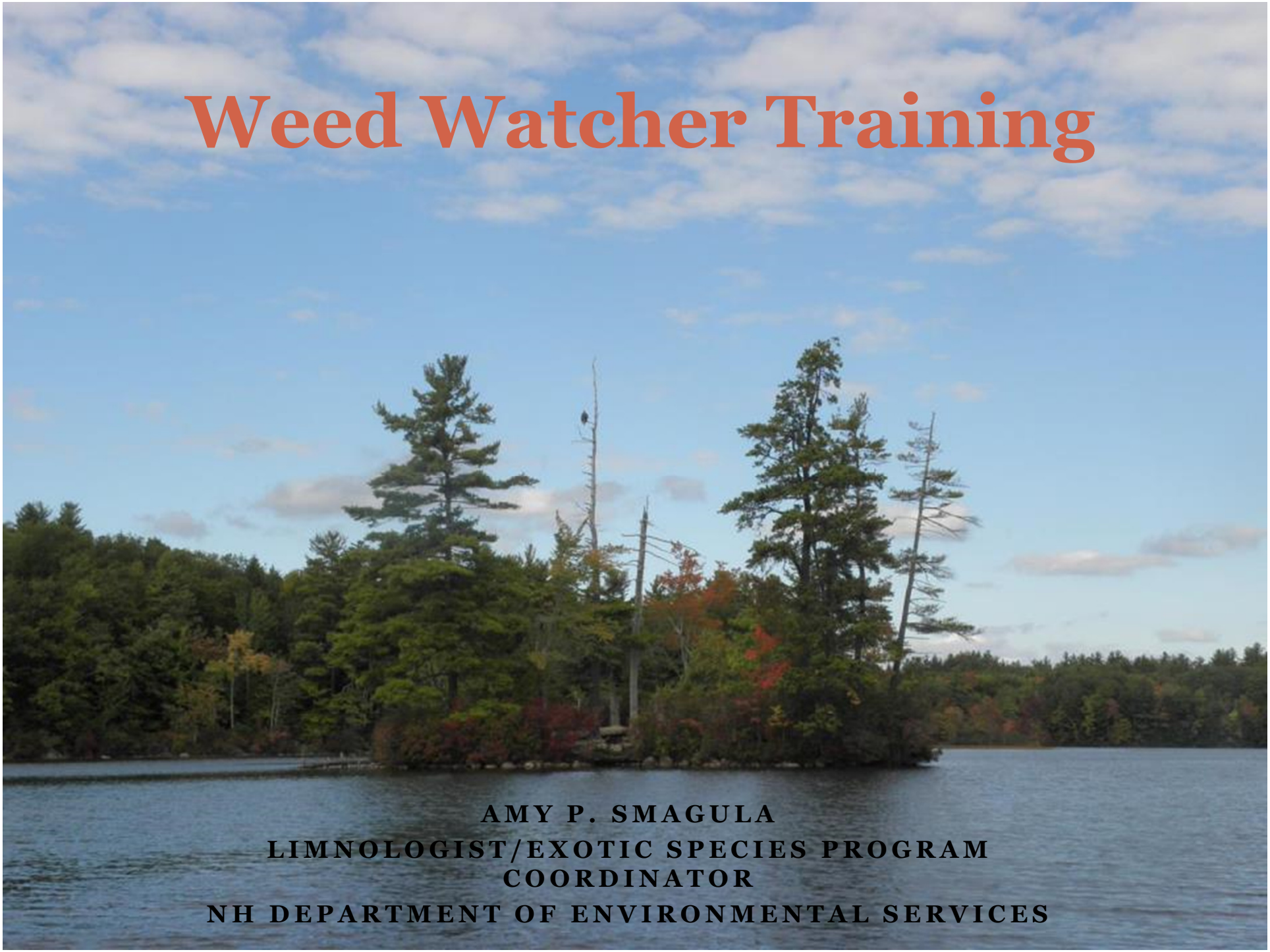
Weed Watcher Training



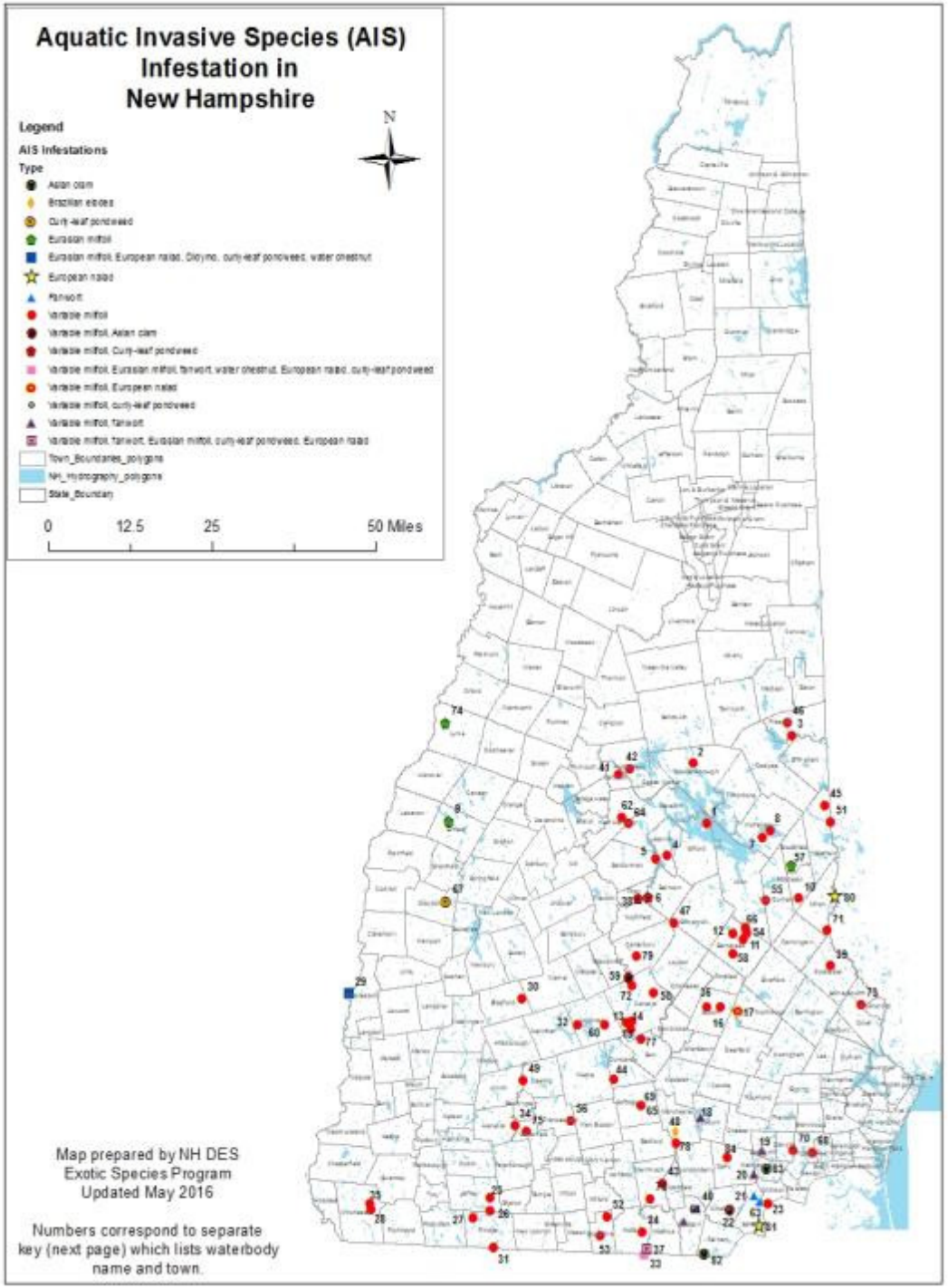
AMY P. SMAGULA

LIMNOLOGIST/EXOTIC SPECIES PROGRAM COORDINATOR

NH DEPARTMENT OF ENVIRONMENTAL SERVICES

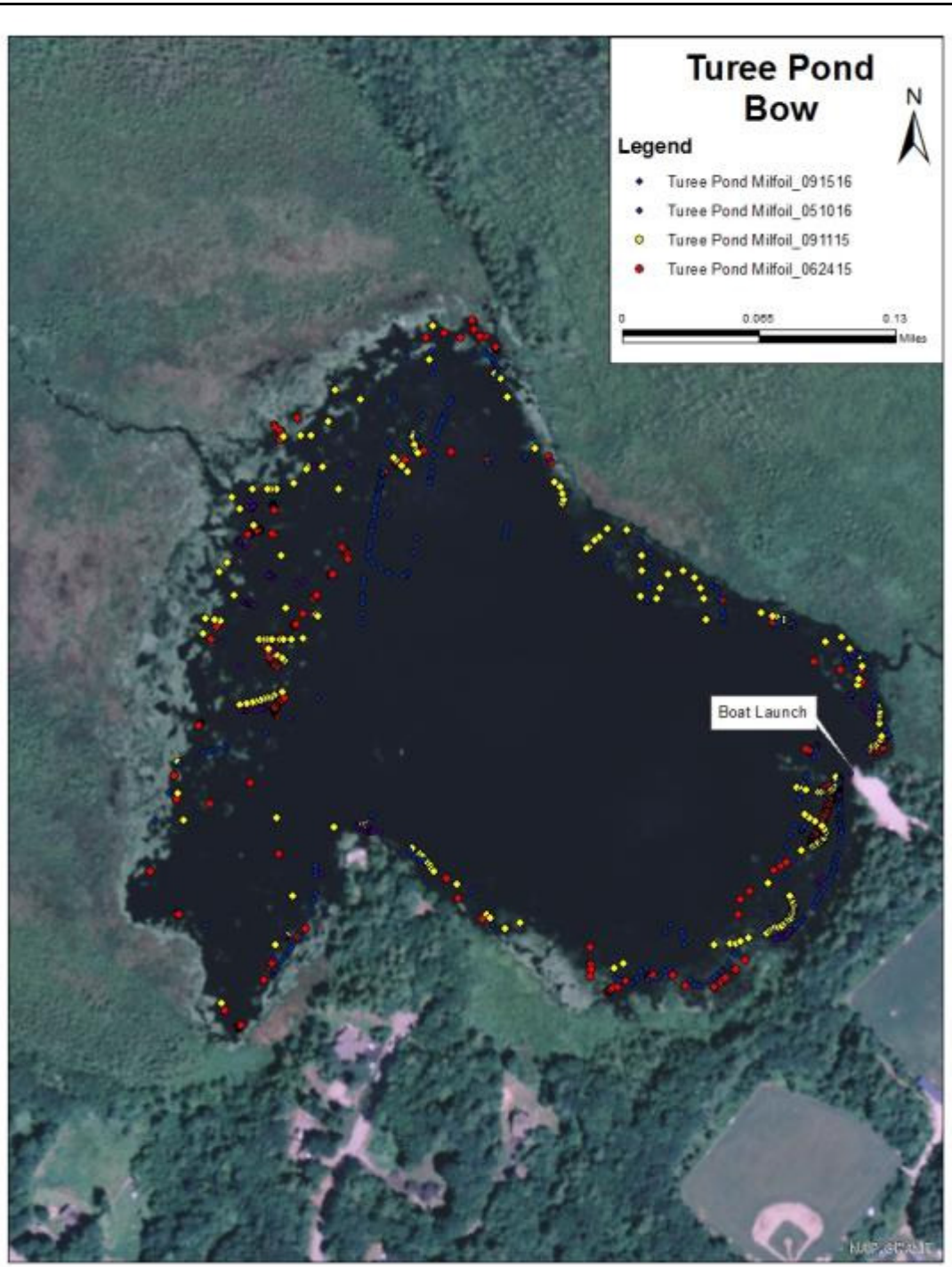
Overview

- Status of infestations in NH
- Infestations in Bow
- Invasive Plants
- Invasive Animals
- Weed Watcher Methods



Status of Infestations

- 70+ variable milfoil infestations
- 5 Eurasian water milfoil infestations
- 9 fanwort infestations
- 2 water chestnut infestations
- 1 Brazilian elodea infestation
- 8 water naiad infestations
- 3 curly-leaf pondweed infestations
- 45 mi reach of Didymo growth
- 4 Asian clam infestations
- >80 Chinese mystern snail infestations


Turee Pond
Bow
N
Legend
Turee Pond Milfoil_091516
Turee Pond Milfoil_051016
Turee Pond Milfoil_091115
Turee Pond Milfoil_062415
0
0.065
0.13
Miles
Boat Launch

