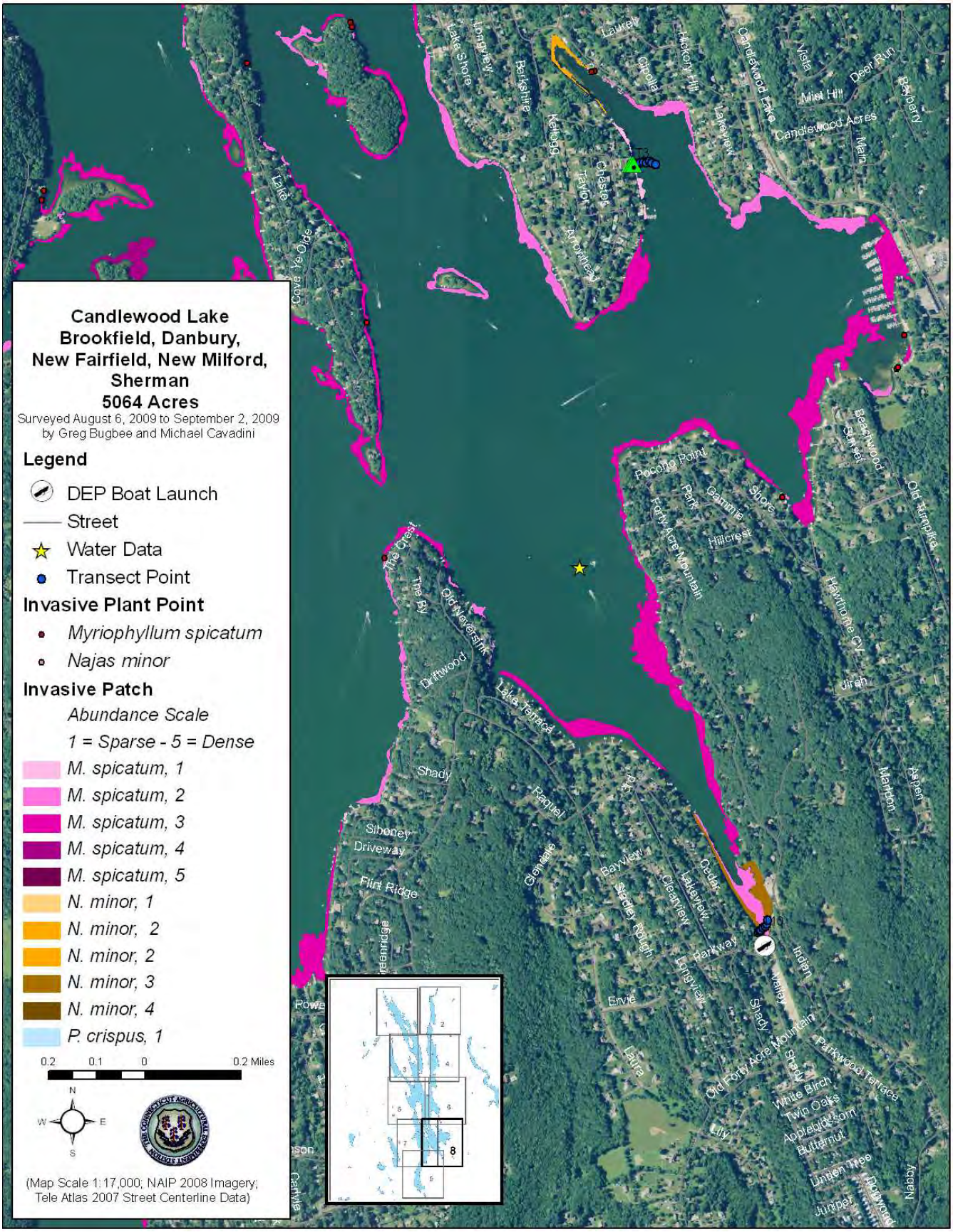
M. spicatum, 4
M. spicatum, 5
N. minor, 1
N. minor, 2
N. minor, 2
N. minor, 3
N. minor, 4
P. crispus, 1
0.2 0.1 0 0.2 Miles
N
W E
S
(Map Scale 1:17,000; NAIP 2008 Imagery;
Tele Atlas 2007 Street Centerline Data)
Woods
Wood Creek
Lake
Cove
Lake Shore
Oak
Sylvan
Glen Holly
Bear Mountain
Candlewood Pines
The Crest
Old Neversink
Shady
Siboney
Driveway
Flint Ridge
Lakeview
Powell
Circle
Vista
Crest
Harbor Ridge
Thaddeus
Eustis
Great Plain
Coach
Frandon
Beach
Sunset
Bronson
Haley
Crestwood
Durham
Randi
Elaine


Candlewood Lake
Brookfield, Danbury,
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Sherman
5064 Acres
Surveyed August 6, 2009 to September 2, 2009
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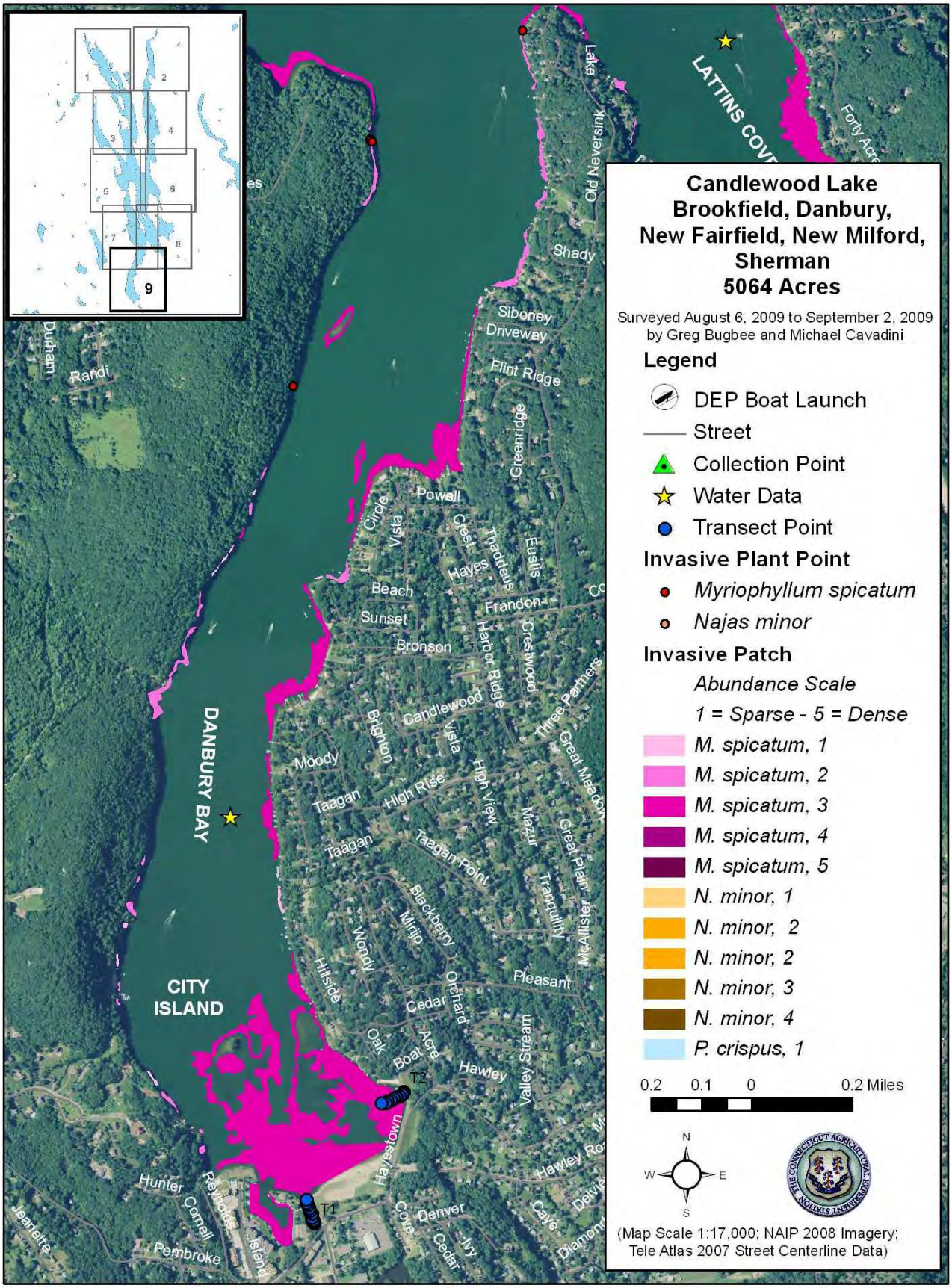
N. minor, 2
N. minor, 3
N. minor, 4
P. crispus, 1
0.2 0.1 0 0.2 Miles
N
W E
S
(Map Scale 1:17,000; NAIP 2008 Imagery;
Tele Atlas 2007 Street Centerline Data)
Lake Shore
Longview
Berkshire
Laurel
Osceola
Hickory Hill
Candlewood Lake
Vista
Deer Run
Mist Hill
Candlewood Acres
Bayberry
Maria
Lakeview
Kellogg
Taylor
Chester
Arrowhead
Lake
Cove
Pocono Point
Park
Forty Acre Mountain
Gamble
Shore
Hillcrest
Beachwood
Sunset
Old Turnpike
Hawthorne Cv
drive
The Crest
The By
Old Neversink
Driftwood
Lake Terrace
Shady
Raquel
Siboney
Driveway
Flint Ridge
Glendale
Bayview
Cedar
Lakeview
Clearview
Shirley Rough
Parkway
Indian
Valley
Envie
Longview
Shady
Forty Acre Mountain
Parkwood Terrace
Laura
Old
Sherry
White Birch
Twin Oaks
Applejack
Butternut
Lily
Linden Tree
Juniper
Boxwood
Aspen
Marion
Aspen


Candlewood Lake
Brookfield, Danbury,
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N. minor, 2
N. minor, 3
N. minor, 4
P. crispus, 1
0.2 0.1 0 0.2 Miles
N
W E
S
(Map Scale 1:17,000; NAIP 2008 Imagery;
Tele Atlas 2007 Street Centerline Data)
DANBURY BAY
CITY ISLAND
LATTINS COVE
Lake
Old Neversink
Shady
Siboney
Driveway
Flint Ridge
Greenridge
Durham
Randi
Circle
Powell
Vista
Crest
Thaddeus
Hayes
Eustis
Beach
Sunset
Frandon
Bronson
Harbor Ridge
Crestwood
Three Partners
Great Meadow
Candlewood
Brighton
Vista
Moody
Taagan
High Rise
High View
Mazur
Taagan
Taagan Point
Tranquility
McAllister
Blackberry
Mirilo
Wendy
Hillside
Pleasant
Cedar
Orchard
Oak
Acre
Boat
Hawley
Valley Stream
T2
T1
Hayestown
Hawley Rd
Hunter
Reynolds
Comell
Island
Jeanette
Pembroke
Cove
Denver
Cedar
Ivy
Cave
Delvi
Diamon
Forty Acre

Table 5. Yearly comparisons of frequency of occurrence and total area of aquatic vegetation in Lake Lillinonah.

			Frequency of Occurrence (percent**)		Area (acres)	
Scientific Name	**Common Name**	**Abbrev.**	**2007**	**2009**	**2007**	**2009**
Callitiche sp.	Water starwort	CalSp	0.6	0.0	ND***	ND
Ceratophyllum demersum	Coontail	CerDem	0.0	0.6	ND	ND
Eleocharis sp.	Spikerush	EleSp	1.3	2.6	ND	ND
Elodea nuttallii	Waterweed	EloNut	0.0	0.0	ND	ND
Eriocaulon aquaticum	*Sevenangel pipewort*	EriAqu	0.0	0.6	ND	ND
Isoetes sp.	Quillwort	IsoSp	0.0	0.0	ND	ND
Gratiola aurea	Golden hedge-hyssop	GraAur	0.0	0.6	ND	ND
Lemna minor	Duckweed	LemMin	0.6	0.6	ND	ND
*Myriophyllum spicatum**	Eurasian watermilfoil	MyrSpi	10.2	9.7	21.3	18.8
*Najas minor**	Brittle waternymph	NajMin	10.8	3.9	7.6	0.7
Potamogeton bicupulatus	Snailseed pondweed	PotBic	0.0	1.9	ND	ND
*Potamogeton crispus**	Curly leaf pondweed	PotCri	0.9	0.0	0.1	0.0002
Potamogeton illinoensis	Illinois pondweed	PotIll	0.3	1.3	ND	ND
Potamogeton pusillus	Small pondweed	PotPus	0.0	0.0	ND	ND
Sparganium sp.	Bur reed	SpaSp	0.0	0.0	ND	ND
Stuckenia pectinatus	Sago pondweed	StuPec	0.0	0.0	ND	ND
Zannichellia palustrus	Horned pondweed	ZanPal	0.6	0.0	ND	ND
Zosterella dubia	Water stargrass	ZosDub	2.5	0.0	ND	ND

*Invasive plant
**Percent occurrence on 155 points in 17 transects
***Not determined

Lake Lillinonah

The 2009 CAES IAPP survey of Lake Lillinonah re-confirmed the presence of the invasive species found in 2007; *M. spicatum*, *N. minor* and *P. crispus* (Table 5). We also found seven native plant species. There was a total of 18.8 acres of *M. spicatum* in 2009 compared to 21.3 acres in 2007. We found fewer patches of *M. spicatum* in 2009 than in 2007 (249 vs. 131), however, the mean patch size increased from 0.09 to 0.14 acres (Table 6). The minimum patch size of *M. spicatum* remained at 0.0002 acres, which corresponds to isolated plants. The mean patch size of *N. minor* increased from 0.08 acres in 2007 to 0.14 acres in 2009. There was little change in the mean patch abundance of *M. spicatum* from 2007 to 2009, 1.9 to 2.1, respectively (Table 7). Of the total 1547 acres of Lake Lillinonah, 478 acres comprise the littoral zone, less than 3 meters deep where we observed plants. *M. spicatum* covered 3.9 percent of the littoral zone in 2009.

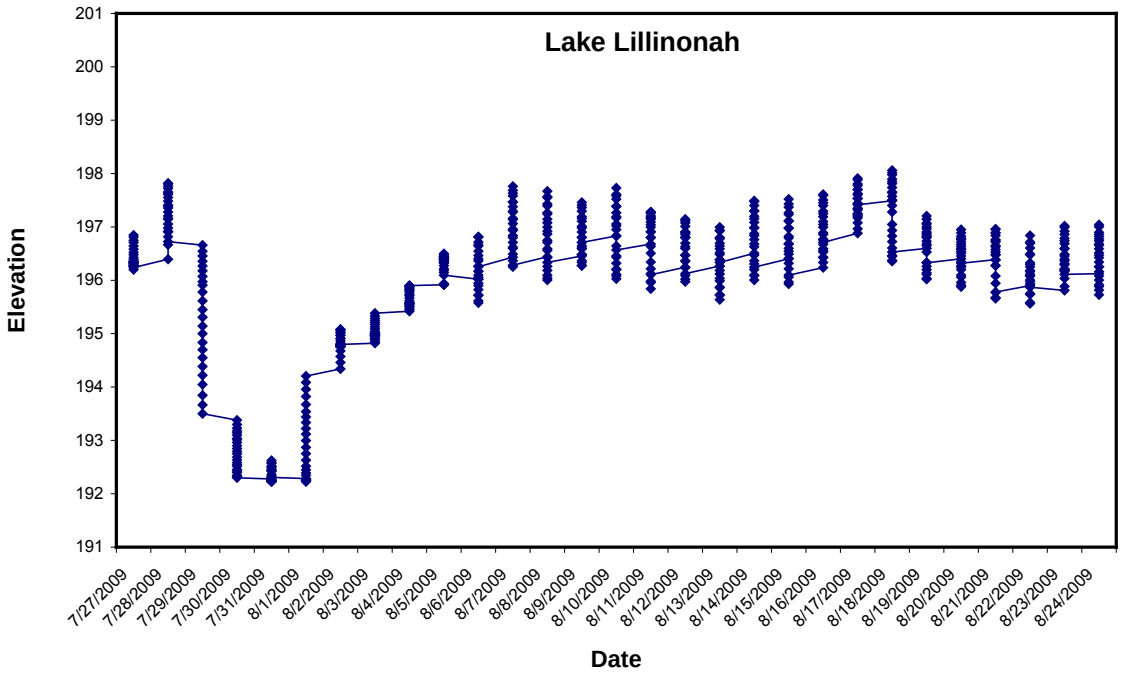


Figure 7. Water levels in Lake Lillinonah in July and August 2009.

Table 6. Yearly comparisons of invasive plant patch number and size in Lake Lillinonah.

	Patch Size (acres)							
	2007				2009			
Common Name	Number	(min)	(max)	(mean)	Number	(min)	(max)	(mean)
Eurasian watermilfoil	249	0.0002	1.57	0.09	131	0.0002	2.33	0.14
Brittle waternymph	95	0.0002	1.50	0.08	5	0.04	0.30	0.14
Curly leaf pondweed	10	0.0002	0.0002	0.0002	1	0.0002	0.0002	0.0002

Table 7. Yearly comparison of the abundance of invasive species in Lake Lillinonah.

		Patch Abundance (1=sparse - 5=dense)					
		2007			2009		
Scientific Name	Common Name	(min)	(max)	(mean)	(min)	(max)	(mean)
Myriophyllum spicatum	Eurasian watermilfoil	1	4	1.93	1	4	2.07
Najas minor	Brittle waternymph	1	5	3.63	2	3	2.6
Potamogeton crispus	Curly leaf pondweed	1	4	2.70	1	1	1

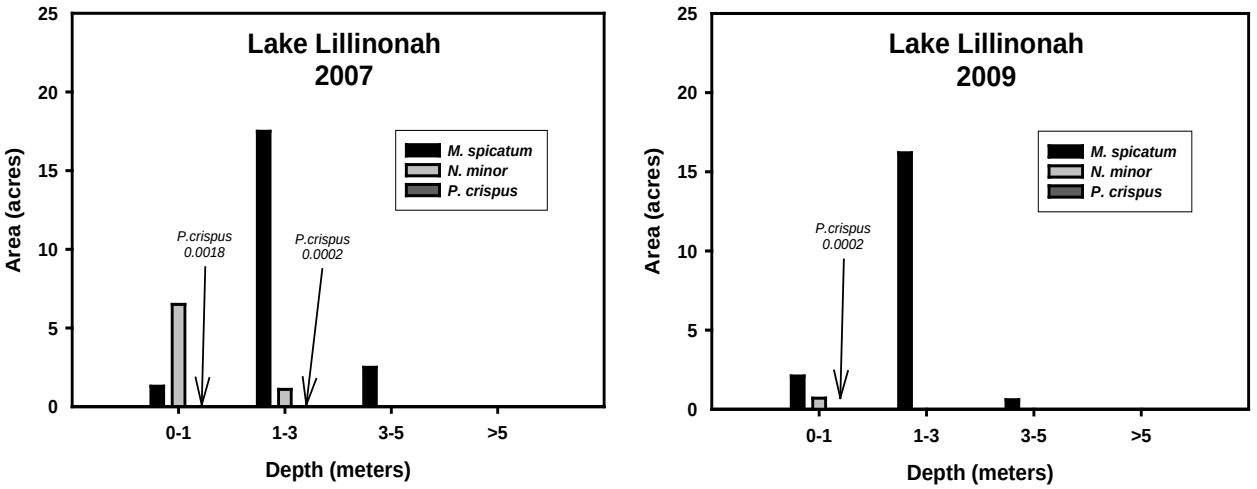


Figure 8. Depth preferences of invasive plants in Lake Lillinonah in 2007 and 2009.

The total area of *N. minor* decreased from 7.6 acres in 2007 to 0.7 acres in 2009. The number of patches of *N. minor* also decreased from 95 to 5. *N. minor's* mean patch abundance also decreased from 3.6 to 2.6 acres. These decreases may be due to low water levels in late July (Figure 7), resulting in areas of exposed bottom that we could not survey. *N. minor* and other plant species were probably also present in these areas. The depth preference of *N. minor* also did not change between years with the 0 - 1 m range containing the most plants. *N. minor* was not found in the depth range 1-3 m during the 2009 survey where 1.1 acres were found in 2007. The area containing *P. crispus* remained similar in both 2007 and 2009 with 0.1 and 0.0002 acres, respectively. As in 2007, there were only single points of *P. crispus* found during our 2009 survey. In 2007, 10 points were found while in 2009 there was only one. The depth preference for *M. spicatum* changed minimally from 2007 to 2009 (Figure 8) with most being located in 1-3 meters of water. *N. minor* was not found in the 1-3 meter depth in 2009 which may reflect its overall decline or exposure by fluctuating water levels. *P. crispus* occurred in less than one meter of water but we cannot make any assertions as to its depth preference because of the small sample size.

The trends in frequency of occurrence of *M. spicatum* and *N. minor* along transects were similar to their whole lake coverage's (Figure 9). *M. spicatum* did not differ between 2007 and 2008 ($p = 0.879$, Figure 9), but the frequency of occurrence of *N. minor* decreased from 10.8% in 2007 to 3.9% in 2009 ($p = 0.019$). The frequency of occurrence of all

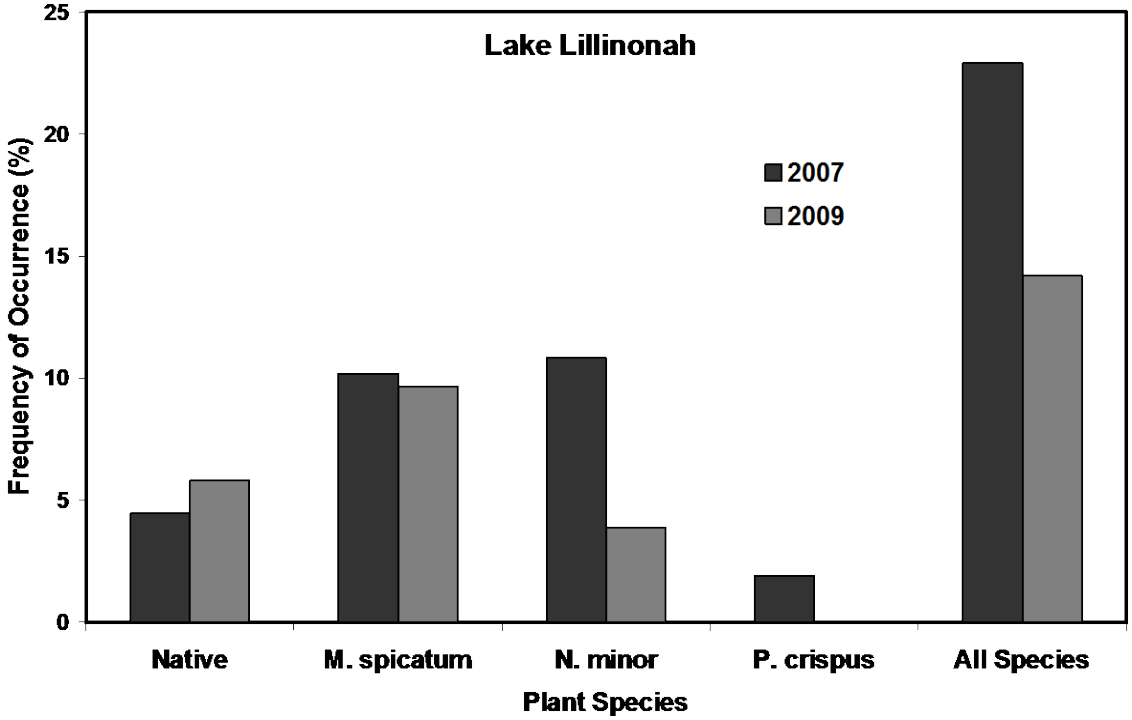


Figure 9. Yearly comparison of the frequency of occurrence of native and invasive plants on transects in Lake Lillinonah.

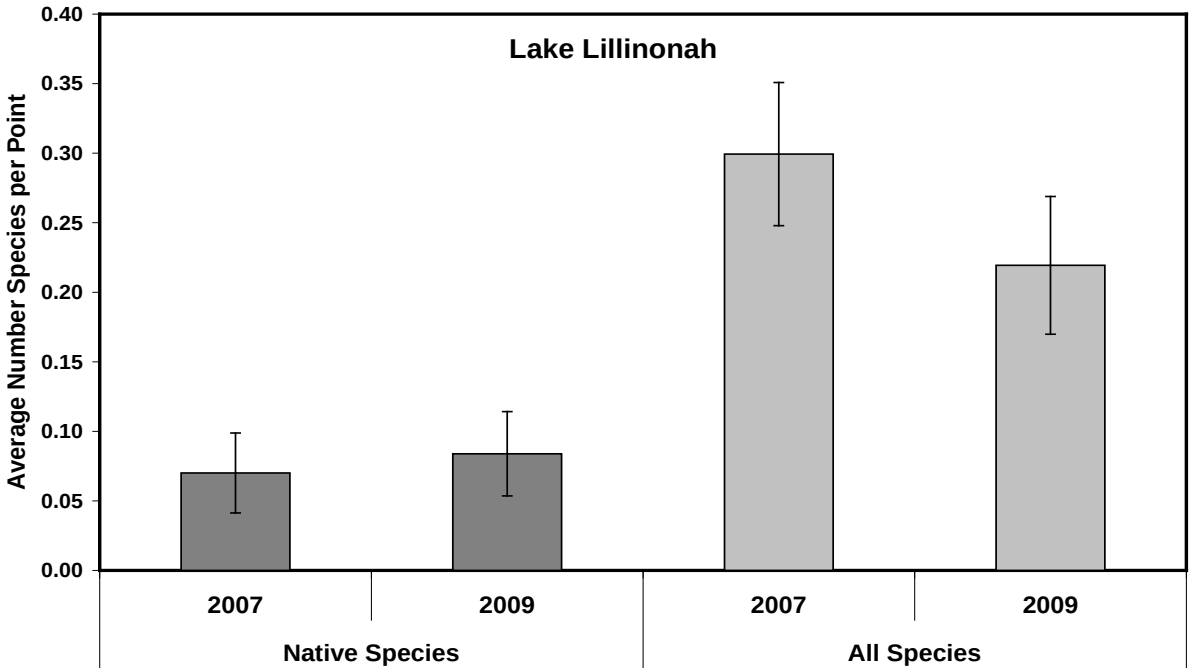
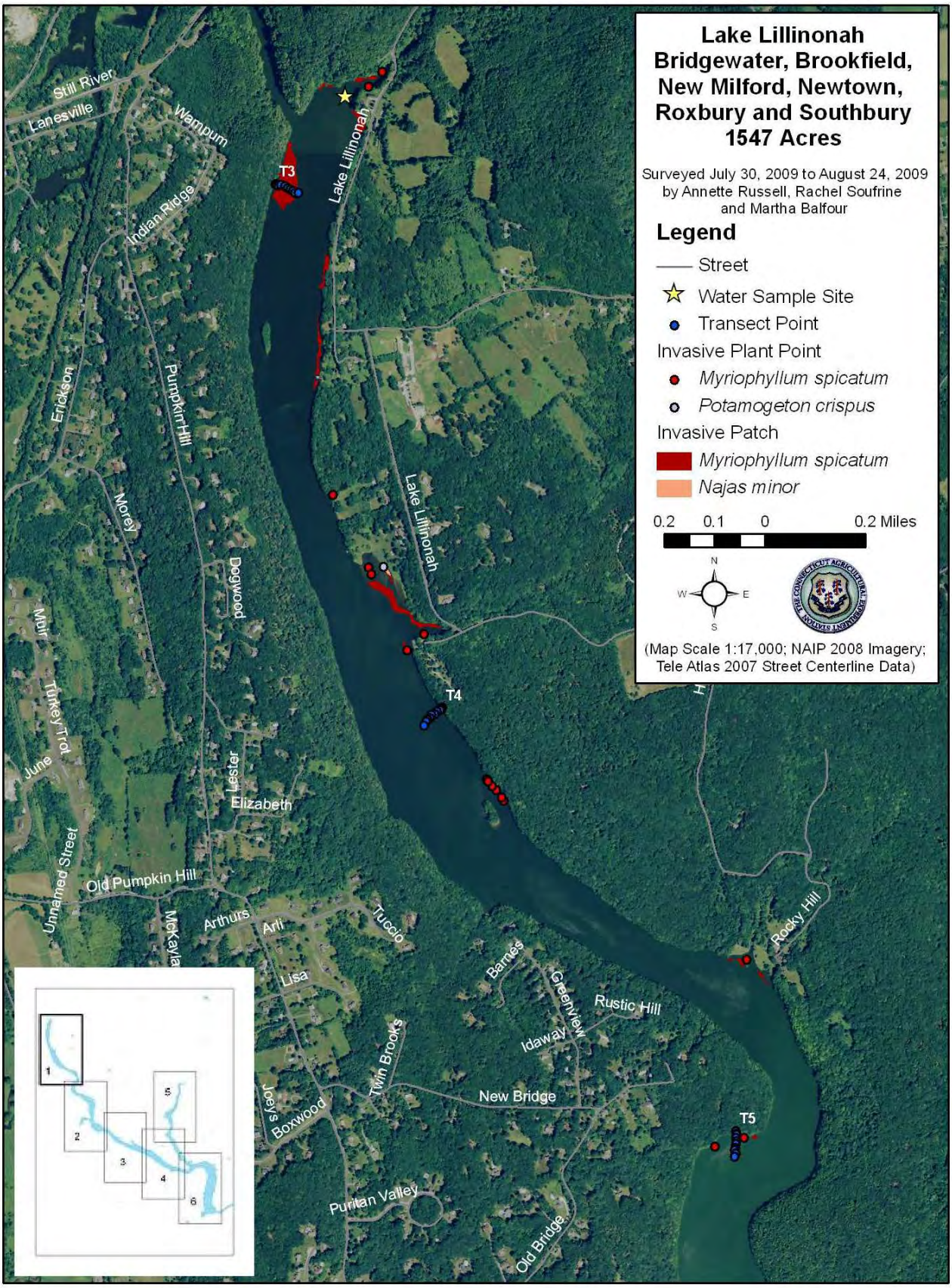


Figure 10. Yearly comparison of the average number of species per transect point in Lake Lillinonah. Error bars indicate +/- one standard error of the mean.

plant species found along transects also decreased significantly from 22.9% in 2007 to 14.2% in 2009 ($p = 0.047$).

Even though the number of times plants were observed along transects decreased, the average number of native species found at each transect point did not differ significantly between 2007 and 2009 ($p = 0.741$, Figure 10). This indicates that the native species diversity for Lake Lillinonah has changed little since 2007. There were seven native species found along the 10 transects in our survey (Table 5) in 2009 compared to six in 2007. The frequency of occurrence of native species was not significantly different between the two years ($p = 0.589$, Figure 9); however, the composition of native species found did differ. In both years, *Eleocharis* sp., *L. minor* and *P. illinoensis* were found along transects. In 2009, *C. demersum*, *E. aquaticum*, *G. aurea* and *P. bicupulatus* were present. The species found in 2007 but not in 2009 were *Callitriche sp.*, *Zannichellia palustris* and *Zosterella dubia*. The average of all species per point also did not differ significantly ($p = 0.264$), indicating that overall species diversity has not changed.


