



GREAT BAY  
NATIONAL  
ESTUARINE  
RESEARCH  
RESERVE





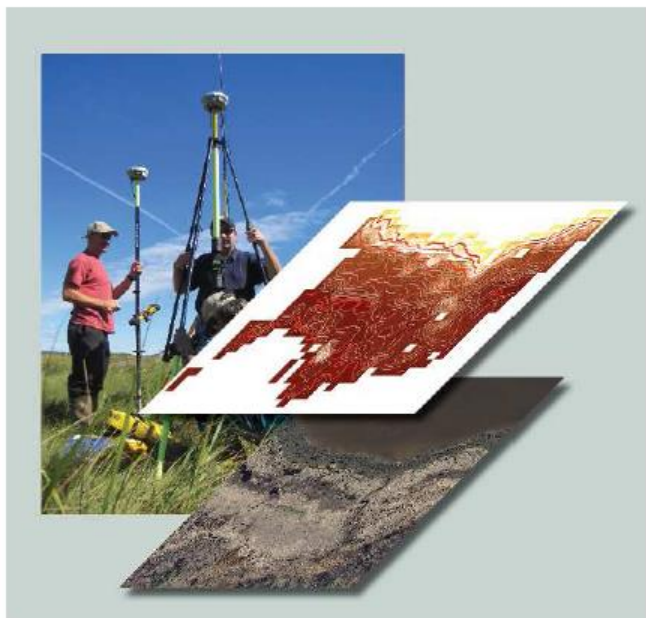


## Earliest Ecological Effects of Relative Sea Level Change



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*Developing Infrastructure and Data to Assess Some of the  
Earliest Ecological Effects of Relative Sea Level Change.*  
Vertical Control Plan & Progress Report 2011

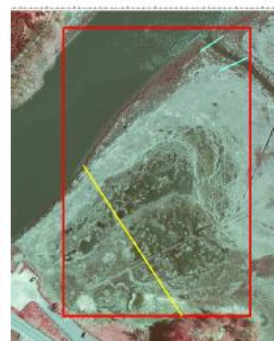


by Rachel Stevens, Stewardship Coordinator, Great Bay NERR  
with comments from Kathy Mills and Paul Stacey, Research Coordinators, Great Bay NERR  
and Curt Crow, State Geodetic Advisor  
Galen Scott, National Geodetic Survey  
Allison Allen, Center for Operational Oceanographic Products and Services  
of the National Oceanic and Atmospheric Administration

