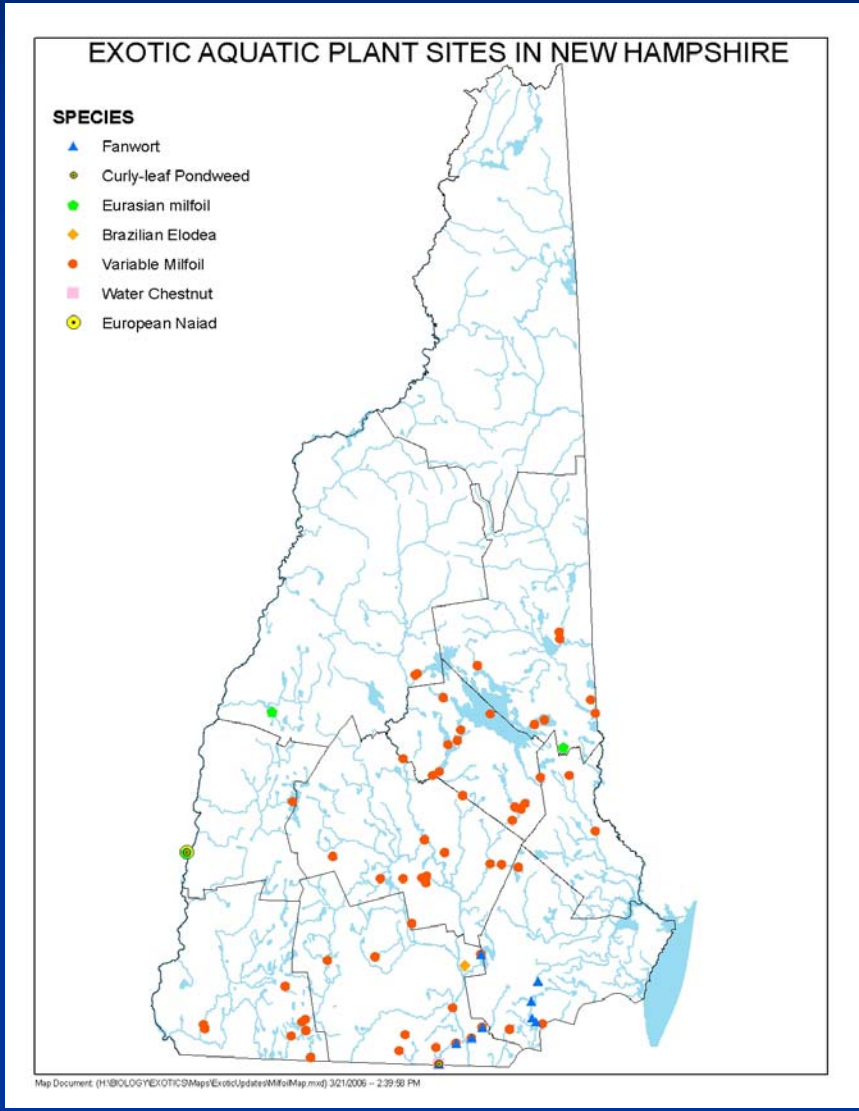
Aquatic Plants of Lake Todd, Newbury

State Contact:
Amy P. Smagula
Limnologist/Exotic Aquatic Plant Program Coordinator
603-271-2248 or asmagula@des.state.nh.us

Current status of exotic plant infestations in New Hampshire



- 63 variable milfoil sites
- 3 Eurasian milfoil sites
- 9 fanwort sites
- 1 Brazilian elodea site
- 1 water chestnut site
- 2 curly-leaf pondweed sites
- 1 water naiad site