Lake Lillinonah
Bridgewater, Brookfield, New Milford, Newtown, Roxbury and Southbury
1547 Acres
Surveyed July 30, 2009 to August 24, 2009 by Annette Russell, Rachel Soufrine and Martha Balfour
Legend
Street
Water Sample Site
Transect Point
Invasive Plant Point
Myriophyllum spicatum
Potamogeton crispus
Invasive Patch
Myriophyllum spicatum
Najas minor
0.2 0.1 0 0.2 Miles
N
W
E
S
(Map Scale 1:17,000; NAIP 2008 Imagery; Tele Atlas 2007 Street Centerline Data)
Still River
Lanesville
Wampum
Indian Ridge
Erickson
Pumpkin Hill
Morey
Dogwood
Muir
Turkey Trot
June
Lester
Elizabeth
Unnamed Street
Old Pumpkin Hill
McKayla
Arthurs
Arli
Tuccio
Lisa
Barnes
Greenview
Rustic Hill
Idaway
Twin Brooks
Joeys
Boxwood
New Bridge
Puritan Valley
Old Bridge
Rocky Hill
T3
T4
T5
Lake Lillinonah
Lake Lillinonah
1
2
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4
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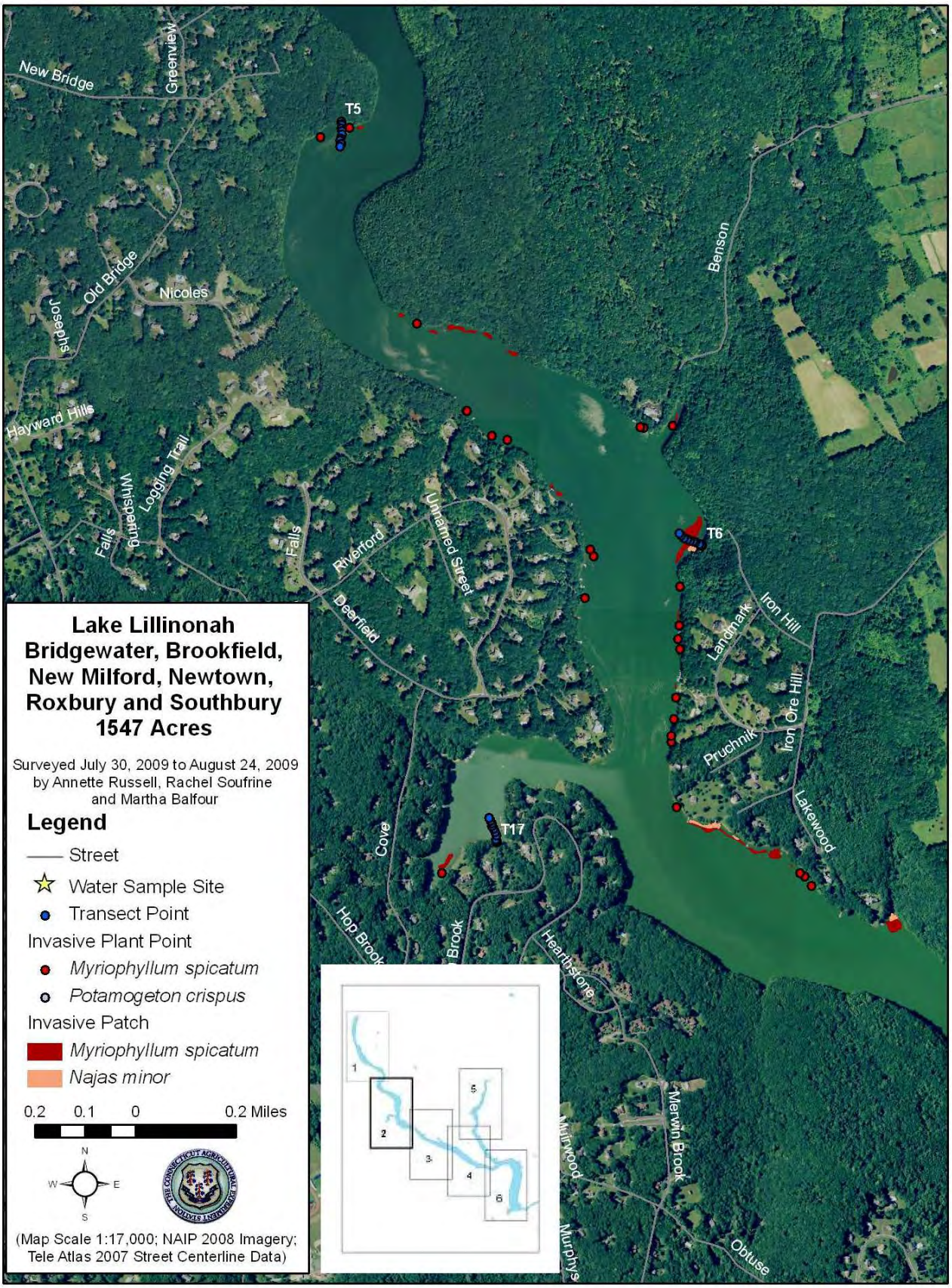
6


New Bridge
Greenview
T5
Benson
Old Bridge
Nicoles
Joseph's
Hayward Hills
Logging Trail
Whispering
Falls
Falls
Riverford
Unnamed Street
Deerfield
T6
Iron Hill
Landmark
Iron Ore Hill
Pruchnik
Lakewood
Cove
T17
Hop Brook
Brook
Hearthstone
Merwin Brook
Millwood
Murphys
Obtuse
Lake Lillinonah
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0.2 0.1 0 0.2 Miles
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(Map Scale 1:17,000; NAIP 2008 Imagery;
Tele Atlas 2007 Street Centerline Data)
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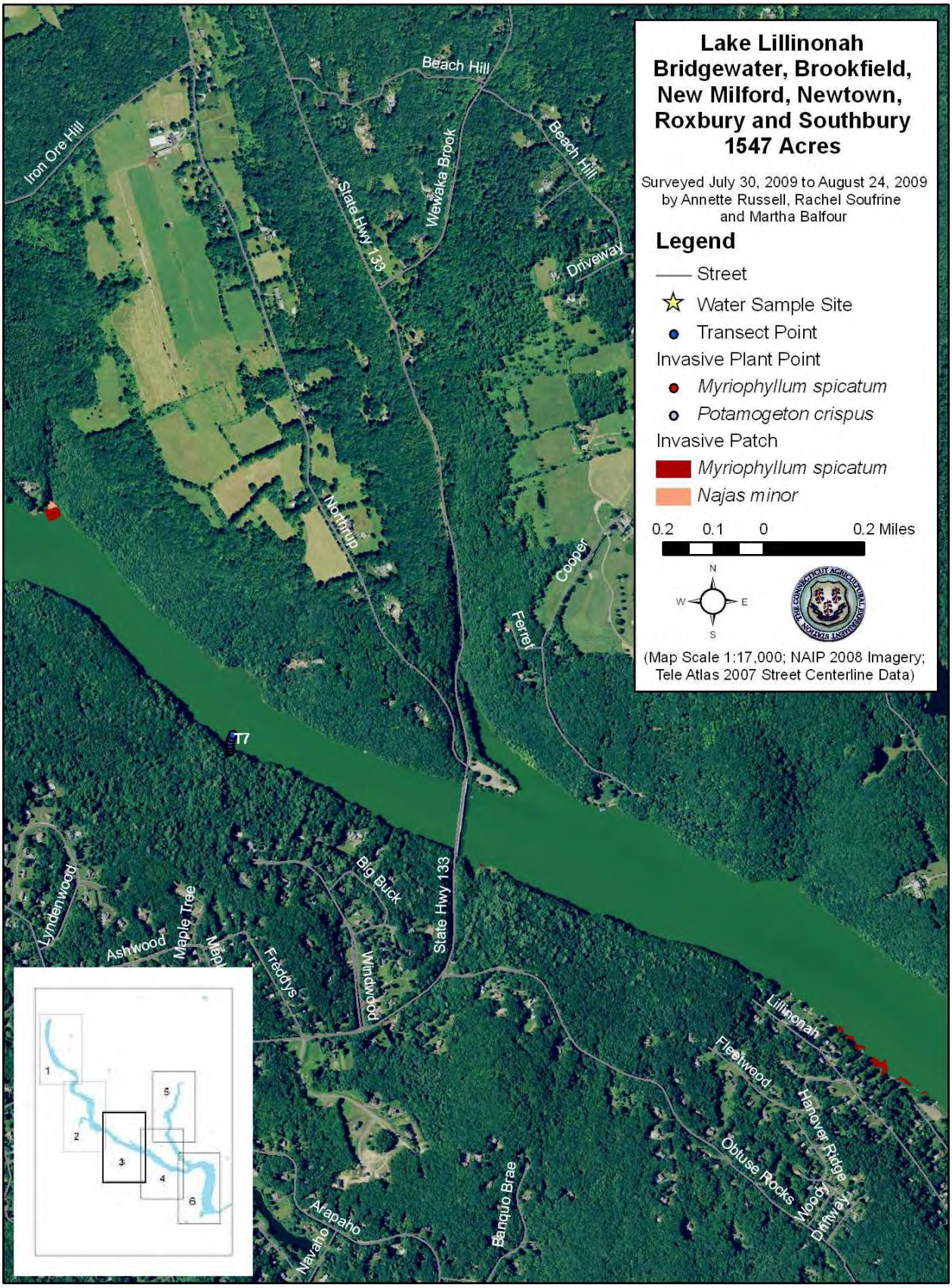
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1547 Acres
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0.2 0.1 0 0.2 Miles
N
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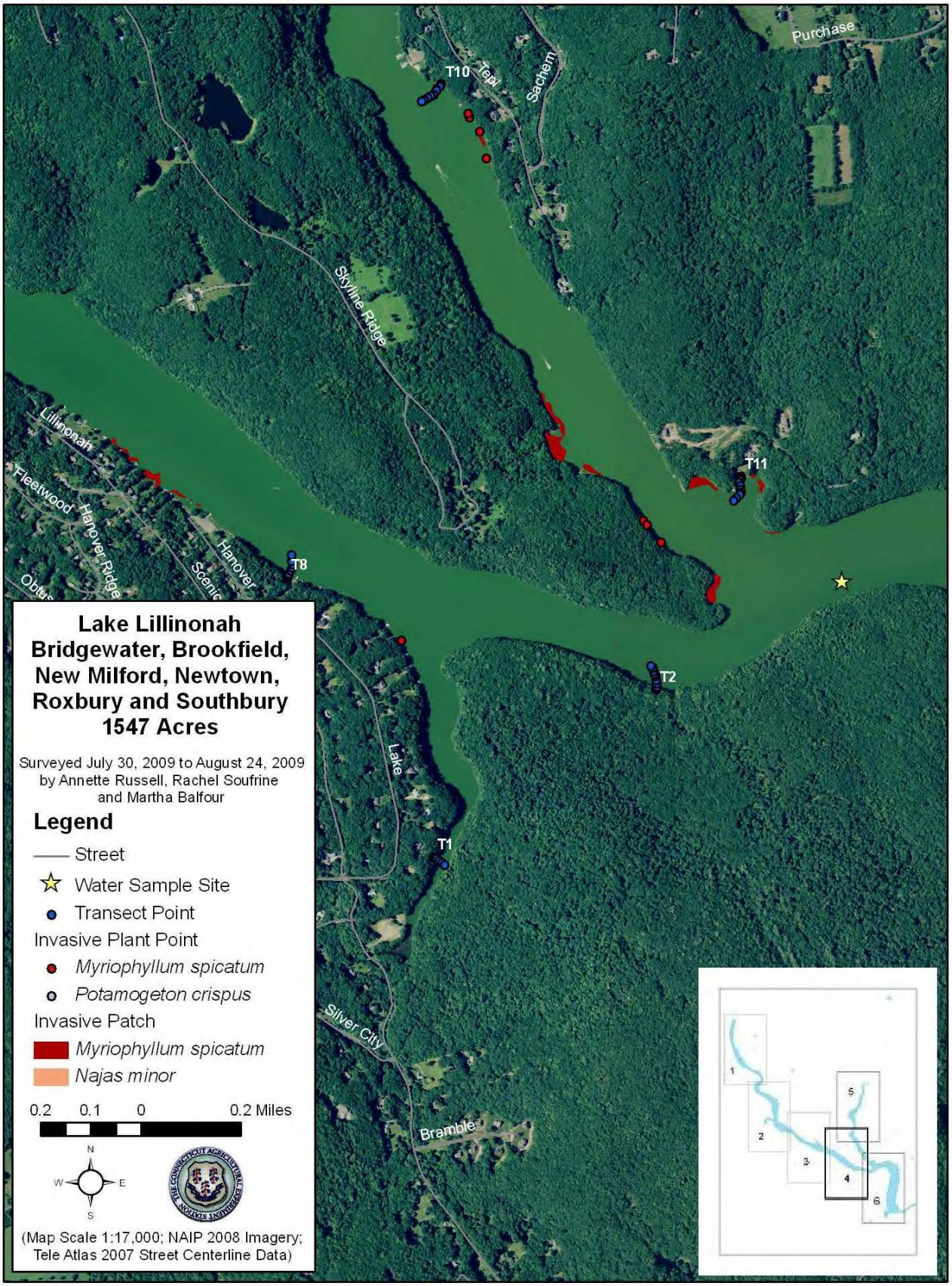
S
(Map Scale 1:17,000; NAIP 2008 Imagery; Tele Atlas 2007 Street Centerline Data)
Beach Hill
Iron Ore Hill
State Hwy 133
Wewaka Brook
Beach Hill
Driveway
Northrup
Cooper
Ferret
T7
Lyndenwood
Ashwood
Maple Tree
Big Buck
State Hwy 133
Freddys
Windswood
Lillinonah
Fleetwood
Hanover Ridge
Obtuse Rocks
Woody Driftway
Arapaho
Navaho
Banquo Brae


Purchase
T10
Tent
Sachem
Skyline Ridge
Lillinonah
Fleetwood
Hanover Ridge
Hanover
T8
T11
T2
Lake
T1
Silver City
Bramble
Lake Lillinonah
Bridgewater, Brookfield, New Milford, Newtown, Roxbury and Southbury
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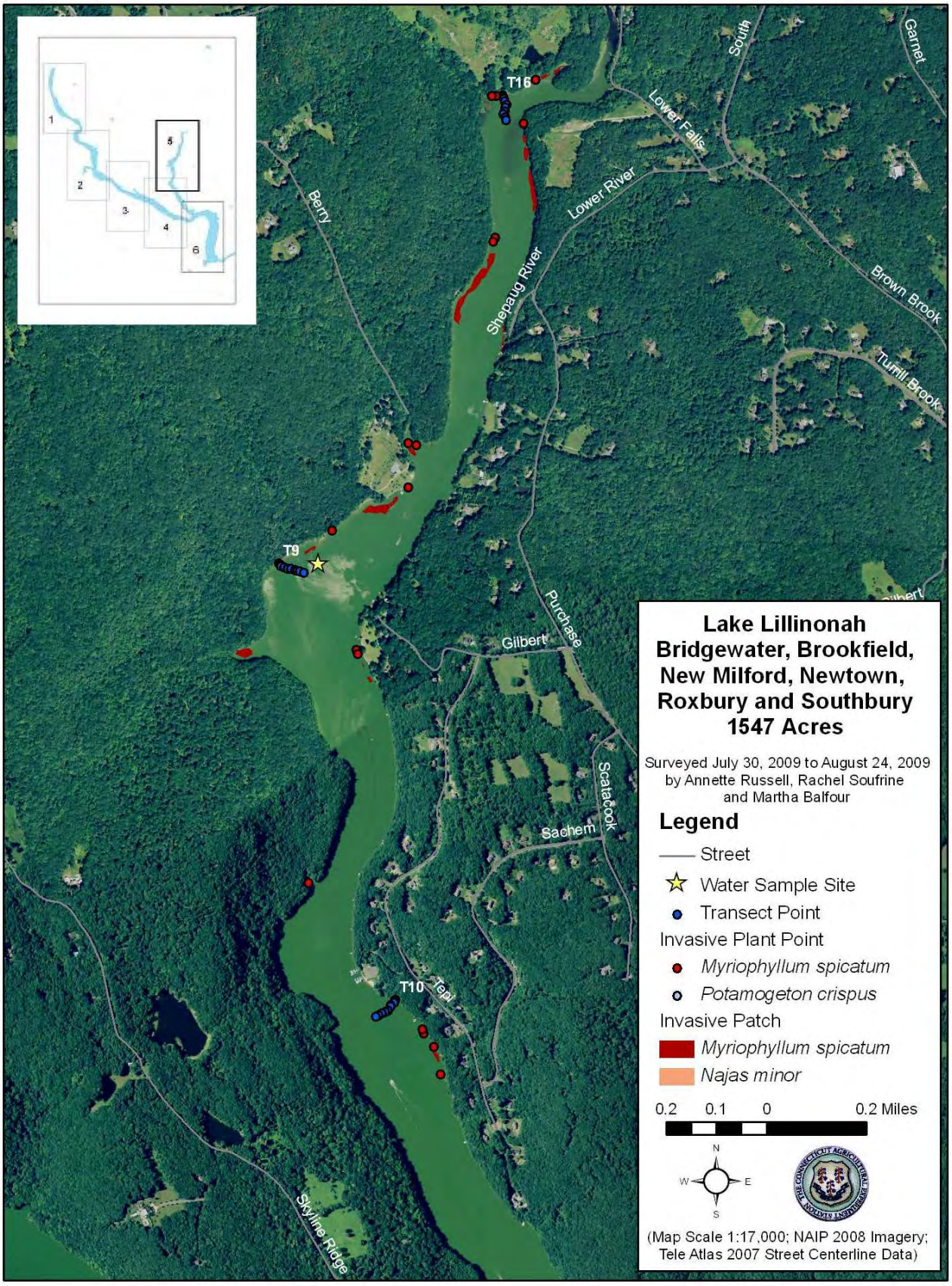
(Map Scale 1:17,000; NAIP 2008 Imagery; Tele Atlas 2007 Street Centerline Data)


T16
T9
T10
Berry
Lower Falls
South
Garnet
Lower River
Shepaug River
Brown Brook
Tumill Brook
Purchase
Gilbert
Scatacook
Sachem
Tepi
Skyline Ridge
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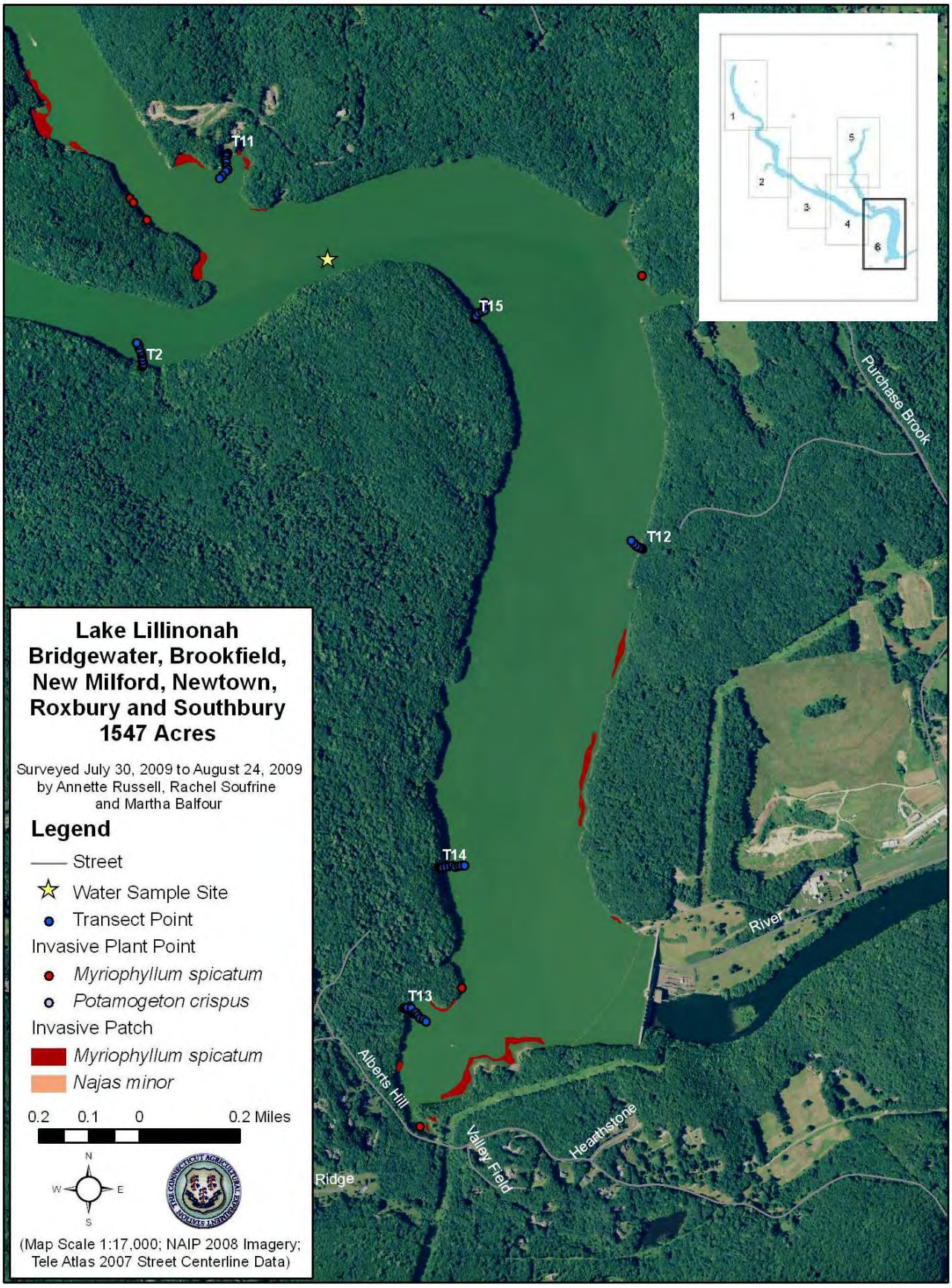
T11
T15
T2
T12
T14
T13
Purchase Brook
River
Alberts Hill
Valley Field
Hearthstone
Ridge
1
2
3
4
5
6
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E
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(Map Scale 1:17,000; NAIP 2008 Imagery; Tele Atlas 2007 Street Centerline Data)

Table 8. Yearly comparisons of frequency of occurrence and total area of aquatic vegetation in Lake Zoar.

			Frequency of Occurrence (percent **)			Area (acres)	
Scientific Name	**Common Name**	**Abbrev.**	**2007**	**2008**	**2009**	**2007**	**2008**
Ceratophyllum demersum	Coontail	CerDem	3.0	4.0	23.0	ND***	ND
Elodea nuttallii	Waterweed	EloNut	6.0	7.0	7.0	ND	ND
Isoetes species	Quillwort	IsoSp	0.0	0.0	0.0	ND	ND
*Marsilea quadrifolia**	European waterclover	MarQua	0.0	0.0	0.0	<0.1	0.2
*Myriophyllum spicatum**	Eurasian watermilfoil	MyrSpi	35.0	37.0	33.0	62.6	70.2
Najas flexilis	Nodding waternymph	NajFle	2.0	1.0	4.0	ND	ND
*Najas minor**	Brittle waternymph	NajMin	18.0	18.0	16.0	32.5	12.8
*Potamogeton crispus**	Curly leaf pondweed	PotCri	6.0	10.0	7.0	20.8	4.3
Potamogeton epihydrus	Ribbon leaf pondweed	PotEpi	0.0	0.0	2.0	ND	ND
Potamogeton foliosus	Leafy pondweed	PotFol	2.0	0.0	0.0	ND	ND
Potamogeton natans	Floating leaf pondweed	PotNat	0.0	0.0	0.0	ND	ND
Potamogeton nodosus	Long leaf pondweed	PotNod	0.0	0.0	0.0	ND	ND
Potamogeton praelongus	White stem pondweed	PotPra	0.0	0.0	1.0	ND	ND
Potamogeton perfoliatus	Clasping leaf pondweed	PotPer	0.0	0.0	0.0	ND	ND
Potamogeton pusillus	Small Pondweed	PotPus	0.0	0.0	0.0	ND	ND
Sagitaria species	Arrowhead	SagSp	0.0	0.0	0.0	ND	ND
Stuckinia pectinatus	Sago pondweed	StuPec	3.0	0.0	0.0	ND	ND
Vallisneria americana	Eel grass	ValAme	8.0	6.0	15.0	ND	ND
Zosterella dubia	Water stargrass	ZosDub	1.0	1.0	0.0	ND	ND

*Invasive plant
** Percent occurrence on 100 points in 10 transects
***Not determined

Lake Zoar

After conducting a whole lake and transect survey in 2008, we obtained only transect data in 2009 (Figure 13). The three major invasive species, *M. spicatum*, *N. minor* and *P. crispus* were found growing along the ten transects (Table 8). A fourth invasive species, *Marsilea quadrifolia* (found previously), did not occur along any of the transect locations; therefore, it was not documented in 2009. The frequency of occurrence of invasive species did not differ significantly from 2007 – 2009 (*M. spicatum*, p = 0.789; *N. minor*, p = 0.911; *P. crispus*, p = 0.542, Figure 11). Appendix E contains maps illustrating the 40 acres treated with diquat for *M. spicatum* during 2009. The native species experienced the biggest changes in 2009 compared to 2007 and 2008. The frequency of occurrence of native species increased significantly from 15% in 2007 and 19% in 2008 to 40% in 2009 (p = 0.001; Figure 11). Of the native species found, *C. demersum*, *N. flexilis* and *V. americana* showed the greatest increase (Figure 12). Robust populations of native species may decrease the invasibility of non-native species (Capers et al., 2007). The frequency of occurrence of all species found along transects has increased from 40% in 2007 to 54% in 2009. These results indicate that native plant cover in Lake Zoar has increased since 2007.

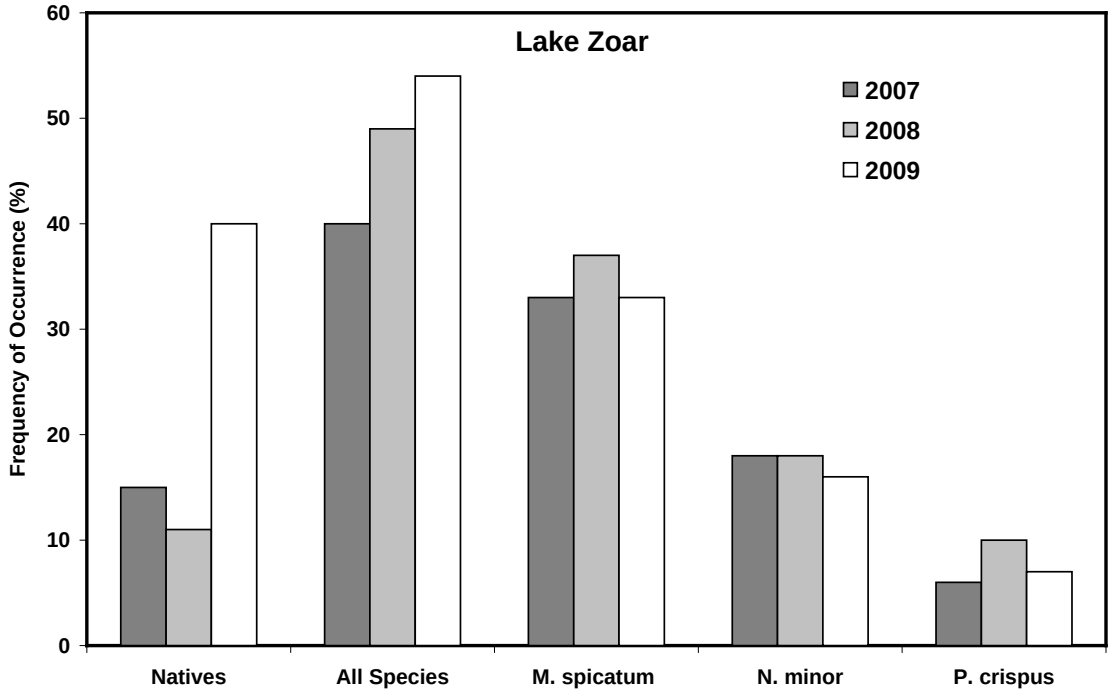

Figure 11. Yearly comparisons of frequency of occurrence of aquatic vegetation on transects in Lake Zoar.

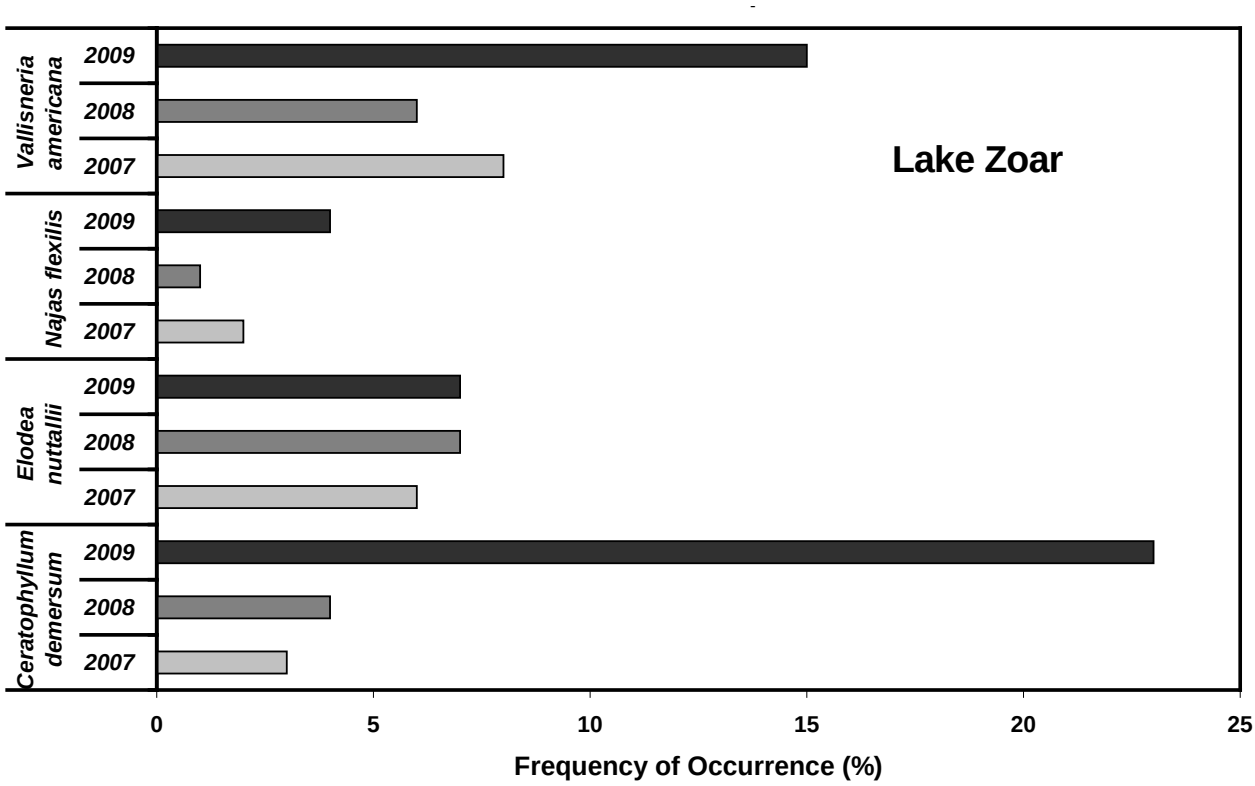

Figure 12. Yearly comparisons of frequency of occurrence of selected native plants on transects in Lake Zoar.

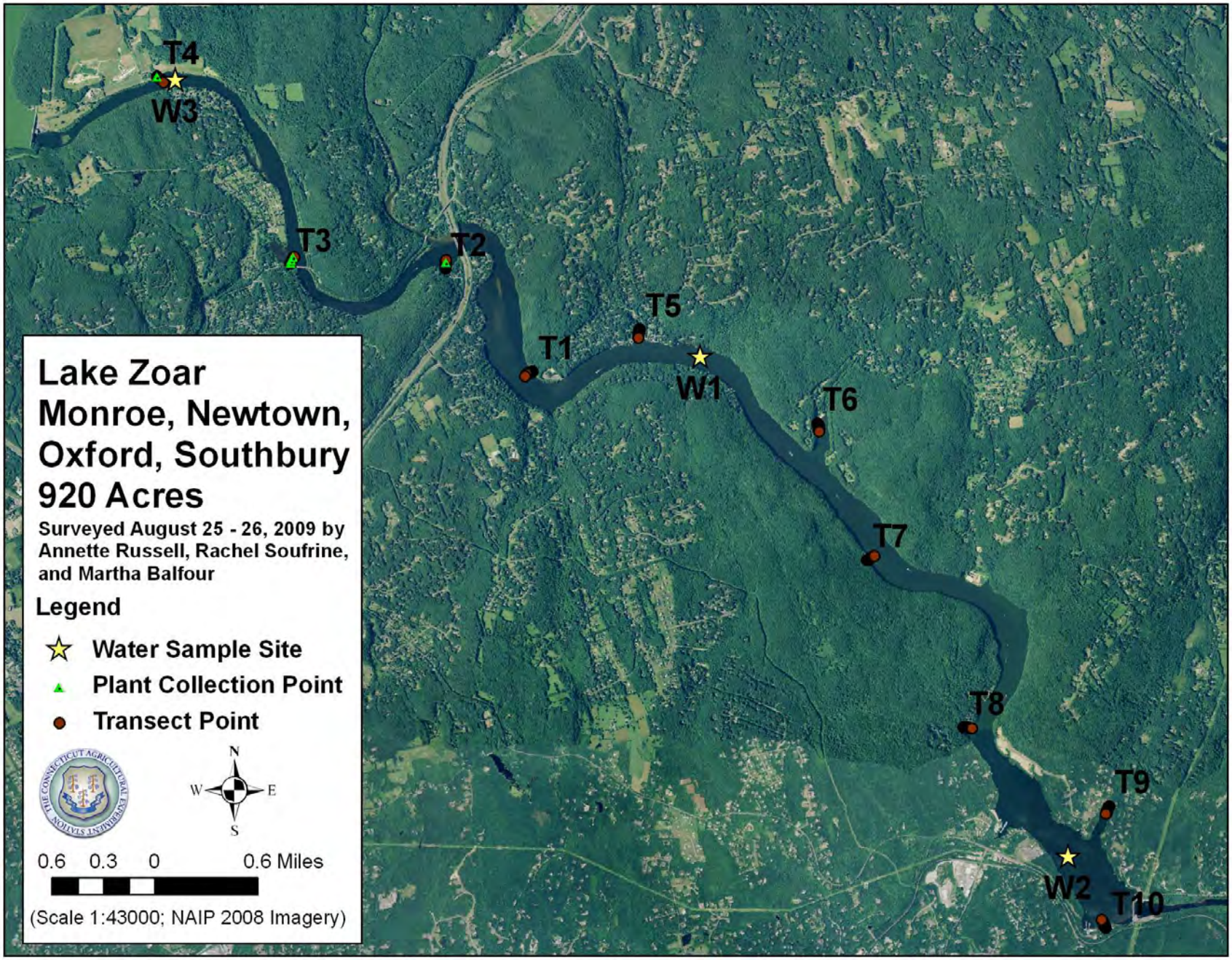

Figure 13. Water sample sites, plant collection points and transect locations in Lake Zoar.

Table 9. Water chemistry in Lake's Candlewood, Lillinonah and Zoar in 2009.

Lake	Site	Date	Latitude	Longitude	Depth (m)	Secchi (m)	Conductivity (uS/cm)	pH	Alkalinity $CaCO_3$ (mg/L)	Total P (ug/L)
Candlewood	W1	6/24/2009	41.53337	-73.44464	0.5	2.1	219	7.9	80	12
					14.0		259	6.9	95	13
	W2	6/24/2009	41.49296	-73.44711	0.5	2.1	214	8.1	79	15
					9.0		249	6.8	90	27
	W3	6/24/2009	41.55319	-73.47375	0.5	2.0	210	7.8	75	15
					9.0		224	6.8	84	13
	W4	6/24/2009	41.43550	-73.45595	0.5	2.1	214	8.2	74	20
					11.0		223	6.8	78	27
	W5	6/24/2009	41.45804	-73.43723	0.5	2.1	211	8.2	74	19
					11.0		221	6.8	80	19
	W1	8/31/2009	41.53337	-73.44464	0.5	2.1	183	7.7	149	16
					14.0		187	6.7	144	27
	W2	8/31/2009	41.49296	-73.44711	0.5	2.1	156	7.5	137	19
					9.0		173	6.7	141	30
	W3	8/31/2009	41.55319	-73.47375	0.5	2.0	177	7.6	146	14
					9.0		193	7.0	174	88
	W4	8/31/2009	41.43550	-73.45595	0.5	1.9	181	8.0	146	15
					11.0		190	7.0	156	53
	W5	8/31/2009	41.45804	-73.43723	0.5	2.3	182	8.0	144	19
					11.0		193	6.8	151	53
Lillinonah	W1	8/24/2009	41.49653	-73.32669	0.5	1.0	180	8.8	90	18
					13.0		265	7.5	140	36
	W2	8/24/2009	41.46961	-73.30813	0.5	1.1	251	7.8	83	35
					1.5		254	7.8	105	52
	W3	8/24/2009	41.54120	-73.40301	0.5	1.4	158	8.9	38	21
					5.5		170	7.3	53	62
Zoar	W1	8/26/2009	41.42970	-73.22055	0.5	2.2	280	6.7	110	7
					8.0		226	6.5	98	12
	W2	8/26/2009	41.38764	-73.17894	0.5	1.9	271	6.8	98	9
					15.0		267	6.6	105	13
	W3	8/26/2009	41.45284	-73.27969	0.5	1.5	299	6.8	90	7
					3.0		303	6.8	105	16

Comparisons of Water Chemistry

Water chemistry affects the type and abundance of plant species in lakes. For instance, *M. spicatum*, *P. crispus*, *and N. minor* favor water with moderate to high alkalinity (CAES IAPP, 2009). Since water chemistry changes throughout the year and our data is only from one or two days, our results (Table 9) may not be representative of conditions at other times. The transparency of Candlewood Lake averaged 2.1 meters which is clearer than the 1.2 meters found in Lake Lillinonah and in 1.9 meters found in Lake Zoar. Transparencies in Connecticut's Lakes ranged from 0.4 to 10.0 meters with an average of 2.4 meters (CAES IAPP, 2009).