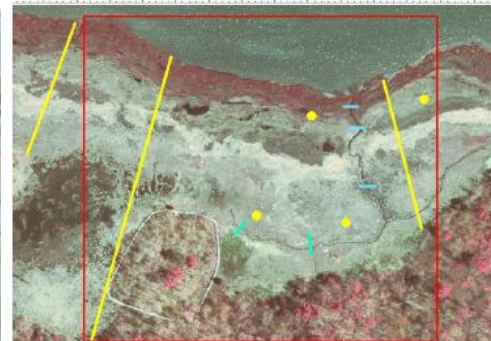
31 August 2011



**Bunker Creek**

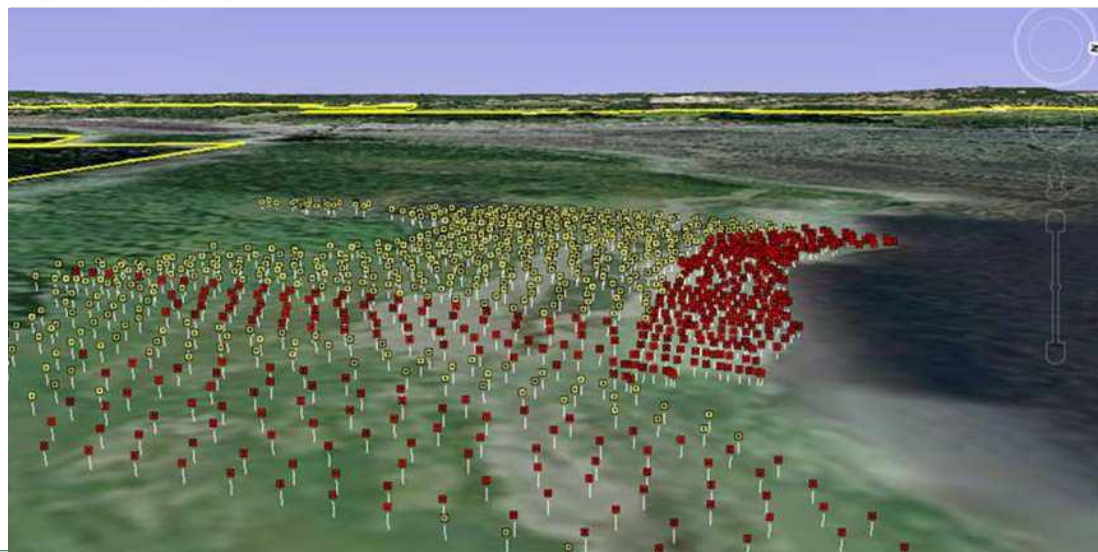


**Chapman's Landing**



**Great Bay Discovery Center**

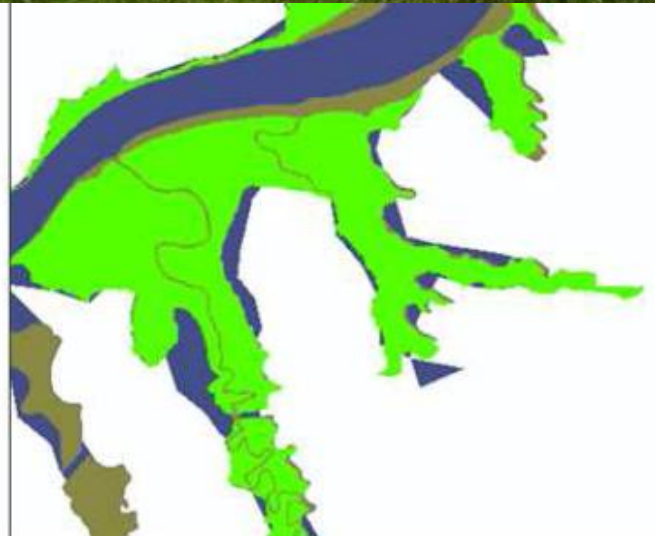
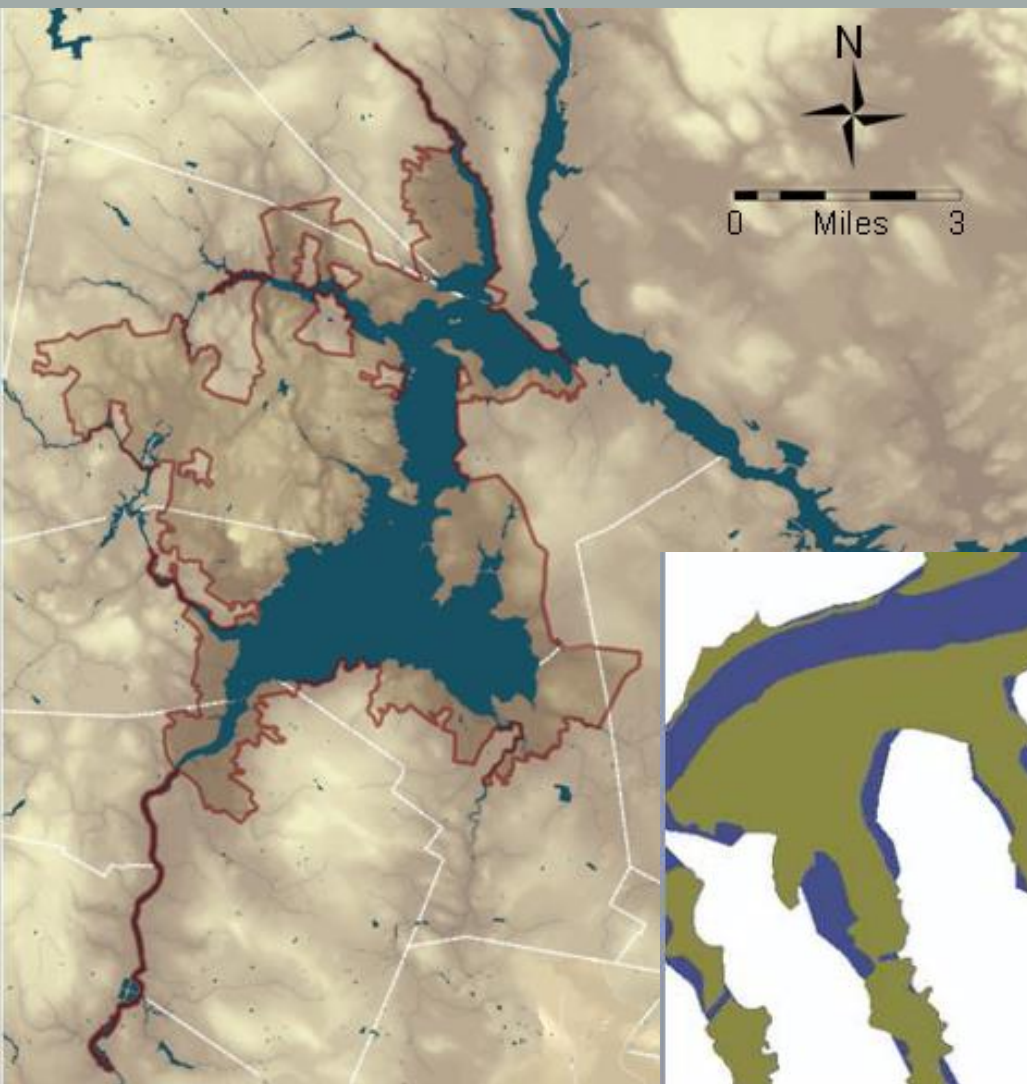
Figure 10. Sampling protocol for RTK GPS elevation sites. Data to create digital elevation models were collected throughout the areas within each red box. Marsh profiles were collected along lines shown in yellow and located along biomonitoring transects where possible. Tidal creek cross-sections were collected at points shown in turquoise.