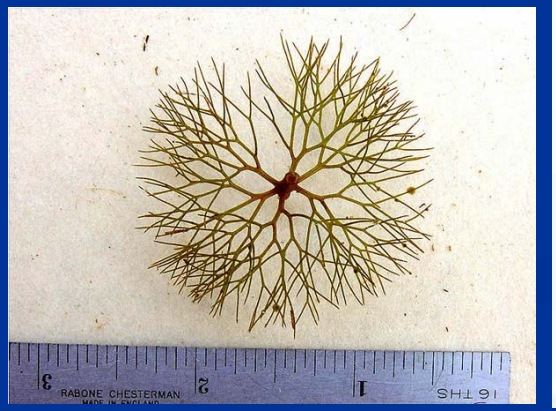
Plant Refresher
MORPHOLOGY

Structural Plant Characteristics

The Basics

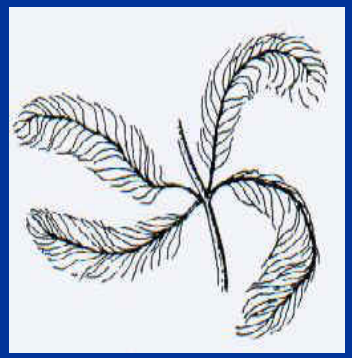
Leaf Type

- **Forked -** These leaves divide into two prongs, resembling the shape of a fork
- **Branched** - Branched leaves have many divisions, which continue to split until the edges are composed of many tiny prongs. This type of leaf resembles the branching pattern of a tree.
- **Feathered** - Feathered leaves have several divisions off of a central stalk. These divisions do not split again. These leaves, as the name implies, look much like a feather.
- **Entire** – These leaves do not split. Each leaf is one continuous unit without lobes or serrated edges.



Leaf Arrangement

- **Alternate** - the pattern of leaf arrangement in which leaves vary back and forth on the stem, with one leaf per node.
- **Whorled** - Leaves are arranged around the stem in a circular pattern. There can be three or more leaves per node.
- **Opposite** - Leaves are arranged in pairs on either side of the stem with two leaves per node.
- **Basal** - the plant lacks an erect stem. Leaves are attached around the a very short stem located just below the soil.
- **Rosette** - Able to move freely at or just below the surface of the water. Leaves are generally arranged in clusters attached to short stems



Leaf Margin

- Smooth: A leaf edge without bumps or points
- Serrated: A margin with tiny points all along the edge much like a serrated knife.
- Lobed: The leaf edge is split into subsection as with the maple leaf.

Types of Aquatic Plants

Emergent

Submergent

Floating

Algae

Plant Refresher
NATIVE
PLANTS
Lake Todd

Floating-leaved plants

(also includes common natives that may not currently be in pond, or that were not document during the last survey done by NH DES)

- Includes both rooted and unrooted here


Watershield

Floating Heart


Yellow lily


White lily

Emergent plants

- Plants that are rooted and have most of their biomass as erect vegetation above the water

(also includes common natives that may not currently be in pond, or that were not document during the last survey done by NH DES)