Conductivity is an indicator of dissolved ions that originate from natural sources, man-made nutrients (fertilizers, septic systems, etc, aerial deposition, and road salts. The conductivity of Candlewood Lake during late august ranged from 156 – 193 µS/cm with little difference between the surface and deep water samples. In the early 1990's, the conductivity of Candlewood Lake ranged between 176 and 184 µS/cm (Canavan and Silver, 1995) suggesting little change has occurred. The conductivities of Lillinonah (158 – 265 µS/cm) were lower than Lake Zoar (226 -303 µS/cm) but higher than Candlewood Lake suggesting an increase as the water progressed down gradient. Compared to the statewide average conductivity of near 120 µS/cm (CAES IAPP, 2009) all three lakes would be classified as high.

The surface water pH of both Lake Candlewood and Lake Lillinonah ranged from 7.5 to 8.9, while the bottom water was slightly more acidic, averaging pH 6.8. Lake Zoar's surface water, however, was slightly more acidic with an average of pH 6.8. Probably because of the mixing, the pH of Lake Zoar differed little from surface to bottom. Surface water pH also fluctuates widely because of midday removal of carbon dioxide by active, photosynthesizing algae (Wetzel, 2001).

Alkalinity is generally considered a better indicator than pH for determining a lake's potential to acidify because it is a measure of the lake's buffering capacity. Lakes with relatively high alkalinities favor *M. spicatum*, *P. crispus*, *and N. minor.* (CAES IAPP, 2009). Our late August samples showed Candlewood Lake had a considerably higher alkalinity (avg. = 148.8 mg/L $CaCO_3$) than Lillinonah (avg. = 84.8 mg/L $CaCO_3$) and Lake Zoar (avg. = 101.0 mg/L $CaCO_3$). Differences between surface and bottom water appeared random. In general, alkalinities in Connecticut's lakes range from near 0 mg/L $CaCO_3$ to greater than 100 mg/L $CaCO_3$ (CAES IAPP, 2009, Canavan and Siver, 1995, Frink and Norvell, 1984).

A primary indicator of a lake's ability to support algae and a key indicator of a lake's trophic state is phosphorus (P) (Frink and Norvell, 1984, Wetzel, 2001). Rooted macrophytes are considered less depended on P from the water column as they obtain a majority of their nutrients from the hydrosoil (Bristow and Whitcombe, 1971). Lakes with P levels between 0 and 10 µg/L are considered to be nutrient-poor or oligotrophic. When P concentrations reach 15-25 µg/L, lakes are classified as moderately fertile or mesotrophic. P levels at 30-

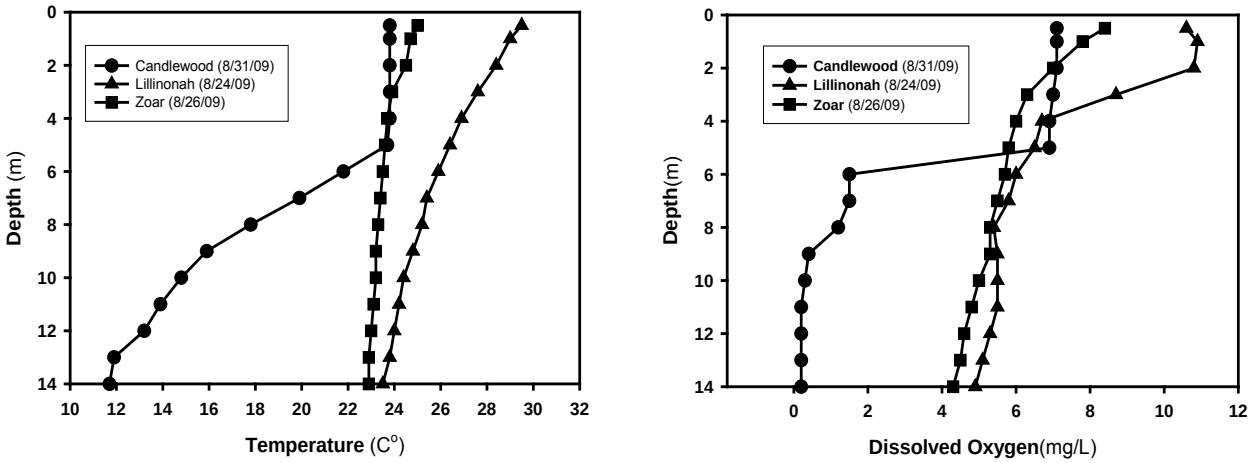

Figure 14. Water temperature and dissolved oxygen profiles of Lakes Candlewood, Lillinonah and Zoar in August 2009.

50 µg/L characterize lakes as fertile or eutrophic (Frink and Norvell, 1984). P concentrations in all three lakes were depth-dependent. The P concentration in Candlewood Lake in late August ranged from 14 to 19 µg/L at the surface and 27 to 88 µg/L near the bottom. This accumulation of P near the bottom is common in the summer as anoxic conditions (Figure 14) release P from the sediment (Norvell, 1974). The P concentration in Lake Lillinonah's surface water ranged from 18 to 35 µg/L and from 36 to 62 µg/L in its bottom waters while the P concentration in Lake Zoar's surface waters ranged from 7 to 9 µg/L and from 12 to 16 µg/L in its bottom waters. A possible reason for higher P concentrations near the bottom of Lake Zoar, even though the water is well oxygenated (Figure 14), is P adhering to suspended clay resulting from turbulence.

Analysis of Remote Sensing (USDA four band imagery)

In the summer of 2008 the USDA flew aerial surveys collecting digital imagery for the National Agricultural Imagery Program (NAIP). This imagery is intended to capture the landscape during the growing season and is publically available at no charge. These images have been used in the past with moderate success to determine aquatic plant distributions (Marshall and Lee, 1994). In an effort to identify the invasive plants in Candlewood Lake, we used NAIP imagery taken in 2008 and compared it to our survey maps of the same year. The 2008 NAIP imagery has 1 meter accuracy and is comprised of red, green, blue visual bands and a near infrared band. We compared the

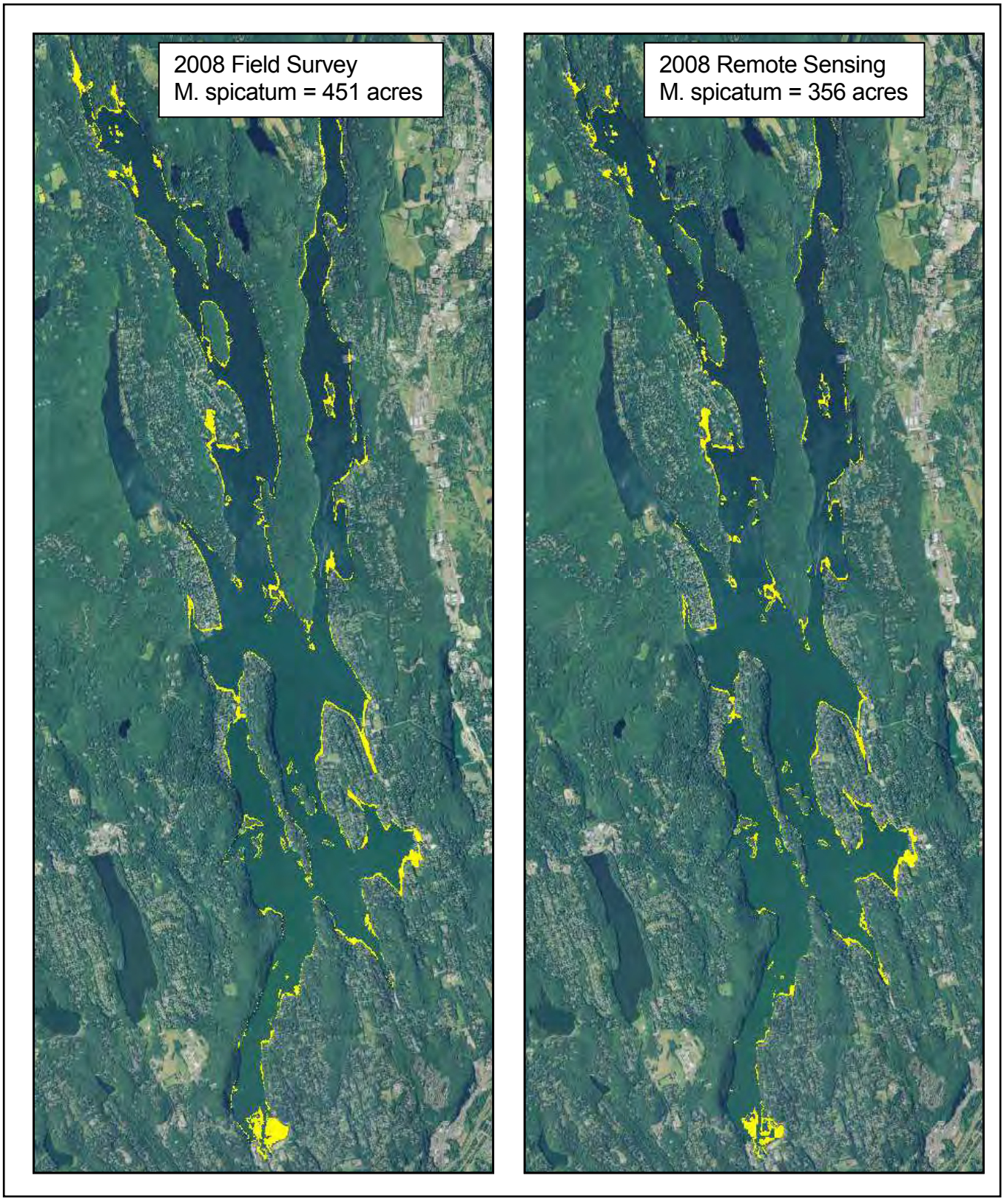

Figure 15. Comparison of areas of *M. spicatum* (yellow patches) found by field survey (left) and remote sensing (right) in 2008.

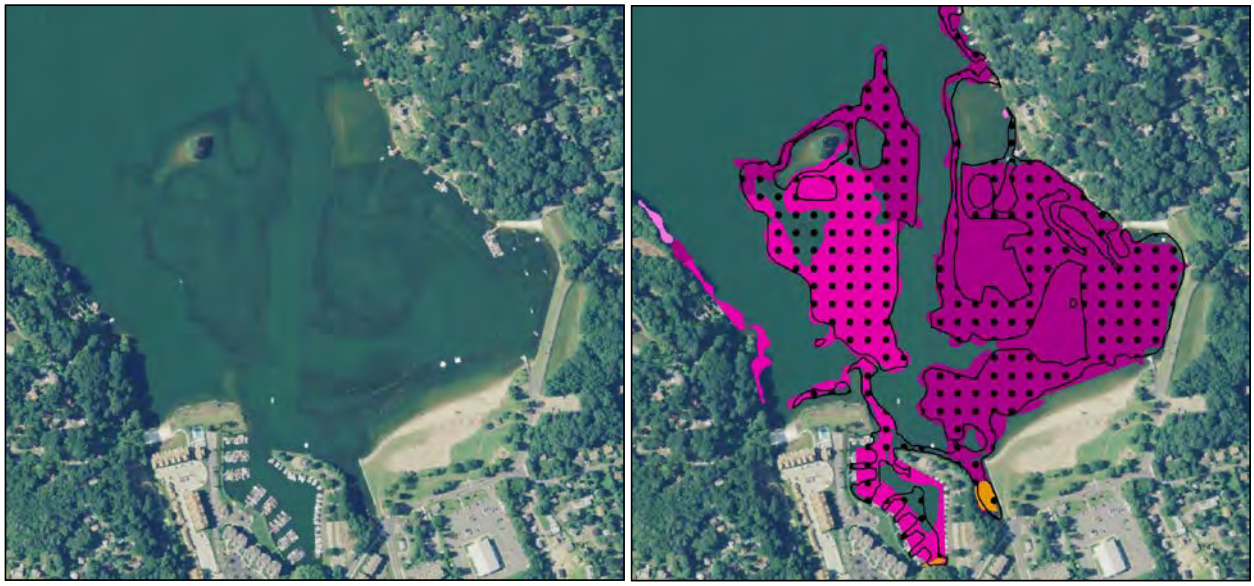

Figure 16. In many areas the full color imagery (shading, left) correlated well with plants found during our survey (pink and purple shading, right). The remote sensing analysis is indicated by the dots outlined in black (right).

Figure 17. Shadowing from trees or other features along the shoreline (left) can reduce the visibility of plants to remote sensing. Pink and purple shading (right) indicates *M. spicatum* found by field survey. Dotted areas (right) indicates *M. spicatum* found by remote sensing

Figure 18. In some areas of Candlewood Lake (left) plants were not visible for unknown reasons. Purple shading (right) indicates *M. spicatum* found by our field survey. Dotted areas (right) indicate *M. spicatum* found by remote sensing.

patches of *M. spicatum* that we found to the digital imagery using a full color image, red, blue, green imagery bands and also the infrared imagery band to determine which imagery best corresponded to known milfoil beds. In ArcMap 9.3.1, we visually compared the milfoil areas we indentified in the field survey (1:1500 scale) to the dark patches on the NAIP imagery corresponding to the same area. We found the full color image provided the greatest detail when locating plants. Removing our field survey layer, we then outlined the dark patches, characteristic of the milfoil, on the NAIP imagery using the polygon drawing tool. Our results, although not as accurate as the field survey, were surprisingly accurate for the majority of the milfoil patches. We successfully identified 356 acres of milfoil using the NAIP imagery compared to 451 acres located by our on-lake survey (Figure 15). In many areas the full color imagery corresponded well with the areas of mapped plants (Figure 16). In areas where the hillsides and trees shadowed shoreline (Figure 17), the areas of *M. spicatum* were not detectable. There were some areas of *M. spicatum* we found during the field survey that were not visible during our examination of the NAIP imagery (Figure 18). The use of sophisticated software packages such as ERDAS and ENVI may be better able to detect and quantify these sites. The patches of *N. minor* found in our 2008 field survey were not identifiable in the NAIP imagery (Figure 19) suggesting the use of the NAIP imagery to visually detect *N. minor* and *P. crispus* under the 2008 Candlewood Lake conditions is not feasible.

Figure 19. Plants species could not be differentiated using this technique. *N. minor* (gold) and *M. spicatum* (pink and purple) (right) appear the same (left).

The usefulness of the full color NAIP imagery was likely enhanced in 2008 because *M. spicatum* was very abundant in Candlewood Lake and it often reached the surface. In addition, Candlewood Lake is better suited to this technology because *M. spicatum* dominates the plant community. It is unlikely if other equally abundant species were mixed with the milfoil of even in separate patches they could be discerned. The use of full color imagery to detect *M. spicatum* has other short comings. Careful planning is needed when planning flights for the imagery. It is best to take the photos at when the sun is directly over the lake to minimize shadows and when there is little to no wind or surface disturbances. Lakes with poor water clarity may make identifying areas of plant growth difficult as can be seen on the Lake Lillinonah maps (pages 28–33). There are software programs, previously mentioned, that may be more sensitive for plant detection; however, these programs are typically costly and require highly skilled technicians to operate. Another consideration when deciding on the use of NAIP imagery is that the over flights of Connecticut are currently taking place every other year and it takes over six months for the imagery to become publically available.

Conclusions:

The aquatic plant communities of Lakes Candlewood, Lillinonah and Zoar continue to be dominated by invasive species, particularly *M. spicatum*. In Candlewood Lake, the yearly acreage of *M. spicatum* appears to be positively related to the depth and duration of the previous winter's drawdown. In Lakes Lillinonah and Zoar, *M. spicatum* exhibits little year to year variability. The acreage of *N. minor* increased nearly two-fold in Candlewood Lake in 2009 compared to 2007 and 2008. This trend needs to be watched closely. The 2009 reduction in native species on the Candlewood Lake transects also needs to be monitored and related to drawdown practices. Native species in Lake Lillinonah remained nearly constant compared to 2007 while in Lake Zoar they showed an appreciable increase. Remote sensing, using NAIP imagery, showed promise in locating *M. spicatum* in Candlewood Lake, although shadows from hillside trees and other factors that limit visibility will require a certain degree of field work.

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Appendix

2009 CAES IAPP On-Lake Time for Lakes Candlewood, Lillinonah and Zoar

Candlewood (Lead surveyor)	**Lillinonah** (Lead surveyor)	**Zoar** (Lead surveyor)
8/6/2009 (Bugbee)	7/27/2009 (Balfour)	8/25/2009 (Balfour)
8/7/2009 (Bugbee)	7/28/2009 (Balfour)	8/26/2009 (Balfour)
8/10/2009 (Bugbee)	7/29/2009 (Balfour)	
8/11/2009 (Bugbee)	7/30/2009 (Soufrine)	
8/13/2009 (Bugbee)	8/3/2009 (Balfour)	
8/14/2009 (Bugbee)	8/4/2009 (Balfour)	
8/18/2009 (Bugbee)	8/13/2009 (Balfour)	
8/19/2009 (Bugbee)	8/24/2009 (Balfour)	
8/20/2009 (Bugbee)		
8/24/2009 (Bugbee)		
8/26/2009 (Bugbee)		
8/27/2009 (Bugbee)		
8/31/2009 (Bugbee)		
9/1/2009 (Bugbee)		
9/2/2009 (Bugbee)		
15 days	**8 days**	**2 days**

Metadata

Metadata is data about data. This metadata gives background information on the content, quality, condition, legal liability and other appropriate characteristics of the data.

Metadata

Polygons and Points of Invasive Plants

Abstract This polygon and point data is of the invasive aquatic plant locations in Lakes Candlewood and Lillinonah found during the 2009 aquatic plant survey. The invasive aquatic plants found during the survey were *Potamogeton crispus* (curly leaf pondweed), *Najas minor* (minor water naiad), *Myriophyllum spicatum* (Eurasian water milfoil). Survey boats with Trimble GPS units traveled along the outside of each invasive patch to obtain the polygons. In the event that invasive aquatic plants species co-occurred, two separate polygons would be made or the occurrence would be noted in the notes field. If plants covered an area of less than 1 meter in diameter a point feature was recorded. Depth was at three different locations in patches and the average depth range was assigned. For points one depth measurement was recorded. Abundance of each species in the patch or point was ranked on a scale of 1-5 (1= rare, a single stem; 2= uncommon, few stems; 3= common; 4= abundant; 5= extremely abundant or dominant).

Purpose To document and assess the invasive aquatic plant infestation on lakes Candlewood and Lillinonah during 2009. This data will also be available to compare with future invasive aquatic plant survey data.

Access Constraints This data is public access data and can be freely distributed. The Connecticut Agricultural Experiment Station Invasive Aquatic Plant Program (CAES IAPP) should be clearly cited as the author in any published works. The State of Connecticut shall not be held liable for improper or incorrect use of the data described and/or contained within this web site. These data and related graphics are not legal documents and are not intended to be used as such. The information contained in these data is dynamic and will change over time. The State of Connecticut gives no warranty, expressed or implied, as to the accuracy, reliability, or completeness of these data. It is the responsibility of the data user to use the data appropriately and consistent within these limitations. Although these data have been processed successfully on a computer system at the State of Connecticut, no warranty expressed or implied is made regarding the utility of the data on another system or for general or scientific purposes, nor shall the act of distribution constitute any such warranty. This disclaimer applies both to individual use of the data and aggregate use with other data.

Use Constraints No restrictions or legal prerequisites for using the data. The data is suitable for use at appropriate scale, and is not intended for maps printed at scales greater or more detailed than 1:24,000 scale (1 inch = 2,000 feet). Although this data set has been used by the State of Connecticut, The Connecticut Agricultural Experiment Station, no warranty, expressed or implied, is made by the State of Connecticut, Connecticut Agricultural Experiment Station as to the accuracy of the data and or related materials. The act of distribution shall not constitute any such warranty, and no responsibility is assumed by the State of Connecticut, Connecticut Agricultural Experiment Station in the use of these data or related materials. The user assumes the entire risk related to the use of these data. Once the data is distributed to the user, modifications made to the data by the user should be noted in the metadata. When printing this data on a map or using it in a software application, analysis, or report, please acknowledge the Connecticut Agricultural Experiment Station Invasive Aquatic Plant Program (CAES IAPP) as the source for this information.

Credit Gregory J. Bugbee and Martha Balfour, The Connecticut Agricultural Experiment Station Invasive Aquatic Plant Program (CAES IAPP)

Accuracy Report All aquatic plants noted in this feature were confirmed in the lab using a dichotomous key and, when possible, molecular techniques. Collection specimens of each plant can be found at The Connecticut Agricultural Experiment Station herbarium. Abundance determinations were made by the surveyor based on the abundance guidelines listed in the abstract of this metadata.

GPS Accuracy Positions were acquired by using a Trimble GeoXT 2003 with TerraSync 2.40 and WAAS enabled. Data was post-processed in the lab with Pathfinder Office 3.1 with data from the Coast Guard reference stations. Therefore, the average accuracy of the data is less than 1m.

Process Data was obtained in the field using a Trimble GeoXT 2003 with TerraSync 2.40 (WAAS enabled). Data was post-processed in the lab with Pathfinder Office 3.1 with data from the Coast Guard reference stations and then imported into ESRI ArcMap 9.3 for display and analysis.

Metadata

Transects

Abstract Quantitative abundance information on native and invasive aquatic plants were obtained by using the CAES IAPP transect method. We positioned transects perpendicular to the shoreline and recorded GPS location and the abundance of each plant species found within a 2 m² area at 0, 5, 10, 20, 30, 40, 50, 60, 70 and 80 m from the shore (a total of 10 samples on each transect unless impaired by rocks, land etc.). Ten transects were established for each lake. Transects were positioned using a random-representative method to account for all bottom types and plant conditions in Lakes Lillinonah and Zoar. In Lake Candlewood, the random-representative method was not used. Instead, transects were chosen that included at least one occurrence of each native and invasive plant species found by a more thorough set of transects done by CAES IAPP in 2005. Lake Candlewood transects, T2, T22, T25, T57, T52, T58, T62, T74, T86, and T105, from the CAES IAPP 2005 survey were chosen and renamed T1 - T10 respectively. These transects do not represent the overall conditions of Lake Candlewood as the frequency of native species will be over-estimated. We ranked abundance of each species, at each transect point, on a scale of 1–5 (1 = rare, a single stem; 2 = uncommon, few stems; 3 = common; 4 = abundant; 5 = extremely abundant or dominant). Depth was measured at each transect point.

Purpose To document and assess the native and invasive aquatic plant community in Lakes Candlewood Lillinonah and Zoar during 2009. This data will also be available to compare with future aquatic plant survey data.

Access Constraints This data is public access data and can be freely distributed. The Connecticut Agricultural Experiment Station Invasive Aquatic Plant Program (CAES IAPP) should be clearly cited as the author in any published works. The State of Connecticut shall not be held liable for improper or incorrect use of the data described and/or contained within this web site. These data and related graphics are not legal documents and are not intended to be used as such. The information contained in these data is dynamic and will change over time. The State of Connecticut gives no warranty, expressed or implied, as to the accuracy, reliability, or completeness of these data. It is the responsibility of the data user to use the data appropriately and consistent within these limitations. Although these data have been processed successfully on a computer system at the State of Connecticut, no warranty expressed or implied is made regarding the utility of the data on another system or for general or scientific purposes, nor shall the act of distribution constitute any such warranty. This disclaimer applies both to individual use of the data and aggregate use with other data.

Use Constraints No restrictions or legal prerequisites for using the data. The data is suitable for use at appropriate scale, and is not intended for maps printed at scales greater or more detailed than 1:24,000 scale (1 inch = 2,000 feet). Although this data set has been used by the State of Connecticut, The Connecticut Agricultural Experiment Station, no warranty, expressed or implied, is made by the State of Connecticut, Connecticut Agricultural Experiment Station as to the accuracy of the data and or related materials. The act of distribution shall not constitute any such warranty, and no responsibility is assumed by the State of Connecticut, Connecticut Agricultural Experiment Station in the use of these data or related materials. The user assumes the entire risk related to the use of these data. Once the data is distributed to the user, modifications made to the data by the user should be noted in the metadata. When printing this data on a map or using it in a software application, analysis, or report, please acknowledge the Connecticut Agricul-

tural Experiment Station Invasive Aquatic Plant Program (CAES IAPP) as the source for this information.

Credit Gregory J. Bugbee and Martha Balfour, The Connecticut Agricultural Experiment Station Invasive Aquatic Plant Program (CAES IAPP)

Accuracy Report All aquatic plants noted in this feature were confirmed in the lab using a dichotomous key and, when possible, molecular techniques. Abundance determinations were made by the surveyor based on the abundance guidelines listed in the abstract of this metadata.

GPS Accuracy Positions were acquired by using a Trimble GeoXT 2003 with TerraSync 2.40 and WAAS enabled. Data was post-processed in the lab with Pathfinder Office 3.1 with data from the Coast Guard reference stations. Therefore, the average accuracy of the data is less than 1m.

Process Data was obtained in the field using a Trimble GeoXT 2003 with TerraSync 2.40 (WAAS enabled). Data was post-processed in the lab with Pathfinder Office 3.1 with data from the Coast Guard reference stations and then imported into ESRI ArcMap 9.3 for display and analysis.

Metadata

Water Testing

Abstract Water data is taken by The Connecticut Agricultural Experiment Station Invasive Aquatic Plant Program (CAES IAPP) in order to document and analyze the water conditions of surveyed aquatic plants in Lakes Candlewood, Lillinonah and Zoar. Five sample locations were chosen in Lake Candlewood and three locations in Lakes Lillinonah and Zoar. At least one sample location is chosen in the deepest part of the lake and the other are spread out to account for diverse conditions. The depth (meters) and Secchi measurement (transparency; meters) are taken at each location, along with dissolved oxygen (mg/L) and temperature (◦C) at 0.5 meters from the surface and one-meter intervals to the bottom. Water samples are also taken at the sample location at a 0.5-meter from the surface and near the water-body bottom. Water samples are assessed in the lab for conductivity (µs/ms), pH, alkalinity (expressed as mg/L $CaCO_3$) and phosphorous (µg/L).

Purpose Water data was taken by The Connecticut Agricultural Experiment Station Invasive Aquatic Plant Program (CAES IAPP) in order to document and analyze the water conditions in Lakes Candlewood, Lillinonah and Zoar and correlate with surveyed aquatic plants.

Access Constraints This data is public access data and can be freely distributed. The Connecticut Agricultural Experiment Station Invasive Aquatic Plant Program (CAES IAPP) should be clearly cited as the author in any published works. The State of Connecticut shall not be held liable for improper or incorrect use of the data described and/or contained within this web site. These data and related graphics are not legal documents and are not for use as such. The information contained in these data is dynamic and will change over time. The State of Connecticut gives no warranty, expressed or implied, as to the accuracy, reliability, or completeness of these data. It is the responsibility of the data user to use the data appropriately and consistent within these limitations. Although these data have been processed successfully on a computer system used by the State of Connecticut, no warranty expressed or implied is made regarding the utility of the data on another system or for general or scientific purposes, nor shall the act of distribution constitute any such warranty. This disclaimer applies both to individual use of the data and aggregate use with other data.

Use Constraints No restrictions or legal prerequisites for using the data. The data is suitable for use at appropriate scale, and is not intended for maps printed at scales greater or more detailed than 1:24,000 scale (1 inch = 2,000 feet). Although this data set has been used by the State of Connecticut, The Connecticut Agricultural Experiment Station, no warranty, expressed or implied, is made by the State of Connecticut, Connecticut Agricultural Experiment Station as to the accuracy of the data and or related materials. The act of distribution shall not constitute any such warranty, and no responsibility is assumed by the State of Connecticut, Connecticut Agricultural Experiment Station in the use of these data or related materials. The user assumes the entire risk related to the use of these data. Once the data is distributed to the user, modifications made to the data by the user should be noted in the metadata. When printing this data on a map or using it in a software application, analysis, or report, please acknowledge the Connecticut Agricultural Experiment Station Invasive Aquatic Plant Program (CAES IAPP) as the source for this information.

Credit Gregory J. Bugbee and Martha Balfour, The Connecticut Agricultural Experiment Station Invasive Aquatic Plant Program (CAES IAPP)

Report

Accuracy

Secchi measurements were taken in the field with a Secchi disk with measurement markers (meters), using the same method each time. Dissolved oxygen and temperature were taken in the field with a YSI 58 meter (YSI Incorporated, Yellow Springs, Ohio, USA) that was calibrated every time it was used. Water samples were stored at 3˚ C until analyzed for pH, alkalinity, conductivity and total phosphorus. Conductivity and pH were measured with a Fisher-Accumet AR20 meter (Fisher Scientific International Incorporated, Hampton, New Hampshire, USA), which was calibrated each time it was used. Alkalinity was quantified by titration and expressed as milligrams of $CaCO_3$ per liter (titrant was 0.08 mol/L H_2SO_4 with an end point of pH 4.5). The total phosphorus analysis was conducted on samples that were acidified with three drops of concentrated H_2SO_4, and consisted of the ascorbic acid method and potassium persulfate digestion outlined by the American Public Health Association (Standard Methods of the Examination of Water and Waste Water, 1995).

GPS Accuracy

Positions were acquired by using a Trimble GeoXT 2003 with TerraSync 2.40 and WAAS enabled. Data was post-processed in the lab with Pathfinder Office 3.1 with data from the Coast Guard reference stations. Therefore, the average accuracy of the data is less than 1m.

Process Description

Position data was obtained in the field using a Trimble GeoXT 2003 with TerraSync 2.40 (WAAS enabled). Data was post-processed in the lab with Pathfinder Office 3.1 with data from the Coast Guard reference stations and then imported into ESRI ArcMap 9.3 for display and analysis.

Invasive Aquatic Plant Location Data

Appendix Lake Candlewood invasive plant location data (1 of 13).

FID	Invasive	Invasive	Notes	Type	Date	Time	Latitude	Longitude	Depth (m)	Abundance	Acres
1	1	MyrSpi		Point	8/10/2009	11:12:51am	41.45827	-73.44504	1-3	1	0.0002
2	1	MyrSpi		Point	8/13/2009	12:28:56pm	41.46020	-73.42914	1-3	1	0.0002
3	1	MyrSpi		Point	8/13/2009	01:31:56pm	41.46410	-73.42458	0-1	1	0.0002
4	1	MyrSpi		Point	8/13/2009	01:32:16pm	41.46414	-73.42453	0-1	1	0.0002
5	1	MyrSpi		Point	8/13/2009	01:40:46pm	41.46512	-73.42428	0-1	3	0.0002
6	1	MyrSpi		Point	8/14/2009	10:42:21am	41.47301	-73.43678	0-1	1	0.0002
7	1	MyrSpi		Point	8/14/2009	10:42:41am	41.47300	-73.43691	0-2	1	0.0002
8	1	MyrSpi		Point	8/14/2009	12:29:26pm	41.47428	-73.44653	2-4	1	0.0002
9	1	MyrSpi		Point	8/14/2009	12:30:41pm	41.47441	-73.44659	2-4	1	0.0002
10	1	MyrSpi		Point	8/18/2009	01:48:26pm	41.50563	-73.43807	2-4	1	0.0002
11	1	MyrSpi		Point	8/18/2009	01:49:16pm	41.50588	-73.43805	2-4	1	0.0002
12	1	MyrSpi		Point	8/19/2009	11:26:16am	41.49980	-73.44523	3-4	2	0.0002
13	1	MyrSpi		Point	8/19/2009	11:51:11am	41.50819	-73.44589	2-3	1	0.0002
14	1	MyrSpi		Point	8/19/2009	01:39:31pm	41.53738	-73.44727	2-4	1	0.0002
15	1	MyrSpi		Point	8/24/2009	10:51:04am	41.55049	-73.44387	3-4	2	0.0002
16	1	MyrSpi		Point	8/24/2009	11:21:15am	41.55251	-73.43958	2-4	1	0.0002
17	1	MyrSpi		Point	8/26/2009	11:48:46am	41.53195	-73.45494	2-4	1	0.0002
18	1	MyrSpi		Point	8/26/2009	11:54:28am	41.53404	-73.45501	2-4	1	0.0002
19	1	MyrSpi		Point	8/26/2009	11:56:26am	41.53508	-73.45568	2-4	1	0.0002
20	1	MyrSpi		Point	8/26/2009	11:57:59am	41.53637	-73.45596	2-4	1	0.0002
21	1	MyrSpi		Point	8/26/2009	11:58:46am	41.53673	-73.45606	2-4	1	0.0002
22	1	MyrSpi		Point	8/26/2009	12:45:18pm	41.55295	-73.46649	2-4	1	0.0002
23	1	MyrSpi		Point	8/26/2009	12:46:01pm	41.55310	-73.46671	2-4	1	0.0002
24	1	MyrSpi		Point	8/26/2009	01:10:50pm	41.55469	-73.47204	2-3	1	0.0002
25	1	MyrSpi		Point	8/26/2009	01:11:14pm	41.55462	-73.47206	2-3	1	0.0002
26	1	MyrSpi		Point	8/26/2009	01:11:47pm	41.55457	-73.47207	2-3	2	0.0002
27	1	MyrSpi		Point	8/26/2009	01:12:38pm	41.55489	-73.47219	2-3	1	0.0002
28	1	MyrSpi		Point	8/27/2009	10:37:54am	41.49924	-73.46386	0-1	1	0.0002
29	1	MyrSpi		Point	8/27/2009	10:40:40am	41.50008	-73.46379	2-4	1	0.0002
30	1	MyrSpi		Point	8/27/2009	10:47:02am	41.50122	-73.46418	2-4	1	0.0002
31	1	MyrSpi		Point	8/27/2009	11:03:22am	41.50473	-73.46591	2-4	1	0.0002
32	1	MyrSpi		Point	8/27/2009	11:04:40am	41.50511	-73.46609	2-4	1	0.0002
33	1	MyrSpi		Point	8/27/2009	11:07:01am	41.50598	-73.46674	2-4	1	0.0002
34	1	MyrSpi		Point	8/27/2009	11:58:02am	41.50950	-73.46829	0-1	1	0.0002
35	1	MyrSpi		Point	8/27/2009	12:12:43pm	41.50734	-73.46565	0-1	2	0.0002
36	1	MyrSpi		Point	8/27/2009	12:13:03pm	41.50734	-73.46567	0-1	2	0.0002
37	1	MyrSpi		Point	8/27/2009	12:14:30pm	41.50718	-73.46515	0-1	1	0.0002
38	1	MyrSpi		Point	8/27/2009	12:14:57pm	41.50721	-73.46517	0-1	1	0.0002
39	1	MyrSpi		Point	8/27/2009	12:21:41pm	41.50605	-73.46378	1-3	1	0.0002
40	1	MyrSpi		Point	8/27/2009	12:30:38pm	41.50399	-73.46192	0-2	1	0.0002
41	1	MyrSpi		Point	8/27/2009	12:55:38pm	41.50579	-73.46057	1-3	1	0.0002
42	1	MyrSpi		Point	8/27/2009	12:56:59pm	41.50648	-73.46051	3-4	1	0.0002
43	1	MyrSpi		Point	8/27/2009	12:57:22pm	41.50643	-73.46053	3-4	1	0.0002
44	1	MyrSpi		Point	8/27/2009	02:42:07pm	41.52201	-73.46503	0-1	1	0.0002

Appendix Lake Candlewood invasive plant location data (2 of 13).