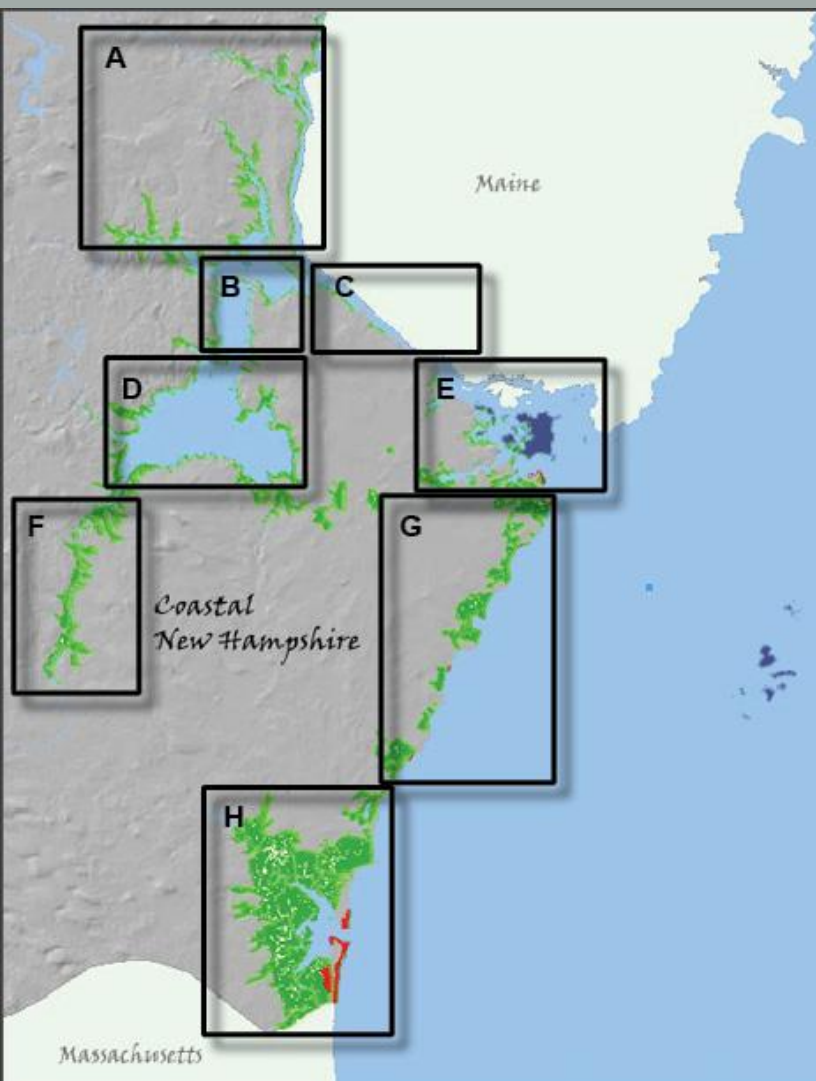
## Detailed Salt Marsh Mapping







## Sea Level Affecting Marshes Model: SLAMM for NH





# **Picking Our Battles**

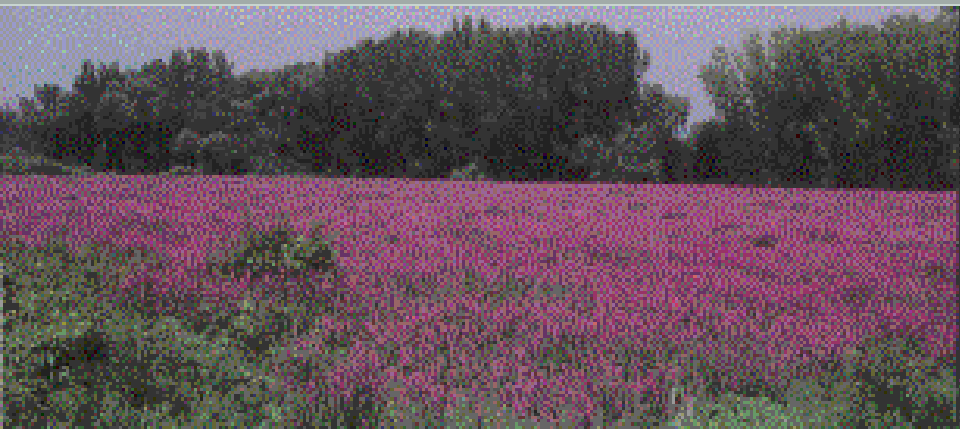
**A Strategic Approach to Prioritizing Invasive Plant  
Restoration Projects**







## Long Term Restoration Success







## NH Fish and Game & Natural Heritage Bureau Invasive Plant Working Group





## NH Coastal Watershed Invasive Plant Partnership

The following organizations and governmental agencies are committed to the coordinated management and control of invasive plants in New Hampshire's Coastal Watershed.



