

# Restoration of a Suburban Wetland:

Management of Aggressive  
Invasive Plant Species

# Overview

- Site
- Threats of Invasive Species
- Previous Work
- Removal to be carried forward
- Pictures
- Additional Remediation

# Site

- 381 North Street, Greenwich, Connecticut
- The area is roughly 8 acres
  - approximately 6.2 acres classified as wetlands
- Stream is a tributary into Greenwich Creek



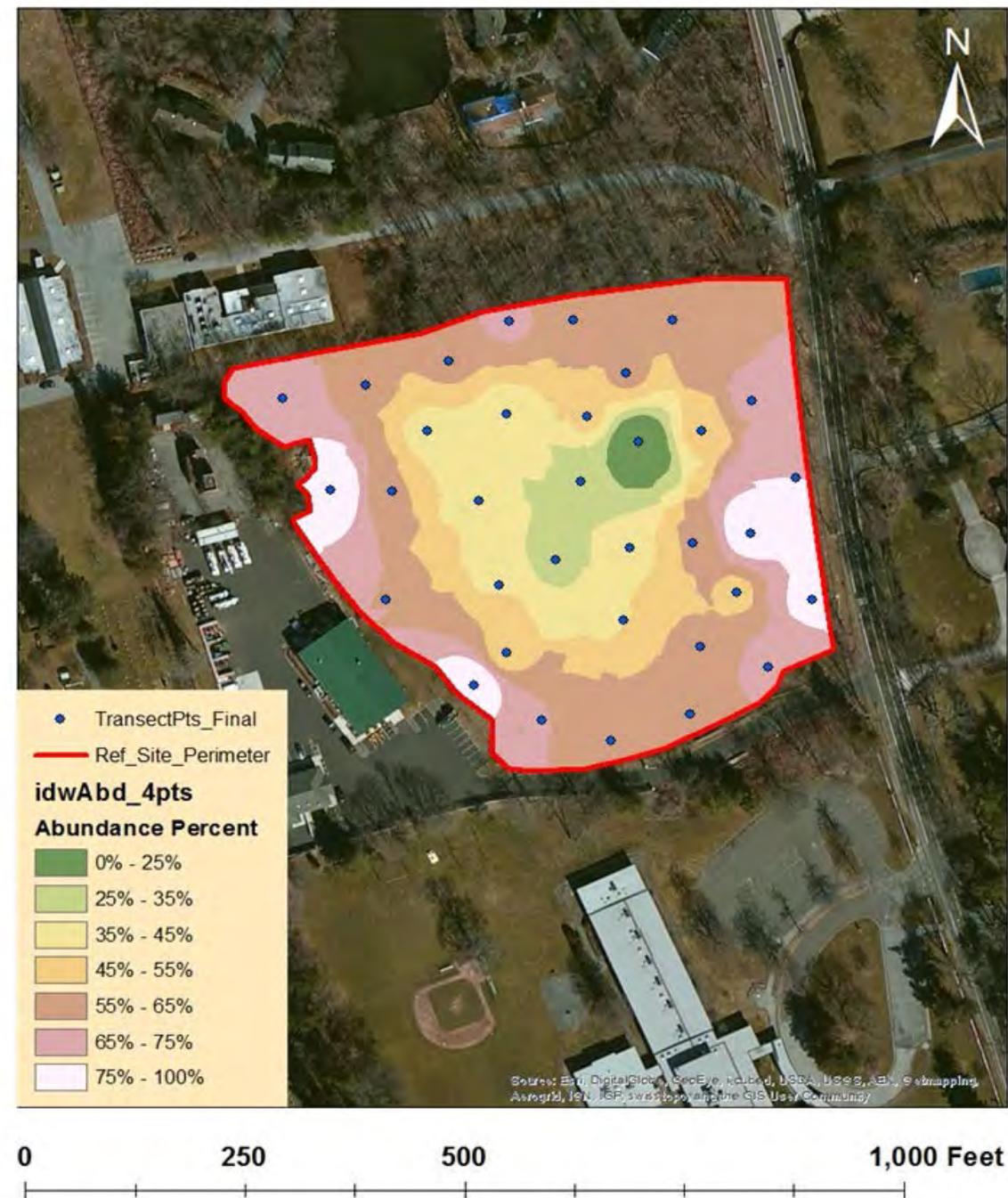
# Threats of Invasive Species to Wetland Habitats