FID	Invasive	Invasive	Notes	Type	Date	Time	Latitude	Longitude	Depth (m)	Abundance	Acres
45	1	MyrSpi		Point	8/31/2009	10:54:24am	41.52176	-73.45787	2-4	1	0.0002
46	1	MyrSpi		Point	8/31/2009	11:41:33am	41.53675	-73.46225	1-3	2	0.0002
47	1	MyrSpi		Point	8/31/2009	12:13:26pm	41.53584	-73.46571	0-1	2	0.0002
48	1	MyrSpi		Point	8/31/2009	12:14:04pm	41.53581	-73.46563	0-1	1	0.0002
49	1	MyrSpi		Point	8/31/2009	12:14:34pm	41.53580	-73.46555	0-1	1	0.0002
50	2	NajMin		Point	8/31/2009	12:15:33pm	41.53576	-73.46565	0-2	2	0.0002
51	1	MyrSpi		Point	8/31/2009	12:49:07pm	41.52940	-73.46338	0-2	1	0.0002
52	1	MyrSpi		Point	8/31/2009	12:52:17pm	41.53097	-73.46495	1-3	1	0.0002
53	1	MyrSpi		Point	8/31/2009	01:22:15pm	41.53826	-73.47018	0-1	2	0.0002
54	1	MyrSpi		Point	8/31/2009	01:22:25pm	41.53831	-73.47014	1-3	1	0.0002
55	1	MyrSpi		Point	8/31/2009	02:15:47pm	41.55393	-73.48009	2-4	1	0.0002
56	1	MyrSpi		Point	9/1/2009	11:37:48am	41.54391	-73.46683	2-3	2	0.0002
57	1	MyrSpi		Point	9/1/2009	11:53:43am	41.54382	-73.46658	2-3	2	0.0002
58	1	MyrSpi		Point	9/1/2009	12:09:41pm	41.54845	-73.46670	2-3	1	0.0002
59	1	MyrSpi		Point	9/1/2009	12:20:43pm	41.55201	-73.47098	2-3	2	0.0002
60	1	MyrSpi		Point	9/1/2009	02:00:40pm	41.57086	-73.49049	0-2	3	0.0002
61	1	MyrSpi		Point	8/6/2009	12:22:26pm	41.46898	-73.45891	1-3	1	0.0002
62	1	MyrSpi		Point	8/6/2009	12:25:05pm	41.46926	-73.45883	3-5	1	0.0002
63	1	MyrSpi		Point	8/6/2009	01:54:38pm	41.48319	-73.45777	1-3	1	0.0002
64	1	MyrSpi		Point	8/6/2009	02:06:01pm	41.48071	-73.45757	1-3	1	0.0002
65	1	MyrSpi		Point	8/6/2009	02:12:25pm	41.47957	-73.45711	2-3	1	0.0002
66	1	MyrSpi		Point	8/7/2009	12:41:04pm	41.45913	-73.45696	1-3	1	0.0002
67	1	MyrSpi		Point	8/7/2009	12:59:12pm	41.45509	-73.45084	3-4	1	0.0002
68	1	MyrSpi		Point	8/7/2009	01:00:05pm	41.45502	-73.45076	3-4		0.0002
69	1	MyrSpi		Point	8/7/2009	01:27:25pm	41.44796	-73.45371	2-3	1	0.0002
70	1	MyrSpi		Point	8/11/2009	11:27:20am	41.46536	-73.44584	3-5	1	0.0002
71	1	MyrSpi		Point	8/11/2009	11:50:23am	41.47316	-73.45072	2-3	1	0.0002
72	1	MyrSpi		Point	8/11/2009	01:39:09pm	41.49585	-73.46883	2-3	1	0.0002
73	1	MyrSpi		Point	9/2/2009	11:50:16am	41.56017	-73.48320	2-3	1	0.0002
74	1	MyrSpi		Point	9/2/2009	11:51:06am	41.56026	-73.48340	1-3	2	0.0002
75	1	MyrSpi		Point	9/2/2009	11:52:16am	41.56039	-73.48365	2-3	1	0.0002
76	1	MyrSpi		Point	9/2/2009	11:52:41am	41.56042	-73.48376	2-3	1	0.0002
77	1	MyrSpi		Point	9/2/2009	11:54:01am	41.56082	-73.48436	1-3	2	0.0002
0	1	MyrSpi		Patch	8/10/2009	10:45:58am	41.45543	-73.44074	3-5	2	0.0618
1	1	MyrSpi		Patch	8/10/2009	10:56:18am	41.45672	-73.44127	3-5	2	0.2427
2	1	MyrSpi		Patch	8/10/2009	11:01:33am	41.45753	-73.44232	3-5	2	0.0790
3	1	MyrSpi		Patch	8/10/2009	11:05:28am	41.45882	-73.44374	3-5	3	1.0542
4	1	MyrSpi		Patch	8/10/2009	11:13:39am	41.45735	-73.44482	3-5	2	0.2911
5	1	MyrSpi		Patch	8/10/2009	11:20:40am	41.45483	-73.44425	3-5	2	0.6561
6	1	MyrSpi		Patch	8/10/2009	11:27:22am	41.45340	-73.44424	3-5	2	0.1953
7	1	MyrSpi		Patch	8/10/2009	11:30:36am	41.45144	-73.44519	1-5	2	0.8011
8	1	MyrSpi		Patch	8/10/2009	11:39:29am	41.45047	-73.44655	1-3	1	0.0530
9	1	MyrSpi		Patch	8/10/2009	11:40:38am	41.44618	-73.44852	1-5	3	6.0503
10	1	MyrSpi		Patch	8/10/2009	12:10:20pm	41.44578	-73.45114	3-5	3	0.6352

Appendix Lake Candlewood invasive plant location data (3 of 13).

FID	Invasive	Invasive	Notes	Type	Date	Time	Latitude	Longitude	Depth (m)	Abundance	Acres
11	1	MyrSpi		Patch	8/10/2009	12:18:09pm	41.44434	-73.45144	3-5	3	0.3189
12	1	MyrSpi		Patch	8/10/2009	12:22:29pm	41.44249	-73.45178	1-5	2	0.3745
13	1	MyrSpi		Patch	8/10/2009	12:30:45pm	41.44243	-73.45264	3-5	1	0.0412
14	1	MyrSpi	Some_D=4_patches	Patch	8/10/2009	12:32:52pm	41.43965	-73.45337	1-5	3	4.2771
15	1	MyrSpi		Patch	8/10/2009	12:52:48pm	41.43555	-73.45445	3-5	3	1.3928
16	1	MyrSpi		Patch	8/10/2009	01:00:23pm	41.43391	-73.45412	3-5	1	0.0532
17	1	MyrSpi		Patch	8/10/2009	01:02:51pm	41.43311	-73.45404	3-5	1	0.1823
18	1	MyrSpi	Some_D=4_patches_See_cutouts	Patch	8/10/2009	01:08:39pm	41.42704	-73.45319	1-5	3	39.6456
19	1	MyrSpi	PatchWithinCutout	Patch	8/10/2009	02:06:21pm	41.42836	-73.45590	3-5	3	1.0838
20	1	MyrSpi	A=4_InShallowPatches	Patch	8/10/2009	02:14:20pm	41.42398	-73.45428	1-5	3	2.5444
21	1	MyrSpi		Patch	8/11/2009	10:53:07am	41.46641	-73.45532	1-5	4	5.2431
22	1	MyrSpi	A=1_Within	Patch	8/13/2009	10:56:23am	41.45483	-73.43362	1-5	3	10.9258
23	1	MyrSpi		Patch	8/13/2009	12:05:11pm	41.46179	-73.43297	3-5	3	3.1331
24	1	MyrSpi		Patch	8/13/2009	12:31:09pm	41.46020	-73.42895	2-4	2	0.0395
25	1	MyrSpi		Patch	8/13/2009	12:56:32pm	41.46324	-73.42746	1-5	3	9.9100
26	1	MyrSpi		Patch	8/13/2009	01:27:13pm	41.46343	-73.42530	1-3	2	0.3967
27	1	MyrSpi		Patch	8/13/2009	01:33:37pm	41.46454	-73.42415	0-2	3	0.1745
28	1	MyrSpi		Patch	8/13/2009	01:44:26pm	41.46559	-73.42467	1-3	2	0.0254
29	1	MyrSpi		Patch	8/13/2009	01:48:09pm	41.46588	-73.42475	1-3	3	0.0805
30	1	MyrSpi	A=4InShallowProtectedCoves	Patch	8/13/2009	01:52:59pm	41.46739	-73.42492	1-5	3	3.5193
31	1	MyrSpi	A=VeryVariable_DensestInSomeShallows	Patch	8/13/2009	02:15:21pm	41.46968	-73.43038	1-5	2	6.8375
32	1	MyrSpi		Patch	8/14/2009	10:36:09am	41.47244	-73.43577	0-2	2	0.0235
33	1	MyrSpi		Patch	8/14/2009	10:38:54am	41.47269	-73.43622	0-2	2	0.0665
34	1	MyrSpi		Patch	8/14/2009	10:40:52am	41.47291	-73.43669	0-2	1	0.0053
35	1	MyrSpi		Patch	8/14/2009	10:43:50am	41.47310	-73.43704	0-2	1	0.0182
36	1	MyrSpi	WithNajMin_A=2	Patch	8/14/2009	10:45:24am	41.47333	-73.43792	0-2	2	1.0948
37	1	MyrSpi		Patch	8/14/2009	11:09:48am	41.47026	-73.43524	0-2	1	0.6049
38	1	MyrSpi		Patch	8/14/2009	11:21:33am	41.46877	-73.43473	0-2	1	0.0760
39	1	MyrSpi		Patch	8/14/2009	11:25:09am	41.46654	-73.43543	1-5	3	3.6654
40	1	MyrSpi		Patch	8/14/2009	11:37:31am	41.46654	-73.44221	3-5	2	1.2928
41	1	MyrSpi		Patch	8/14/2009	11:49:29am	41.46925	-73.44057	1-5	2	5.0545
42	1	MyrSpi		Patch	8/14/2009	12:14:50pm	41.47161	-73.44513	1-5	3	1.7745
43	1	MyrSpi		Patch	8/14/2009	12:25:53pm	41.47404	-73.44647	2-4	2	0.0337
44	1	MyrSpi		Patch	8/14/2009	12:34:27pm	41.47448	-73.44740	2-5	3	0.2237
45	1	MyrSpi		Patch	8/14/2009	12:36:57pm	41.47365	-73.44844	1-5	2	1.2121
46	1	MyrSpi		Patch	8/14/2009	12:47:35pm	41.47208	-73.44717	2-5	3	0.5234
47	1	MyrSpi		Patch	8/14/2009	12:55:17pm	41.47638	-73.44830	2-5	3	0.3184
48	1	MyrSpi		Patch	8/14/2009	12:58:18pm	41.47714	-73.44874	2-5	3	0.2295
49	1	MyrSpi		Patch	8/14/2009	01:01:19pm	41.47692	-73.44955	2-5	2	1.7833
50	1	MyrSpi		Patch	8/14/2009	01:14:13pm	41.47395	-73.44378	2-5	2	0.0948
51	1	MyrSpi		Patch	8/14/2009	01:15:46pm	41.48185	-73.44262	1-5	3	8.6940
52	1	MyrSpi		Patch	8/14/2009	01:52:45pm	41.48300	-73.43717	1-3	1	0.0346
53	1	MyrSpi	NajMin_D=2	Patch	8/14/2009	01:55:29pm	41.48208	-73.43654	0-2	1	0.2531

Appendix Lake Candlewood invasive plant location data (4 of 13).

FID	Invasive	Invasive	Notes	Type	Date	Time	Latitude	Longitude	Depth (m)	Abundance	Acres
54	1	MyrSpi	NajMin_A=2_1/2MyrSpiFromShore	Patch	8/14/2009	02:02:32pm	41.47852	-73.43427	0-2	2	6.9476
55	1	MyrSpi	NajMinAlso, A=2	Patch	8/18/2009	12:07:52pm	41.48250	-73.43542	0-2	2	0.1101
56	1	MyrSpi		Patch	8/18/2009	12:10:50pm	41.48492	-73.43522	1-5	3	4.4085
57	1	MyrSpi		Patch	8/18/2009	12:36:44pm	41.49224	-73.43916	1-4	3	5.1439
58	1	MyrSpi		Patch	8/18/2009	12:57:22pm	41.48676	-73.43482	3-4	2	0.1002
59	1	MyrSpi		Patch	8/18/2009	01:03:35pm	41.49909	-73.44250	2-4	3	0.0381
60	1	MyrSpi		Patch	8/18/2009	01:05:21pm	41.50153	-73.44272	1-4	2	0.7637
61	1	MyrSpi		Patch	8/18/2009	01:14:11pm	41.50470	-73.44151	1-5	3	8.3798
62	1	MyrSpi		Patch	8/18/2009	01:46:14pm	41.50434	-73.43767	2-4	3	0.0782
63	1	MyrSpi		Patch	8/18/2009	01:49:58pm	41.50641	-73.43820	2-4	2	0.0462
64	1	MyrSpi		Patch	8/18/2009	01:51:51pm	41.50676	-73.43833	2-4	3	0.0837
65	1	MyrSpi		Patch	8/18/2009	01:54:11pm	41.50745	-73.43866	2-4	2	0.0351
66	1	MyrSpi		Patch	8/18/2009	01:55:17pm	41.50835	-73.43878	2-4	2	0.2075
67	1	MyrSpi		Patch	8/19/2009	11:23:55am	41.49960	-73.44530	2-3	2	0.0200
68	1	MyrSpi		Patch	8/19/2009	11:28:22am	41.50130	-73.44506	2-3	3	0.0073
69	1	MyrSpi		Patch	8/19/2009	11:30:04am	41.50203	-73.44500	2-4	3	0.2473
70	1	MyrSpi		Patch	8/19/2009	11:34:36am	41.50314	-73.44546	2-4	3	0.0422
71	1	MyrSpi		Patch	8/19/2009	11:36:04am	41.50359	-73.44564	2-4	2	0.0614
72	1	MyrSpi		Patch	8/19/2009	11:37:54am	41.50471	-73.44497	1-4	3	0.6445
73	1	MyrSpi		Patch	8/19/2009	11:45:42am	41.50730	-73.44538	1-4	2	0.1838
74	1	MyrSpi		Patch	8/19/2009	11:53:00am	41.50944	-73.44586	2-4	3	0.0853
75	1	MyrSpi		Patch	8/19/2009	11:55:21am	41.51131	-73.44513	1-5	2	0.4609
76	1	MyrSpi		Patch	8/19/2009	12:04:44pm	41.51317	-73.44444	2-5	1	0.0512
77	1	MyrSpi		Patch	8/19/2009	12:11:16pm	41.51835	-73.44547	2-4	2	0.0947
78	1	MyrSpi		Patch	8/19/2009	12:14:51pm	41.52072	-73.44637	2-5	2	0.0952
79	1	MyrSpi		Patch	8/19/2009	12:16:35pm	41.52249	-73.44661	1-3	2	0.6442
80	1	MyrSpi		Patch	8/19/2009	12:22:54pm	41.52209	-73.44617	2-5	3	0.5156
81	1	MyrSpi		Patch	8/19/2009	12:27:08pm	41.52506	-73.44586	1-5	2	0.7050
82	1	MyrSpi		Patch	8/19/2009	12:34:59pm	41.52730	-73.44638	2-4	2	0.1384
83	1	MyrSpi		Patch	8/19/2009	12:38:01pm	41.53072	-73.44769	1-4	2	1.4274
84	1	MyrSpi		Patch	8/19/2009	12:48:18pm	41.52772	-73.44254	1-5	4	11.4091
85	1	MyrSpi		Patch	8/19/2009	01:30:52pm	41.53457	-73.44764	2-5	2	0.5004
86	1	MyrSpi		Patch	8/19/2009	01:40:19pm	41.53819	-73.44693	2-4	2	0.1638
87	1	MyrSpi	SatBlockedByCliff_RedrawPatch	Patch	8/19/2009	01:44:57pm	41.54074	-73.44696	2-4	2	0.2347
88	1	MyrSpi		Patch	8/19/2009	01:59:40pm	41.54676	-73.44736	1-3	1	0.0835
89	1	MyrSpi		Patch	8/19/2009	02:04:55pm	41.54913	-73.44725	2-3	2	0.0830
90	1	MyrSpi		Patch	8/19/2009	02:06:34pm	41.55041	-73.44586	1-4	2	1.0012
91	1	MyrSpi	NajMinInnerHalf	Patch	8/19/2009	02:14:51pm	41.55273	-73.44533	1-4	3	0.2013
92	1	MyrSpi	SpottyNajMinFromPatchToShore	Patch	8/19/2009	02:18:57pm	41.55443	-73.44489	1-4	2	0.8026
93	1	MyrSpi		Patch	8/19/2009	02:31:29pm	41.55776	-73.44381	1-5	2	0.6286
94	1	MyrSpi	NajMinInProtectedCoves	Patch	8/19/2009	02:40:24pm	41.55995	-73.44395	1-4	3	0.4925
95	1	MyrSpi	NajMinOut20MFromShoreA=2	Patch	8/19/2009	02:43:57pm	41.56169	-73.44421	1-4	3	1.8352
96	1	MyrSpi		Patch	8/19/2009	02:52:12pm	41.56291	-73.44464	2-3	2	0.0156

Appendix Lake Candlewood invasive plant location data (5 of 13).

FID	Invasive	Invasive	Notes	Type	Date	Time	Latitude	Longitude	Depth (m)	Abundance	Acres
97	1	MyrSpi	NajMinInCoves20mOut_A=1	Patch	8/19/2009	02:53:20pm	41.56595	-73.44502	1-4	3	2.2267
98	1	MyrSpi	NajMinNECorner_A=2D=0-2m	Patch	8/19/2009	03:08:23pm	41.57253	-73.44424	1-4	2	0.4086
99	1	MyrSpi		Patch	8/20/2009	10:45:24am	41.51025	-73.43899	1-5	2	0.3677
100	1	MyrSpi		Patch	8/20/2009	10:52:29am	41.51111	-73.43905	2-4	2	0.1259
101	1	MyrSpi		Patch	8/20/2009	10:55:14am	41.51166	-73.43910	1-5	2	0.2208
102	1	MyrSpi		Patch	8/20/2009	11:04:22am	41.51252	-73.43925	1-5	2	0.1269
103	1	MyrSpi	SomeMyrSpiD=0-1_NajMinD=0-2,A=2	Patch	8/20/2009	11:08:15am	41.51356	-73.44013	1-5	3	1.1006
104	1	MyrSpi	WithStuPecSome NajMinD=0-2,A=2In coves	Patch	8/20/2009	11:21:40am	41.51445	-73.44132	1-5	3	2.1914
105	1	MyrSpi		Patch	8/20/2009	11:48:07am	41.51138	-73.44114	2-5	4	0.7350
106	1	MyrSpi	ajMinA=2_D=0-2_In Coves_SomeMyrSpi0-1	Patch	8/20/2009	12:10:38pm	41.51957	-73.43603	1-5	4	2.6077
107	1	MyrSpi	NajMinA=2	Patch	8/20/2009	12:32:39pm	41.52216	-73.43571	0-2	4	0.2355
108	1	MyrSpi		Patch	8/20/2009	12:38:08pm	41.52224	-73.43613	0-2	4	0.0031
109	1	MyrSpi		Patch	8/20/2009	12:40:07pm	41.52275	-73.43621	1-5	4	0.0380
110	1	MyrSpi		Patch	8/20/2009	12:42:18pm	41.52325	-73.43641	2-5	2	0.0123
111	1	MyrSpi		Patch	8/20/2009	12:43:39pm	41.52368	-73.43646	2-5	2	0.0349
112	1	MyrSpi		Patch	8/20/2009	12:54:53pm	41.52754	-73.43719	1-5	2	0.1485
113	1	MyrSpi		Patch	8/20/2009	12:58:27pm	41.52689	-73.43782	1-5	2	0.0797
114	1	MyrSpi		Patch	8/20/2009	01:03:44pm	41.52784	-73.43842	1-5	3	2.6375
115	1	MyrSpi		Patch	8/20/2009	01:23:56pm	41.52493	-73.43801	1-5	3	0.3414
116	1	MyrSpi		Patch	8/20/2009	01:28:32pm	41.52377	-73.43735	2-5	2	0.0334
117	1	MyrSpi		Patch	8/20/2009	01:32:07pm	41.52207	-73.43765	1-5	3	1.2840
118	1	MyrSpi		Patch	8/20/2009	01:46:49pm	41.52278	-73.43813	1-5	4	0.0899
119	1	MyrSpi		Patch	8/20/2009	01:48:29pm	41.52388	-73.43836	1-5	3	0.2017
120	1	MyrSpi		Patch	8/20/2009	01:54:01pm	41.53176	-73.43868	1-5	3	0.1948
121	1	MyrSpi	SomeD=0-1	Patch	8/20/2009	01:59:56pm	41.53326	-73.43873	1-5	3	1.2086
122	1	MyrSpi		Patch	8/20/2009	02:13:26pm	41.53446	-73.43887	1-5	2	0.0429
123	1	MyrSpi		Patch	8/20/2009	02:15:36pm	41.53479	-73.43880	1-5	2	0.0281
124	1	MyrSpi	NajMinInCove_A=2,D=0-1	Patch	8/20/2009	02:18:25pm	41.53664	-73.44100	1-5	3	1.4457
125	1	MyrSpi		Patch	8/24/2009	10:05:03am	41.54254	-73.44343	1-5	3	2.2094
126	2	NajMin		Patch	8/24/2009	10:23:42am	41.54350	-73.44286	0-2	2	0.0675
127	1	MyrSpi	SomeA=4andD=0-1	Patch	8/24/2009	10:27:26am	41.54701	-73.44267	1-5	2	1.0663
128	1	MyrSpi		Patch	8/24/2009	10:45:15am	41.54949	-73.44367	1-5	3	0.0462
129	1	MyrSpi		Patch	8/24/2009	10:49:06am	41.55012	-73.44388	3-5	3	0.0211
130	1	MyrSpi		Patch	8/24/2009	10:51:49am	41.55157	-73.44408	1-5	3	0.5416
131	1	MyrSpi		Patch	8/24/2009	10:57:21am	41.55254	-73.44247	1-5	3	1.4662
132	1	MyrSpi	SomeD=0-1	Patch	8/24/2009	11:12:24am	41.55100	-73.44038	1-5	3	1.1160
133	1	MyrSpi		Patch	8/24/2009	11:22:11am	41.55369	-73.43965	1-5	2	0.2759
134	1	MyrSpi		Patch	8/24/2009	11:28:15am	41.55642	-73.43962	2-5	2	0.3005
135	1	MyrSpi		Patch	8/24/2009	11:35:26am	41.56560	-73.44158	1-5	4	7.3841
136	1	MyrSpi		Patch	8/24/2009	12:11:48pm	41.55858	-73.43974	0-1	3	0.0009
137	2	NajMin	WithStuPec	Patch	8/24/2009	12:20:58pm	41.56866	-73.44268	0-1	2	0.1591
138	2	NajMin	WithMyrSpi	Patch	8/24/2009	12:25:22pm	41.57081	-73.44287	0-2	2	0.3911
139	1	MyrSpi		Patch	8/24/2009	12:40:18pm	41.54774	-73.44734	1-5	2	0.1965

Appendix Lake Candlewood invasive plant location data (6 of 13).

FID	Invasive	Invasive	Notes	Type	Date	Time	Latitude	Longitude	Depth (m)	Abundance	Acres
140	1	MyrSpi		Patch	8/24/2009	12:44:14pm	41.54847	-73.44750	1-5	2	0.1062
141	1	MyrSpi	Try#2	Patch	8/24/2009	12:50:25pm	41.54467	-73.44786	1-5	2	1.4442
142	1	MyrSpi		Patch	8/24/2009	01:07:13pm	41.51765	-73.43899	1-5	4	1.7386
143	1	MyrSpi		Patch	8/24/2009	01:24:15pm	41.49647	-73.44632	1-5	3	2.7079
144	1	MyrSpi		Patch	8/24/2009	01:39:46pm	41.49349	-73.44551	2-5	3	1.0267
145	1	MyrSpi		Patch	8/24/2009	01:45:55pm	41.49751	-73.44822	2-5	2	0.0537
146	1	MyrSpi	AlmostA=4_WithValAmeAcrossFromIsland	Patch	8/24/2009	01:47:39pm	41.50247	-73.45263	1-5	3	15.3931
147	1	MyrSpi		Patch	8/24/2009	02:44:11pm	41.49742	-73.45393	2-5	2	0.9400
148	1	MyrSpi		Patch	8/26/2009	10:54:35am	41.51423	-73.45571	1-5	3	1.6397
149	1	MyrSpi		Patch	8/26/2009	11:05:36am	41.51647	-73.45529	1-5	2	0.6528
150	1	MyrSpi	SomeMyrSpiD=0-1inCoveA=3	Patch	8/26/2009	11:13:27am	41.52162	-73.45302	1-5	3	6.3180
151	1	MyrSpi		Patch	8/26/2009	11:46:29am	41.53171	-73.45482	2-5	2	0.0221
152	1	MyrSpi		Patch	8/26/2009	11:50:03am	41.53266	-73.45450	1-5	2	0.1406
153	1	MyrSpi		Patch	8/26/2009	11:59:22am	41.53722	-73.45632	2-4	1	0.0642
154	1	MyrSpi		Patch	8/26/2009	12:02:56pm	41.53974	-73.45717	2-4	3	0.1683
155	1	MyrSpi		Patch	8/26/2009	12:05:44pm	41.54060	-73.45751	2-4	2	0.1124
156	1	MyrSpi		Patch	8/26/2009	12:08:38pm	41.54128	-73.45778	1-4	2	0.0123
157	1	MyrSpi		Patch	8/26/2009	12:10:41pm	41.54274	-73.45856	1-4	2	0.1763
158	1	MyrSpi		Patch	8/26/2009	12:15:58pm	41.54423	-73.46037	1-4	2	0.4936
159	1	MyrSpi		Patch	8/26/2009	12:20:40pm	41.54467	-73.46130	1-4	2	0.0510
160	1	MyrSpi		Patch	8/26/2009	12:23:53pm	41.54510	-73.46226	1-4	3	0.4306
161	1	MyrSpi		Patch	8/26/2009	12:26:41pm	41.54684	-73.46380	1-4	3	1.2307
162	1	MyrSpi		Patch	8/26/2009	12:35:19pm	41.54989	-73.46459	1-4	2	0.2326
163	1	MyrSpi		Patch	8/26/2009	12:39:32pm	41.55126	-73.46566	1-4	1	0.0706
164	1	MyrSpi		Patch	8/26/2009	12:42:26pm	41.55220	-73.46617	1-4	2	0.0553
165	1	MyrSpi		Patch	8/26/2009	12:46:33pm	41.55329	-73.46685	2-4	2	0.0513
166	1	MyrSpi	SomeA=4InShallows	Patch	8/26/2009	12:48:44pm	41.55423	-73.46735	0-2	3	0.0964
167	1	MyrSpi		Patch	8/26/2009	12:51:16pm	41.55430	-73.46787	0-2	3	0.0287
168	1	MyrSpi		Patch	8/26/2009	12:53:03pm	41.55419	-73.46863	0-2	3	0.2060
169	1	MyrSpi		Patch	8/26/2009	12:57:22pm	41.55393	-73.46973	0-2	3	0.2207
170	1	MyrSpi		Patch	8/26/2009	01:03:29pm	41.55363	-73.47092	1-4	2	0.2181
171	1	MyrSpi	InFlower	Patch	8/26/2009	01:07:14pm	41.55386	-73.47136	0-2	5	0.0891
172	1	MyrSpi		Patch	8/26/2009	01:08:37pm	41.55357	-73.47124	1-3	2	0.0226
173	1	MyrSpi		Patch	8/26/2009	01:13:33pm	41.55501	-73.47252	2-4	2	0.0817
174	1	MyrSpi		Patch	8/26/2009	01:15:15pm	41.55531	-73.47239	0-2	2	0.0066
175	1	MyrSpi		Patch	8/26/2009	01:21:08pm	41.55501	-73.47288	2-3	2	0.0419
176	1	MyrSpi		Patch	8/26/2009	01:23:43pm	41.55525	-73.47357	2-4	2	0.0964
177	1	MyrSpi		Patch	8/26/2009	01:26:50pm	41.55695	-73.47421	2-4	2	0.1372
178	1	MyrSpi		Patch	8/26/2009	01:36:48pm	41.56529	-73.47960	1-3	2	0.0102
179	1	MyrSpi		Patch	8/26/2009	01:38:02pm	41.56547	-73.47982	1-3	2	0.0145
180	1	MyrSpi		Patch	8/26/2009	01:39:34pm	41.56594	-73.48051	1-3	2	0.2462
181	1	MyrSpi		Patch	8/26/2009	01:42:02pm	41.56665	-73.48127	0-2	2	0.1773
182	1	MyrSpi		Patch	8/26/2009	01:48:13pm	41.56794	-73.48276	1-3	3	1.1421

Appendix Lake Candlewood invasive plant location data (7 of 13).

FID	Invasive	Invasive	Notes	Type	Date	Time	Latitude	Longitude	Depth (m)	Abundance	Acres
183	1	MyrSpi	NajMinA=3	Patch	8/26/2009	01:54:07pm	41.56915	-73.48366	0-2	2	0.5966
184	1	MyrSpi	NajMinA=2	Patch	8/26/2009	02:04:01pm	41.56915	-73.48418	0-2	2	0.8768
185	1	MyrSpi		Patch	8/26/2009	02:13:44pm	41.56685	-73.48361	2-4	3	1.2682
186	1	MyrSpi		Patch	8/26/2009	02:26:41pm	41.56358	-73.47833	2-4	3	0.0436
187	1	MyrSpi		Patch	8/26/2009	02:29:31pm	41.56281	-73.47752	2-4	1	0.0119
188	1	MyrSpi		Patch	8/26/2009	02:31:12pm	41.56214	-73.47652	2-4	2	0.0476
189	1	MyrSpi		Patch	8/26/2009	02:35:17pm	41.56143	-73.47576	2-4	2	0.1190
190	1	MyrSpi		Patch	8/26/2009	02:38:35pm	41.55810	-73.47474	2-4	1	0.1482
191	1	MyrSpi		Patch	8/27/2009	10:25:52am	41.49873	-73.46348	2-4	2	0.4386
192	1	MyrSpi		Patch	8/27/2009	10:32:44am	41.49841	-73.46361	0-1	2	0.0097
193	1	MyrSpi		Patch	8/27/2009	10:35:23am	41.49878	-73.46374	0-2	2	0.0637
194	1	MyrSpi		Patch	8/27/2009	10:42:06am	41.50060	-73.46407	2-4	2	0.1823
195	1	MyrSpi		Patch	8/27/2009	10:48:19am	41.50161	-73.46455	0-2	1	0.0225
196	1	MyrSpi		Patch	8/27/2009	10:49:58am	41.50204	-73.46460	1-4	2	0.2152
197	1	MyrSpi		Patch	8/27/2009	10:56:36am	41.50319	-73.46521	2-4	1	0.0106
198	1	MyrSpi		Patch	8/27/2009	10:58:16am	41.50263	-73.46490	2-4	2	0.0120
199	1	MyrSpi		Patch	8/27/2009	11:00:38am	41.50432	-73.46570	2-4	2	0.0148
200	1	MyrSpi		Patch	8/27/2009	11:09:38am	41.50648	-73.46727	0-2	1	0.3684
201	1	MyrSpi		Patch	8/27/2009	11:15:28am	41.50705	-73.46790	0-2	1	0.0171
202	1	MyrSpi		Patch	8/27/2009	11:21:11am	41.50758	-73.46827	0-2	1	0.3632
203	1	MyrSpi	NajMinA=2	Patch	8/27/2009	11:23:57am	41.50838	-73.46903	0-2	2	0.1913
204	1	MyrSpi	NajMinA=1	Patch	8/27/2009	11:29:17am	41.50939	-73.46964	0-2	1	0.0121
205	1	MyrSpi	NajMinA=2	Patch	8/27/2009	11:32:03am	41.51009	-73.47065	0-2	2	0.0809
206	1	MyrSpi	NajMinA=1	Patch	8/27/2009	11:39:16am	41.51033	-73.46939	0-2	2	0.4654
207	1	MyrSpi		Patch	8/27/2009	11:56:44am	41.50969	-73.46853	0-1	1	0.0102
208	1	MyrSpi		Patch	8/27/2009	11:58:21am	41.50930	-73.46801	0-2	1	0.0923
209	1	MyrSpi		Patch	8/27/2009	12:01:46pm	41.50895	-73.46747	0-2	1	0.0120
210	1	MyrSpi		Patch	8/27/2009	12:03:15pm	41.50873	-73.46697	0-2	1	0.0103
211	1	MyrSpi		Patch	8/27/2009	12:05:23pm	41.50853	-73.46644	0-2	2	0.0140
212	1	MyrSpi	NajMinA=2	Patch	8/27/2009	12:08:31pm	41.50780	-73.46595	0-2	1	0.0517
213	1	MyrSpi		Patch	8/27/2009	12:15:55pm	41.50689	-73.46492	1-3	2	0.0059
214	1	MyrSpi		Patch	8/27/2009	12:17:19pm	41.50672	-73.46464	1-3	1	0.0039
215	1	MyrSpi		Patch	8/27/2009	12:18:31pm	41.50640	-73.46398	0-2	2	0.0279
216	1	MyrSpi		Patch	8/27/2009	12:23:16pm	41.50530	-73.46328	2-4	2	0.0686
217	1	MyrSpi		Patch	8/27/2009	12:25:02pm	41.50502	-73.46266	1-4	2	0.1048
218	1	MyrSpi		Patch	8/27/2009	12:28:37pm	41.50420	-73.46215	1-4	2	0.0692
219	1	MyrSpi		Patch	8/27/2009	12:32:22pm	41.50315	-73.46153	2-4	3	0.0310
220	1	MyrSpi	SomeA=4Within	Patch	8/27/2009	12:33:30pm	41.50237	-73.45980	1-4	3	2.8464
221	1	MyrSpi		Patch	8/27/2009	12:58:03pm	41.50671	-73.46051	1-4	2	0.0565
222	1	MyrSpi		Patch	8/27/2009	01:04:12pm	41.50820	-73.45911	2-4	3	1.8522
223	1	MyrSpi		Patch	8/27/2009	01:22:24pm	41.50817	-73.46016	2-4	2	0.0864
224	1	MyrSpi		Patch	8/27/2009	01:24:43pm	41.50870	-73.46068	2-4	3	0.1011
225	1	MyrSpi		Patch	8/27/2009	01:33:33pm	41.51369	-73.46156	2-4	3	0.6460

Appendix Lake Candlewood invasive plant location data (8 of 13).

