

US EPA ARCHIVE DOCUMENT

# 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

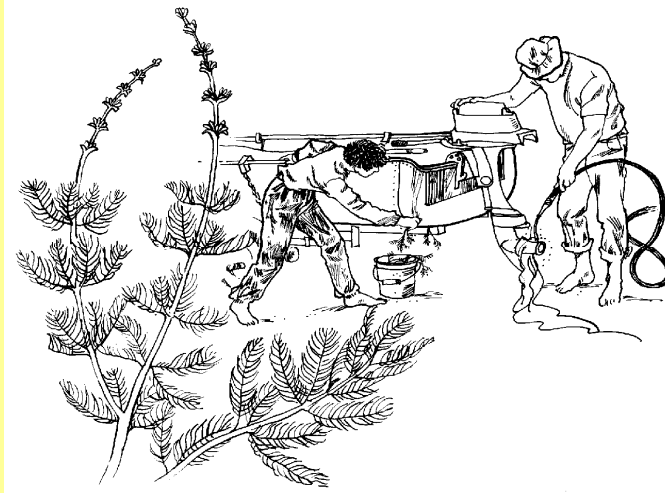
- > Increased numbers looking and geographic coverage
- > Significantly increases effort in areas most likely to be impacted



# 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

# ANS Monitoring Activities

**Occurrence** - determining the presence (or absence) of all exotics in a specific area and the recording of new exotic arrivals with time

**Abundance** - recording changes in numbers, density or area covered

**Expansion** - measuring the rate of expansion of a clump or population within a site and to other sites

**Biology** - recording seasonal flowering events; longevity of a perennial exotic; seedling survival; seed production in different habitats; presence of herbivores/pollinators/predators

**Impact** – identifying replacement of native species; change in use of areas by animals as exotics becomes dominant; potential food web interactions



# 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

L.L.Bean > Outdoor Gear - Hunt/Fish > Return to Search

### Gray Ghost Wading Boots, Studded

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Gray



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#### Select Item

TA261789

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#### Select Options

Wide EE

Shoe Size:

Gray

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#### About This Item

Don't give aquatic hitchhikers a ride. Our ultralight, cushioned boots are designed with fewer seams, pieces and details, making them easy for you to clean and hard for organisms to cling to. Tough synthetic materials stand up to the abuse of stream wading and hiking. Scuff pads on side for added durability and support. Possible weak points have been reduced with streamlined toe and heel guards. Rugged metal hardware. The molded-rubber outsole features innovative octagon-shaped lugs for improved traction in all conditions. Sized to be worn over neoprene booties; please order your street shoe size. Half sizes order down. Imported.

#### You Might Also Consider

- ✓ New
- ✓ New
- ✓ Org

Done

# ANS Occurrence Monitoring

- ★ 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

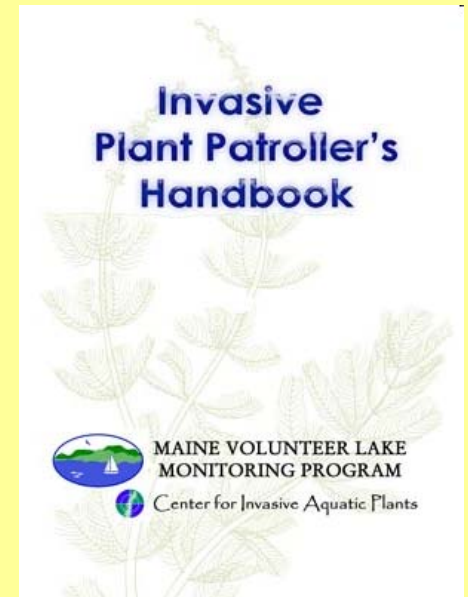
## Volunteers

- ★ 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](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 - Earlier requirements plus:

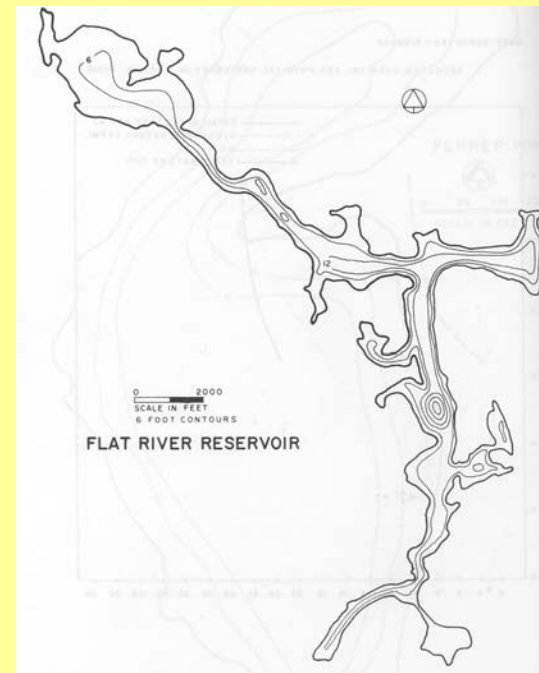
- ★ Develop & provide quantification and survey technique training and support
- ★ Increased data management