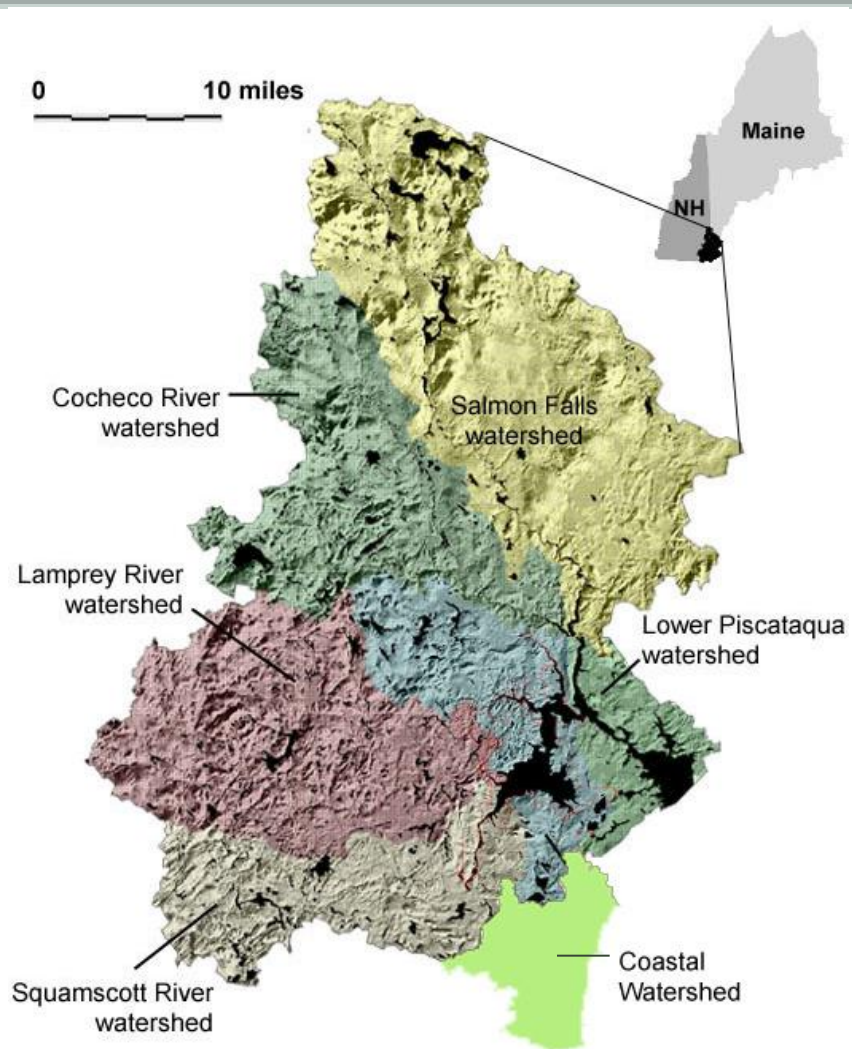
## New Hampshire Coastal Watershed Invasive Plant Partnership