Cattail

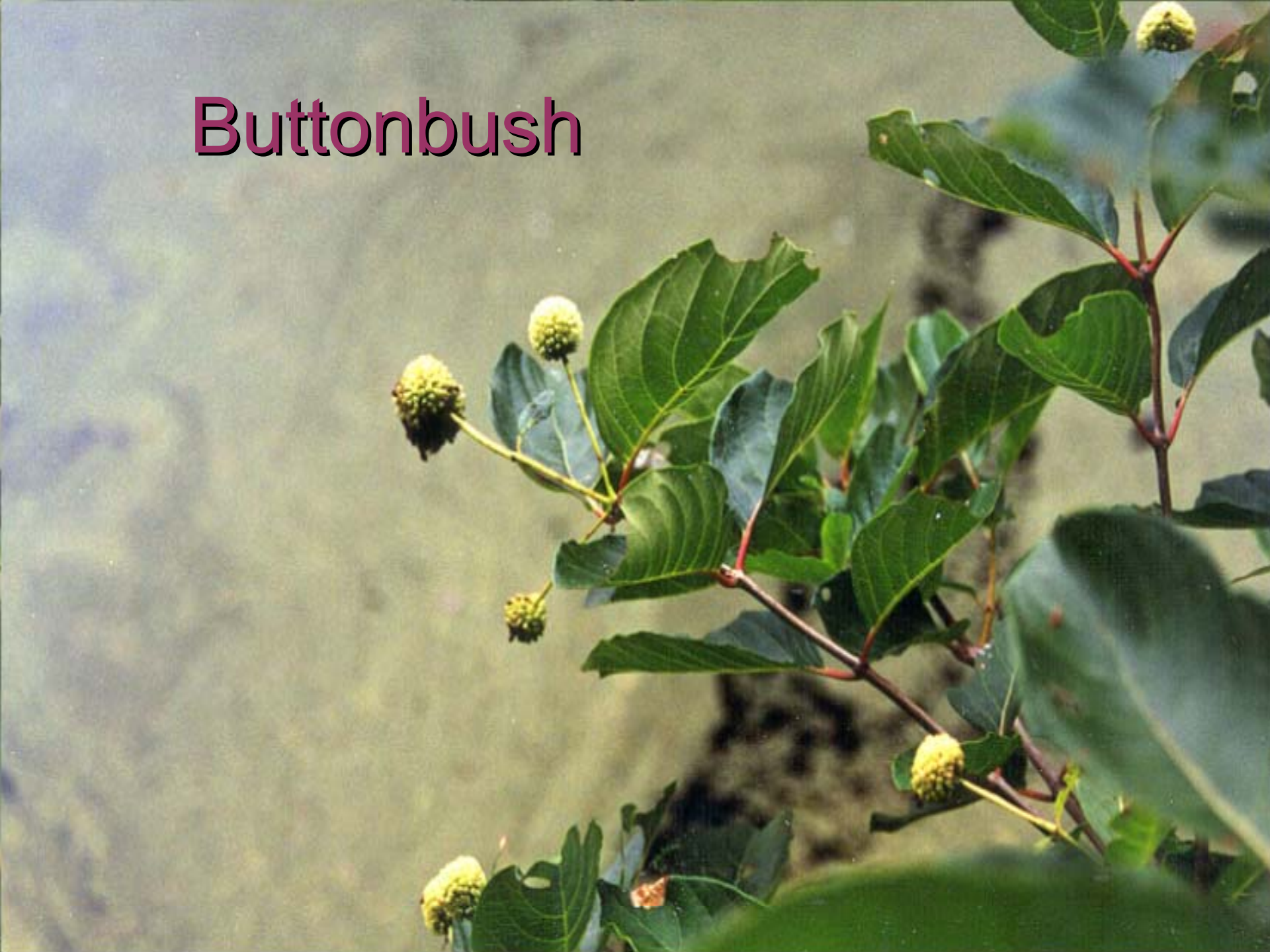

Pickerelweed

Swamp Loosestrife

Photo courtesy of Jason E. Smith


Bur-reed

Buttonbush



Submergent plants

- Rooted or unrooted
- Vegetative portion wholly underwater
- Flowers may be emergent


Pondweed


Bladderwort


NATIVE milfoil


Submersed bur-reed

Algae
(also important to look at)

- Single celled to colonial
- Simple plants
- Base of the food chain


Green algae= OK


Cyanobacteria (Blue-green algae)-
Call us! These could produce toxins.