FID	Invasive	Invasive	Notes	Type	Date	Time	Latitude	Longitude	Depth (m)	Abundance	Acres
226	1	MyrSpi		Patch	8/27/2009	01:38:56pm	41.51455	-73.46263	2-4	2	0.1103
227	1	MyrSpi		Patch	8/27/2009	01:44:56pm	41.51928	-73.46481	1-4	2	0.7671
228	1	MyrSpi		Patch	8/27/2009	01:49:21pm	41.52120	-73.46569	1-4	3	1.3732
229	1	MyrSpi	ajMin_D=0-1,A=2,MyrSpiA=3SomeD=0-1Spc	Patch	8/27/2009	02:07:45pm	41.52460	-73.46513	0-2	1	10.4559
230	3	PotCri		Patch	8/27/2009	02:44:01pm	41.52121	-73.46203	0-2	1	0.6720
231	1	MyrSpi		Patch	8/27/2009	02:50:04pm	41.52096	-73.46153	2-4	2	0.6244
232	1	MyrSpi		Patch	8/27/2009	02:53:19pm	41.52076	-73.46015	2-4	3	1.4284
233	1	MyrSpi		Patch	8/27/2009	02:58:41pm	41.52181	-73.46034	0-2	2	0.0819
234	1	MyrSpi		Patch	8/27/2009	03:01:32pm	41.52270	-73.46025	0-2	3	0.5882
235	1	MyrSpi		Patch	8/27/2009	03:07:20pm	41.52170	-73.45930	2-4	2	0.0533
236	1	MyrSpi		Patch	8/27/2009	03:09:54pm	41.52101	-73.45837	1-4	3	0.5546
237	1	MyrSpi		Patch	8/31/2009	10:59:11am	41.52529	-73.45876	1-5	3	0.3095
238	1	MyrSpi		Patch	8/31/2009	11:02:46am	41.52838	-73.46089	2-5	3	1.8774
239	1	MyrSpi		Patch	8/31/2009	11:19:39am	41.53265	-73.46210	1-5	2	0.6665
240	1	MyrSpi		Patch	8/31/2009	11:27:34am	41.53395	-73.46168	2-5	1	0.0138
241	1	MyrSpi		Patch	8/31/2009	11:32:05am	41.53540	-73.46219	0-2	3	0.0972
242	1	MyrSpi		Patch	8/31/2009	11:36:55am	41.53555	-73.46132	2-5	2	0.2254
243	1	MyrSpi		Patch	8/31/2009	11:43:07am	41.53748	-73.46229	1-3	2	0.0238
244	1	MyrSpi		Patch	8/31/2009	11:46:11am	41.53831	-73.46272	1-4	1	0.0559
245	1	MyrSpi		Patch	8/31/2009	11:48:58am	41.53933	-73.46322	2-4	1	0.0189
246	1	MyrSpi		Patch	8/31/2009	11:52:27am	41.54064	-73.46477	2-4	2	0.0442
247	1	MyrSpi		Patch	8/31/2009	11:54:42am	41.54081	-73.46567	2-4	3	0.0936
248	1	MyrSpi		Patch	8/31/2009	11:57:18am	41.54040	-73.46717	2-4	3	0.4862
249	1	MyrSpi		Patch	8/31/2009	12:03:26pm	41.53938	-73.46729	2-4	2	0.1355
250	1	MyrSpi		Patch	8/31/2009	12:05:07pm	41.53886	-73.46707	2-4	2	0.0715
251	1	MyrSpi		Patch	8/31/2009	12:11:50pm	41.53567	-73.46576	2-3	2	0.1841
252	1	MyrSpi		Patch	8/31/2009	12:19:56pm	41.53310	-73.46443	2-4	1	0.0542
253	1	MyrSpi	WithValAme	Patch	8/31/2009	12:21:54pm	41.53239	-73.46297	1-4	2	0.0956
254	1	MyrSpi		Patch	8/31/2009	12:47:17pm	41.52948	-73.46373	0-2	2	0.0929
255	1	MyrSpi		Patch	8/31/2009	12:54:25pm	41.53111	-73.46536	1-4	3	0.3613
256	2	NajMin		Patch	8/31/2009	12:57:06pm	41.53098	-73.46546	0-2	2	0.0844
257	1	MyrSpi		Patch	8/31/2009	12:59:23pm	41.53149	-73.46588	1-3	2	0.0673
258	1	MyrSpi		Patch	8/31/2009	01:02:08pm	41.53298	-73.46626	2-4	2	0.0105
259	1	MyrSpi		Patch	8/31/2009	01:03:54pm	41.53345	-73.46646	2-4	2	0.0072
260	1	MyrSpi		Patch	8/31/2009	01:05:19pm	41.53439	-73.46695	2-4	2	0.2129
261	1	MyrSpi		Patch	8/31/2009	01:08:03pm	41.53537	-73.46754	2-4	2	0.3138
262	1	MyrSpi		Patch	8/31/2009	01:10:34pm	41.53608	-73.46803	2-4	2	0.0522
263	1	MyrSpi		Patch	8/31/2009	01:12:43pm	41.53675	-73.46843	2-4	3	0.4540
264	1	MyrSpi		Patch	8/31/2009	01:15:35pm	41.53833	-73.47003	1-4	3	1.4711
265	1	MyrSpi		Patch	8/31/2009	01:24:02pm	41.53915	-73.47114	2-5	2	0.0662
266	1	MyrSpi		Patch	8/31/2009	01:25:45pm	41.54036	-73.47169	2-4	2	0.0639
267	1	MyrSpi		Patch	8/31/2009	01:27:00pm	41.54086	-73.47187	2-4	2	0.0605
268	1	MyrSpi		Patch	8/31/2009	01:29:36pm	41.54469	-73.47257	2-4	3	1.5261

Appendix Lake Candlewood invasive plant location data (9 of 13).

FID	Invasive	Invasive	Notes	Type	Date	Time	Latitude	Longitude	Depth (m)	Abundance	Acres
269	1	MyrSpi		Patch	8/31/2009	01:44:19pm	41.54770	-73.47411	1-4	2	1.5296
270	1	MyrSpi		Patch	8/31/2009	01:58:18pm	41.54923	-73.47545	1-4	2	0.3558
271	1	MyrSpi		Patch	8/31/2009	02:02:14pm	41.55154	-73.47810	1-4	2	2.0297
272	1	MyrSpi		Patch	8/31/2009	02:13:44pm	41.55337	-73.48006	2-3	2	0.0578
273	1	MyrSpi		Patch	8/31/2009	02:18:43pm	41.55497	-73.48078	2-4	2	0.0229
274	1	MyrSpi		Patch	8/31/2009	02:20:18pm	41.55633	-73.48163	1-3	2	0.0247
275	1	MyrSpi		Patch	8/31/2009	02:23:50pm	41.55689	-73.48228	1-4	2	0.2355
276	1	MyrSpi	A=3PatchesNear Shore	Patch	8/31/2009	02:26:39pm	41.55839	-73.48449	0-2	2	1.6124
277	2	NajMin		Patch	8/31/2009	02:38:46pm	41.55877	-73.48438	0-2	2	0.3537
278	1	MyrSpi		Patch	8/31/2009	02:48:50pm	41.55818	-73.48230	0-2	2	0.1615
279	1	MyrSpi		Patch	8/31/2009	02:54:05pm	41.55680	-73.48106	0-1	2	0.0043
280	1	MyrSpi	Deep_DifficultToSee	Patch	9/1/2009	11:04:30am	41.53343	-73.46554	2-5	3	2.0069
281	1	MyrSpi	DifficultToSee	Patch	9/1/2009	11:18:59am	41.53565	-73.46698	2-5	3	0.3141
282	1	MyrSpi		Patch	9/1/2009	11:27:48am	41.54284	-73.46638	2-4	3	0.8423
283	1	MyrSpi		Patch	9/1/2009	11:39:14am	41.54458	-73.46740	2-4	3	0.0495
284	1	MyrSpi		Patch	9/1/2009	11:41:47am	41.54655	-73.46897	1-4	2	1.0051
285	1	MyrSpi		Patch	9/1/2009	11:50:25am	41.54356	-73.46619	2-4	2	0.1873
286	1	MyrSpi		Patch	9/1/2009	11:54:59am	41.54486	-73.46609	2-4	2	0.4292
287	1	MyrSpi		Patch	9/1/2009	12:02:55pm	41.54693	-73.46648	0-2	2	0.1080
288	1	MyrSpi		Patch	9/1/2009	12:05:20pm	41.54639	-73.46648	1-3	2	0.0621
289	1	MyrSpi		Patch	9/1/2009	12:07:20pm	41.54807	-73.46654	1-3	2	0.0732
290	1	MyrSpi		Patch	9/1/2009	12:11:43pm	41.54950	-73.46843	1-3	2	0.0430
291	1	MyrSpi		Patch	9/1/2009	12:13:16pm	41.55082	-73.46999	1-3	2	0.7171
292	1	MyrSpi		Patch	9/1/2009	12:22:15pm	41.55241	-73.47155	2-4	2	0.1104
293	1	MyrSpi		Patch	9/1/2009	12:24:53pm	41.55062	-73.47180	1-3	2	0.7912
294	1	MyrSpi		Patch	9/1/2009	12:48:04pm	41.56048	-73.47617	2-4	2	0.5653
295	1	MyrSpi		Patch	9/1/2009	01:02:42pm	41.56745	-73.48580	1-3	1	0.3850
296	1	MyrSpi		Patch	9/1/2009	01:10:04pm	41.56653	-73.48718	1-3	2	0.5835
297	1	MyrSpi		Patch	9/1/2009	01:19:16pm	41.56604	-73.48784	1-3	3	0.0471
298	1	MyrSpi		Patch	9/1/2009	01:21:28pm	41.56640	-73.48804	1-3	2	0.1339
299	1	MyrSpi		Patch	9/1/2009	01:25:19pm	41.56604	-73.48805	2-4	2	0.1334
300	1	MyrSpi		Patch	9/1/2009	01:30:51pm	41.56738	-73.48828	1-3	2	0.0684
301	1	MyrSpi		Patch	9/1/2009	01:35:05pm	41.56830	-73.48868	1-3	2	0.0627
302	1	MyrSpi		Patch	9/1/2009	01:37:20pm	41.56948	-73.48916	0-2	2	0.0782
303	1	MyrSpi	SomeA=3Within	Patch	9/1/2009	01:39:23pm	41.57003	-73.48876	0-2	2	0.2002
304	2	NajMin		Patch	9/1/2009	01:44:42pm	41.57000	-73.48872	0-2	2	0.0602
305	1	MyrSpi		Patch	9/1/2009	01:47:49pm	41.57068	-73.48830	0-1	2	0.0010
306	1	MyrSpi		Patch	9/1/2009	01:49:54pm	41.57091	-73.48843	0-2	2	0.1380
307	1	MyrSpi	NajMinA=2	Patch	9/1/2009	01:54:35pm	41.57023	-73.48924	0-2	1	0.1189
308	1	MyrSpi		Patch	9/1/2009	01:59:16pm	41.57067	-73.49022	0-2	2	0.0466
309	1	MyrSpi		Patch	9/1/2009	02:02:18pm	41.57135	-73.49083	1-3	2	0.0480
310	1	MyrSpi		Patch	9/1/2009	02:04:40pm	41.57317	-73.49147	1-3	1	3.8232
311	1	MyrSpi	NajMinA=3	Patch	9/1/2009	02:46:05pm	41.57334	-73.49125	0-1	3	0.6676

Appendix Lake Candlewood invasive plant location data (10 of 13).

FID	Invasive	Invasive	Notes	Type	Date	Time	Latitude	Longitude	Depth (m)	Abundance	Acres
312	1	MyrSpi	NajMinA=3	Patch	9/1/2009	02:57:59pm	41.57392	-73.49211	0-1	3	0.6792
313	1	MyrSpi		Patch	9/1/2009	03:11:13pm	41.57095	-73.49145	1-3	2	3.2463
314	1	MyrSpi		Patch	9/1/2009	03:23:42pm	41.57117	-73.49215	0-1	4	0.0219
315	1	MyrSpi		Patch	9/1/2009	03:28:29pm	41.56761	-73.49016	0-2	2	0.0156
316	1	MyrSpi		Patch	9/1/2009	03:30:02pm	41.56704	-73.48998	0-2	1	0.0422
317	1	MyrSpi		Patch	9/1/2009	03:31:55pm	41.56664	-73.49007	0-2	2	0.1674
318	1	MyrSpi		Patch	9/1/2009	03:34:51pm	41.56562	-73.48939	1-3	2	0.0276
319	1	MyrSpi		Patch	9/1/2009	03:40:14pm	41.56422	-73.48810	0-2	3	1.1653
320	1	MyrSpi		Patch	8/6/2009	11:03:32am	41.46443	-73.45844	1-5	3	0.6077
321	1	MyrSpi		Patch	8/6/2009	11:10:19am	41.46562	-73.45824	1-5	3	0.4247
322	1	MyrSpi		Patch	8/6/2009	11:16:32am	41.46458	-73.46034	1-5	2	1.0072
323	1	MyrSpi	A=3PatchesMixedIn_NoteCrossedPolygon	Patch	8/6/2009	11:29:49am	41.46489	-73.46161	1-5	2	0.8892
324	1	MyrSpi		Patch	8/6/2009	11:41:52am	41.46699	-73.45981	1-5	3	0.1783
325	1	MyrSpi		Patch	8/6/2009	11:45:08am	41.46795	-73.45835	1-5	3	0.5016
326	1	MyrSpi		Patch	8/6/2009	11:51:36am	41.46853	-73.45813	1-3	2	0.0801
327	1	MyrSpi		Patch	8/6/2009	11:54:50am	41.46928	-73.45659	1-5	3	4.1085
328	1	MyrSpi		Patch	8/6/2009	12:33:56pm	41.47537	-73.46125	1-5	3	0.3683
329	1	MyrSpi		Patch	8/6/2009	12:41:35pm	41.47613	-73.46098	1-5	3	0.2458
330	1	MyrSpi		Patch	8/6/2009	12:45:07pm	41.47794	-73.46143	1-5	3	1.7477
331	1	MyrSpi		Patch	8/6/2009	12:58:59pm	41.48029	-73.46211	1-5	3	0.7765
332	1	MyrSpi		Patch	8/6/2009	01:08:19pm	41.48148	-73.46169	1-5	2	0.3299
333	1	MyrSpi		Patch	8/6/2009	01:14:57pm	41.48205	-73.46126	3-5	3	0.0542
334	1	MyrSpi		Patch	8/6/2009	01:16:10pm	41.48266	-73.46119	1-5	2	0.2427
335	1	MyrSpi		Patch	8/6/2009	01:23:36pm	41.48485	-73.45890	0-2	2	0.0372
336	1	MyrSpi		Patch	8/6/2009	01:27:46pm	41.48494	-73.45949	0-2	1	1.4809
337	1	MyrSpi		Patch	8/6/2009	01:41:49pm	41.48351	-73.45985	2-5	3	1.5988
338	1	MyrSpi		Patch	8/6/2009	01:48:31pm	41.48406	-73.45845	1-3	2	0.5313
339	1	MyrSpi		Patch	8/6/2009	01:55:12pm	41.48346	-73.45789	1-3	1	0.0385
340	1	MyrSpi		Patch	8/6/2009	01:56:42pm	41.48303	-73.45781	1-3	1	0.0254
341	1	MyrSpi		Patch	8/6/2009	02:01:55pm	41.48096	-73.45734	1-5	2	0.1849
342	1	MyrSpi		Patch	8/6/2009	02:08:37pm	41.47971	-73.45743	2-5	2	0.0678
343	1	MyrSpi		Patch	8/6/2009	02:10:53pm	41.47952	-73.45719	2-3	2	0.0575
344	1	MyrSpi		Patch	8/6/2009	02:13:58pm	41.47739	-73.45537	1-3	3	1.6486
345	1	MyrSpi		Patch	8/6/2009	02:30:50pm	41.47501	-73.45345	1-5	3	0.1012
346	1	MyrSpi		Patch	8/6/2009	02:33:52pm	41.47446	-73.45322	1-5	3	0.0562
347	1	MyrSpi		Patch	8/6/2009	02:35:08pm	41.47393	-73.45328	2-5	2	0.1328
348	1	MyrSpi		Patch	8/6/2009	02:38:13pm	41.47287	-73.45274	1-5	2	0.2528
349	1	MyrSpi		Patch	8/7/2009	11:01:39am	41.47106	-73.45151	1-5	3	1.1708
350	1	MyrSpi		Patch	8/7/2009	11:12:59am	41.47040	-73.45090	1-3	3	0.1842
351	1	MyrSpi		Patch	8/7/2009	11:17:32am	41.46970	-73.45065	1-3	3	0.2333
352	1	MyrSpi		Patch	8/7/2009	11:20:45am	41.46721	-73.44973	1-5	3	1.3392
353	1	MyrSpi		Patch	8/7/2009	11:38:29am	41.46511	-73.44761	2-5	3	0.0403
354	1	MyrSpi		Patch	8/7/2009	11:39:44am	41.46465	-73.44735	2-5	3	0.0424

Appendix Lake Candlewood invasive plant location data (11 of 13).

FID	Invasive	Invasive	Notes	Type	Date	Time	Latitude	Longitude	Depth (m)	Abundance	Acres
355	1	MyrSpi		Patch	8/7/2009	11:41:42am	41.46338	-73.44714	1-5	3	1.3339
356	1	MyrSpi	Connectoverlappingpolygons	Patch	8/7/2009	11:57:06am	41.46216	-73.44564	1-5	3	2.6485
357	1	MyrSpi		Patch	8/7/2009	12:18:08pm	41.46373	-73.45790	2-5	2	0.2786
358	1	MyrSpi		Patch	8/7/2009	12:21:51pm	41.46305	-73.45800	1-3	1	0.0160
359	1	MyrSpi		Patch	8/7/2009	12:44:52pm	41.45708	-73.45320	1-5	3	2.4635
360	1	MyrSpi		Patch	8/7/2009	12:57:40pm	41.45545	-73.45082	1-3	2	0.0287
361	1	MyrSpi		Patch	8/7/2009	01:00:48pm	41.45396	-73.45072	2-4	2	0.4279
362	1	MyrSpi		Patch	8/7/2009	01:15:31pm	41.44969	-73.45195	2-5	3	0.7423
363	1	MyrSpi		Patch	8/7/2009	01:30:40pm	41.44604	-73.45445	3-4	2	0.0059
364	1	MyrSpi		Patch	8/7/2009	01:32:09pm	41.44543	-73.45480	2-3	2	0.0585
365	1	MyrSpi		Patch	8/7/2009	01:34:38pm	41.44488	-73.45515	3-4	1	0.0306
366	1	MyrSpi		Patch	8/7/2009	01:36:26pm	41.44439	-73.45529	3-5	2	0.0837
367	1	MyrSpi		Patch	8/7/2009	01:38:11pm	41.44367	-73.45560	3-4	3	0.0570
368	1	MyrSpi		Patch	8/7/2009	01:39:48pm	41.44303	-73.45619	3-4	1	0.1006
369	1	MyrSpi		Patch	8/7/2009	01:42:43pm	41.44254	-73.45667	3-4	1	0.0391
370	1	MyrSpi		Patch	8/7/2009	01:44:53pm	41.44159	-73.45722	2-4	2	0.1419
371	1	MyrSpi		Patch	8/7/2009	01:47:54pm	41.43939	-73.45840	1-4	2	1.3047
372	1	MyrSpi		Patch	8/7/2009	02:03:57pm	41.43421	-73.45927	2-3	2	0.0535
373	1	MyrSpi		Patch	8/7/2009	02:05:57pm	41.43367	-73.45948	2-4	2	0.0368
374	1	MyrSpi		Patch	8/7/2009	02:07:23pm	41.43348	-73.45960	3-4	1	0.0064
375	1	MyrSpi		Patch	8/7/2009	02:09:19pm	41.43284	-73.45973	2-4	2	0.2007
376	1	MyrSpi		Patch	8/7/2009	02:11:13pm	41.43235	-73.45995	1-3	1	0.0576
377	1	MyrSpi		Patch	8/7/2009	02:14:37pm	41.43135	-73.46024	1-4	1	0.0719
378	1	MyrSpi		Patch	8/7/2009	02:18:25pm	41.43058	-73.46017	1-3	2	0.0368
379	1	MyrSpi		Patch	8/7/2009	02:21:07pm	41.43012	-73.46021	1-3	2	0.0368
380	1	MyrSpi		Patch	8/7/2009	02:28:55pm	41.42793	-73.45884	2-4	1	0.0981
381	1	MyrSpi		Patch	8/7/2009	02:32:26pm	41.42732	-73.45824	1-3	2	0.1896
382	1	MyrSpi		Patch	8/7/2009	02:35:33pm	41.42639	-73.45731	1-3	1	0.0041
383	1	MyrSpi		Patch	8/7/2009	02:36:49pm	41.42643	-73.45699	2-4	2	0.0264
384	1	MyrSpi		Patch	8/7/2009	02:37:33pm	41.42589	-73.45694	1-4	2	0.1042
385	1	MyrSpi		Patch	8/11/2009	11:15:47am	41.46638	-73.45065	3-5	3	1.8587
386	1	MyrSpi		Patch	8/11/2009	11:28:26am	41.46786	-73.44709	1-5	3	1.3922
387	1	MyrSpi		Patch	8/11/2009	11:41:59am	41.47021	-73.44917	3-5	2	0.0689
388	1	MyrSpi		Patch	8/11/2009	11:43:12am	41.47064	-73.44982	3-5	2	0.1208
389	1	MyrSpi		Patch	8/11/2009	11:45:56am	41.47090	-73.45020	2-4	2	0.0219
390	1	MyrSpi		Patch	8/11/2009	12:03:58pm	41.49042	-73.45336	3-5	2	0.0512
391	1	MyrSpi		Patch	8/11/2009	12:08:47pm	41.49171	-73.45501	3-5	2	0.9008
392	1	MyrSpi		Patch	8/11/2009	12:20:19pm	41.49268	-73.45763	3-5	3	0.3795
393	1	MyrSpi		Patch	8/11/2009	12:28:19pm	41.49140	-73.45849	3-5	3	0.0978
394	1	MyrSpi		Patch	8/11/2009	12:36:40pm	41.48932	-73.45889	1-5	3	0.9786
395	1	MyrSpi		Patch	8/11/2009	12:54:11pm	41.48578	-73.45948	0-2	3	0.3415
396	1	MyrSpi	Very_sparse_exceptSouth	Patch	8/11/2009	12:58:08pm	41.48636	-73.45972	1-4	1	1.5079
397	1	MyrSpi		Patch	8/11/2009	01:04:27pm	41.48744	-73.46144	3-5	3	1.2445

Appendix Lake Candlewood invasive plant location data (12 of 13).

FID	Invasive	Invasive	Notes	Type	Date	Time	Latitude	Longitude	Depth (m)	Abundance	Acres
398	1	MyrSpi		Patch	8/11/2009	01:11:15pm	41.48744	-73.46288	1-3	2	0.0626
399	1	MyrSpi	MechRemovalnSpots	Patch	8/11/2009	01:12:39pm	41.49015	-73.46525	1-4	2	1.2013
400	1	MyrSpi	A=Variable_DensesNorthCoves_Turtles!	Patch	8/11/2009	01:42:06pm	41.49924	-73.46888	1-4	2	3.4081
401	1	MyrSpi		Patch	8/11/2009	02:01:14pm	41.49841	-73.46812	1-3	2	0.0142
402	1	MyrSpi		Patch	8/11/2009	02:03:58pm	41.49731	-73.46809	1-3	2	0.2027
403	1	MyrSpi		Patch	8/11/2009	02:14:13pm	41.49625	-73.46382	1-5	3	3.1135
404	1	MyrSpi	A_Variable	Patch	9/2/2009	11:31:22am	41.55847	-73.48108	1-4	3	4.2773
405	1	MyrSpi		Patch	9/2/2009	11:45:34am	41.55953	-73.48240	2-4	2	0.0492
406	1	MyrSpi		Patch	9/2/2009	11:47:29am	41.55991	-73.48283	1-4	1	0.0696
407	1	MyrSpi		Patch	9/2/2009	11:54:35am	41.56100	-73.48468	1-3	2	0.0296
408	1	MyrSpi		Patch	9/2/2009	11:57:17am	41.56114	-73.48503	1-3	2	0.0222
409	1	MyrSpi		Patch	9/2/2009	11:58:06am	41.56131	-73.48537	2-4	2	0.0406
410	1	MyrSpi		Patch	9/2/2009	11:59:16am	41.56146	-73.48638	1-4	3	0.3981
411	1	MyrSpi		Patch	9/2/2009	12:09:21pm	41.56257	-73.48698	1-4	3	1.1411
412	2	NajMin		Patch	9/2/2009	12:17:49pm	41.56223	-73.48758	0-2	4	0.1614
413	1	MyrSpi		Patch	9/2/2009	12:25:34pm	41.56500	-73.48783	2-4	2	0.5142
414	1	MyrSpi		Patch	9/2/2009	01:02:30pm	41.56381	-73.48308	2-5	3	1.5263
415	1	MyrSpi		Patch	9/2/2009	01:10:50pm	41.56477	-73.48364	2-5	3	0.4146
416	1	MyrSpi		Patch	9/2/2009	01:15:40pm	41.56470	-73.48505	2-5	3	0.0714
417	1	MyrSpi		Patch	9/2/2009	01:19:00pm	41.56384	-73.48462	2-5	3	0.3698
418	2	NajMin		Patch	9/2/2009	01:27:51pm	41.55842	-73.48181	1-4	2	0.5004
419	1	MyrSpi		Patch	9/2/2009	02:18:01pm	41.44838	-73.43052	1-3	2	2.8156
420	1	MyrSpi	NajMinA=3,WithValAme	Patch	9/2/2009	02:34:11pm	41.44834	-73.42991	0-2	3	1.6798
421	1	MyrSpi	NajMinA=3,WithValAme	Patch	9/2/2009	02:49:54pm	41.44854	-73.43102	0-2	3	1.1493
422	2	NajMin	WithNajMin_A=2 (Copied Patch of MyrSpi)	Patch	8/14/2009	10:45:24am	41.47333	-73.43792	0-2	2	1.1062
423	2	NajMin	NajMin_D=2	Patch	8/14/2009	01:55:29pm	41.48208	-73.43654	0-2	2	0.2531
424	2	NajMin	NajMin_A=2_1/2MyrSpiFromShore	Patch	8/14/2009	02:02:32pm	41.47836	-73.43416	0-1	2	3.8569
425	2	NajMin	NajMinAlso, A=2 (Copied)	Patch	8/18/2009	12:07:52pm	41.48250	-73.43542	0-2	2	0.1101
426	2	NajMin	NajMinInnerHalf (Copied)	Patch	8/19/2009	02:14:51pm	41.55271	-73.44538	1-4	3	0.1005
427	2	NajMin	SpottyNajMinFromPatchToShore	Patch			41.55561	-73.44482	0-1	1	0.0229
428	2	NajMin	SpottyNajMinFromPatchToShore	Patch			41.55510	-73.44492	0-1	1	0.0221
429	2	NajMin	SpottyNajMinFromPatchToShore	Patch			41.55488	-73.44490	0-1	1	0.0293
430	2	NajMin	SpottyNajMinFromPatchToShore	Patch			41.55426	-73.44498	0-1	1	0.1008
431	2	NajMin	SpottyNajMinFromPatchToShore	Patch			41.55344	-73.44529	0-1	1	0.1098
432	2	NajMin	NajMinInProtectedCoves	Patch			41.55993	-73.44418	0-1	1	0.1117
433	2	NajMin	NajMinInProtectedCoves	Patch			41.55951	-73.44412	0-1	1	0.0498
434	2	NajMin	NajMinOut20MFromShoreA=2	Patch			41.56160	-73.44417	1-4	2	0.7356
435	2	NajMin	NajMinInCoves20mOut_A=1	Patch			41.56685	-73.44522	0-1	1	0.0741
436	2	NajMin	NajMinInCoves20mOut_A=1	Patch			41.56610	-73.44511	0-1	1	0.0730
437	2	NajMin	NajMinInCoves20mOut_A=1	Patch			41.56523	-73.44510	0-1	1	0.0994
438	2	NajMin	NajMinInCoves20mOut_A=1	Patch			41.56458	-73.44490	0-1	1	0.0587
439	2	NajMin	NajMinNECorner_A=2D=0-2m	Patch			41.57240	-73.44322	0-2	2	0.2185
440	2	NajMin	SomeMyrSpiD=0-1_NajMinD=0-2,A=2	Patch	8/20/2009	11:08:15am	41.51356	-73.44013	0-2	2	1.1006

Appendix Lake Candlewood invasive plant location data (13 of 13).

FID	Invasive	Invasive	Notes	Type	Date	Time	Latitude	Longitude	Depth (m)	Abundance	Acres
441	2	NajMin	WithStuPecSome NajMinD=0-2,A=2In coves	Patch			41.51582	-73.44077	0-2	2	0.3526
442	2	NajMin	WithStuPecSome NajMinD=0-2,A=2In coves	Patch			41.51444	-73.44162	0-2	2	0.1268
443	2	NajMin	WithStuPecSome NajMinD=0-2,A=2In coves	Patch			41.51281	-73.44133	0-2	2	0.2161
444	2	NajMin	WithStuPecSome NajMinD=0-2,A=2In coves	Patch			41.51398	-73.44145	0-2	2	0.0547
445	2	NajMin	ajMinA=2_D=0-2_In Coves_SomeMyrSpi0-1	Patch			41.51994	-73.43531	0-2	2	0.2424
446	2	NajMin	ajMinA=2_D=0-2_In Coves_SomeMyrSpi0-1	Patch			41.51921	-73.43523	0-2	2	0.0729
447	2	NajMin	ajMinA=2_D=0-2_In Coves_SomeMyrSpi0-1	Patch			41.51852	-73.43671	0-2	2	0.1782
448	2	NajMin	NajMinA=2 (copied)	Patch	8/20/2009	12:32:39pm	41.52216	-73.43571	0-2	2	0.2355
449	2	NajMin	NajMinInCove_A=2,D=0-1	Patch			41.53547	-73.43889	0-1	2	0.1909
450	2	NajMin	NajMinA=3 (copied)	Patch	8/26/2009	01:54:07pm	41.56915	-73.48366	0-2	3	0.5966
451	2	NajMin	NajMinA=2 (copied)	Patch	8/26/2009	02:04:01pm	41.56915	-73.48418	0-2	2	0.8768
452	2	NajMin	NajMinA=2	Patch	8/27/2009	11:23:57am	41.50838	-73.46903	0-2	2	0.1913
453	2	NajMin	NajMinA=1	Patch	8/27/2009	11:29:17am	41.50939	-73.46964	0-2	1	0.0121
454	2	NajMin	NajMinA=2	Patch	8/27/2009	11:32:03am	41.51009	-73.47065	0-2	2	0.0809
455	2	NajMin	NajMinA=1	Patch	8/27/2009	11:39:16am	41.51033	-73.46939	0-2	1	0.4654
456	2	NajMin	NajMinA=2	Patch	8/27/2009	12:08:31pm	41.50780	-73.46595	0-2	2	0.0517
457	2	NajMin	ajMin_D=0-1,A=2,MyrSpiA=3SomeD=0-1Spc	Patch	8/27/2009	02:07:45pm	41.52449	-73.46507	0-1	2	7.9052
458	2	NajMin	NajMinA=2	Patch	9/1/2009	01:54:35pm	41.57023	-73.48924	0-2	2	0.1189
459	2	NajMin	NajMinA=3	Patch	9/1/2009	02:46:05pm	41.57334	-73.49125	0-1	3	0.6676
460	2	NajMin	NajMinA=3	Patch	9/1/2009	02:57:59pm	41.57392	-73.49211	0-1	3	0.6792
461	2	NajMin	NajMinA=3,WithValAme	Patch	9/2/2009	02:34:11pm	41.44834	-73.42991	0-2	3	1.6798
462	2	NajMin	NajMinA=3,WithValAme	Patch	9/2/2009	02:49:54pm	41.44854	-73.43102	0-2	3	1.1493

Appendix. Lake Lillinonah invasive plant location data (1 of 3).

