

Invasive Species Monitoring Approaches For Volunteer Programs

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Volunteer Monitoring: Effective Prevention and Early Detection

★ Prevention

- > Awareness of the organism, problems, vectors
- > Builds local stewardship

★ Early detection

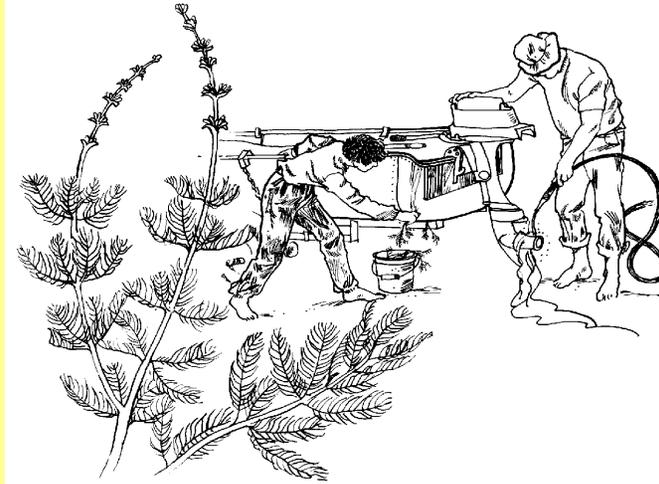
- > Increased numbers looking and geographic coverage
- > Significantly increases effort in areas most likely to be impacted



Monitoring Activities to Document Aquatic Nuisance Species (ANS)

Five basic types of monitoring activities:

- ★ Occurrence
- ★ Abundance
- ★ Expansion
- ★ Biology
- ★ Impact



- Necessary first step:**
- ★ Building basic awareness

The Continuum of ANS Monitoring

**Awareness/
Early
Detection**

**Occurrence
(presence /
absence)**

Abundance

Expansion

Biology

Impact

Increasing Time - Training - Expertise - Expense \$\$



Early Detection - Awareness Programs

★ Require:

- > Identification information through widely distributed materials (pamphlets, signage, etc.)
- > No formal training program
- > Confirmation system to respond to suspect sites

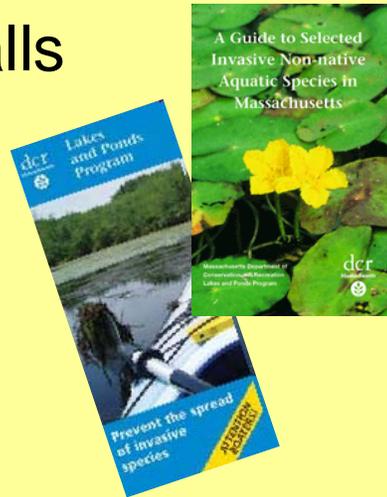
★ Provide:

- > Awareness building - very high
- > Number of “volunteers” - very high
- > Possibility of identifying new invasions early - very high
- > Possibility of false identifications - high

Awareness Brochure Approach:

Staff

- ★ Develop / evaluate and distribute materials
- ★ Respond to potential infestation calls
- ★ Provide on-going educational outreach (optional?)



Volunteers

- ★ Little effort – no training, and looking for ANS during their usual activities
- ★ May have lower rate of discovery per person (ANS not focus)
- ★ Quantity of watchers makes up for intensity of monitoring activity



Current Example...

Didymosphenia geminata awareness

- ✓ Newspaper articles
- ✓ Newsletter articles
- ✓ Organization websites
- ✓ Brochures
- ✓ Signage
- ✓ Commercial partnerships
 - ✓ Catalog sidebars
 - ✓ Redesigned equipment



ANS Occurrence Monitoring

- ★ Specific site(s) selected or assigned
- ★ Volunteers are trained to:
 - > Identify ANS
 - > Collect and preserve samples
 - > Submit preserved samples for identification
 - > Survey sheets completed and returned (+ or -)
- ★ Authorities confirm ID, and may follow up with management activities
- ★ Effective for monitoring the movement and distribution of ANS, and eradication efforts through early detection



Occurrence Monitoring Approach:

Staff

- ★ Develop / evaluate and distribute materials
- ★ Respond to potential infestation calls
- ★ Provide on-going educational outreach
- ★ Provide training
- ★ Provide on-going data management & program support