## Great Bay and Coastal New Hampshire's Watersheds







## NH Fish and Game Wildlife Management Areas Statewide





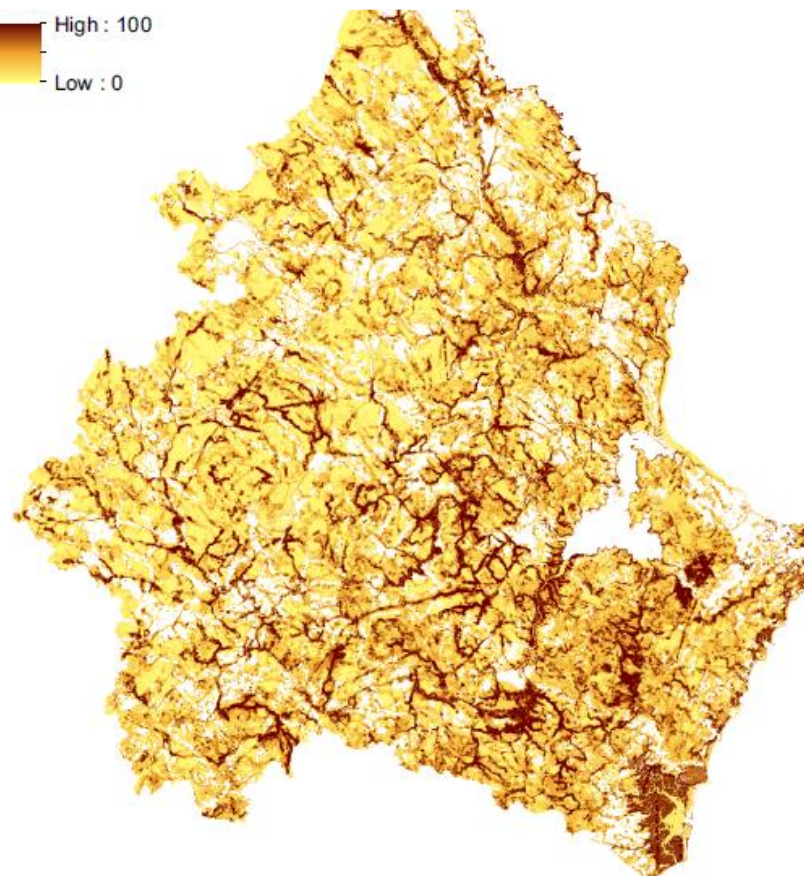


## Landscape Scale Prioritization Model

### LANDSCAPE SCALE INVASIVE PLANT CONTROL STRATEGY

DRAFT September 2011

#### Priority Areas for Invasive Plant Restoration Projects



Ecological  
significance

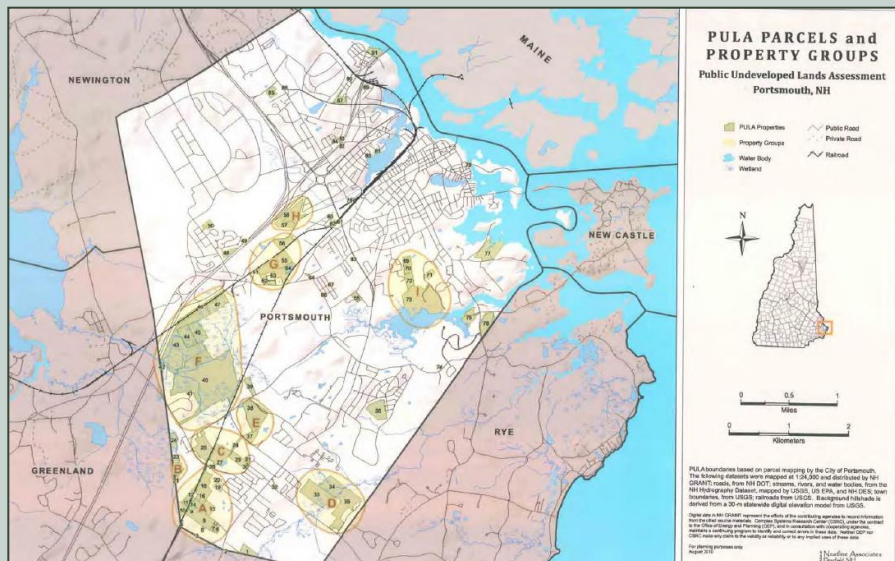
Ecosystem  
services

High risk of  
invasive spread