FID	Invasive	Notes	Type	Date	Time	Latitude	Longitude	Depth (m)	Abundance	Acres
0	MyrSpi		Patch	8/24/2009	09:38:45am	41.50890	-73.31890	2.1-3	2	0.0521
1	MyrSpi	ela sp. at edges	Patch	8/24/2009	09:57:51am	41.51090	-73.31760	2.1-3	2	0.0697
2	MyrSpi	ela sp. at edges	Patch	8/24/2009	10:02:55am	41.51070	-73.31810	0-1	3	0.0550
3	MyrSpi		Patch	8/24/2009	10:07:43am	41.51040	-73.31880	0-0.5	2	0.0090
4	MyrSpi		Patch	8/24/2009	10:22:47am	41.50460	-73.32080	1-3	2	1.0959
5	MyrSpi		Patch	8/24/2009	10:46:41am	41.49980	-73.32310	0-1	2	0.1242
6	MyrSpi		Patch	8/24/2009	10:54:46am	41.49810	-73.32430	0-1	2	0.5467
7	MyrSpi		Patch	8/24/2009	11:09:37am	41.49690	-73.32700	0-1	2	0.0789
8	MyrSpi	bad satellite coverage	Patch	8/24/2009	11:31:21am	41.49390	-73.32950	0.6-1	2	0.2723
9	MyrSpi	lots of najmin floating, can't see growing	Patch	8/24/2009	12:07:15pm	41.47380	-73.31910	1-3	2	1.3401
10	MyrSpi		Patch	8/24/2009	12:22:00pm	41.47280	-73.31780	1-3	2	0.2066
11	MyrSpi		Patch	8/24/2009	12:33:05pm	41.46930	-73.31300	1-3	2	0.5241
12	MyrSpi	poor visibility today	Patch	8/13/2009	11:31:56am	41.47100	-73.31080	1-3	2	0.0620
13	MyrSpi		Patch	8/13/2009	11:39:14am	41.47240	-73.31130	1-3	2	0.1362
14	MyrSpi		Patch	8/13/2009	11:44:00am	41.47260	-73.31160	0-1	2	0.0439
15	MyrSpi		Patch	8/13/2009	11:49:52am	41.47240	-73.31210	0-1	2	0.0326
16	MyrSpi	w/ demersum	Patch	8/13/2009	12:14:40pm	41.47240	-73.31360	1-3	3	0.4944
17	MyrSpi		Patch	8/13/2009	12:43:14pm	41.48230	-73.32200	0-1	2	0.0976
18	MyrSpi		Patch	8/13/2009	01:08:45pm	41.49320	-73.32470	1-3	2	0.0450
19	MyrSpi		Patch	8/13/2009	01:39:00pm	41.49360	-73.32490	1-3	2	0.0131
20	MyrSpi		Patch	8/13/2009	02:00:41pm	41.50280	-73.31970	1-3	3	0.0136
21	MyrSpi		Patch	8/13/2009	02:04:08pm	41.50300	-73.31970	1-3	3	0.0337
22	MyrSpi		Patch	8/13/2009	02:07:10pm	41.50330	-73.31960	1-3	3	0.0143
23	MyrSpi		Patch	8/13/2009	02:08:49pm	41.50340	-73.31960	1-3	4	0.0148
24	MyrSpi		Patch	8/13/2009	02:16:09pm	41.50740	-73.31860	1-3	3	0.3726
25	MyrSpi		Patch	8/13/2009	02:24:50pm	41.50840	-73.31880	1-3	2	0.1273
26	MyrSpi		Patch	7/30/2009	10:25:37am	41.48820	-73.36640	1-3	4	0.3972
27	NajMin	much was gowing on dry exposed land, walked that	Patch	7/30/2009	10:29:42am	41.48850	-73.36640	0-0.5	3	0.1124
28	MyrSpi		Patch	7/30/2009	10:49:16am	41.48990	-73.37030	3-5	2	0.0135
29	MyrSpi	with najfle and cerdem	Patch	7/30/2009	10:51:01am	41.49030	-73.37120	1-3	3	0.3707
30	MyrSpi	goes deeper than 1	Patch	7/30/2009	11:06:56am	41.49090	-73.37320	0.6-1	2	0.3510
31	NajMin	continues onto shore	Patch	7/30/2009	11:16:38am	41.49080	-73.37250	0-0.5	3	0.0375
32	NajMin	walked around on shore	Patch	7/30/2009	11:21:14am	41.49110	-73.37360	0.6-1	3	0.3010
33	MyrSpi		Patch	7/30/2009	11:42:58am	41.49510	-73.37480	1-3	2	0.0144
34	MyrSpi		Patch	7/30/2009	11:49:48am	41.49710	-73.37470	0.6-1	2	0.0596
35	MyrSpi	cant get further to shore	Patch	7/30/2009	11:55:01am	41.49940	-73.37430	1-3	2	1.0005
36	NajMin	walked the shore	Patch	7/30/2009	12:02:54pm	41.49920	-73.37410	0.6-1	2	0.1750
37	MyrSpi	wwith najmin-3	Patch	7/30/2009	12:53:20pm	41.50280	-73.37490	0-0.5	2	0.0474
38	MyrSpi		Patch	7/30/2009	01:07:55pm	41.50470	-73.38110	1.1-2	3	0.0953
39	MyrSpi		Patch	7/30/2009	01:11:00pm	41.50520	-73.38210	1.1-2	3	0.0842
40	MyrSpi	with cerdem-2	Patch	7/30/2009	01:14:01pm	41.50540	-73.38320	0.6-1	3	0.2512
41	MyrSpi		Patch	7/30/2009	01:18:52pm	41.50530	-73.38420	1.1-2	3	0.0620
42	MyrSpi		Patch	7/30/2009	01:24:04pm	41.50580	-73.38540	1.1-2	3	0.0507
43	MyrSpi	retaining wall prevents getting entire patch by s	Patch	7/30/2009	01:40:58pm	41.51580	-73.38680	1.1-2	2	0.0795
44	MyrSpi		Patch	7/30/2009	01:45:36pm	41.51630	-73.38770	1-3	3	0.1230

Appendix. Lake Lillinonah invasive plant location data (2 of 3).

45	MyrSpi		Patch	7/30/2009	02:16:00pm	41.52530	-73.40060	1-3	2	0.0476
46	MyrSpi	shallow,plants flat to shoreline	Patch	8/3/2009	09:30:49am	41.52650	-73.40090	1-3	2	1.1668
47	MyrSpi	patch out of water due to recent lowering of level	Patch	8/3/2009	10:10:36am	41.52730	-73.40120	0-0.5	2	0.0853
48	NajMin	patch onshore due to recent water level decline	Patch	8/3/2009	10:19:54am	41.52750	-73.40130	0-0.5	2	0.0640
49	MyrSpi		Patch	8/3/2009	10:49:23am	41.53370	-73.40400	1.1-2	2	0.3925
50	MyrSpi		Patch	8/3/2009	11:02:54am	41.53620	-73.40370	2.1-3	2	0.2686
51	MyrSpi		Patch	8/3/2009	11:18:36am	41.54040	-73.40250	2.1-3	2	0.3410
52	MyrSpi		Patch	8/3/2009	11:30:11am	41.54170	-73.40230	1.1-2	2	0.1617
53	MyrSpi		Patch	8/3/2009	11:36:06am	41.54150	-73.40380	1.1-2	2	0.0753
54	MyrSpi	innaccess. mud delta area incl., no plants ther	Patch	8/3/2009	11:42:34am	41.53870	-73.40520	1.1-2	2	2.3329
55	MyrSpi		Patch	8/3/2009	01:38:10pm	41.51120	-73.38700	1.1-2	2	0.0466
56	MyrSpi		Patch	8/3/2009	02:10:22pm	41.50070	-73.37940	1.1-2	2	0.1039
57	MyrSpi		Patch	8/4/2009	09:32:35am	41.49000	-73.38350	1.1-2	3	0.2157
58	MyrSpi		Patch	8/4/2009	10:28:02am	41.47820	-73.34990	2.1-3	3	0.0179
59	MyrSpi		Patch	8/4/2009	10:44:04am	41.47320	-73.33560	3-5	2	0.2381
60	MyrSpi		Patch	8/4/2009	10:49:42am	41.47250	-73.33450	3-5	2	0.3492
61	MyrSpi		Patch	8/4/2009	10:55:07am	41.47200	-73.33360	2.1-3	2	0.1153
62	MyrSpi		Patch	8/4/2009	10:58:16am	41.47190	-73.33310	2.1-3	2	0.0066
63	MyrSpi		Patch	8/4/2009	10:59:43am	41.47170	-73.33280	2.1-3	2	0.0293
64	MyrSpi		Patch	8/4/2009	01:04:38pm	41.44800	-73.30350	2.1-3	3	0.1793
65	MyrSpi		Patch	8/4/2009	01:12:57pm	41.44630	-73.30520	2.1-3	3	0.1100
66	MyrSpi		Patch	8/4/2009	01:17:38pm	41.44450	-73.30410	2.1-3	3	0.0493
67	MyrSpi		Patch	8/4/2009	01:20:26pm	41.44480	-73.30390	1.1-2	4	0.0613
68	MyrSpi		Patch	8/4/2009	01:26:38pm	41.44640	-73.30180	1-3	3	1.8931
69	MyrSpi		Patch	8/4/2009	01:49:13pm	41.45060	-73.29690	2.1-3	3	0.0668
70	MyrSpi	3-4, varied	Patch	8/4/2009	01:55:28pm	41.45470	-73.29810	2.1-3	4	1.0224
71	MyrSpi		Patch	8/4/2009	02:07:56pm	41.45830	-73.29680	2.1-3	3	0.5001
72	MyrSpi		Patch	8/4/2009	02:27:48pm	41.46910	-73.29610	2.1-3	3	0.0274
0	MyrSpi		Point	8/24/2009	09:41:26am	41.50931	-73.31892	2.1-3	1	0.0002
1	MyrSpi		Point	8/24/2009	10:06:36am	41.51057	-73.31848	0-0.5	2	0.0002
2	MyrSpi		Point	8/24/2009	10:10:45am	41.51009	-73.32001	0.6-1	3	0.0002
3	MyrSpi		Point	8/24/2009	10:11:48am	41.51009	-73.32015	0-0.5	2	0.0002
4	MyrSpi		Point	8/24/2009	10:20:45am	41.50600	-73.31998	1.1-2	2	0.0002
5	MyrSpi		Point	8/24/2009	10:21:20am	41.50589	-73.32007	0.6-1	1	0.0002
6	MyrSpi		Point	8/24/2009	10:43:06am	41.49998	-73.32296	1.1-2	1	0.0002
7	MyrSpi		Point	8/24/2009	10:46:02am	41.50003	-73.32328	0-1	2	0.0002
8	MyrSpi		Point	8/24/2009	10:52:11am	41.49875	-73.32327	0.6-1	1	0.0002
9	MyrSpi		Point	8/24/2009	11:06:35am	41.49749	-73.32618	0-0.5	2	0.0002
10	MyrSpi		Point	8/24/2009	11:47:06am	41.48727	-73.32699	0-1	1	0.0002
11	MyrSpi		Point	8/24/2009	12:28:31pm	41.47133	-73.31575	1-3	2	0.0002
12	MyrSpi		Point	8/24/2009	12:29:16pm	41.47121	-73.31562	1-3	1	0.0002
13	MyrSpi		Point	8/24/2009	12:30:18pm	41.47070	-73.31508	1-3	1	0.0002
14	MyrSpi		Point	8/13/2009	11:07:36am	41.46917	-73.29610	1-3	1	0.0002
15	MyrSpi	2 plant	Point	8/13/2009	12:39:12pm	41.48177	-73.32188	0-1	1	0.0002
16	MyrSpi	4 plants	Point	8/13/2009	12:46:26pm	41.48255	-73.32214	0-1	2	0.0002
17	MyrSpi		Point	8/13/2009	12:48:28pm	41.48295	-73.32254	0-1	1	0.0002

Appendix. Lake Lillinonah invasive plant location data (3 of 3).

18	MyrSpi		Point	8/13/2009	12:49:05pm	41.48307	-73.32258	0-1	1	0.0002
19	MyrSpi		Point	8/13/2009	01:43:50pm	41.49404	-73.32523	1-3	1	0.0002
20	MyrSpi	6 plants in area	Point	8/13/2009	01:44:41pm	41.49392	-73.32516	1-3	2	0.0002
21	MyrSpi		Point	7/30/2009	10:44:16am	41.48938	-73.36954	1.1-2	1	0.0002
22	MyrSpi	5 plants	Point	7/30/2009	10:46:18am	41.48965	-73.36981	1-3	2	0.0002
23	MyrSpi		Point	7/30/2009	10:47:32am	41.48975	-73.36999	0.6-1	2	0.0002
24	MyrSpi		Point	7/30/2009	11:32:37am	41.49162	-73.37474	0.6-1	2	0.0002
25	MyrSpi	4 plants	Point	7/30/2009	11:36:52am	41.49352	-73.37496	1.1-2	2	0.0002
26	MyrSpi	two small dense bunches	Point	7/30/2009	11:37:48am	41.49368	-73.37496	1.1-2	3	0.0002
27	MyrSpi		Point	7/30/2009	11:39:28am	41.49418	-73.37487	1.1-2	2	0.0002
28	MyrSpi		Point	7/30/2009	11:41:00am	41.49479	-73.37480	0.6-1	2	0.0002
29	MyrSpi		Point	7/30/2009	11:46:30am	41.49620	-73.37465	0.6-1	2	0.0002
30	MyrSpi		Point	7/30/2009	11:47:30am	41.49648	-73.37472	1.1-2	2	0.0002
31	MyrSpi		Point	7/30/2009	11:48:42am	41.49688	-73.37469	0.6-1	2	0.0002
32	MyrSpi		Point	7/30/2009	11:54:01am	41.49801	-73.37467	0.6-1	1	0.0002
33	MyrSpi		Point	7/30/2009	12:51:48pm	41.50264	-73.37499	1.1-2	1	0.0002
34	MyrSpi		Point	7/30/2009	01:00:09pm	41.50259	-73.37611	0.6-1	1	0.0002
35	MyrSpi		Point	7/30/2009	01:00:57pm	41.50260	-73.37625	0.6-1	2	0.0002
36	MyrSpi		Point	7/30/2009	01:22:21pm	41.50555	-73.38484	0.6-1	2	0.0002
37	MyrSpi	small patch, shallow mud	Point	7/30/2009	01:44:47pm	41.51634	-73.38742	1-2	3	0.0002
38	MyrSpi		Point	7/30/2009	02:03:10pm	41.52087	-73.39676	1-3	2	0.0002
39	MyrSpi		Point	7/30/2009	02:03:51pm	41.52095	-73.39685	1-3	2	0.0002
40	MyrSpi		Point	7/30/2009	02:04:48pm	41.52117	-73.39706	1-3	2	0.0002
41	MyrSpi		Point	7/30/2009	02:05:58pm	41.52129	-73.39722	1-3	3	0.0002
42	MyrSpi		Point	7/30/2009	02:07:30pm	41.52148	-73.39743	1-3	2	0.0002
43	MyrSpi		Point	7/30/2009	02:07:57pm	41.52142	-73.39737	1-3	2	0.0002
44	MyrSpi		Point	7/30/2009	02:14:57pm	41.52519	-73.40051	1-3	2	0.0002
45	MyrSpi		Point	7/30/2009	02:17:50pm	41.52566	-73.39986	1-3	1	0.0002
46	PotCri	onshore due to h20 decline	Point	8/3/2009	10:24:01am	41.52760	-73.40144	0-0.5	1	0.0002
47	MyrSpi	two plants, onshore	Point	8/3/2009	10:26:56am	41.52758	-73.40200	0-0.5	2	0.0002
48	MyrSpi		Point	8/3/2009	10:29:24am	41.52738	-73.40191	0-0.5	2	0.0002
49	MyrSpi		Point	8/3/2009	10:37:10am	41.52967	-73.40339	2.1-3	2	0.0002
50	MyrSpi		Point	8/3/2009	11:27:01am	41.54148	-73.40215	0.6-1	2	0.0002
51	MyrSpi		Point	8/3/2009	11:28:52am	41.54191	-73.40162	0.6-1	2	0.0002
52	MyrSpi		Point	8/3/2009	01:40:18pm	41.51118	-73.38745	2.1-3	1	0.0002
53	MyrSpi		Point	8/3/2009	01:46:11pm	41.51091	-73.38856	1.1-2	1	0.0002
54	MyrSpi		Point	8/3/2009	02:02:43pm	41.50303	-73.38289	0.6-1	1	0.0002
55	MyrSpi		Point	8/3/2009	02:05:17pm	41.50232	-73.38193	1.1-2	1	0.0002
56	MyrSpi		Point	8/3/2009	02:07:16pm	41.50220	-73.38134	1.1-2	2	0.0002
57	MyrSpi	5 plants in 15meters area	Point	8/3/2009	02:15:33pm	41.49905	-73.37813	1.1-2	2	0.0002
58	MyrSpi		Point	8/3/2009	02:17:13pm	41.49887	-73.37797	1.1-2	2	0.0002
59	MyrSpi		Point	8/3/2009	02:20:48pm	41.49765	-73.37832	1.1-2	1	0.0002
60	MyrSpi		Point	8/4/2009	09:31:07am	41.48967	-73.38372	1.1-2	1	0.0002
61	MyrSpi		Point	8/4/2009	11:11:08am	41.46782	-73.32500	2.1-3	2	0.0002
62	MyrSpi		Point	8/4/2009	01:03:25pm	41.44855	-73.30282	2.1-3	1	0.0002
63	MyrSpi		Point	8/4/2009	01:22:41pm	41.44455	-73.30441	2.1-3	1	0.0002

Transect Data

Appendix. Lake Candlewood transects (Page1 of 2).

Transect	Points	DFS (m)	Surveyor	Latitude	Longitude	Date	Depth (m)	Substrate	Weather	Wind	Notes	CerDem	ElaSp.	EleSp.	LemMin	MyrSpi	NajFle	NajMin	PotPer	ValAme
1	1	0.0	Martha Balfour	41.42379	-73.45264	8/27/2009	0.20	Muck	sunny			0	0	0	2	0	0	0	0	0
1	2	5.0	Martha Balfour	41.42384	-73.45266	8/27/2009	0.40	Muck	sunny			0	0	0	0	1	0	0	0	0
1	3	10.0	Martha Balfour	41.42388	-73.45266	8/27/2009	0.90	Muck	sunny			3	0	0	0	3	0	0	0	0
1	4	20.0	Martha Balfour	41.42396	-73.45273	8/27/2009	1.80	Sand	sunny			0	0	0	0	4	0	0	0	0
1	5	30.0	Martha Balfour	41.42407	-73.45273	8/27/2009	2.00	Sand	sunny			3	0	0	0	4	0	0	0	0
1	6	40.0	Martha Balfour	41.42414	-73.45280	8/27/2009	2.10	Sand	sunny			0	0	0	0	3	0	0	0	0
1	7	50.0	Martha Balfour	41.42422	-73.45283	8/27/2009	2.20	Sand	sunny			0	0	0	0	4	0	0	0	0
1	8	60.0	Martha Balfour	41.42432	-73.45288	8/27/2009	2.20	Sand	sunny			0	0	0	0	4	0	0	0	0
1	9	70.0	Martha Balfour	41.42437	-73.45293	8/27/2009	2.30	Sand	sunny			0	0	0	0	3	0	0	0	0
1	10	80.0	Martha Balfour	41.42448	-73.45295	8/27/2009	2.30	Sand	sunny			0	0	0	0	3	0	0	0	0
2	1	0.0	Martha Balfour	41.42760	-73.44924	8/27/2009	0.00	ND	sunny			0	0	0	0	0	0	0	0	0
2	2	5.0	Martha Balfour	41.42756	-73.44928	8/27/2009	0.50	Sand	sunny			0	0	0	0	3	0	0	0	0
2	3	10.0	Martha Balfour	41.42753	-73.44929	8/27/2009	2.10	Sand	sunny			4	0	0	0	3	0	0	0	0
2	4	20.0	Martha Balfour	41.42747	-73.44940	8/27/2009	3.20	Sand	sunny			3	0	0	0	0	0	0	0	0
2	5	30.0	Martha Balfour	41.42746	-73.44954	8/27/2009	3.50	Sand	sunny			5	0	0	0	3	0	0	0	0
2	6	40.0	Martha Balfour	41.42742	-73.44964	8/27/2009	2.90	Sand	sunny			2	0	0	0	4	0	0	0	0
2	7	50.0	Martha Balfour	41.42736	-73.44974	8/27/2009	1.80	Sand	sunny			0	0	0	0	1	0	0	0	0
2	8	60.0	Martha Balfour	41.42734	-73.44988	8/27/2009	3.10	Sand	sunny			0	0	0	0	4	0	0	0	0
2	9	70.0	Martha Balfour	41.42728	-73.44993	8/27/2009	3.10	Sand	sunny			0	0	0	0	4	0	0	0	0
2	10	80.0	Martha Balfour	41.42726	-73.45010	8/27/2009	3.20	Sand	sunny			0	0	0	0	4	0	0	0	0
3	1	0.0	Martha Balfour	41.47020	-73.43532	8/27/2009	0.00	Sand	sunny			0	3	3	0	0	0	0	0	0
3	2	5.0	Martha Balfour	41.47023	-73.43527	8/27/2009	0.30	Sand	sunny			0	0	3	0	0	0	0	0	0
3	3	10.0	Martha Balfour	41.47022	-73.43520	8/27/2009	2.00	Sand	sunny			2	0	0	0	2	1	2	0	0
3	4	20.0	Martha Balfour	41.47023	-73.43509	8/27/2009	0.00	ND	sunny			0	0	0	0	0	0	0	0	0
3	5	30.0	Martha Balfour	41.47026	-73.43494	8/27/2009	0.00	ND	sunny			0	0	0	0	0	0	0	0	0
3	6	40.0	Martha Balfour	41.47027	-73.43482	8/27/2009	0.00	ND	sunny			0	0	0	0	0	0	0	0	0
3	7	50.0	Martha Balfour	41.47026	-73.43469	8/27/2009	0.00	ND	sunny			0	0	0	0	0	0	0	0	0
3	8	60.0	Martha Balfour	41.47029	-73.43457	8/27/2009	0.00	ND	sunny			0	0	0	0	0	0	0	0	0
3	9	70.0	Martha Balfour	41.47026	-73.43447	8/27/2009	0.00	ND	sunny			0	0	0	0	0	0	0	0	0
3	10	80.0	Martha Balfour	41.47021	-73.43432	8/27/2009	0.00	ND	sunny			0	0	0	0	0	0	0	0	0
4	1	0.0	Martha Balfour	41.57117	-73.48831	8/31/2009	0.50	Sand	partially sunny			0	0	0	0	2	0	0	0	0
4	2	5.0	Martha Balfour	41.57115	-73.48836	8/31/2009	1.50	Sand	partially sunny			0	0	0	0	2	0	0	0	0
4	3	10.0	Martha Balfour	41.57111	-73.48840	8/31/2009	1.00	Sand	partially sunny			0	0	0	0	2	0	0	0	0
4	4	20.0	Martha Balfour	41.57101	-73.48847	8/31/2009	1.50	Sand	partially sunny			0	0	0	0	3	0	0	0	0
4	5	30.0	Martha Balfour	41.57094	-73.48851	8/31/2009	2.20	Sand	partially sunny			0	0	0	0	2	0	0	0	0
4	6	30.0	Martha Balfour	41.57086	-73.48860	8/31/2009	2.70	Sand	partially sunny			0	0	0	0	0	0	0	0	0
4	7	50.0	Martha Balfour	41.57077	-73.48866	8/31/2009	3.10	Sand	partially sunny			0	0	0	0	3	0	0	0	0
4	8	60.0	Martha Balfour	41.57070	-73.48873	8/31/2009	3.40	Sand	partially sunny			0	0	0	0	0	0	0	0	0
4	9	70.0	Martha Balfour	41.57063	-73.48878	8/31/2009	3.50	Sand	partially sunny			0	0	0	0	2	0	0	0	0
4	10	80.0	Martha Balfour	41.57055	-73.48884	8/31/2009	0.00	ND	partially sunny			0	0	0	0	0	0	0	0	0
5	1	0.0	Martha Balfour	41.50223	-73.45148	8/27/2009	0.00	Sand	sunny			0	0	0	0	0	0	0	0	0
5	2	5.0	Martha Balfour	41.50225	-73.45155	8/27/2009	1.00	Sand	sunny			0	0	0	0	2	0	0	0	0
5	3	10.0	Martha Balfour	41.50223	-73.45162	8/27/2009	1.00	Sand	sunny			0	0	0	0	2	0	2	0	0
5	4	20.0	Martha Balfour	41.50221	-73.45175	8/27/2009	2.00	Sand	sunny			0	0	0	0	3	0	4	0	0
5	5	30.0	Martha Balfour	41.50219	-73.45186	8/27/2009	2.10	Sand	sunny			0	0	0	0	3	0	4	0	0
5	6	40.0	Martha Balfour	41.50213	-73.45193	8/27/2009	2.90	Sand	sunny			2	0	0	0	4	0	0	0	0
5	7	50.0	Martha Balfour	41.50210	-73.45208	8/27/2009	0.00	ND	sunny			0	0	0	0	4	0	0	0	0
5	8	60.0	Martha Balfour	41.50202	-73.45217	8/27/2009	0.00	ND	sunny			0	0	0	0	5	0	0	0	0
5	9	70.0	Martha Balfour	41.50200	-73.45231	8/27/2009	0.00	ND	sunny			0	0	0	0	5	0	0	0	0
5	10	80.0	Martha Balfour	41.50192	-73.45236	8/27/2009	0.00	ND	sunny			0	0	0	0	5	0	0	0	0
6	1	0.0	Martha Balfour	41.51389	-73.45361	8/27/2009	0.10	Sand	sunny			0	0	0	0	0	0	0	0	0
6	2	5.0	Martha Balfour	41.51392	-73.45356	8/27/2009	0.50	Sand	sunny			0	0	0	0	1	0	0	0	0
6	3	10.0	Martha Balfour	41.51396	-73.45355	8/27/2009	1.00	Sand	sunny			0	0	0	0	2	0	0	0	0
6	4	20.0	Martha Balfour	41.51404	-73.45352	8/27/2009	1.90	Sand	sunny			0	0	0	0	3	0	0	0	0
6	5	30.0	Martha Balfour	41.51416	-73.45354	8/27/2009	2.00	Sand	sunny			0	0	0	0	4	0	0	0	0
6	6	40.0	Martha Balfour	41.51424	-73.45351	8/27/2009	2.50	Sand	sunny			0	0	0	0	3	0	0	0	0
6	7	50.0	Martha Balfour	41.51433	-73.45357	8/27/2009	3.20	Sand	sunny			0	0	0	0	4	0	0	0	0
6	8	60.0	Martha Balfour	41.51443	-73.45358	8/27/2009	0.00	ND	sunny			0	0	0	0	0	0	0	0	0
6	9	70.0	Martha Balfour	41.51453	-73.45362	8/27/2009	0.00	ND	sunny			0	0	0	0	0	0	0	0	0
6	10	80.0	Martha Balfour	41.51460	-73.45375	8/27/2009	0.00	ND	sunny			0	0	0	0	0	0	0	0	0

Appendix. Lake Candlewood transects (Page2 of 2).

Transect	Points	DFS (m)	Surveyor	Latitude	Longitude	Date	Depth (m)	Substrate	Weather	Wind	Notes	CerDem	ElaSp.	EleSp.	LemMin	MyrSpi	NajFle	NajMin	PotPer	ValAme
7	1	0.0	Martha Balfour	41.57151	-73.44274	8/31/2009	0.10	Sand	windy			0	0	0	0	0	0	0	0	0
7	2	5.0	Martha Balfour	41.57151	-73.44279	8/31/2009	0.80	Sand	windy			0	0	0	0	2	0	0	0	0
7	3	10.0	Martha Balfour	41.57151	-73.44287	8/31/2009	1.10	Sand	windy			0	0	0	0	3	0	2	0	0
7	4	20.0	Martha Balfour	41.57151	-73.44300	8/31/2009	2.10	Sand	windy			0	0	0	0	3	0	2	0	0
7	5	30.0	Martha Balfour	41.57148	-73.44312	8/31/2009	3.20	Sand	windy			0	0	0	0	4	0	0	0	0
7	6	40.0	Martha Balfour	41.57148	-73.44323	8/31/2009	0.00	ND	windy			0	0	0	0	0	0	0	0	0
7	7	50.0	Martha Balfour	41.57145	-73.44332	8/31/2009	0.00	ND	windy			0	0	0	0	0	0	0	0	0
7	8	60.0	Martha Balfour	41.57148	-73.44347	8/31/2009	0.00	ND	windy			0	0	0	0	0	0	0	0	0
7	9	70.0	Martha Balfour	41.57140	-73.44361	8/31/2009	0.00	ND	windy			0	0	0	0	0	0	0	0	0
7	10	80.0	Martha Balfour	41.57134	-73.44370	8/31/2009	0.00	ND	windy			0	0	0	0	0	0	0	0	0
8	1	0.0	Martha Balfour	41.51297	-73.44122	8/31/2009	0.30	Sand	windy			0	0	0	0	0	0	0	0	0
8	2	5.0	Martha Balfour	41.51292	-73.44120	8/31/2009	0.80	Sand	Cloudy			0	0	0	0	0	0	0	0	0
8	3	10.0	Martha Balfour	41.51289	-73.44119	8/31/2009	1.90	Sand	Cloudy			0	2	2	0	0	0	2	0	0
8	4	20.0	Martha Balfour	41.51277	-73.44120	8/31/2009	1.00	Sand	Cloudy			0	0	0	0	1	0	0	0	0
8	5	30.0	Martha Balfour	41.51271	-73.44115	8/31/2009	2.20	Sand	Cloudy			0	0	0	0	3	0	0	0	0
8	6	40.0	Martha Balfour	41.51258	-73.44119	8/31/2009	2.10	Sand	Cloudy			0	0	0	0	2	0	0	0	0
8	7	50.0	Martha Balfour	41.51250	-73.44114	8/31/2009	0.00	ND	Cloudy			0	0	0	0	4	0	0	0	0
8	8	60.0	Martha Balfour	41.51242	-73.44116	8/31/2009	0.00	ND	Cloudy			0	0	0	0	4	0	0	0	0
8	9	70.0	Martha Balfour	41.51231	-73.44116	8/31/2009	0.00	ND	Cloudy			0	0	0	0	2	0	0	0	0
8	10	80.0	Martha Balfour	41.51222	-73.44123	8/31/2009	0.00	ND	Cloudy			0	0	0	0	4	0	0	0	0
9	1	0.0	Martha Balfour	41.48045	-73.43461	8/27/2009	0.20	Sand	sunny			0	3	0	0	1	0	0	0	0
9	2	5.0	Martha Balfour	41.48044	-73.43468	8/27/2009	0.80	Sand	sunny			0	0	0	0	3	0	2	0	0
9	3	10.0	Martha Balfour	41.48043	-73.43474	8/27/2009	1.00	Sand	sunny			0	0	0	0	2	0	0	1	0
9	4	20.0	Martha Balfour	41.48039	-73.43486	8/27/2009	1.90	Sand	sunny			3	0	0	0	1	0	0	0	0
9	5	30.0	Martha Balfour	41.48038	-73.43496	8/27/2009	2.00	Sand	sunny			0	0	0	0	0	0	0	0	0
9	6	40.0	Martha Balfour	41.48034	-73.43508	8/27/2009	2.50	Sand	sunny			0	0	0	0	0	0	0	0	0
9	7	50.0	Martha Balfour	41.48035	-73.43521	8/27/2009	2.50	Sand	sunny			0	0	0	0	0	0	0	0	0
9	8	60.0	Martha Balfour	41.48025	-73.43530	8/27/2009	2.50	Sand	sunny			0	0	0	0	0	0	0	0	0
9	9	70.0	Martha Balfour	41.48020	-73.43539	8/27/2009	2.10	Sand	sunny			0	0	0	0	0	0	0	0	0
9	10	80.0	Martha Balfour	41.48017	-73.43551	8/27/2009	2.00	Sand	sunny			0	0	0	0	2	0	0	0	0
10	1	0.0	Martha Balfour	41.44706	-73.42996	8/27/2009	0.10	Sand	sunny			0	0	0	0	2	0	0	0	0
10	2	5.0	Martha Balfour	41.44710	-73.42991	8/27/2009	0.50	Muck	partially sunny			2	0	0	0	3	0	0	0	0
10	3	10.0	Martha Balfour	41.44713	-73.42986	8/27/2009	0.50	Muck	partially sunny			0	0	0	0	3	0	0	0	2
10	4	20.0	Martha Balfour	41.44720	-73.42978	8/27/2009	1.20	Muck	partially sunny			2	0	0	0	2	0	0	0	3
10	5	30.0	Martha Balfour	41.44725	-73.42969	8/27/2009	1.50	Muck	partially sunny			0	0	0	0	2	0	0	0	4
10	6	40.0	Martha Balfour	41.44733	-73.42962	8/27/2009	1.00	Muck	partially sunny			0	0	0	0	2	0	0	0	2
10	7	50.0	Martha Balfour	41.44743	-73.42958	8/27/2009	0.50	Muck	partially sunny			0	0	0	0	3	0	0	0	0

Appendix. Lake Lillinonah transect data (1 of 4).