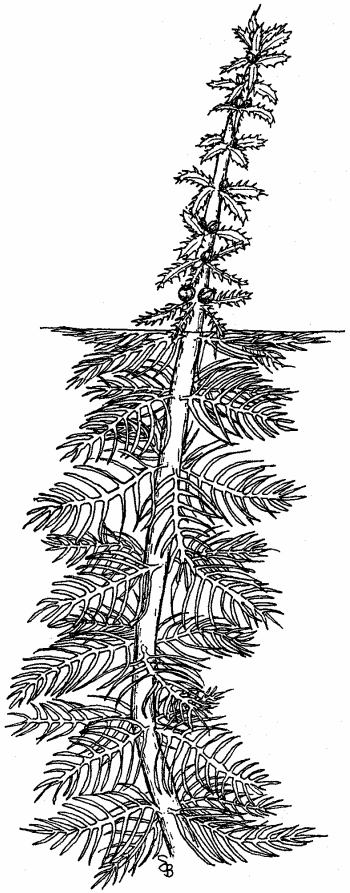
The Exotic Plants (aka- plants you don't want)

At this point in time Lake Todd does not have exotic aquatic plants. Use these pictures to help you identify any new growth that may come in.

Report any sightings of these to:

Amy P. Smagula
NH DES
29 Hazen Drive
Concord, NH 03301
asmagula@des.state.nh.us
603-271-2248


Variable milfoil (EXOTIC)

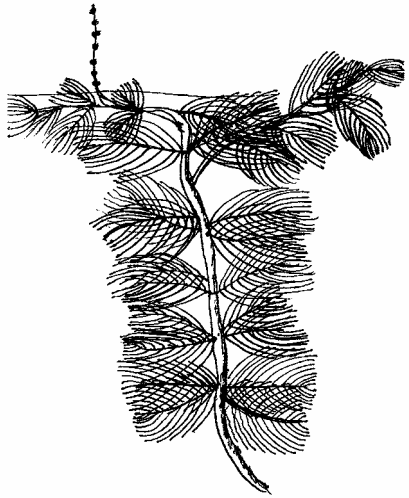


- Variable milfoil- *Myriophyllum heterophyllum*
- Native to southern and central U.S.
- In 63 waterbodies in NH