Volunteer – Earlier requirements plus:

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

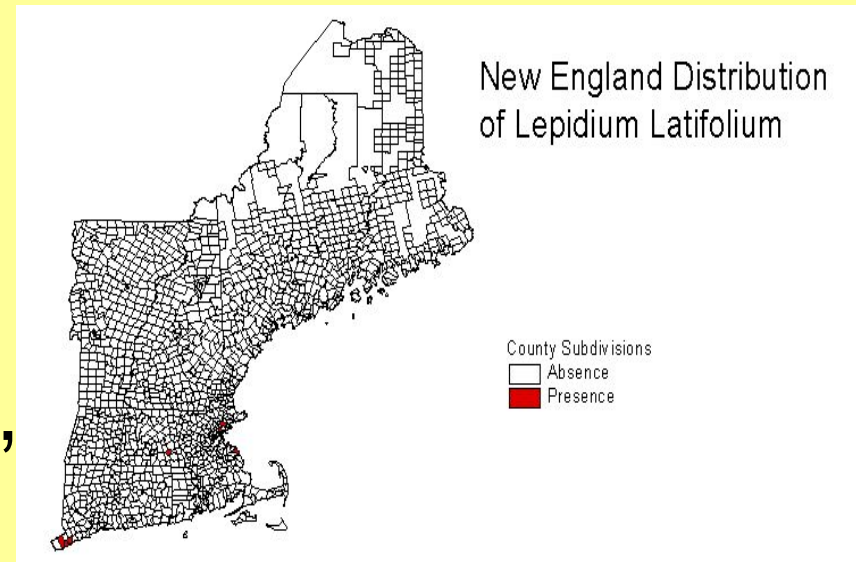
# Johnson's Pond Civic Association (Flat River Reservoir)

- ★ 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





**Aquatic Invasive Species:** [home](#) | [background](#) | [prevention/education](#) | [detect/monitor/identify](#) | [data and information sharing](#) | [rapid response](#) | [control](#) | [partners](#) | [links/resources](#) | [contact us](#)

## Aquatic Invasive Species Control

CZM's efforts focus primarily on [prevention and education](#) and [rapid response](#) to new introductions, but the control of established species is also critical. Even after populations have become widespread, the long-term impacts posed by Aquatic Invasive Species (AIS) can be reduced if efforts to control the species are successful. In general terms, control efforts work to restore lost economic and ecological conditions to the greatest extent possible. [Massachusetts Division of Ecological Restoration](#) focuses on the control of purple loosestrife.

### Other control efforts and resources include:

- [Eutrophication and Aquatic Plant Management in Massachusetts: Final Generic Environmental Impact Report \(GEIR\)](#) - Technical Assistance by the Department of Conservation and Recreation (DCR)Lakes and Ponds Program.
- [Restoration Demonstration Projects](#) by the DCR Lakes and Ponds Program.
- [Massachusetts Association of Conservation Commissions \(MACC\) Control Page](#) - Case studies and information on mechanical, biological, and herbicide control.
- [Section 319 Nonpoint Source Competitive Grants Program](#) - A grant program administered by the Department of Environmental Protection to control nonpoint source pollution including AIS.
- [Wildlife Habitat Incentives Program \(WHIP\)](#) - A voluntary program by the U.S. Department of Agriculture for people who want to develop and improve wildlife habitat primarily on private land.
- [Pulling Together Initiative](#) - A program by the National Fish and Wildlife Foundation to provide funding for long-term weed management projects within the scope of an integrated pest management strategy.
- [Control Methods for Select Aquatic Nuisance Species](#) - A resource by the Northeast Aquatic Nuisance Species Panel showcasing methods for the control or eradication of AIS.

Learn more about [rapid response](#). A rapid response to non-native species upon arriving in a new environment is the most effective means of minimizing the potential ecological and economic impacts associated with AIS.

Appendix C of the [AIS Management Plan](#) lists many grant programs applicable to AIS that may be useful when considering control options.

If you have specific questions about AIS control in Massachusetts, or are interested in controlling AIS in your area, please [contact us](#).

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A photograph of a white lotus flower in full bloom, centered in the lower half of the frame. The flower is surrounded by several large, vibrant green lily pads. The water is dark, creating a clear reflection of the white flower and the surrounding foliage. The overall scene is peaceful and natural.

Questions??

Thank-you for your attention....