- Loss of Biodiversity and Species Richness
- Loss of Ecosystem Services
- Spread of Invasive Species
  - Fragmentation
  - Edge Effects



# Previous Work

- Invasive species (61%)
- Native species (25%)
- Bare ground (8%)
- Leaf litter (4%)
- Rocks (2%)



# Previous Work

- Species Identified
  - 32 Natives
  - 14 Invasives
- Invasives prioritized based on the Analytical Approach (Skurka-Darin, 2011)

Invasive Species (Common Name)	Scientific Name	Density	Growth Stage	Indicator Status
Japanese Knotweed	<i>Fallopia japonica</i>	High	Mature	Invasive Banned
Multiflora rose	<i>Rosa multiflora</i>	High	Mature/seedling	Invasive Banned
Common Reed	<i>Phragmites australis</i>	Medium	Mature	Invasive Banned
Chinese Wisteria	<i>Wisteria floribunda</i>	High	Mature/seedling	Invasive Not Banned

# Removal to be carried forward - Knotweed

- Number of cuttings per growing season
- Timing of cuttings per growing seasons
- Record amount of Invasive Regrowth
- Efficiency of treatment



## Removal to be carried forward - Knotweed

- 6 times in the growing season at 2 week intervals
  - 2, 4\*, 6, 7\*
- 4 times in the growing season at 4 week intervals
  - 1, 5\*, 8, 21, 22\*
- Planting of Red Maple

# First removal: Site 1



# First removal: Site 2



# First removal: Site 5



# First removal: Site 8



# First removal: Site 22



# Additional Remediation - Wisteria



# Additional Remediation - Multiflora Rose

- Spring - 2015
- Removal
- Planting American Elm, Silky Dogwood, Pussy Willow



# Additional Remediation - Native Species

Common Name	Wetland Status	Shade Tolerance	Habitat	Plant Size	Cost Per Plant	Number of Plants	Total Cost
<b>Trees</b>	-----	-----	-----	-----	-----	-----	-----
Red Maple	FAC	Full Sun to Full Shade	Edges, wet meadows, forests	18 - 24 inches	\$8.50	27	\$229.50
American Elm	FAC	Full Sun to Full Shade	Meadows, Forest, Riparian Zones	18 - 24 inches	\$10.00	5*	\$50.00
<b>Shrubs</b>	-----	-----	-----	-----	-----	-----	-----
Silky Dogwood	FACW	Full Sun to Partial Shade	Shores, wet meadows, forests	18 - 24 inches	\$8.25	5*	\$41.25
Pussy Willow	FACW	Full Sun to Partial Shade	Shores, meadows, forested areas	18 - 24 inches	\$8.50	5*	\$42.50
<b>Seed Mix</b>	-----	-----	-----	-----	-----	-----	-----
New England Erosion Control/Restoration Mix For Detention Basins and Moist Sites			Application Rate: 1250 square feet per pound (116 sq m)		\$26 per pound	20	\$520

# Additional Remediation - Native Species

BOTANICAL NAME	COMMON NAME	IND.
ELYMUS VIRGINICUS	VIRGINIA WILD RYE	FACW-
FESTUCA RUBRA	CREEPING RED FESCUE	FACU
SCHIZACHYRIUM SCOPARIUM	LITTLE BLUESTEM	FACU
CAREX VULPINOIDEA	FOX SEDGE	OBL
ANDROPOGON GERARDII	BIG BLUESTEM	FAC
PANICUM VIRGATUM	SWITCH GRASS	FAC
AGROSTIS SCABRA	ROUGH BENTGRASS/TICKLEGRASS	FAC
ASTER NOVAE-ANGLIAE	NEW ENGLAND ASTER	FACW-
EUPATORIUM PERFOLIATUM	BONESET	FACW
EUTHAMIA GRAMINIFOLIA	GRASS LEAVED GOLDENROD	FAC
VERBENA HASTATA	BLUE VERVAIN	FACW
SCIRPUS ATROVIRENS	GREEN BULRUSH	OBL
JUNCUS EFFUSUS	SOFT RUSH	FACW+
SCIRPUS CYPERINUS	WOOL GRASS	FACW