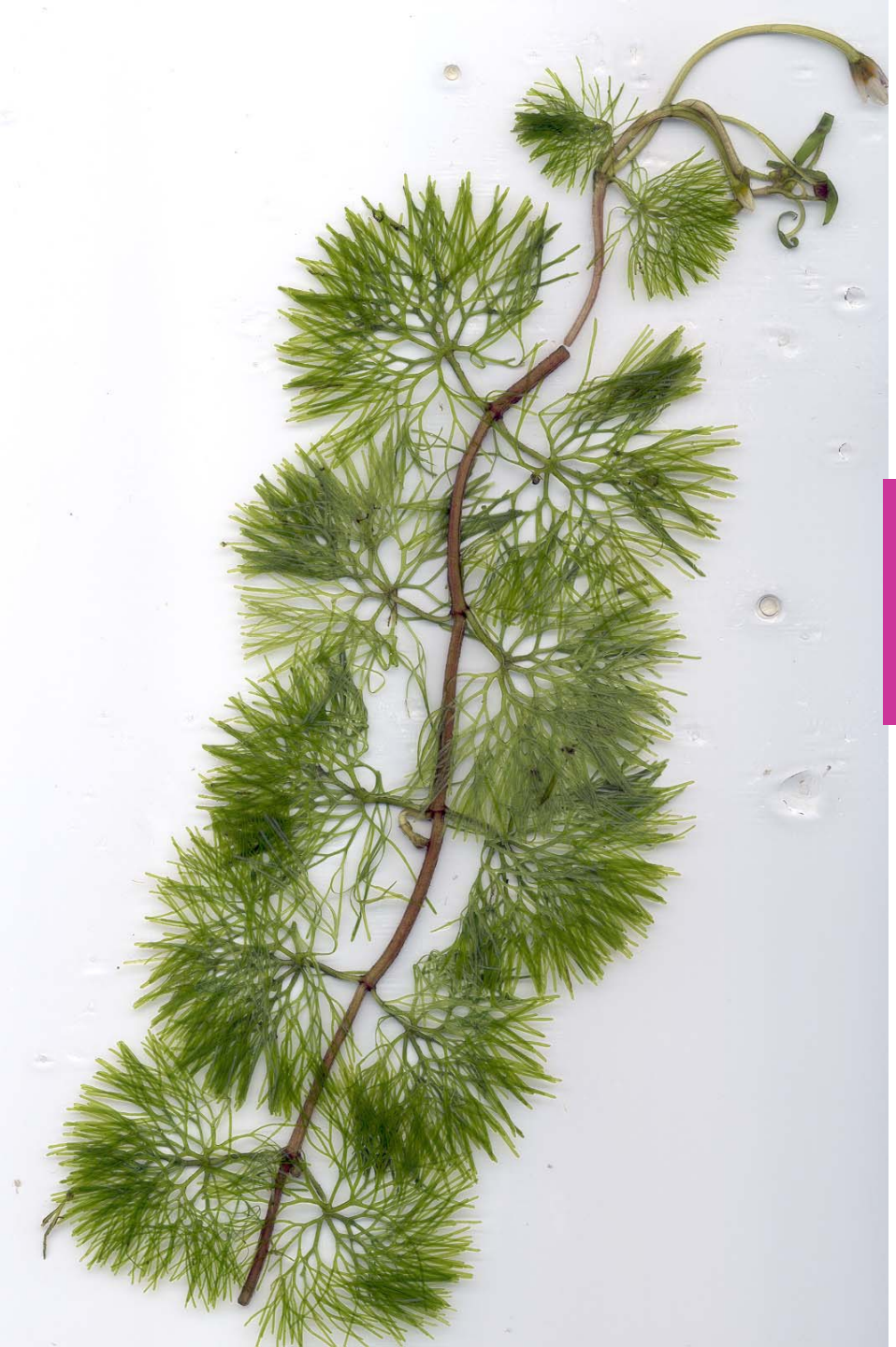

Variable milfoil flower


Eurasian milfoil (EXOTIC)

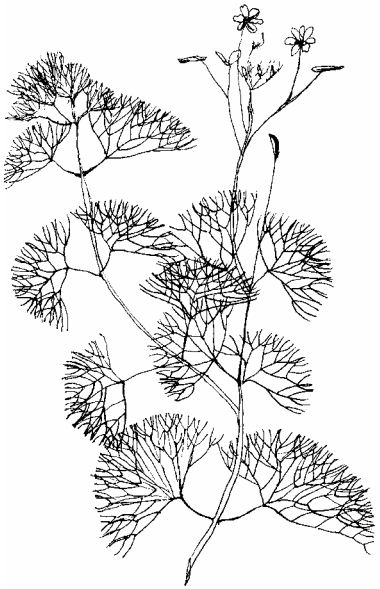
Eurasian milfoil- *Myriophyllum spicatum*
Native to Asia
In three waterbodies in NH




Fanwort (EXOTIC)



- Fanwort- *Cabomba caroliniana*
- Native to Europe/Asia
- In 9 waterbodies in NH