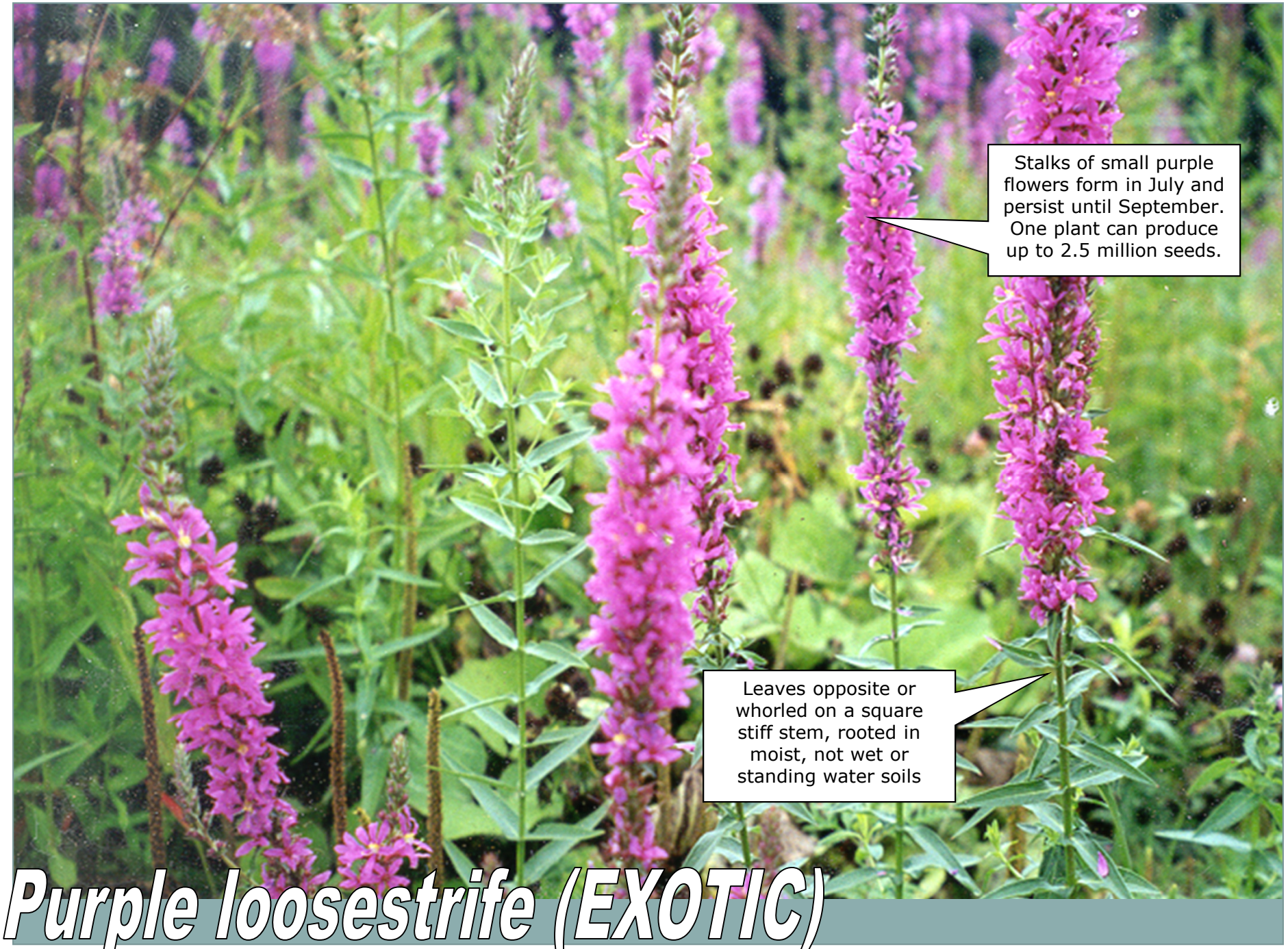
High Risk Species for Bow Area

- Based on water chemistry and geographic location
  - Plants
    - Variable milfoil
    - Water chestnut
  - Animals
    - Asian clam
    - Chinese mystery snail