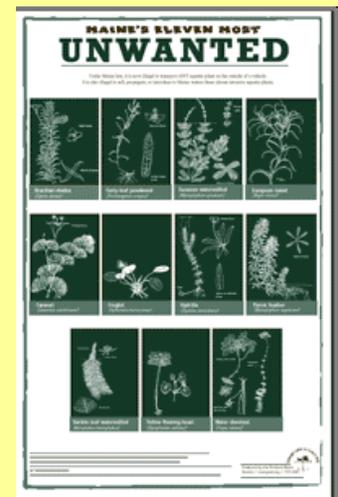
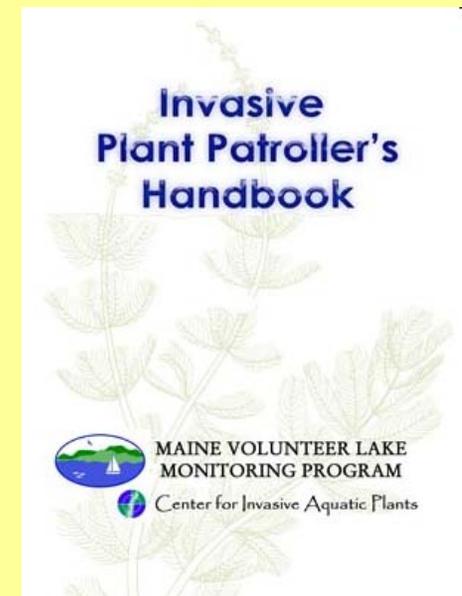
Volunteers

- ★ Increased effort
- ★ Training required
- ★ Monitoring IS the activity
- ★ Increased discovery per person
- ★ Reduced numbers participating

Maine Plant Patrol

<http://www.mainevolunteerlakemonitors.org/mciap/>

- ★ Multi-tiered monitoring protocols
- ★ 5 ½ -hour workshop:
 - > Overview of invasive species issues in Maine and beyond
 - > Plant identification fundamentals
 - > Plant identification hands-on exercise with live plants
 - > Conducting a screening survey, tools and techniques
- ★ Maine Center for Aquatic Invasive Plants provides technical support and maintains database



Other Examples...

- ★ **NH Weed Watchers**

http://des.nh.gov/organization/divisions/water/wmb/exoticspecies/weed_watcher.htm

- ★ **Invasive Plant Atlas of New England**

<http://nbii-nin.ciesin.columbia.edu/ipane/>

- ★ **MA Weed Watchers Program**

<http://www.mass.gov/dcr/watersupply/lakepond/weedwatch.htm>

ANS Abundance

- ★ ANS identified accurately (confirmed)
- ★ Quantified (i.e. % density or coverage, population estimate)
- ★ Mapped
 - > Approximately: Location drawn on map
 - > Precisely: Global Positioning System (GPS)
 - > Photographs, geo referenced



Abundance Monitoring Approach:

Staff – Additional requirements:

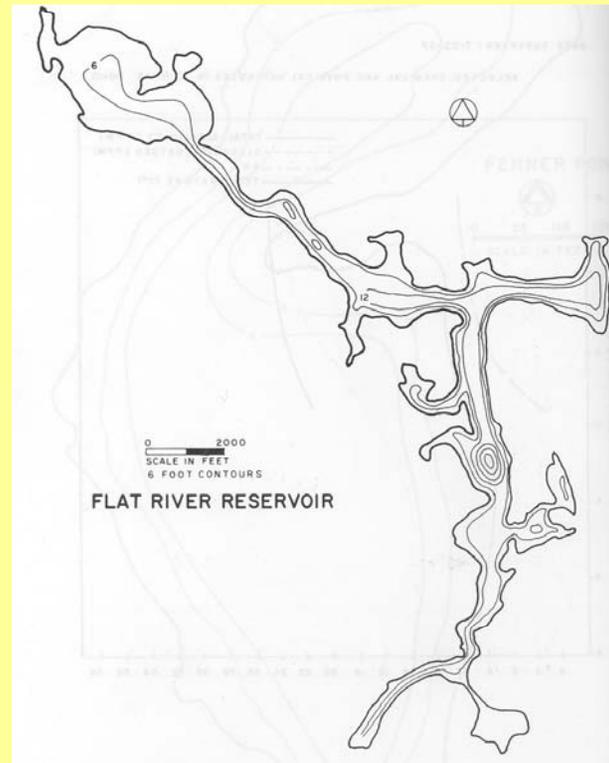
- ★ Develop & provide quantification and survey technique training and support
- ★ Increased data management

Volunteer – Additional requirements:

- ★ Increased training
- ★ Increased time and effort to quantify & map
- ★ Reduced numbers of volunteers