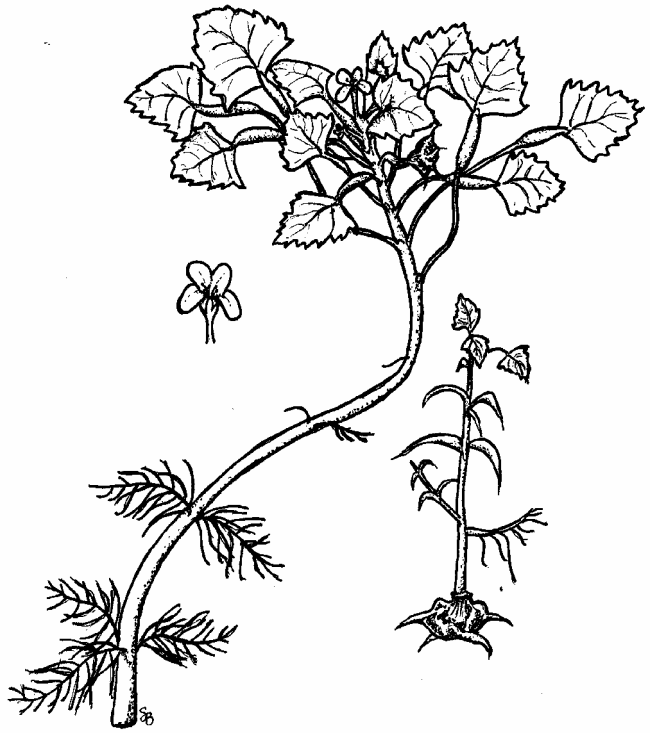

Hydrilla (EXOTIC)

- Hydrilla- *Hydrilla verticillata*
- Native to South America
- Not yet found in NH (but found in MA and ME)


Brazilian elodea (EXOTIC)

- Brazilian elodea- *Egeria densa*
- Native to Asia and South America
- In 1 waterbody in NH


Water chestnut- EXOTIC



- Water chestnut- *Trapa natans*
- Native to Asia
- In 1 waterbody in NH

Curly-leaf Pondweed

K. Hahnel, ME DEP

Water Naiad

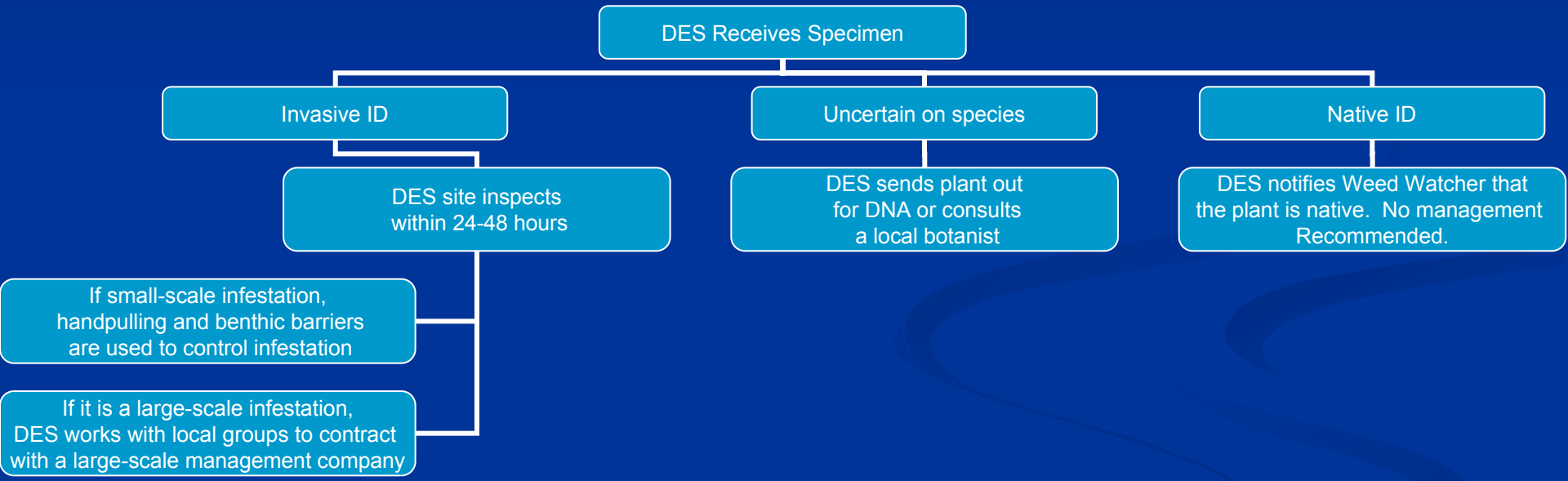
A. Bove, VT DEC


Purple loosestrife (EXOTIC)


Common reed (Phragmites)
EXOTIC


Yellow iris (EXOTIC)