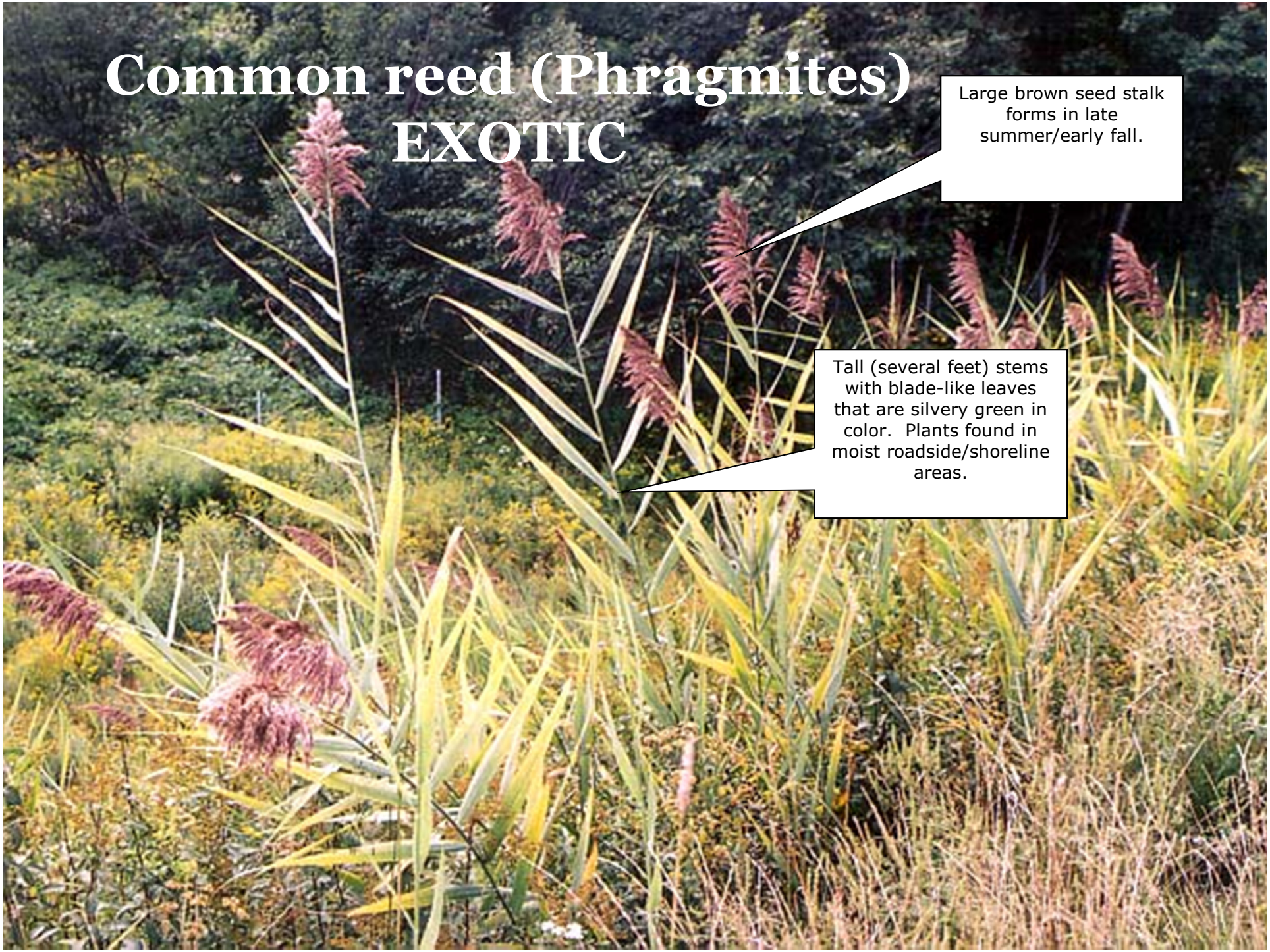
Plant and Animal Refresher

- Following are photos of the more common species to keep an eye out for while on the water

Emergent Invasive Plants

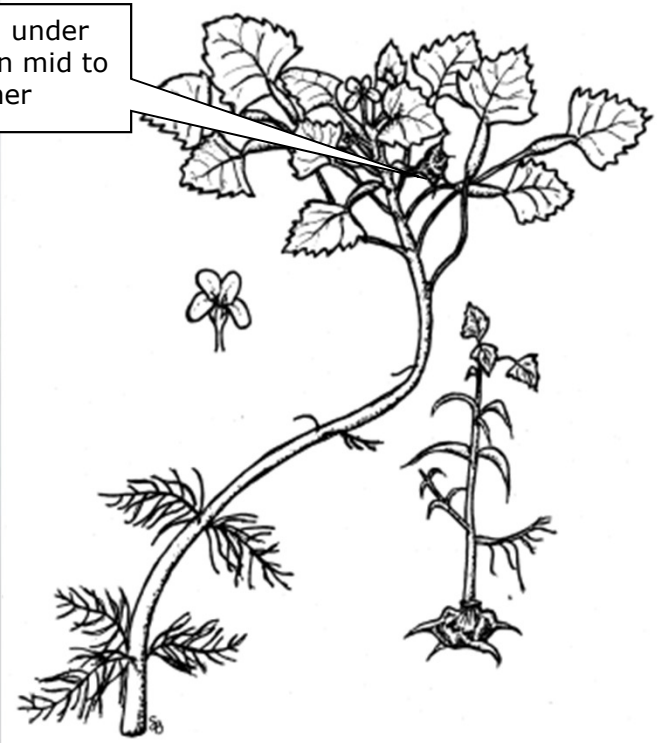


Purple loosestrife (EXOTIC)


Common reed (Phragmites)
EXOTIC
Large brown seed stalk forms in late summer/early fall.
Tall (several feet) stems with blade-like leaves that are silvery green in color. Plants found in moist roadside/shoreline areas.