Transect	Point	DFS(m)	Surveyor	Latitude	Longitude	Date	Depth (m)	Substrate	Weather	Wind	Notes	CerDem	EleSp.	EriAqu	GraAur	LemMin	MyrSpi	NajMin	PotBic	PotIll
1	1	0.0	Martha Balfour	41.46157	-73.32372	7/28/2009	0.30	Gravel				0	0	0	0	0	0	0	0	0
1	2	5.0	Martha Balfour	41.46154	-73.32366	7/28/2009	1.00	Sand				0	0	0	0	0	0	0	0	0
1	3	10.0	Martha Balfour	41.46152	-73.32361	7/28/2009	1.70	Sand				0	0	0	0	0	0	0	0	0
1	4	20.0	Martha Balfour	41.46146	-73.32349	7/28/2009	2.50	Sand				0	0	0	0	0	0	0	0	0
1	5	30.0	Martha Balfour	41.46140	-73.32340	7/28/2009	3.60	Sand				0	0	0	0	0	0	0	0	0
1	6	40.0	Martha Balfour	41.46133	-73.32329	7/28/2009	3.50	Sand				0	0	0	0	0	0	0	0	0
2	1	0.0	Martha Balfour	41.46645	-73.31523	7/28/2009	0.10	Rock				0	0	0	0	0	0	0	0	0
2	2	5.0	Martha Balfour	41.46650	-73.31521	7/28/2009	2.00	Sand				0	0	0	0	0	0	0	0	0
2	3	10.0	Martha Balfour	41.46653	-73.31519	7/28/2009	3.30	Sand				0	0	0	0	0	0	0	0	0
2	4	20.0	Martha Balfour	41.46663	-73.31519	7/28/2009	0.00	ND				0	0	0	0	0	0	0	0	0
2	5	30.0	Martha Balfour	41.46672	-73.31523	7/28/2009	0.00	ND				0	0	0	0	0	0	0	0	0
2	6	40.0	Martha Balfour	41.46683	-73.31526	7/28/2009	0.00	ND				0	0	0	0	0	0	0	0	0
2	7	50.0	Martha Balfour	41.46689	-73.31529	7/28/2009	0.00	ND				0	0	0	0	0	0	0	0	0
2	8	60.0	Martha Balfour	41.46697	-73.31534	7/28/2009	0.00	ND				0	0	0	0	0	0	0	0	0
2	9	0.0	Martha Balfour	41.46708	-73.31537	7/28/2009	0.00	ND			grapple not touching	0	0	0	0	0	0	0	0	0
2	10	80.0	Martha Balfour	41.46713	-73.31545	7/28/2009	0.00	ND			still not touching	0	0	0	0	0	0	0	0	0
3	1	0.0	Martha Balfour	41.53865	-73.40570	7/29/2009	0.10	Rock	Cloudy			0	0	0	0	0	0	0	0	0
3	2	5.0	Martha Balfour	41.53862	-73.40564	7/29/2009	1.90	Sand				0	0	0	0	0	1	0	0	0
3	3	10.0	Martha Balfour	41.53861	-73.40557	7/29/2009	1.90	Sand				0	0	0	0	0	0	0	0	0
3	4	20.0	Martha Balfour	41.53862	-73.40547	7/29/2009	1.00	Sand				0	0	0	0	0	2	0	0	0
3	5	30.0	Martha Balfour	41.53858	-73.40533	7/29/2009	0.80	Muck				0	0	0	0	0	2	0	0	0
3	6	40.0	Martha Balfour	41.53852	-73.40522	7/29/2009	0.70	Muck				0	0	0	0	0	2	0	0	0
3	7	50.0	Martha Balfour	41.53849	-73.40511	7/29/2009	0.90	Muck				0	0	0	0	0	2	0	0	0
3	8	60.0	Martha Balfour	41.53845	-73.40502	7/29/2009	0.90	Muck				1	0	0	0	0	2	0	0	1
3	9	70.0	Martha Balfour	41.53840	-73.40493	7/29/2009	0.90	Muck				0	0	0	0	0	2	0	0	0
3	10	80.0	Martha Balfour	41.53839	-73.40480	7/29/2009	1.00	Muck				0	0	0	0	0	2	0	0	1
4	1	0.0	Martha Balfour	41.52355	-73.39915	7/29/2009	0.10	Rock	Cloudy			0	0	0	0	0	0	0	0	0
4	2	5.0	Martha Balfour	41.52349	-73.39918	7/29/2009	0.70	Rock				0	0	0	0	0	0	0	0	0
4	3	10.0	Martha Balfour	41.52348	-73.39922	7/29/2009	2.00	Rock				0	0	0	0	0	0	0	0	0
4	4	20.0	Martha Balfour	41.52343	-73.39935	7/29/2009	3.20	Rock				0	0	0	0	0	0	0	0	0
4	5	30.0	Martha Balfour	41.52336	-73.39944	7/29/2009	0.00	ND				0	0	0	0	0	0	0	0	0
4	6	40.0	Martha Balfour	41.52334	-73.39957	7/29/2009	0.00	ND				0	0	0	0	0	0	0	0	0
4	7	50.0	Martha Balfour	41.52323	-73.39961	7/29/2009	2.50	Rock				0	0	0	0	0	0	0	0	0
4	8	60.0	Martha Balfour	41.52321	-73.39972	7/29/2009	2.20	Rock				0	0	0	0	0	0	0	0	0
4	9	70.0	Martha Balfour	41.52313	-73.39978	7/29/2009	2.10	Rock				0	0	0	0	0	0	0	0	0
4	10	80.0	Martha Balfour	41.52302	-73.39983	7/29/2009	2.00	Rock				0	0	0	0	0	0	0	0	0
5	1	0.0	Martha Balfour	41.51137	-73.38779	7/27/2009	0.10	Sand				0	0	0	0	0	0	0	0	0
5	2	0.0	Martha Balfour	41.51129	-73.38775	7/27/2009	0.00	ND				0	0	0	0	0	0	0	0	0
5	3	10.0	Martha Balfour	41.51126	-73.38774	7/27/2009	1.80	Sand				0	0	0	0	0	0	0	0	0
5	4	20.0	Martha Balfour	41.51117	-73.38778	7/27/2009	3.00	Sand				0	0	0	0	0	0	0	0	0
5	5	30.0	Martha Balfour	41.51109	-73.38774	7/27/2009	0.00	ND				0	0	0	0	0	0	0	0	0
5	6	40.0	Martha Balfour	41.51099	-73.38776	7/27/2009	0.00	ND				0	0	0	0	0	0	0	0	0
5	7	50.0	Martha Balfour	41.51089	-73.38779	7/27/2009	0.00	ND				0	0	0	0	0	0	0	0	0
5	8	60.0	Martha Balfour	41.51082	-73.38782	7/27/2009	0.00	ND				0	0	0	0	0	0	0	0	0
5	9	70.0	Martha Balfour	41.51072	-73.38778	7/27/2009	0.00	ND				0	0	0	0	0	0	0	0	0
5	10	80.0	Martha Balfour	41.51064	-73.38783	7/27/2009	0.00	ND				0	0	0	0	0	0	0	0	0

Appendix. Lake Lillinonah transect data (2 of 4).

Transect	Point	DFS(m)	Surveyor	Latitude	Longitude	Date	Depth (m)	Substrate	Weather	Wind	Notes	CerDem	EleSp.	EriAqu	GraAur	LemMin	MyrSpi	NajMin	PotBic	PotIll
6	1	0.0	Martha Balfour	41.49918	-73.37382	7/27/2009	0.00	Sand				0	0	0	0	0	0	0	0	0
6	2	5.0	Martha Balfour	41.49919	-73.37386	7/27/2009	0.20	Silt				0	0	0	0	0	0	0	0	0
6	3	10.0	Martha Balfour	41.49923	-73.37393	7/27/2009	0.30	Silt				0	0	0	0	0	0	0	0	0
6	4	20.0	Martha Balfour	41.49929	-73.37408	7/27/2009	1.10	Silt				0	0	0	0	0	2	0	0	0
6	5	30.0	Martha Balfour	41.49930	-73.37417	7/27/2009	1.90	Silt				0	0	0	0	0	2	1	0	0
6	6	40.0	Martha Balfour	41.49933	-73.37428	7/27/2009	2.20	Silt				0	0	0	0	0	3	0	0	0
6	7	50.0	Martha Balfour	41.49937	-73.37439	7/27/2009	3.00	Silt				0	0	0	0	0	2	0	0	0
6	8	60.0	Martha Balfour	41.49941	-73.37453	7/27/2009	0.00	ND				0	0	0	0	0	0	0	0	0
6	9	70.0	Martha Balfour	41.49949	-73.37463	7/27/2009	0.00	ND				0	0	0	0	0	0	0	0	0
6	10	80.0	Martha Balfour	41.49955	-73.37470	7/27/2009	0.00	ND				0	0	0	0	0	0	0	0	0
7	1	0.0	Martha Balfour	41.48142	-73.35951	7/27/2009	0.10	Rock	partially sunny			0	0	0	0	0	0	0	0	0
7	2	5.0	Martha Balfour	41.48146	-73.35948	7/27/2009	3.60	ND				0	0	0	0	0	0	0	0	0
7	3	10.0	Martha Balfour	41.48153	-73.35951	7/27/2009	0.00	ND				0	0	0	0	0	0	0	0	0
7	4	20.0	Martha Balfour	41.48162	-73.35951	7/28/2009	0.00	ND				0	0	0	0	0	0	0	0	0
7	5	30.0	Martha Balfour	41.48170	-73.35950	7/28/2009	0.00	ND				0	0	0	0	0	0	0	0	0
7	6	40.0	Martha Balfour	41.48181	-73.35947	7/28/2009	0.00	ND				0	0	0	0	0	0	0	0	0
7	7	50.0	Martha Balfour	41.48191	-73.35942	7/28/2009	0.00	ND				0	0	0	0	0	0	0	0	0
8	1	0.0	Martha Balfour	41.46964	-73.32940	7/28/2009	0.20	Gravel				0	0	0	0	0	0	0	0	0
8	2	5.0	Martha Balfour	41.46968	-73.32936	7/28/2009	1.50	Sand				0	0	0	0	0	0	0	0	0
8	3	10.0	Martha Balfour	41.46973	-73.32933	7/28/2009	2.50	Sand				0	0	0	0	0	0	0	0	0
8	4	20.0	Martha Balfour	41.46982	-73.32926	7/28/2009	0.00	ND				0	0	0	0	0	0	0	0	0
8	5	30.0	Martha Balfour	41.46989	-73.32921	7/28/2009	0.00	ND				0	0	0	0	0	0	0	0	0
8	6	40.0	Martha Balfour	41.47001	-73.32919	7/28/2009	0.00	ND			grapple doesnt reach	0	0	0	0	0	0	0	0	0
8	7	50.0	Martha Balfour	41.47010	-73.32925	7/28/2009	0.00	ND				0	0	0	0	0	0	0	0	0
8	8	60.0	Martha Balfour	41.47027	-73.32923	7/28/2009	0.00	ND			no grapple	0	0	0	0	0	0	0	0	0
9	1	0.0	Martha Balfour	41.49653	-73.32820	7/29/2009	0.00	Silt	windy		water low, but elesp., potbic, eriaqu on exposed	0	3	2	0	0	0	2	1	0
9	2	5.0	Martha Balfour	41.49649	-73.32817	7/29/2009	0.30	Sand				0	2	0	2	0	0	0	0	0
9	3	10.0	Martha Balfour	41.49646	-73.32812	7/29/2009	0.50	Sand				0	2	0	0	0	0	0	0	0
9	4	20.0	Martha Balfour	41.49642	-73.32799	7/29/2009	0.50	Sand				0	0	0	0	0	0	0	0	0
9	5	30.0	Martha Balfour	41.49637	-73.32786	7/29/2009	1.00	Sand				0	0	0	0	0	0	0	0	0
9	6	40.0	Martha Balfour	41.49638	-73.32774	7/29/2009	3.10	Sand				0	0	0	0	0	0	0	0	0
9	7	50.0	Martha Balfour	41.49633	-73.32758	7/29/2009	2.10	Sand				0	0	0	0	0	0	0	0	0
9	8	60.0	Martha Balfour	41.49633	-73.32751	7/29/2009	3.10	Sand				0	0	0	0	0	0	0	0	0
9	9	70.0	Martha Balfour	41.49629	-73.32740	7/29/2009	0.00	ND	windy			0	0	0	0	0	0	0	0	0
9	10	80.0	Martha Balfour	41.49626	-73.32725	7/29/2009	0.00	ND				0	0	0	0	0	0	0	0	0
10	1	0.0	Martha Balfour	41.48392	-73.32362	7/29/2009	0.10	Rock	windy			0	0	0	0	0	0	0	0	0
10	2	5.0	Martha Balfour	41.48388	-73.32364	7/29/2009	1.50	Silt				0	0	0	0	0	0	0	0	0
10	3	10.0	Martha Balfour	41.48384	-73.32368	7/29/2009	0.00	ND				0	0	0	0	0	0	0	0	0
10	4	20.0	Martha Balfour	41.48377	-73.32379	7/29/2009	0.00	ND				0	0	0	0	0	0	0	0	0
10	5	30.0	Martha Balfour	41.48373	-73.32381	7/29/2009	0.00	ND				0	0	0	0	0	0	0	0	0
10	6	40.0	Martha Balfour	41.48360	-73.32391	7/29/2009	0.00	ND				0	0	0	0	0	0	0	0	0
10	7	50.0	Martha Balfour	41.48357	-73.32400	7/29/2009	0.00	ND			grapple doesn't touch	0	0	0	0	0	0	0	0	0
10	8	60.0	Martha Balfour	41.48352	-73.32414	7/29/2009	0.00	ND				0	0	0	0	0	0	0	0	0
10	9	70.0	Martha Balfour	41.48346	-73.32426	7/29/2009	0.00	ND				0	0	0	0	0	0	0	0	0
10	10	80.0	Martha Balfour	41.48342	-73.32436	7/29/2009	0.00	ND				0	0	0	0	0	0	0	0	0

Appendix. Lake Lillinonah transect data (3 of 4).

Transect	Point	DFS(m)	Surveyor	Latitude	Longitude	Date	Depth (m)	Substrate	Weather	Wind	Notes	CerDem	EleSp.	EriAqu	GraAur	LemMin	MyrSpi	NajMin	PotBic	PotIll
11	1	0.0	Martha Balfour	41.47264	-73.31201	7/29/2009	0.10	Sand			water low, cant grt as close to shore as before	0	0	0	0	0	0	2	1	0
11	2	5.0	Martha Balfour	41.47258	-73.31202	7/29/2009	0.30	Sand				0	0	0	0	0	0	2	2	0
11	3	10.0	Martha Balfour	41.47253	-73.31204	7/29/2009	0.80	Sand				0	0	0	0	0	2	2	0	0
11	4	20.0	Martha Balfour	41.47245	-73.31209	7/29/2009	1.70	Sand				0	0	0	0	0	2	2	0	0
11	5	30.0	Martha Balfour	41.47237	-73.31206	7/29/2009	2.20	Sand				0	0	0	0	0	3	0	0	0
11	6	40.0	Martha Balfour	41.47225	-73.31204	7/29/2009	0.00	ND			too deep for depth measure	0	0	0	0	0	0	0	0	0
11	7	50.0	Martha Balfour	41.47217	-73.31201	7/29/2009	0.00	ND				0	0	0	0	0	0	0	0	0
11	8	60.0	Martha Balfour	41.47211	-73.31207	7/29/2009	0.00	ND				0	0	0	0	0	0	0	0	0
11	9	70.0	Martha Balfour	41.47201	-73.31220	7/29/2009	0.00	ND				0	0	0	0	0	0	0	0	0
11	10	80.0	Martha Balfour	41.47192	-73.31230	7/29/2009	0.00	ND			too deep, didnt touch	0	0	0	0	0	0	0	0	0
12	1	0.0	Martha Balfour	41.46128	-73.29601	7/29/2009	0.00	Sand			cant reach shore	0	0	0	0	0	0	0	0	0
12	2	5.0	Martha Balfour	41.46131	-73.29606	7/29/2009	0.50	Sand				0	0	0	0	0	0	0	0	0
12	3	10.0	Martha Balfour	41.46132	-73.29615	7/29/2009	2.50	Sand				0	0	0	0	0	0	0	0	0
12	4	20.0	Martha Balfour	41.46137	-73.29625	7/29/2009	0.00	ND				0	0	0	0	0	0	0	0	0
12	5	30.0	Martha Balfour	41.46144	-73.29636	7/29/2009	0.00	ND				0	0	0	0	0	0	0	0	0
12	6	40.0	Martha Balfour	41.46151	-73.29646	7/29/2009	0.00	ND			too deep	0	0	0	0	0	0	0	0	0
13	1	0.0	Martha Balfour	41.44796	-73.30504	7/29/2009	0.10	Sand				0	0	0	0	0	0	0	0	0
13	2	5.0	Martha Balfour	41.44796	-73.30497	7/29/2009	1.50	Rock				0	0	0	0	0	0	0	0	0
13	3	10.0	Martha Balfour	41.44798	-73.30491	7/29/2009	3.50	Rock				0	0	0	0	0	0	0	0	0
13	4	20.0	Martha Balfour	41.44796	-73.30477	7/29/2009	0.00	ND				0	0	0	0	0	0	0	0	0
13	5	30.0	Martha Balfour	41.44782	-73.30466	7/29/2009	0.00	ND				0	0	0	0	0	0	0	0	0
13	6	40.0	Martha Balfour	41.44782	-73.30459	7/29/2009	0.00	ND				0	0	0	0	0	0	0	0	0
13	7	50.0	Martha Balfour	41.44776	-73.30450	7/29/2009	0.00	ND				0	0	0	0	0	0	0	0	0
13	8	60.0	Martha Balfour	41.44768	-73.30441	7/29/2009	0.00	ND				0	0	0	0	0	0	0	0	0
13	9	70.0	Martha Balfour	41.44763	-73.30429	7/29/2009	0.00	ND				0	0	0	0	0	0	0	0	0
13	10	80.0	Martha Balfour	41.44758	-73.30420	7/29/2009	0.00	ND			too deep	0	0	0	0	0	0	0	0	0
14	1	0.0	Martha Balfour	41.45205	-73.30375	7/29/2009	0.30	Rock				0	0	0	0	0	0	0	0	0
14	2	5.0	Martha Balfour	41.45204	-73.30369	7/29/2009	2.80	Rock	windy			0	0	0	0	0	0	0	0	0
14	3	10.0	Martha Balfour	41.45204	-73.30362	7/29/2009	0.00	ND				0	0	0	0	0	0	0	0	0
14	4	20.0	Martha Balfour	41.45206	-73.30347	7/29/2009	0.00	ND				0	0	0	0	0	0	0	0	0
14	5	30.0	Martha Balfour	41.45208	-73.30334	7/29/2009	0.00	ND			too deep	0	0	0	0	0	0	0	0	0
14	6	40.0	Martha Balfour	41.45209	-73.30323	7/29/2009	0.00	ND			too deep	0	0	0	0	0	0	0	0	0
14	7	50.0	Martha Balfour	41.45206	-73.30310	7/29/2009	0.00	ND				0	0	0	0	0	0	0	0	0
14	8	60.0	Martha Balfour	41.45207	-73.30300	7/29/2009	0.00	ND				0	0	0	0	0	0	0	0	0
14	9	70.0	Martha Balfour	41.45209	-73.30288	7/29/2009	0.00	ND				0	0	0	0	0	0	0	0	0
14	10	80.0	Martha Balfour	41.45209	-73.30275	7/29/2009	0.00	ND			all too deep since last note	0	0	0	0	0	0	0	0	0
15	1	0.0	Martha Balfour	41.46791	-73.30250	7/28/2009	0.30	Gravel				0	0	0	0	0	0	0	0	0
15	2	5.0	Martha Balfour	41.46792	-73.30245	7/28/2009	2.00	Gravel				0	0	0	0	0	0	0	0	0
15	3	10.0	Martha Balfour	41.46797	-73.30245	7/28/2009	3.20	Gravel				0	0	0	0	0	0	0	0	0
15	4	20.0	Martha Balfour	41.46808	-73.30234	7/28/2009	0.00	ND				0	0	0	0	0	0	0	0	0
15	5	30.0	Martha Balfour	41.46811	-73.30222	7/28/2009	0.00	ND				0	0	0	0	0	0	0	0	0
15	6	40.0	Martha Balfour	41.46816	-73.30211	7/28/2009	0.00	ND				0	0	0	0	0	0	0	0	0
15	7	50.0	Martha Balfour	41.46829	-73.30210	7/28/2009	0.00	ND				0	0	0	0	0	0	0	0	0

Appendix. Lake Lillinonah transect data (4 of 4).

Transect	Point	DFS(m)	Surveyor	Latitude	Longitude	Date	Depth (m)	Substrate	Weather	Wind	Notes	CerDem	EleSp.	EriAqu	GraAur	LemMin	MyrSpi	NajMin	PotBic	PotIll
15	8	60.0	Martha Balfour	41.46836	-73.30211	7/28/2009	0.00	ND				0	0	0	0	0	0	0	0	0
16	1	0.0	Martha Balfour	41.51013	-73.31973	7/29/2009	0.10	Muck	Cloudy		cant get to shore, all mud w/no plants	0	0	0	0	0	0	0	0	0
16	2	5.0	Martha Balfour	41.51007	-73.31971	7/29/2009	0.70	Muck				0	0	0	0	0	0	0	0	0
16	3	10.0	Martha Balfour	41.51003	-73.31969	7/29/2009	1.00	Muck				0	0	0	0	0	0	0	0	0
16	4	20.0	Martha Balfour	41.50994	-73.31966	7/29/2009	3.00	Muck				0	0	0	0	1	0	0	0	0
16	5	30.0	Martha Balfour	41.50984	-73.31959	7/29/2009	3.50	Muck				0	0	0	0	0	0	0	0	0
16	6	40.0	Martha Balfour	41.50976	-73.31963	7/29/2009	3.40	Muck				0	0	0	0	0	0	0	0	0
16	7	50.0	Martha Balfour	41.50966	-73.31967	7/29/2009	3.40	Muck				0	0	0	0	0	0	0	0	0
16	8	60.0	Martha Balfour	41.50959	-73.31970	7/29/2009	3.00	Muck				0	0	0	0	0	0	0	0	0
16	9	70.0	Martha Balfour	41.50948	-73.31964	7/29/2009	2.30	Muck				0	0	0	0	0	0	0	0	0
16	10	80.0	Martha Balfour	41.50940	-73.31961	7/29/2009	2.10	Muck				0	0	0	0	0	0	0	0	0
17	1	0.0	Martha Balfour	41.49058	-73.38162	7/27/2009	0.10	Rock	partially sunny			0	1	0	0	0	0	0	0	0
17	2	5.0	Martha Balfour	41.49064	-73.38163	7/27/2009	1.00	Sand				0	0	0	0	0	0	0	0	0
17	3	10.0	Martha Balfour	41.49066	-73.38164	7/27/2009	1.10	Sand				0	0	0	0	0	0	0	0	0
17	4	20.0	Martha Balfour	41.49077	-73.38163	7/27/2009	2.20	Sand				0	0	0	0	0	0	0	0	0
17	5	30.0	Martha Balfour	41.49087	-73.38168	7/27/2009	2.50	Sand				0	0	0	0	0	0	0	0	0
17	6	40.0	Martha Balfour	41.49096	-73.38175	7/27/2009	2.90	Sand				0	0	0	0	0	0	0	0	0
17	7	50.0	Martha Balfour	41.49105	-73.38181	7/27/2009	3.00	Sand				0	0	0	0	0	0	0	0	0
17	8	60.0	Martha Balfour	41.49113	-73.38181	7/27/2009	3.00	Sand				0	0	0	0	0	0	0	0	0
17	9	70.0	Martha Balfour	41.49119	-73.38188	7/27/2009	3.50	Sand				0	0	0	0	0	0	0	0	0
17	10	80.0	Martha Balfour	41.49129	-73.38192	7/27/2009	0.00	ND				0	0	0	0	0	0	0	0	0

Appendix. Lake Zoar transect data (1 of 2).

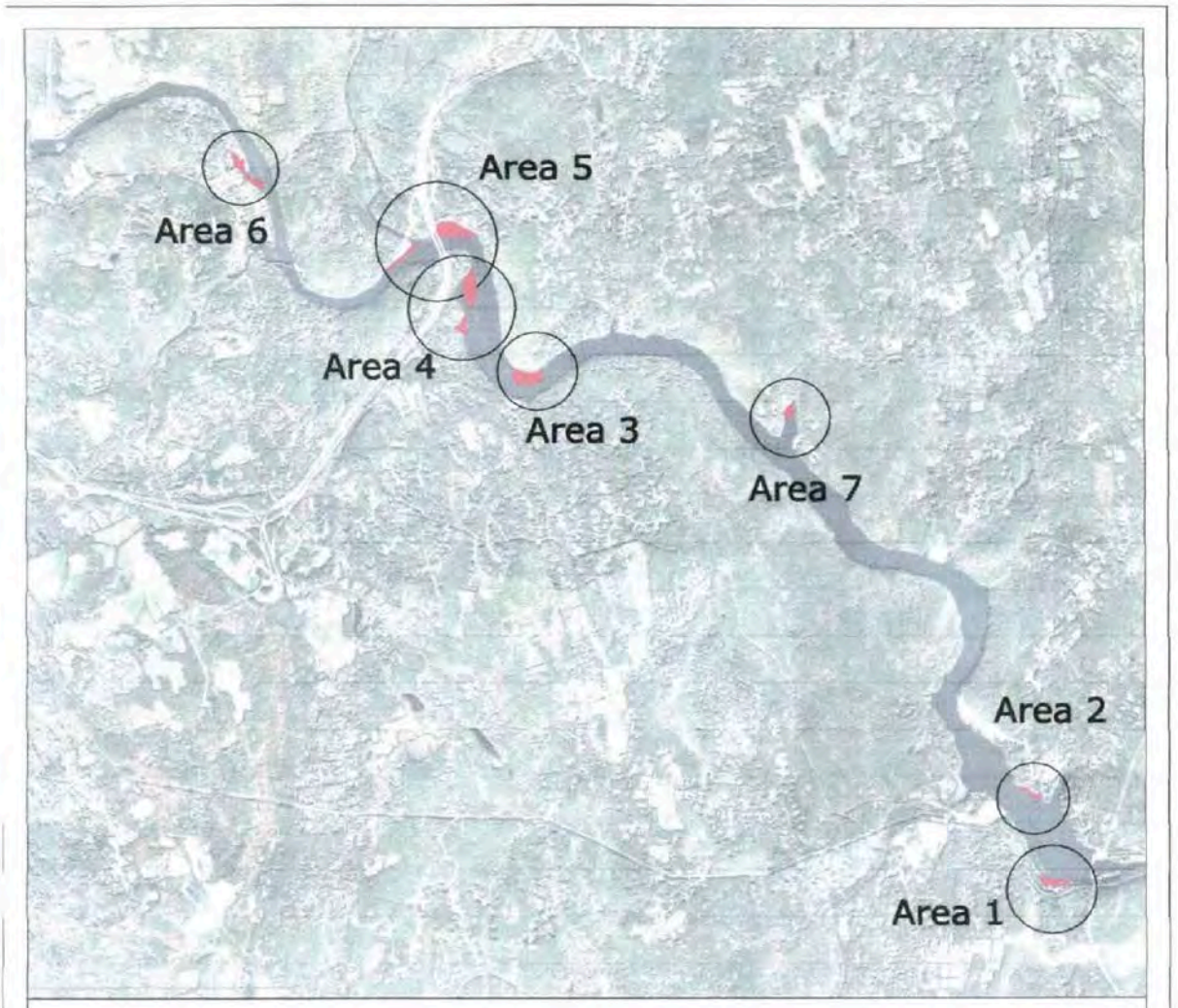
Transect	Point	DFS (m)	Surveyor	Latitude	Longitude	Date	Depth (m)	Substrate	Weather	Wind	Notes	CerDem	EloNut	EriAqu	MyrSpi	NajFle	NajMin	PotCri	PotEpi	PotPra	PotZos	ValAme
1	1	0.0	Martha Balfour	41.42835	-73.23940	8/25/2009	0.10	Sand	sunny			0	0	0	0	0	0	0	0	0	0	0
1	2	5.0	Martha Balfour	41.42832	-73.23946	8/25/2009	0.30	Sand				0	0	0	0	0	0	0	0	0	0	0
1	3	10.0	Martha Balfour	41.42830	-73.23953	8/25/2009	0.60	Sand				0	0	0	0	0	0	0	0	0	0	2
1	4	20.0	Martha Balfour	41.42829	-73.23964	8/25/2009	1.70	Sand				2	0	0	2	0	0	0	0	0	0	3
1	5	30.0	Martha Balfour	41.42822	-73.23976	8/25/2009	2.80	Sand				0	0	0	0	0	0	0	0	0	0	0
1	6	40.0	Martha Balfour	41.42816	-73.23985	8/25/2009	0.00	ND				0	0	0	0	0	0	0	0	0	0	0
1	7	50.0	Martha Balfour	41.42813	-73.23996	8/25/2009	0.00	ND				0	0	0	0	0	0	0	0	0	0	0
1	8	60.0	Martha Balfour	41.42814	-73.24005	8/25/2009	0.00	ND				0	0	0	0	0	0	0	0	0	0	0
1	9	70.0	Martha Balfour	41.42808	-73.24013	8/25/2009	0.00	ND				0	0	0	0	0	0	0	0	0	0	0
1	10	80.0	Martha Balfour	41.42795	-73.24022	8/25/2009	0.00	ND				0	0	0	0	0	0	0	0	0	0	0
2	1	0.0	Annette Russell	41.43700	-73.24929	8/25/2009	0.20	Rock	sunny			0	0	0	0	0	0	0	0	0	0	0
2	2	5.0	Annette Russell	41.43704	-73.24928	8/25/2009	2.20	Sand				0	2	0	0	0	0	0	0	0	0	0
2	3	10.0	Annette Russell	41.43709	-73.24925	8/25/2009	3.00	Sand				0	0	0	0	0	0	0	0	0	0	0
2	4	20.0	Annette Russell	41.43719	-73.24926	8/25/2009	0.00	ND			too deep for depth measure	0	0	0	0	0	0	0	0	0	0	0
2	5	30.0	Annette Russell	41.43729	-73.24922	8/25/2009	0.00	ND				0	0	0	0	0	0	0	0	0	0	0
2	6	40.0	Annette Russell	41.43736	-73.24926	8/25/2009	0.00	ND				0	0	0	0	0	0	0	0	0	0	2
2	7	50.0	Annette Russell	41.43750	-73.24920	8/25/2009	2.00	ND				0	0	0	2	1	0	3	0	0	0	0
2	8	60.0	Annette Russell	41.43758	-73.24929	8/25/2009	2.00	Sand				0	0	0	2	0	0	2	3	0	1	0
2	9	70.0	Annette Russell	41.43765	-73.24928	8/25/2009	2.00	Sand				0	3	0	2	0	0	0	0	0	0	3
2	10	80.0	Annette Russell	41.43776	-73.24923	8/25/2009	1.50	Sand			current fast, plants laying down, releasing dam?	0	0	0	0	0	0	2	2	0	0	3
3	1	0.0	Annette Russell	41.43733	-73.26669	8/25/2009	0.00	ND	sunny			0	0	0	0	0	0	0	0	0	0	0
3	2	5.0	Annette Russell	41.43736	-73.26667	8/25/2009	0.30	Sand				0	0	2	0	0	0	0	0	0	0	3
3	3	10.0	Annette Russell	41.43740	-73.26665	8/25/2009	1.00	Sand				0	1	0	0	0	0	0	0	0	0	4
3	4	0.0	Annette Russell	41.43749	-73.26660	8/25/2009	0.50	Sand				0	0	0	0	0	1	1	0	0	0	2
3	5	30.0	Annette Russell	41.43759	-73.26657	8/25/2009	0.50	Sand				0	0	0	0	0	0	2	0	2	0	0
3	6	40.0	Annette Russell	41.43767	-73.26653	8/25/2009	0.30	Sand				0	0	0	0	0	0	2	0	0	0	0
3	7	50.0	Annette Russell	41.43776	-73.26649	8/25/2009	0.50	Sand				0	2	0	0	0	0	2	0	0	0	0
3	8	60.0	Annette Russell	41.43784	-73.26641	8/25/2009	1.00	Sand				0	3	0	0	0	0	0	0	0	0	0
3	9	70.0	Annette Russell	41.43791	-73.26636	8/25/2009	1.50	Sand				0	4	0	3	0	2	0	0	0	0	0
3	10	80.0	Annette Russell	41.43793	-73.26628	8/25/2009	3.50	Sand				0	0	0	0	0	0	0	0	0	0	0
4	1	0.0	Annette Russell	41.45309	-73.28180	8/25/2009	0.30	Rock	sunny			0	0	0	0	0	0	0	0	0	0	0
4	2	5.0	Annette Russell	41.45305	-73.28179	8/25/2009	1.50	Sand				2	0	0	3	1	1	0	0	0	0	3
4	3	10.0	Annette Russell	41.45302	-73.28173	8/26/2009	2.20	Sand			current FAST, wind blowing same direction!	4	0	0	3	0	0	0	0	0	0	3
4	4	20.0	Annette Russell	41.45296	-73.28159	8/26/2009	0.00	ND			too deep for measure, current FAST	0	3	0	0	2	0	0	0	0	0	2
4	5	30.0	Annette Russell	41.45290	-73.28151	8/26/2009	0.00	ND				0	0	0	0	0	0	0	0	0	0	0
4	6	40.0	Annette Russell	41.45283	-73.28137	8/26/2009	0.00	ND				0	0	0	0	0	0	0	0	0	0	0
4	7	50.0	Annette Russell	41.45284	-73.28135	8/26/2009	0.00	ND				0	0	0	0	0	0	0	0	0	0	0
4	8	60.0	Annette Russell	41.45270	-73.28116	8/26/2009	0.00	ND				0	0	0	0	0	0	0	0	0	0	0
4	9	70.0	Annette Russell	41.45266	-73.28110	8/26/2009	0.00	ND				0	0	0	0	0	0	0	0	0	0	0
4	10	80.0	Annette Russell	41.45258	-73.28106	8/26/2009	0.00	ND				0	0	0	0	0	0	0	0	0	0	0
5	1	0.0	Annette Russell	41.43200	-73.22739	8/25/2009	0.50	Sand	sunny		deeper tha previos yr	0	0	0	0	0	0	0	0	0	0	0
5	2	5.0	Annette Russell	41.43196	-73.22742	8/25/2009	0.50	Sand				0	0	0	1	0	2	0	0	0	0	0
5	3	10.0	Annette Russell	41.43189	-73.22744	8/25/2009	0.60	Sand				0	0	0	2	0	2	0	0	0	0	0
5	4	20.0	Annette Russell	41.43181	-73.22746	8/25/2009	0.95	Sand				0	0	0	3	0	3	0	0	0	0	0
5	5	30.0	Annette Russell	41.43172	-73.22748	8/25/2009	1.00	Sand				1	0	0	3	0	2	0	0	0	0	0
5	6	40.0	Annette Russell	41.43165	-73.22753	8/25/2009	1.60	Sand				2	0	0	3	0	0	0	0	0	0	0
5	7	50.0	Annette Russell	41.43155	-73.22752	8/25/2009	1.60	Sand				2	0	0	2	0	0	0	0	0	0	0
5	8	60.0	Annette Russell	41.43145	-73.22756	8/25/2009	1.80	Sand				2	0	0	3	0	2	0	0	0	0	0
5	9	70.0	Annette Russell	41.43137	-73.22756	8/25/2009	2.30	Sand				4	0	0	3	0	0	0	0	0	0	0
5	10	80.0	Annette Russell	41.43128	-73.22754	8/25/2009	3.00	Sand				0	0	0	0	0	0	0	0	0	0	0
6	1	0.0	Annette Russell	41.42414	-73.20740	8/25/2009	0.00	ND	partially sunny			0	0	0	0	0	0	0	0	0	0	0
6	2	10.0	Annette Russell	41.42408	-73.20738	8/25/2009	0.50	Sand				1	0	0	2	0	1	0	0	0	0	0
6	3	10.0	Annette Russell	41.42406	-73.20733	8/25/2009	1.00	Sand				0	0	0	2	0	0	0	0	0	0	0
6	4	20.0	Annette Russell	41.42398	-73.20727	8/25/2009	1.90	Sand				3	0	0	2	0	1	0	0	0	0	0
6	5	30.0	Annette Russell	41.42389	-73.20722	8/25/2009	2.10	Sand				3	0	0	2	0	0	0	0	0	0	0
6	6	40.0	Annette Russell	41.42380	-73.20719	8/25/2009	2.10	Sand				3	0	0	2	0	0	0	0	0	0	0
6	7	50.0	Annette Russell	41.42370	-73.20720	8/25/2009	2.50	Sand				3	0	0	0	0	0	0	0	0	0	0
6	8	60.0	Annette Russell	41.42360	-73.20721	8/25/2009	2.80	Sand				2	0	0	0	0	0	0	0	0	0	0
6	9	70.0	Annette Russell	41.42351	-73.20722	8/25/2009	2.90	Sand				3	0	0	0	0	0	0	0	0	0	0
6	10	80.0	Annette Russell	41.42343	-73.20719	8/25/2009	3.00	Sand				2	0	0	0	0	0	0	0	0	0	0

Appendix. Lake Zoar transect data (2 of 2).