State Response

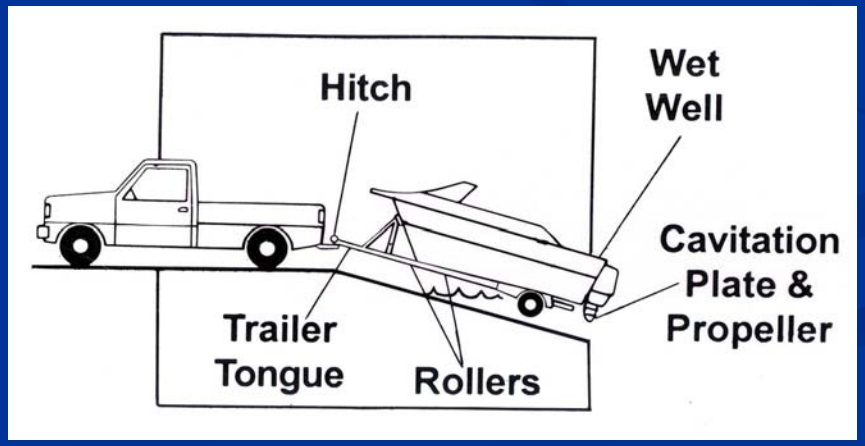


The Exotic Species Mantra

- Prevention
- Early Detection
- Rapid Response
- Control/Management

Prevention

- Focus on the public access site
  - Post signs and/or information at kiosks
- Develop a monitoring program to inspect boats as they enter and leave your waterbody
  - Remove all attached plants and animals from the boat, trailer, live wells, anchor, etc.



Early Detection:
Volunteer Weed Watchers

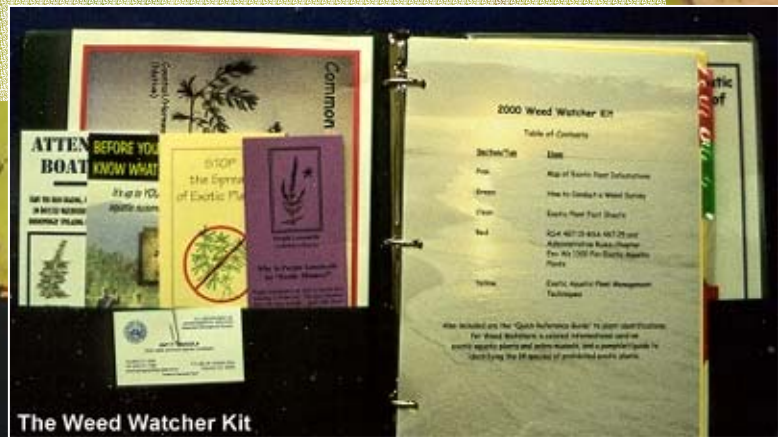
NEW HAMPSHIRE DEPARTMENT OF Environmental Services

Why Develop a Weed Watcher Program?

- Proactive approach
  - Volunteer Weed Watchers are the first line of defense if an exotic is introduced
- Catch infestations early
- Facilitate a Rapid Response Action
- Prevent the further spread

What is Involved?

- Volunteers are trained to monitor waterbodies for exotics, generally on-site at their own waterbody
  - Once a month from May to September is recommended
- NHDES provides resources:
  - Weed Watcher Kit
  - Pictures
  - Fact sheets
  - Maps of the subject lake/pond (bathymetric and historical plant maps with keys)



The Weed Watcher Kit

Equipment needs are generally minimal, and easy to obtain.