Floating Leaved Invasive Plants

Seeds form on under side of rosette in mid to late summer

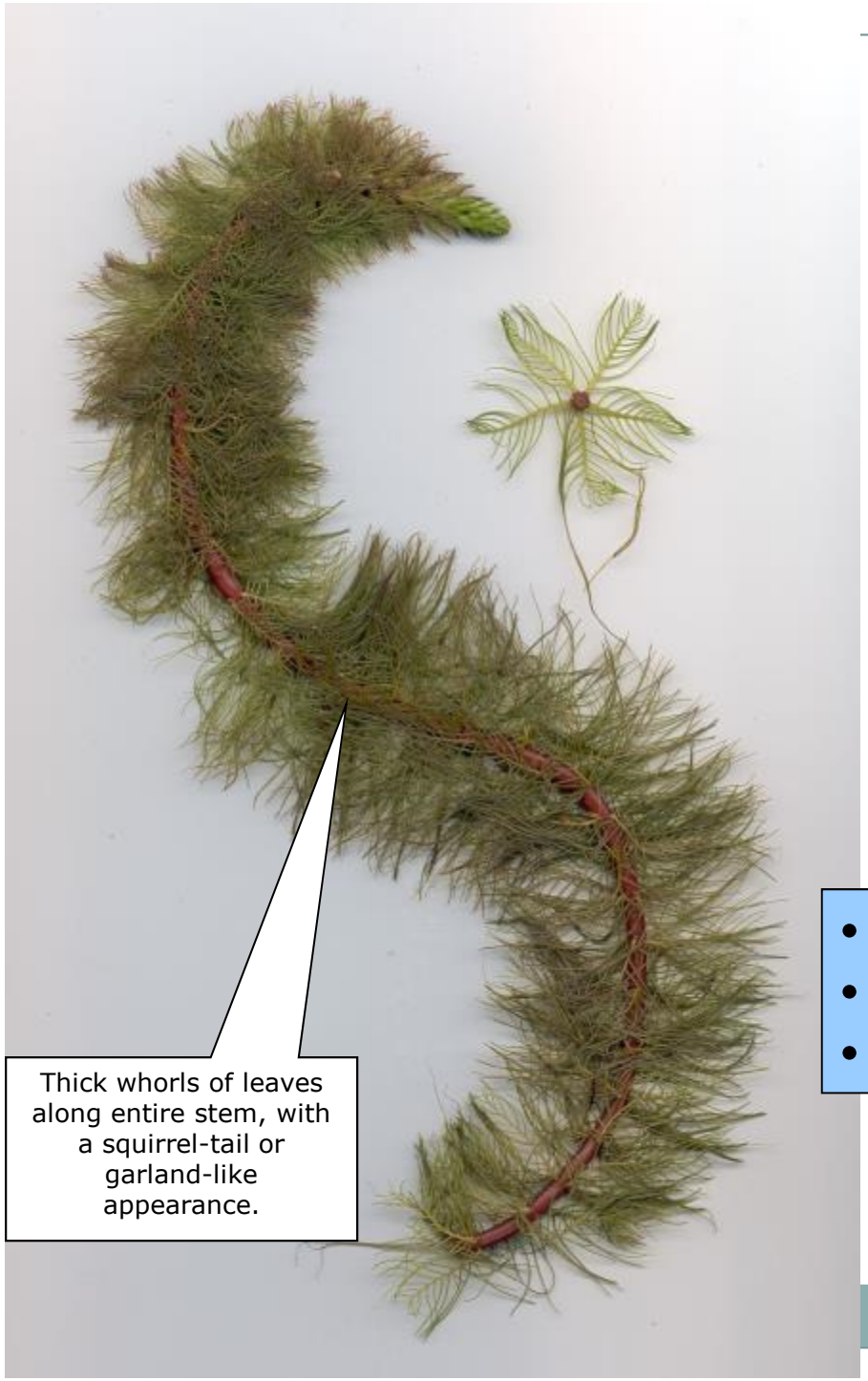


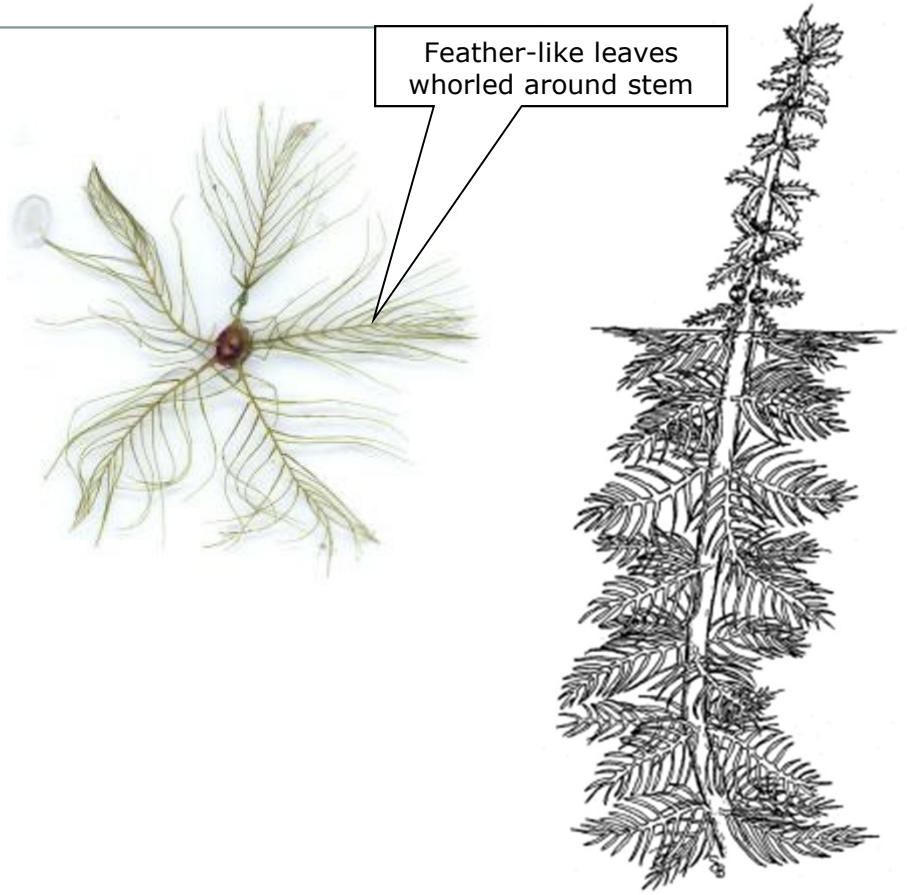
Floating rosette of triangular shaped leaves on surface of water, connected to seed in sediment with a long stem/petiole