Transect	Point	DFS (m)	Surveyor	Latitude	Longitude	Date	Depth (m)	Substrate	Weather	Wind	Notes	CerDem	EloNut	EriAqu	MyrSpi	NajFle	NajMin	PotCri	PotEpi	PotPra	PotZos	ValAme
7	1	0.0	Annette Russell	41.41260	-73.20176	8/25/2009	0.00	Sand	partially sunny			0	0	0	0	0	0	0	0	0	0	0
7	2	5.0	Annette Russell	41.41260	-73.20169	8/25/2009	0.60	Sand				0	0	0	0	0	0	0	0	0	0	0
7	3	10.0	Annette Russell	41.41263	-73.20163	8/25/2009	1.10	Sand				0	0	0	0	0	0	0	0	0	0	0
7	4	20.0	Annette Russell	41.41266	-73.20149	8/25/2009	2.00	Sand				0	0	0	0	0	0	0	0	0	0	0
7	5	30.0	Annette Russell	41.41273	-73.20142	8/25/2009	2.10	Sand				1	0	0	3	0	0	0	0	0	0	0
7	6	40.0	Annette Russell	41.41280	-73.20134	8/25/2009	2.10	Sand				3	0	0	4	0	0	0	0	0	0	0
7	7	50.0	Annette Russell	41.41284	-73.20122	8/25/2009	2.20	Sand				2	0	0	3	0	0	0	0	0	0	1
7	8	60.0	Annette Russell	41.41287	-73.20112	8/25/2009	2.50	Sand				3	0	0	3	0	0	0	0	0	0	0
7	9	70.0	Annette Russell	41.41292	-73.20102	8/25/2009	2.80	Rock				0	0	0	0	0	0	0	0	0	0	0
7	10	80.0	Annette Russell	41.41294	-73.20087	8/25/2009	3.50	Sand				0	0	0	0	0	0	0	0	0	0	0
8	1	0.0	Annette Russell	41.39852	-73.19082	8/25/2009	0.00	Gravel	partially sunny			0	0	0	0	0	0	0	0	0	0	0
8	2	5.0	Annette Russell	41.39853	-73.19075	8/25/2009	0.60	Sand				0	0	0	0	0	1	0	0	0	0	0
8	3	10.0	Annette Russell	41.39854	-73.19069	8/25/2009	1.50	Sand				0	0	0	2	0	0	0	0	0	0	0
8	4	20.0	Annette Russell	41.39854	-73.19056	8/25/2009	1.80	Sand				2	0	0	3	0	3	0	0	0	0	0
8	5	30.0	Annette Russell	41.39854	-73.19046	8/25/2009	1.90	Sand				0	0	0	4	0	2	0	0	0	0	0
8	6	40.0	Annette Russell	41.39851	-73.19032	8/25/2009	3.00	Sand				0	0	0	3	0	0	0	0	0	0	0
8	7	50.0	Annette Russell	41.39849	-73.19021	8/25/2009	0.00	ND			too deep for depth measure	0	0	0	0	0	0	0	0	0	0	0
8	8	60.0	Annette Russell	41.39847	-73.19008	8/25/2009	0.00	ND				0	0	0	0	0	0	0	0	0	0	0
8	9	70.0	Annette Russell	41.39845	-73.18996	8/25/2009	0.00	ND				0	0	0	0	0	0	0	0	0	0	0
8	10	80.0	Annette Russell	41.39843	-73.18986	8/25/2009	0.00	ND				0	0	0	0	0	0	0	0	0	0	0
9	1	0.0	Annette Russell	41.39191	-73.17440	8/25/2009	0.00	Rock	partially sunny			0	0	0	0	0	0	0	0	0	0	0
9	2	5.0	Annette Russell	41.39185	-73.17444	8/25/2009	1.10	Sand				0	0	0	2	0	0	0	0	0	0	0
9	3	10.0	Annette Russell	41.39182	-73.17446	8/25/2009	1.00	Sand				0	0	0	2	0	0	0	0	0	0	0
9	4	20.0	Annette Russell	41.39174	-73.17451	8/25/2009	1.70	Sand				0	0	0	3	0	0	0	0	0	0	0
9	5	30.0	Annette Russell	41.39166	-73.17456	8/25/2009	1.90	Sand				0	0	0	3	0	0	0	0	0	0	0
9	6	40.0	Annette Russell	41.39157	-73.17461	8/25/2009	0.00	ND			too deep for depth measure	0	0	0	0	0	0	0	0	0	0	0
9	7	50.0	Annette Russell	41.39149	-73.17463	8/25/2009	0.00	ND				0	0	0	0	0	0	0	0	0	0	0
9	8	60.0	Annette Russell	41.39138	-73.17465	8/25/2009	0.00	ND				0	0	0	0	0	0	0	0	0	0	0
9	9	70.0	Annette Russell	41.39127	-73.17470	8/25/2009	0.00	ND				0	0	0	0	0	0	0	0	0	0	0
9	10	80.0	Annette Russell	41.39126	-73.17475	8/25/2009	0.00	ND				0	0	0	0	0	0	0	0	0	0	0
10	1	0.0	Annette Russell	41.38164	-73.17473	8/26/2009	0.00	Rock	sunny			0	0	0	0	0	0	0	0	0	0	0
10	2	5.0	Annette Russell	41.38168	-73.17476	8/26/2009	0.50	Sand				0	0	2	0	0	0	0	0	0	0	1
10	3	10.0	Annette Russell	41.38171	-73.17482	8/26/2009	1.00	Sand				0	0	0	0	2	2	0	0	0	0	3
10	4	20.0	Annette Russell	41.38178	-73.17488	8/26/2009	1.90	Rock				2	0	0	0	0	2	0	0	0	0	2
10	5	30.0	Annette Russell	41.38188	-73.17490	8/26/2009	2.90	Sand				0	0	0	1	0	1	0	0	0	0	0
10	6	40.0	Annette Russell	41.38199	-73.17493	8/26/2009	0.00	ND			too deep for measurement	3	0	0	0	0	0	0	0	0	0	0
10	7	50.0	Annette Russell	41.38208	-73.17495	8/26/2009	0.00	ND				0	0	0	0	0	0	0	0	0	0	0
10	8	60.0	Annette Russell	41.38215	-73.17501	8/26/2009	0.00	ND				0	0	0	0	0	0	0	0	0	0	0
10	9	70.0	Annette Russell	41.38221	-73.17510	8/26/2009	0.00	ND				0	0	0	0	0	0	0	0	0	0	0
10	10	80.0	Annette Russell	41.38230	-73.17517	8/26/2009	0.00	ND				0	0	0	0	0	0	0	0	0	0	0

Zoar Diquat Treatment Areas

Maps provided by Bernie Lintzner, Lake Zoar Authority



Lake Zoar

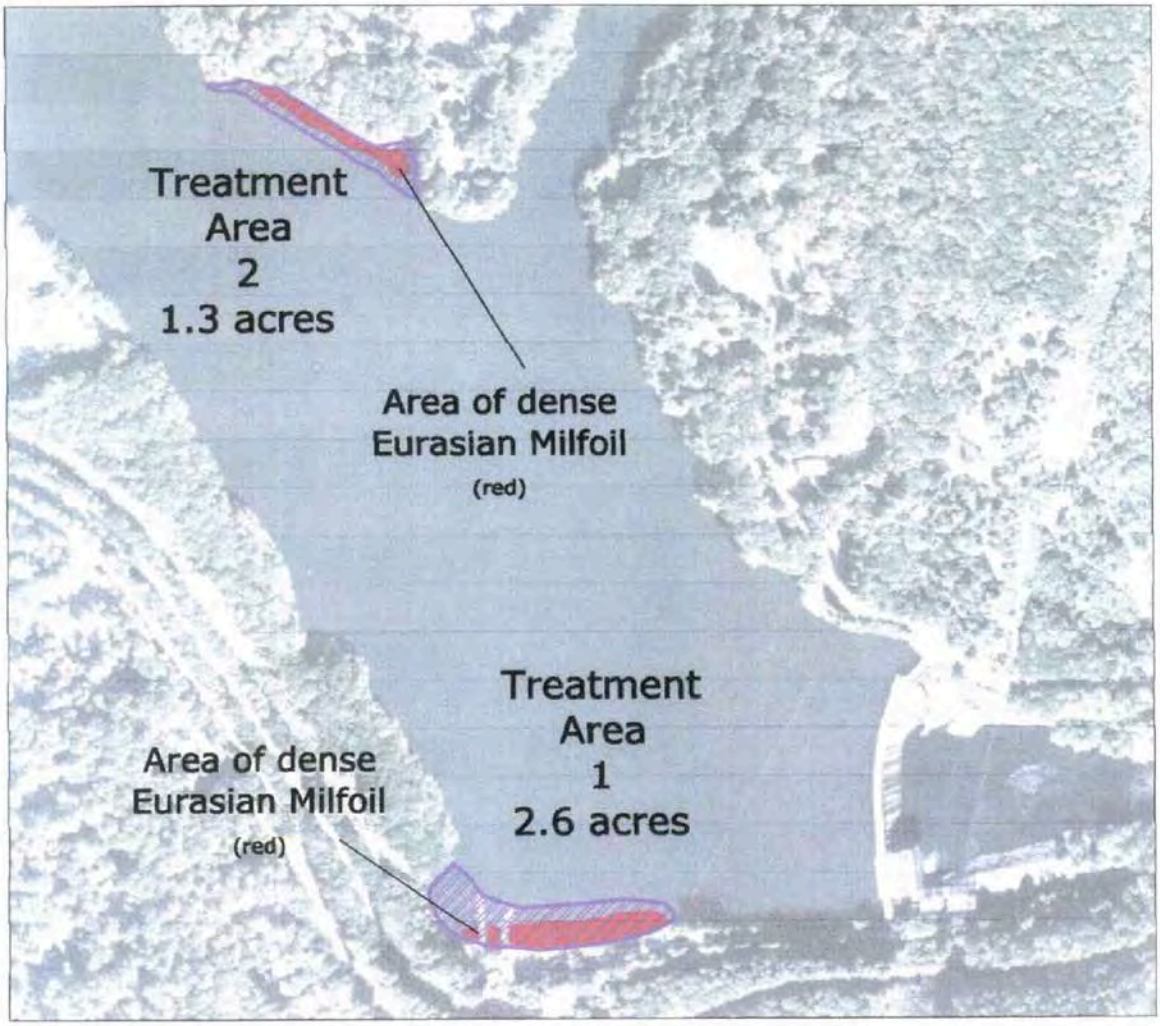
Monroe, Newtown
Oxford, Southbury

Overview Map Showing Locations of 7 Eurasian Milfoil Treatment Areas

Based on survey conducted June 1, 2009

2009 Treatment Areas
Area 1 = 2.6 acres
Area 2 = 1.3 acres
Area 3 = 5.3 acres
Area 4 = 11.5 acres
Area 5 = 13.4 acres
Area 6 = 4.3 acres
Area 7 = 2.2 acres
Total = 40.6 acres

Scale 5000 ft
1000



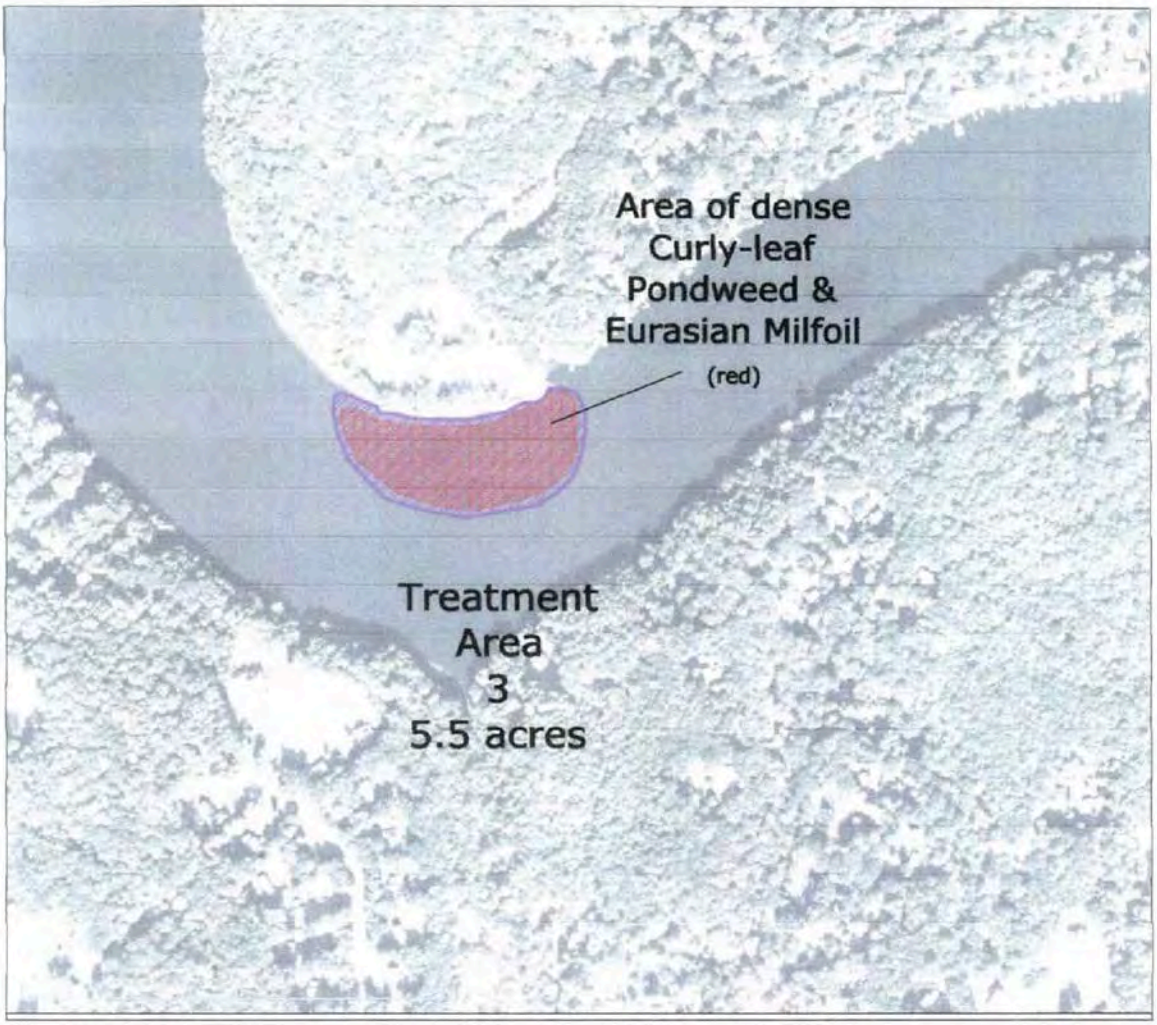
Lake Zoar

Monroe, Newtown
Oxford, Southbury

Treatment Areas 1 & 2

2009 Treatment Areas
Area 1 = 2.6 acres
Area 2 = 1.3 acres
Area 3 = 5.3 acres
Area 4 = 11.5 acres
Area 5 = 13.4 acres
Area 6 = 4.3 acres
Area 7 = 2.2 acres
Total = 40.6 acres

Scale 500 ft
100 ft



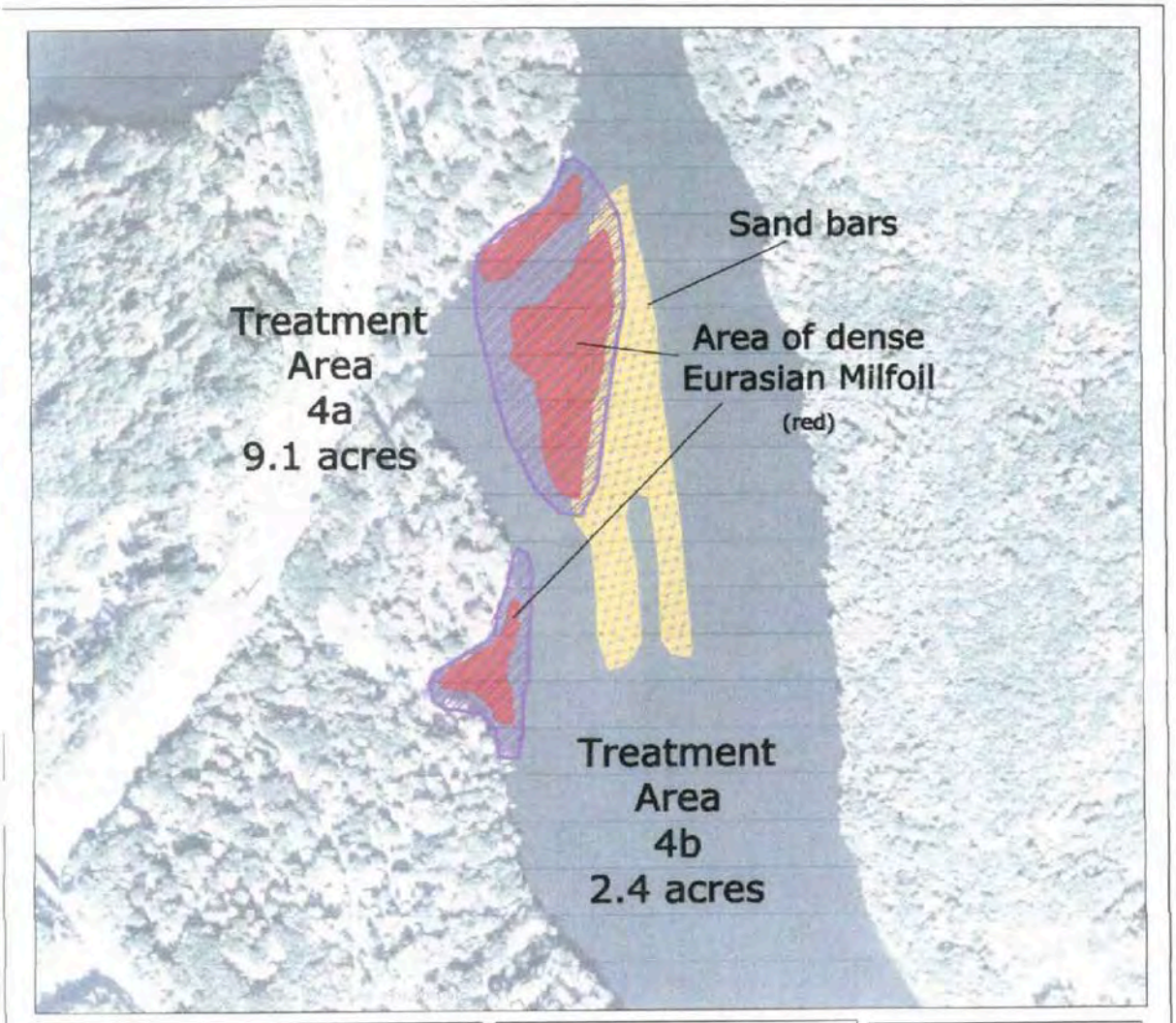
Lake Zoar

Monroe, Newtown
Oxford, Southbury

Treatment Area 3

2009 Treatment Areas
Area 1 = 2.6 acres
Area 2 = 1.3 acres
Area 3 = 5.3 acres
Area 4 = 11.5 acres
Area 5 = 13.4 acres
Area 6 = 4.3 acres
Area 7 = 2.2 acres
Total = 40.6 acres

Scale 500 ft
100 ft



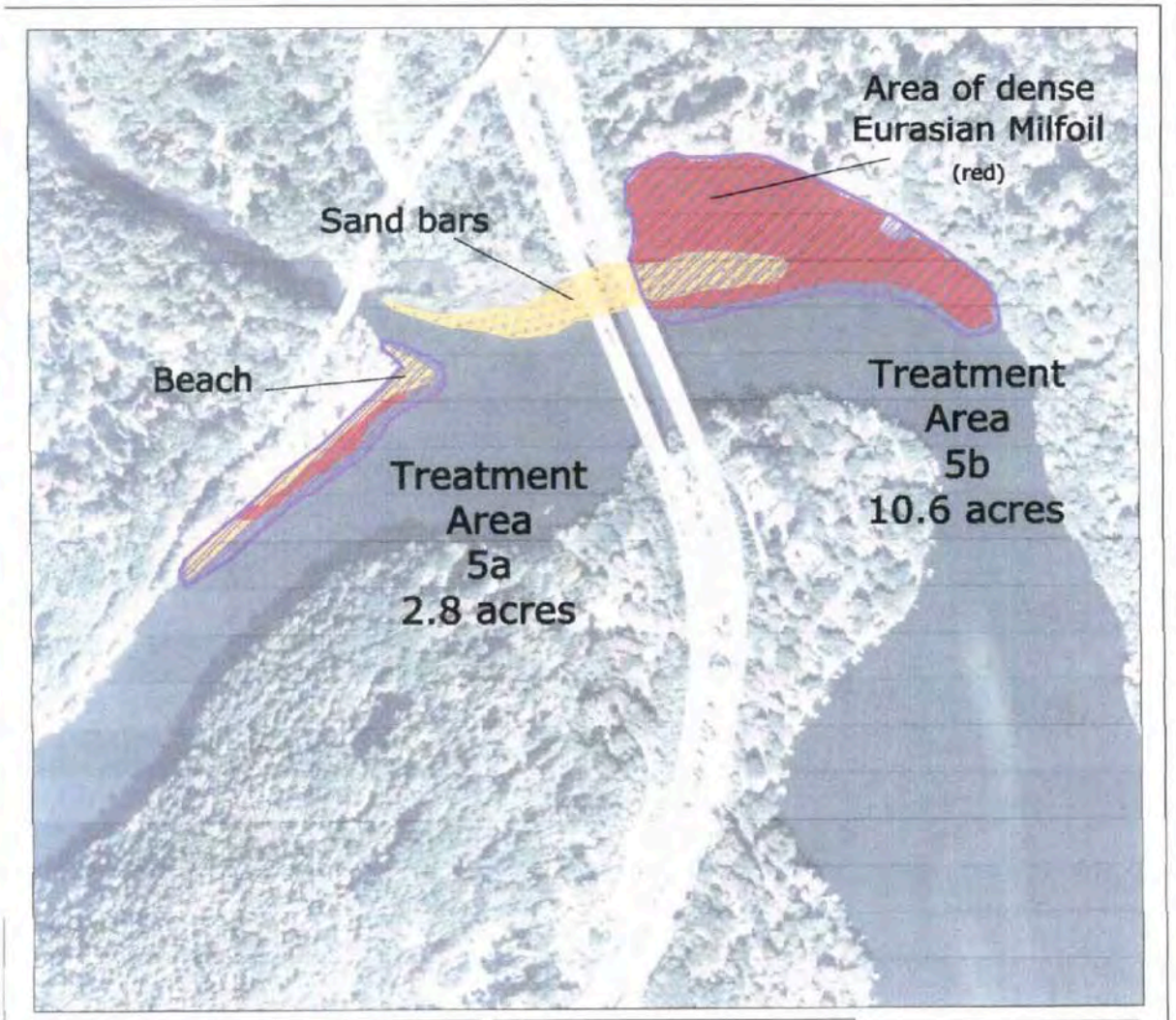
Lake Zoar

Monroe, Newtown
Oxford, Southbury

Treatment Area 4

2009 Treatment Areas
Area 1 = 2.6 acres
Area 2 = 1.3 acres
Area 3 = 5.3 acres
Area 4 = 11.5 acres
Area 5 = 13.4 acres
Area 6 = 4.3 acres
Area 7 = 2.2 acres
Total = 40.6

Scale 500 ft
100 ft



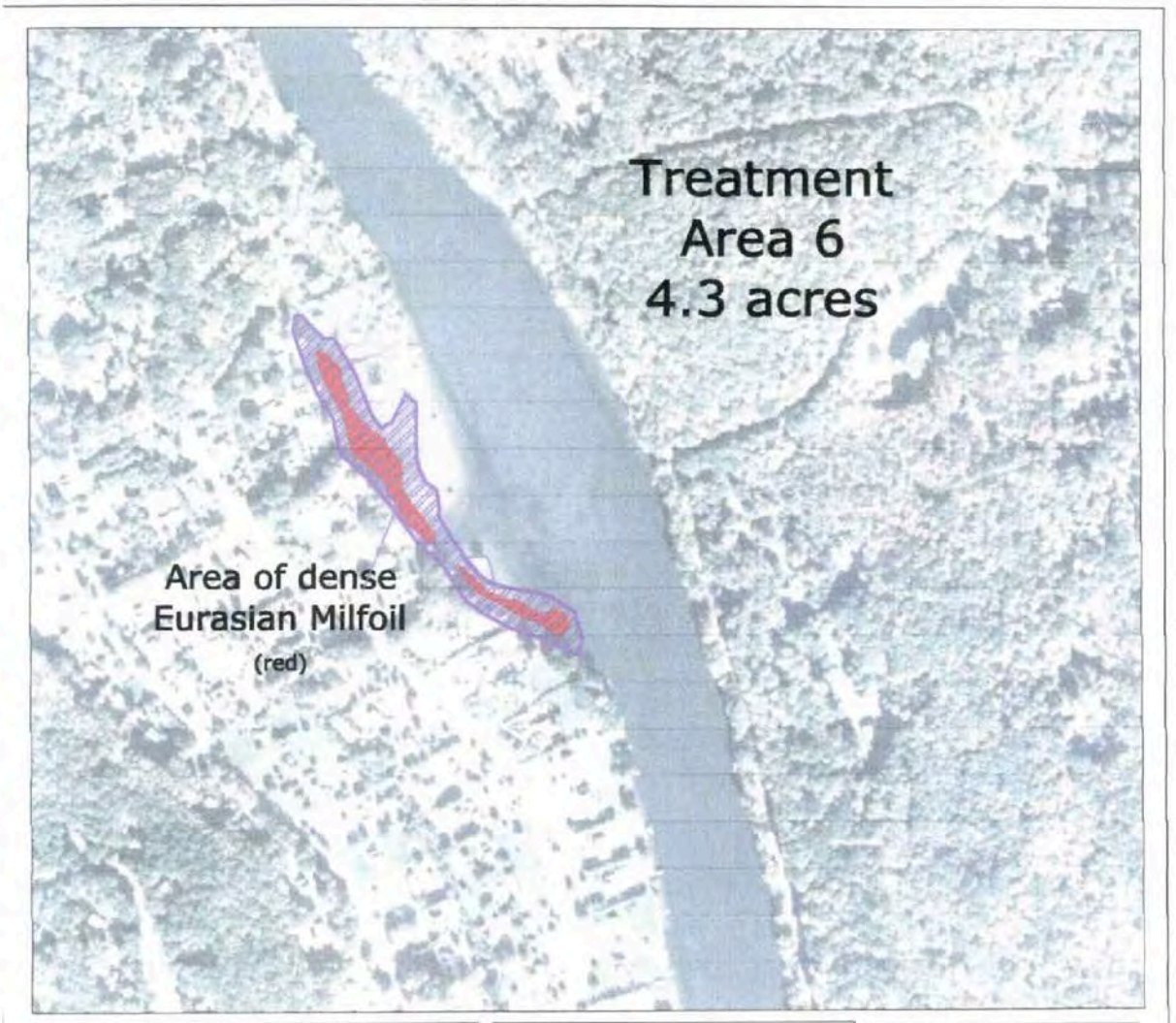
Lake Zoar

Monroe, Newtown
Oxford, Southbury

Treatment Area 5

2009 Treatment Areas
Area 1 = 2.6 acres
Area 2 = 1.3 acres
Area 3 = 5.3 acres
Area 4 = 11.5 acres
Area 5 = 13.4 acres
Area 6 = 4.3 acres
Area 7 = 2.2 acres
Total = 40.6 acres

Scale 500 ft
100 ft



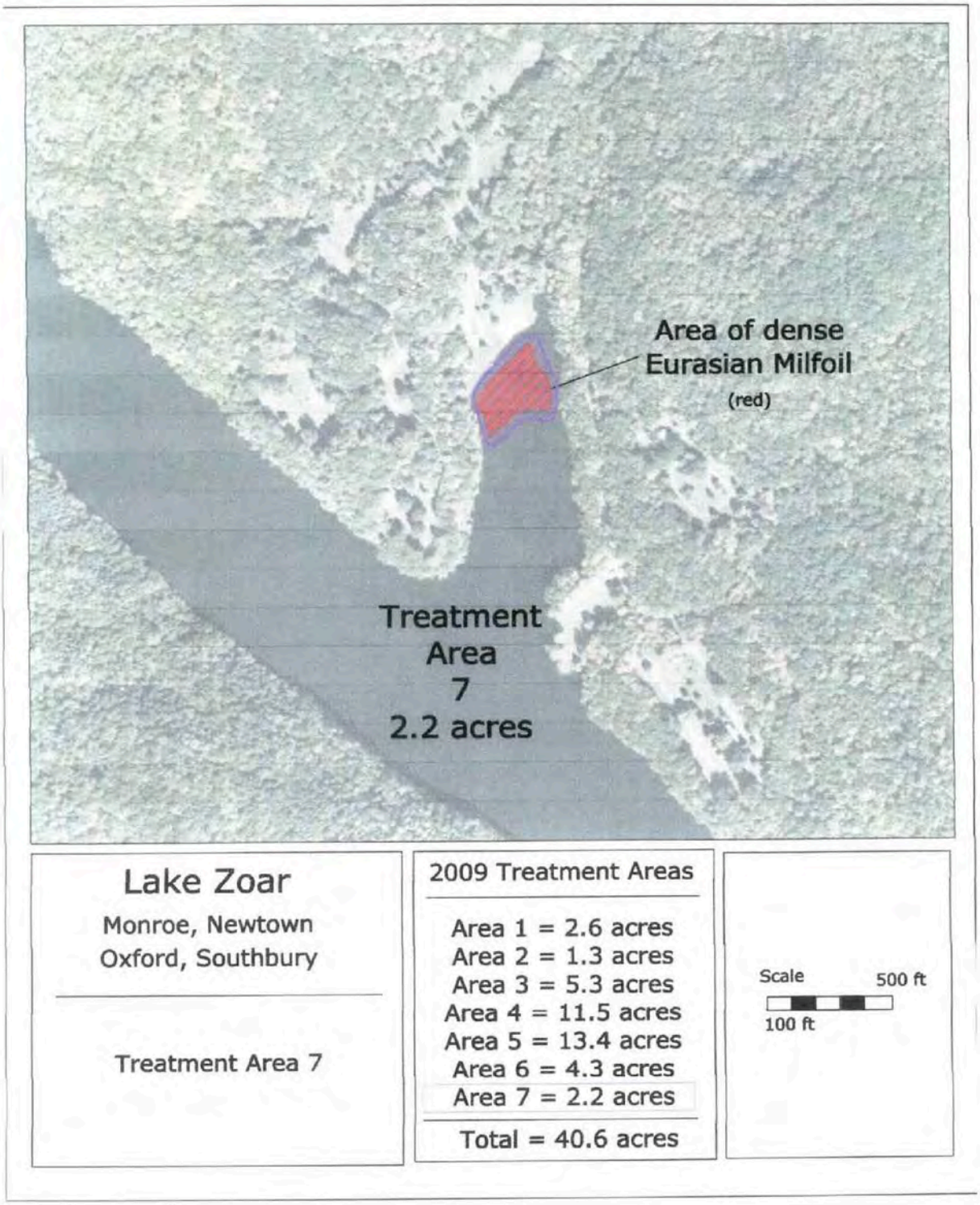
Lake Zoar

Monroe, Newtown
Oxford, Southbury

Treatment Area 6

2009 Treatment Areas
Area 1 = 2.6 acres
Area 2 = 1.3 acres
Area 3 = 5.3 acres
Area 4 = 11.5 acres
Area 5 = 13.4 acres
Area 6 = 4.3 acres
Area 7 = 2.2 acres
Total = 40.6 acres

Scale 500 ft
100 ft


Area of dense
Eurasian Milfoil
(red)
Treatment
Area
7
2.2 acres
Lake Zoar
Monroe, Newtown
Oxford, Southbury
Treatment Area 7
2009 Treatment Areas
Area 1 = 2.6 acres
Area 2 = 1.3 acres
Area 3 = 5.3 acres
Area 4 = 11.5 acres
Area 5 = 13.4 acres
Area 6 = 4.3 acres
Area 7 = 2.2 acres
Total = 40.6 acres
Scale
500 ft
100 ft