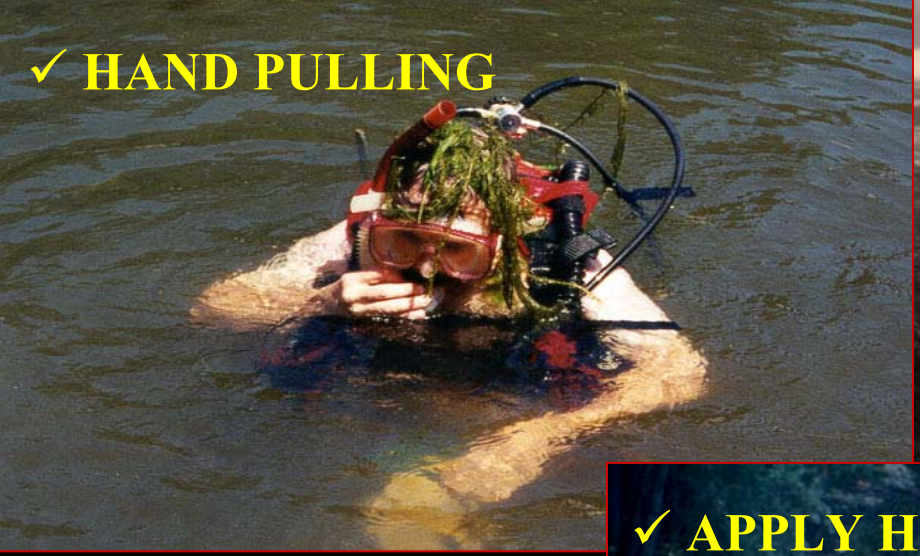
- ✓ Small boat with short shaft motor, canoe, kayak, or row boat
- ✓ Driver and one or more observers
- ✓ Lake outline map, pens/pencils
- ✓ Plant identification keys/pictures
- ✓ Small long-handled rake or throw rake
- ✓ Zip-lock bags
- ✓ Polarized glasses or view scope (optional)

Volunteers learn how to identify plants by comparison with pictures provided to them

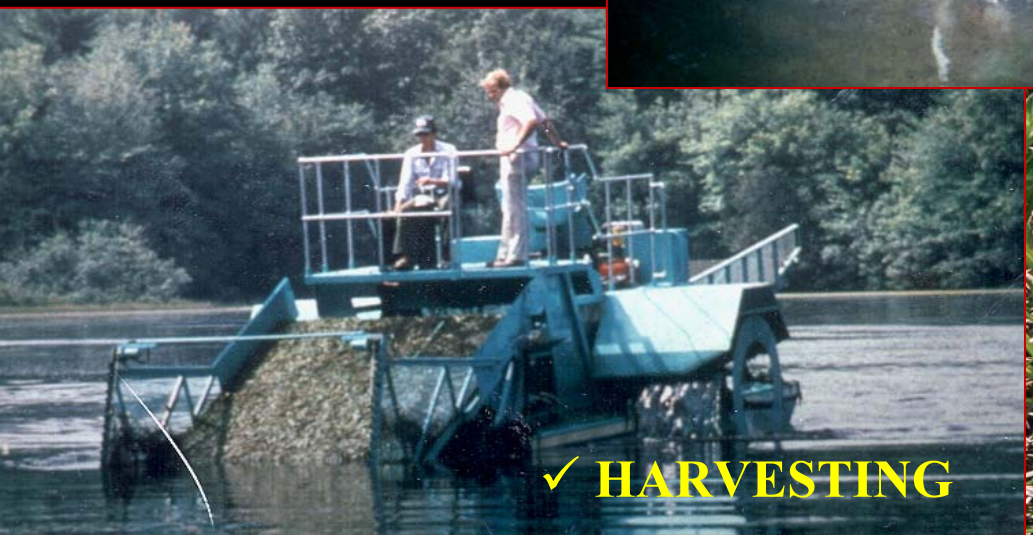
Control/Management

Plant Management

- When a new infestation is detected, reporting it immediately can increase the odds of a rapid response, quick containment, and possible eradication
- If an infestation is very large when it is found, more intensive management is needed, and the chances of eradication can be lower
- Integrated plant management techniques are varied and effective when well planned



Management & Control



DES Website

www.des.state.nh.us/wmb/exoticspecies

Maine's Virtual Herbarium

www.mciap.org/herbarium