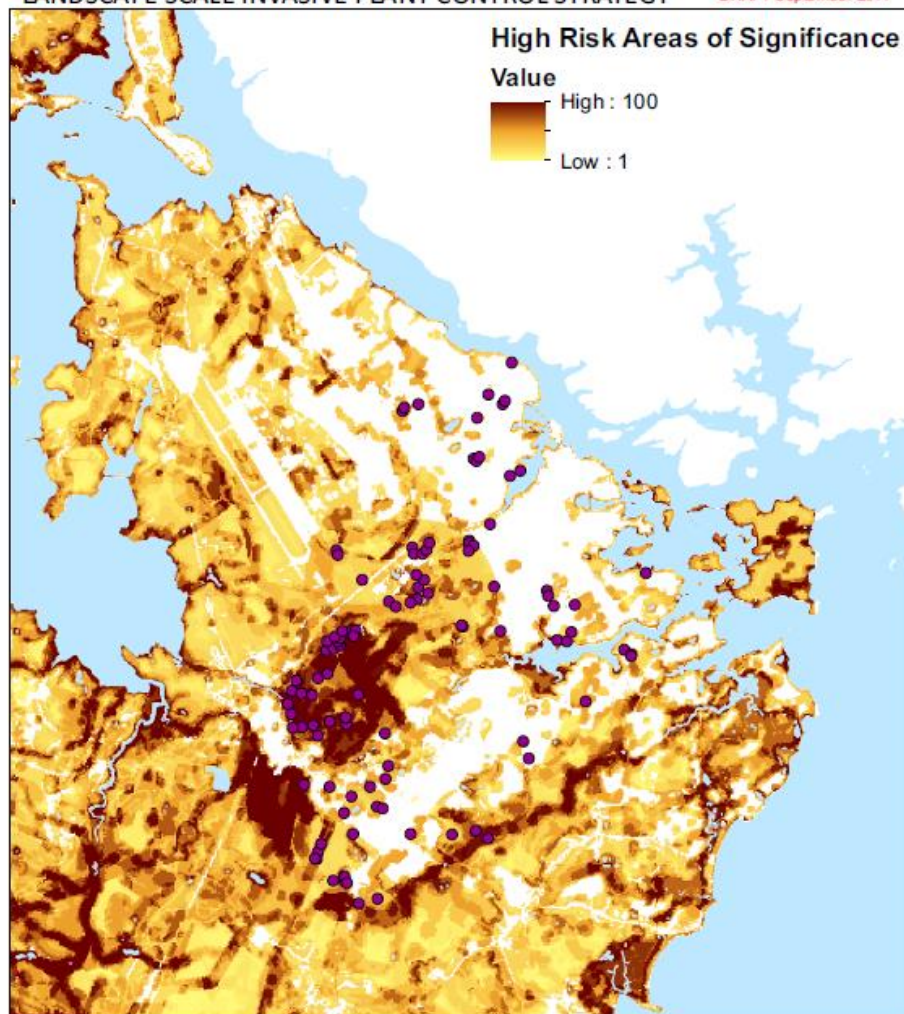


## Invasive Plant Mapping: Public Lands throughout a Municipality



### LANDSCAPE SCALE INVASIVE PLANT CONTROL STRATEGY

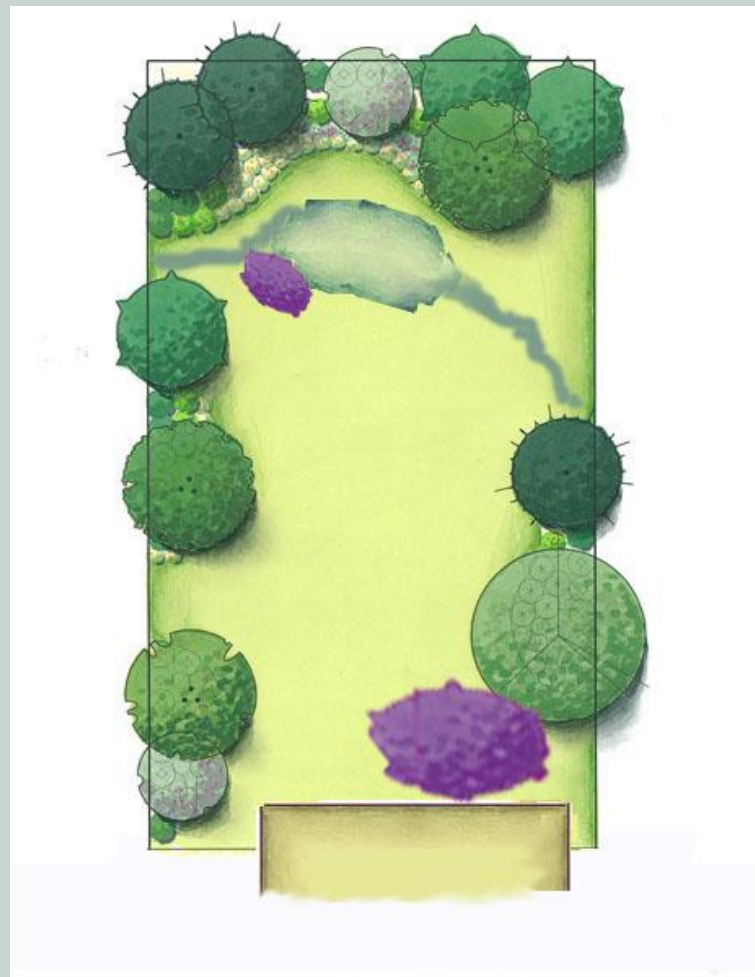
DRAFT September 2011







## Landscape Context







## Invasive Plant Ecology – Start with Low Hanging Fruit

- Seed bank longevity
- Method of seed travel
- Form of vegetative reproduction
- Number of seeds and germination success
- Time to first reproduction