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

Water chestnut- EXOTIC

Submergent Invasive Plants

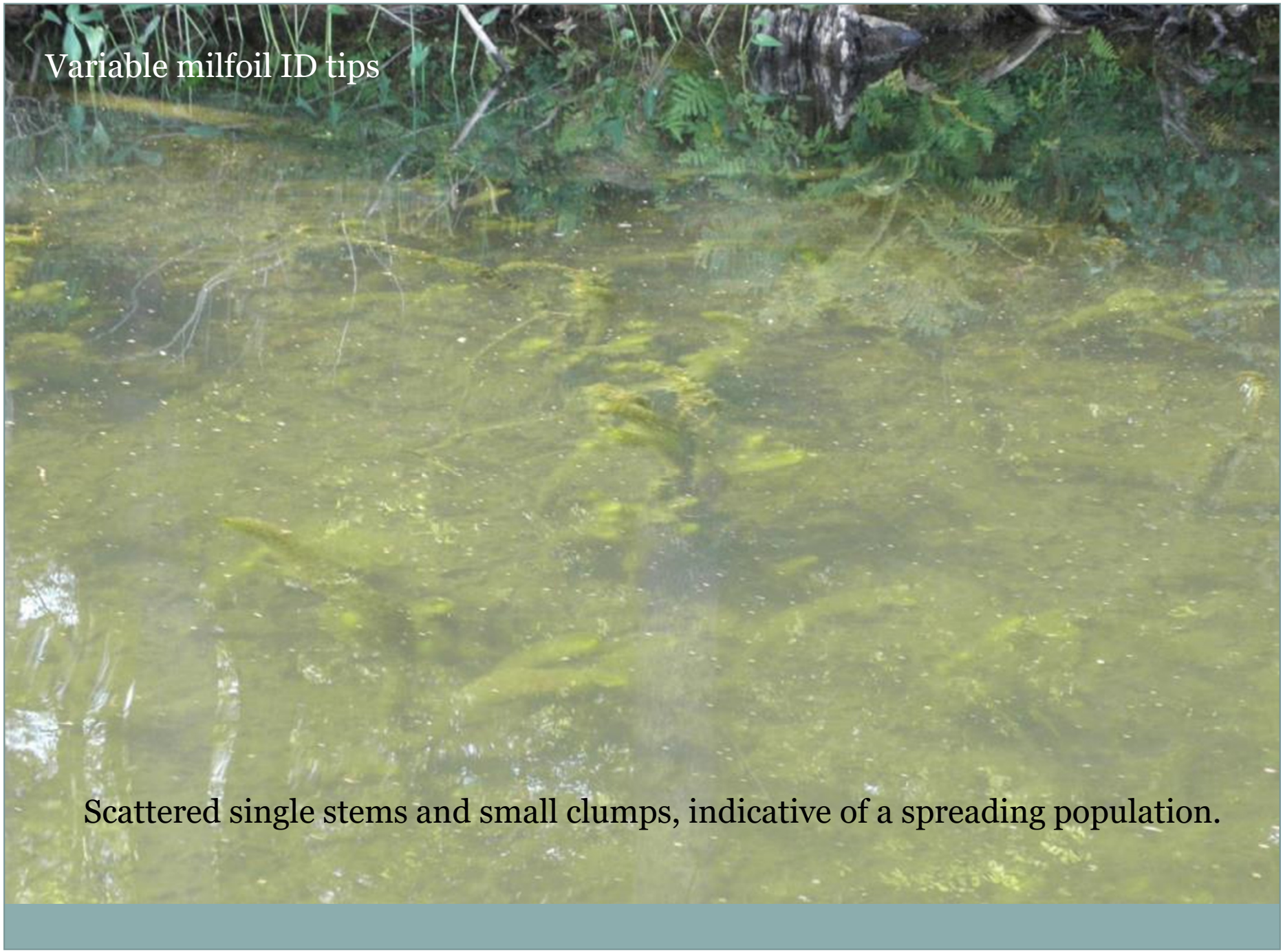




- Variable milfoil- *Myriophyllum heterophyllum*
- Native to southern and central U.S., not to NH
- In over seventy waterbodies in NH

Variable milfoil ID tips


Variable milfoil ID tips
New growth may be down low, close to the bottom.


Variable milfoil ID tips
Scattered single stems and small clumps, indicative of a spreading population.