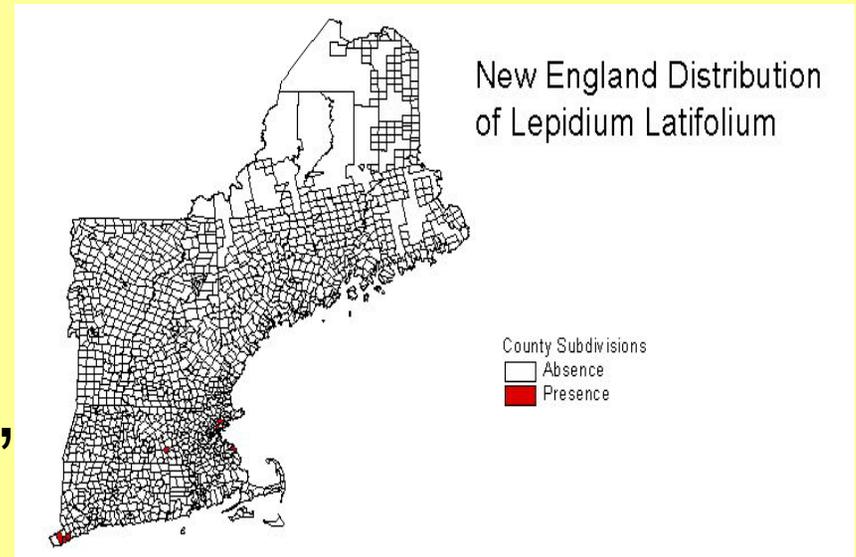
Johnson's Pond Civic Association (Flat River Reservoir)

- ★ Based on 1994 URIWW Aquatic Plant Mapping Protocols
- ★ Survey conducted to support management efforts
- ★ Initial survey done to establish baseline



Expansion Monitoring

- ★ Regular reassessment of populations (monthly, annually, etc.)
- ★ Requires previously quantified and mapped populations
- ★ Additional data management resources required (database and GIS)
- ★ Provides valuable data on the rate and geographic direction of spread of ANS



Biology & Impact Monitoring

- ★ Generally utilizes undergraduate and graduate student “volunteers”
- ★ Citizen volunteer data may supplement specific research efforts
- ★ Provides baseline or targeting information



Purple Loosestrife Biocontrol Research

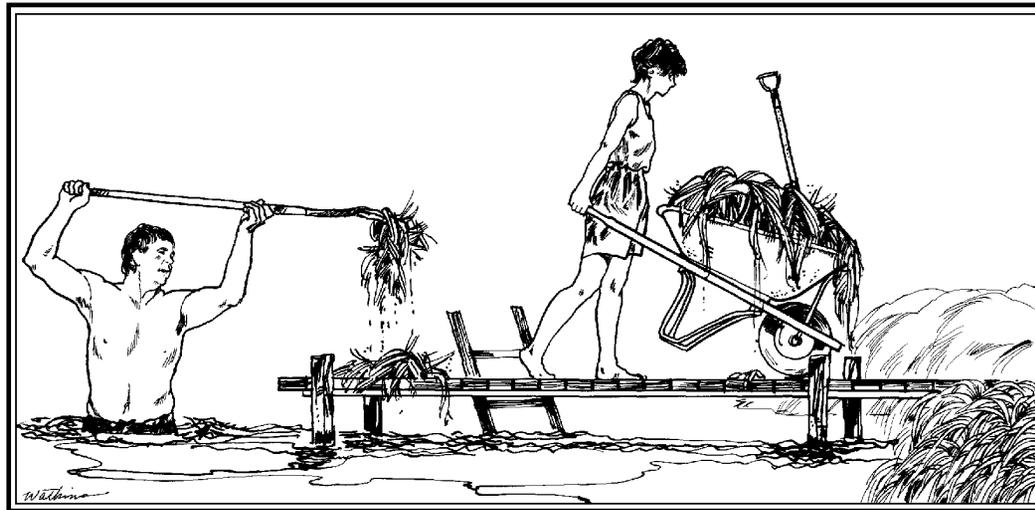


- ★ Research projects rearing and studying *Galerucella* beetles
- ★ Provide data, the organisms *and* build skills and understanding of the scientific processes
- ★ Many are school-based, others are housed within Master Gardener and other programs



Once you've found'em...

- ★ Biocontrol agent rearing & release
- ★ Hand pulling (rakes & even SCUBA)
- ★ Chemicals – monitoring pre- & post-treatment



A photograph of a white lotus flower in full bloom, surrounded by large green lily pads on a dark pond. The flower is the central focus, with its many petals clearly visible. The lily pads are scattered around it, some showing signs of age or damage. The water is dark, creating a strong contrast with the white flower and green leaves.

Questions??

Thank-you for your attention....