## Climate Change

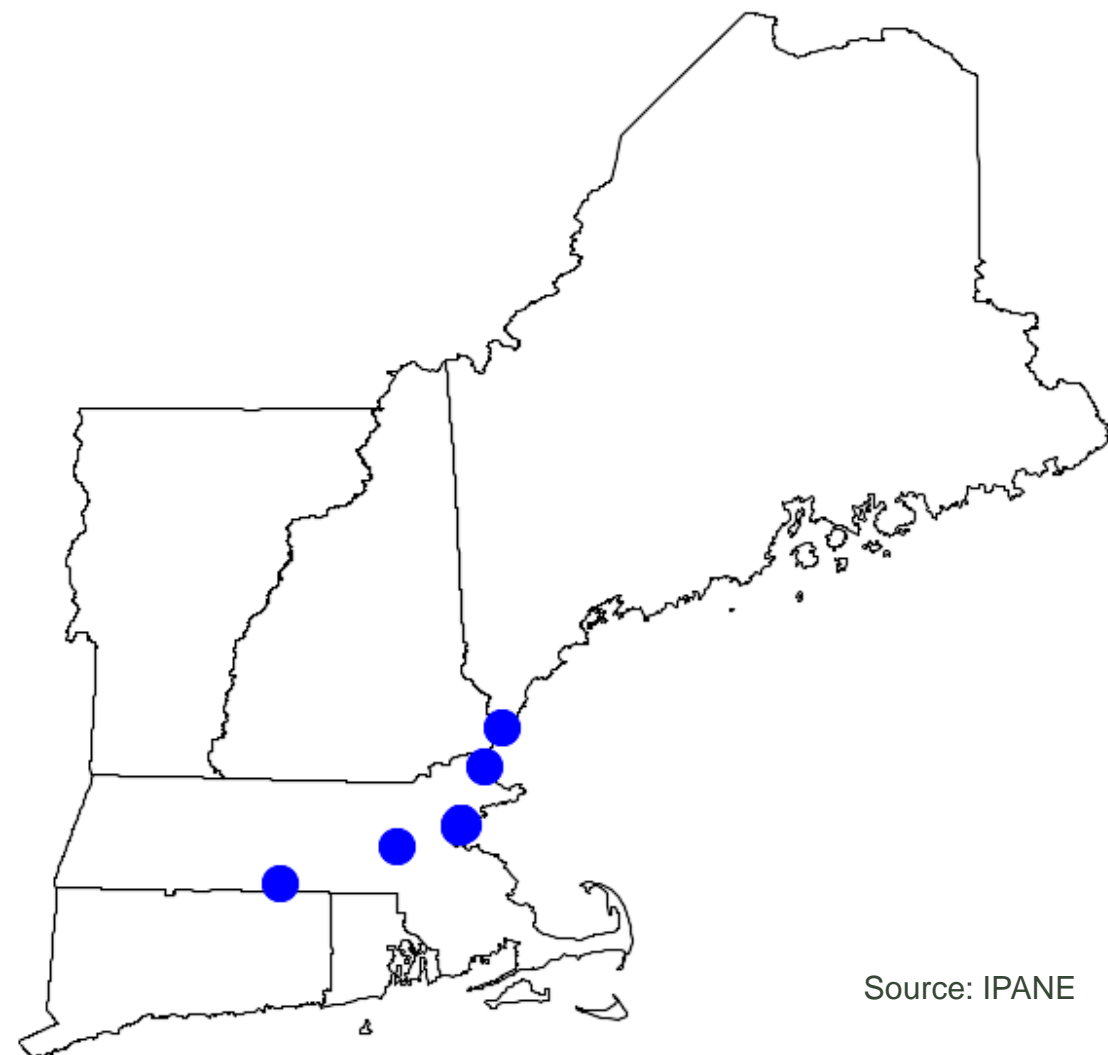


- Increased erosion, enhanced spread
- Changes in phenology
- Changes in species interactions affecting a variety of ecosystem processes
- Changes in species ranges





## Regional Distribution



Source: IPANE



DES Photo

Each pepperweed flower has four spoon-shaped petals.

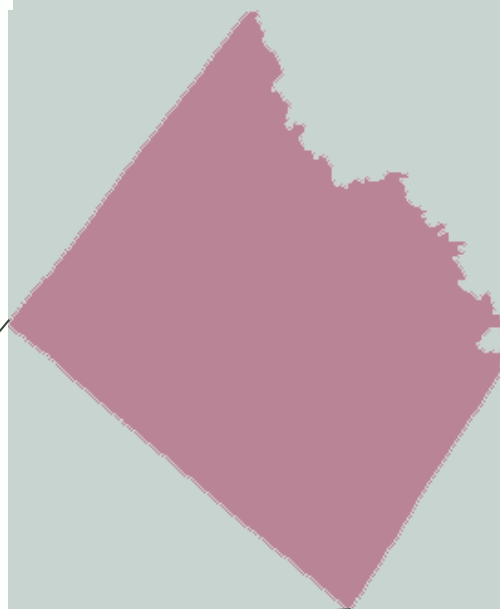
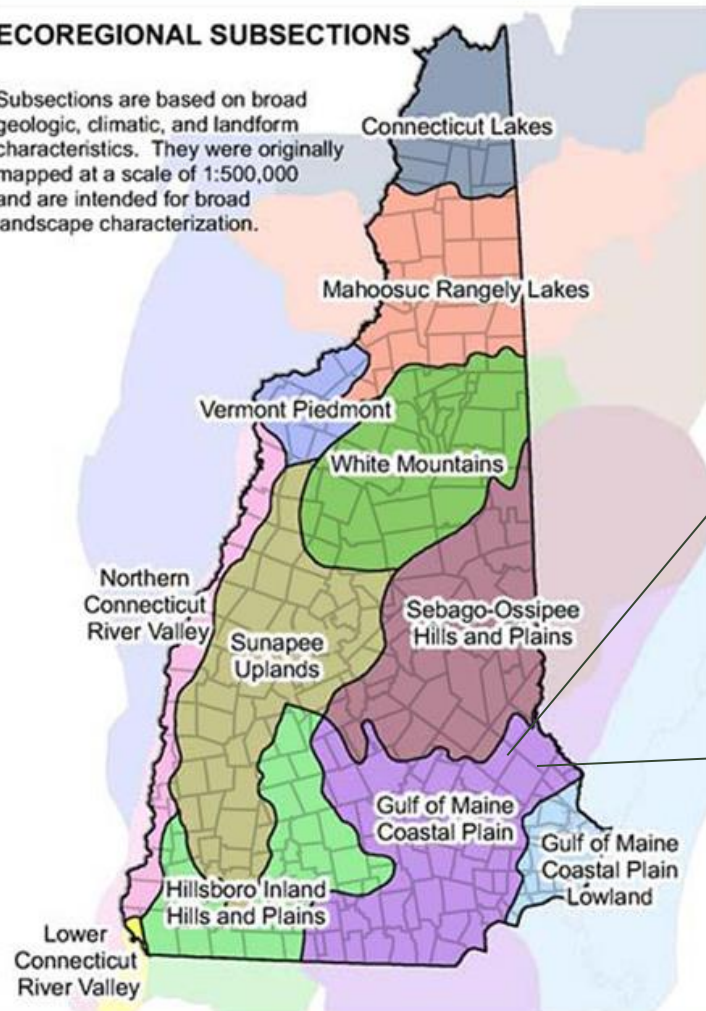
Photo: Jennifer Forman



## Early Detection Based on Smaller Geographic or Political Boundaries

### ECOREGIONAL SUBSECTIONS

Subsections are based on broad geologic, climatic, and landform characteristics. They were originally mapped at a scale of 1:500,000 and are intended for broad landscape characterization.

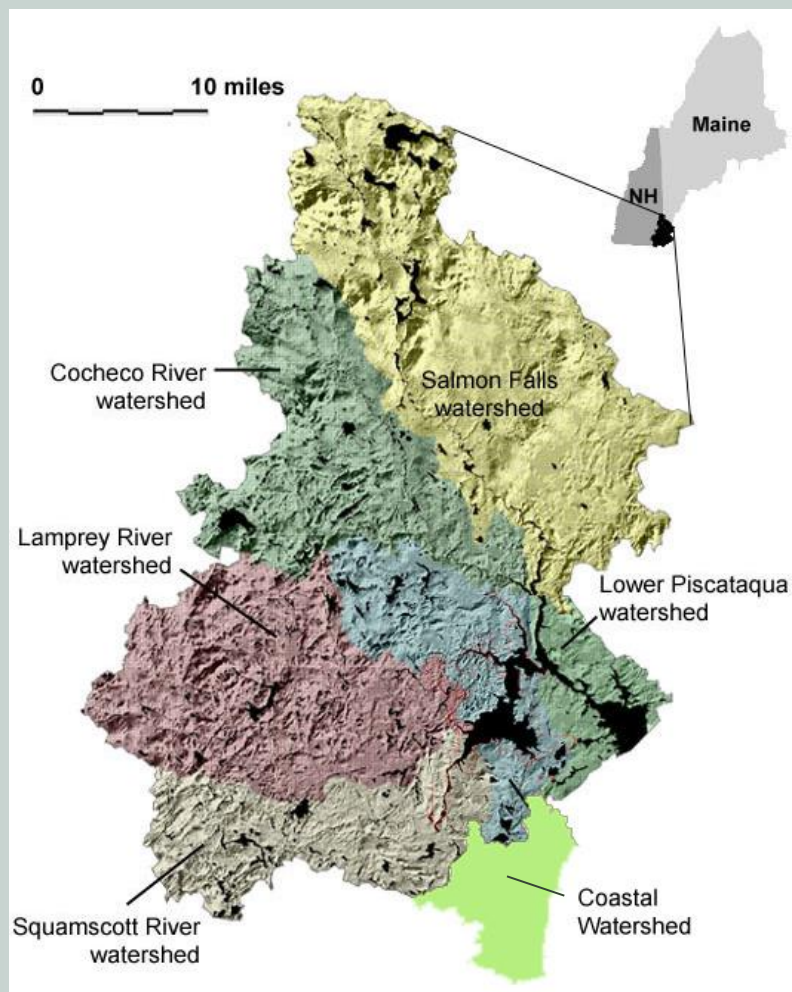


- Burning bush
- Norway Maple

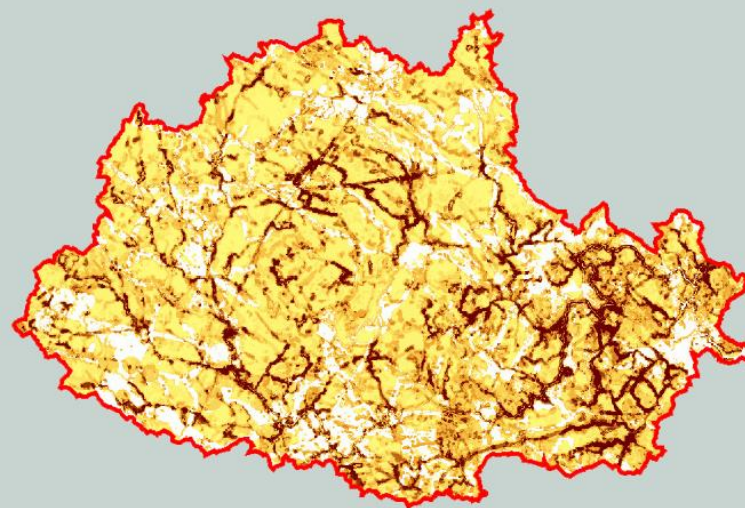




## Final Product Distribution



Each town and major watershed (WMAs)



Customized local early detection species list:

- Burning bush
- Norway Maple