Variable milfoil ID tips
The plants often have bright green tips, or whole stems

Don’t be fooled by bladderwort!

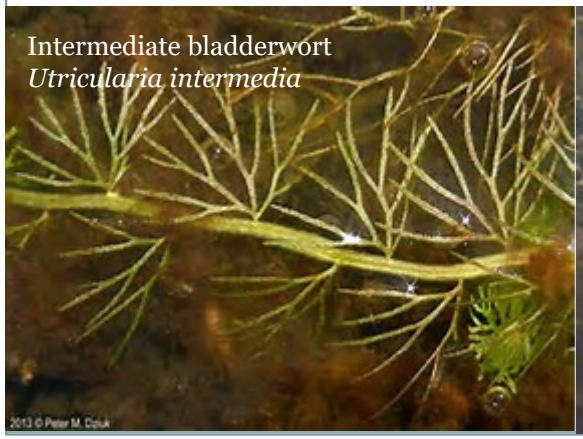

Large bladderwort
Utricularia vulgaris


Large bladderwort
Utricularia vulgaris

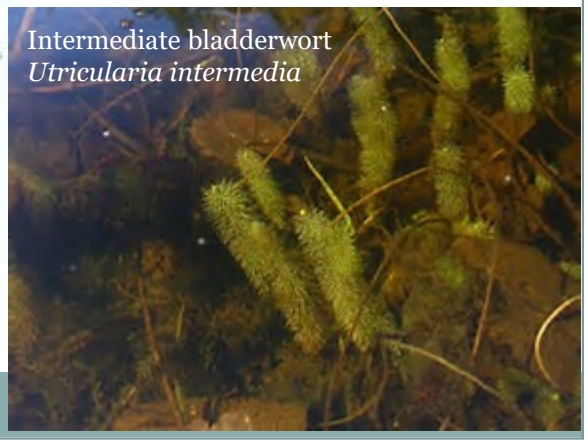
Bladderwort is a very common native plant, most often confused for variable milfoil.


Intermediate bladderwort
Utricularia intermedia

You have all three of these in Pawtuckaway Lake!


Intermediate bladderwort
Utricularia intermedia

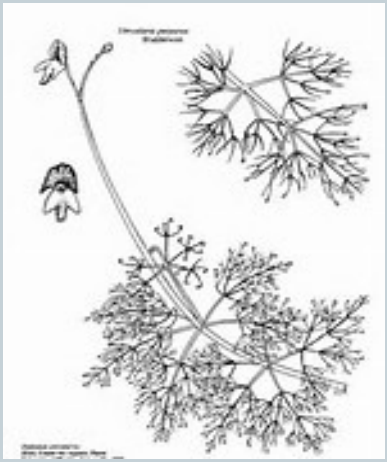

Whorled bladderwort
Utricularia purpurea


Intermediate bladderwort
Utricularia intermedia

To be sure, check the leaves!

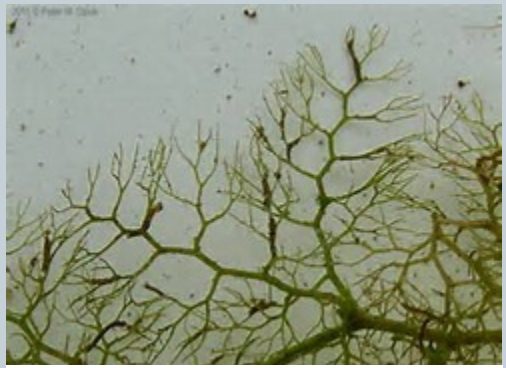
- Bladderwort leaves are more branching or forking, and usually have green, black, or clear "bladders" on them. They alternate.
- Milfoil leaves look like a feather and have no bladders (but beware of the algae globs! Variable milfoil leaves are in whorls.
- *When in doubt, collect a voucher for DES.*

Variable milfoil leaf whorl and single leaf. Note feather-like appearance.



Whorled bladderwort leaves can whorl around the stem, but they are branching, not feather-like.

Large bladderwort leaf with black bladders. Notice it appears like a feather, but not a true feather. It is lacier and branching at the tip.

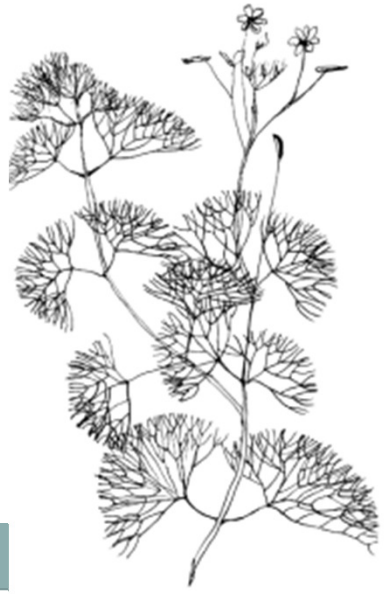


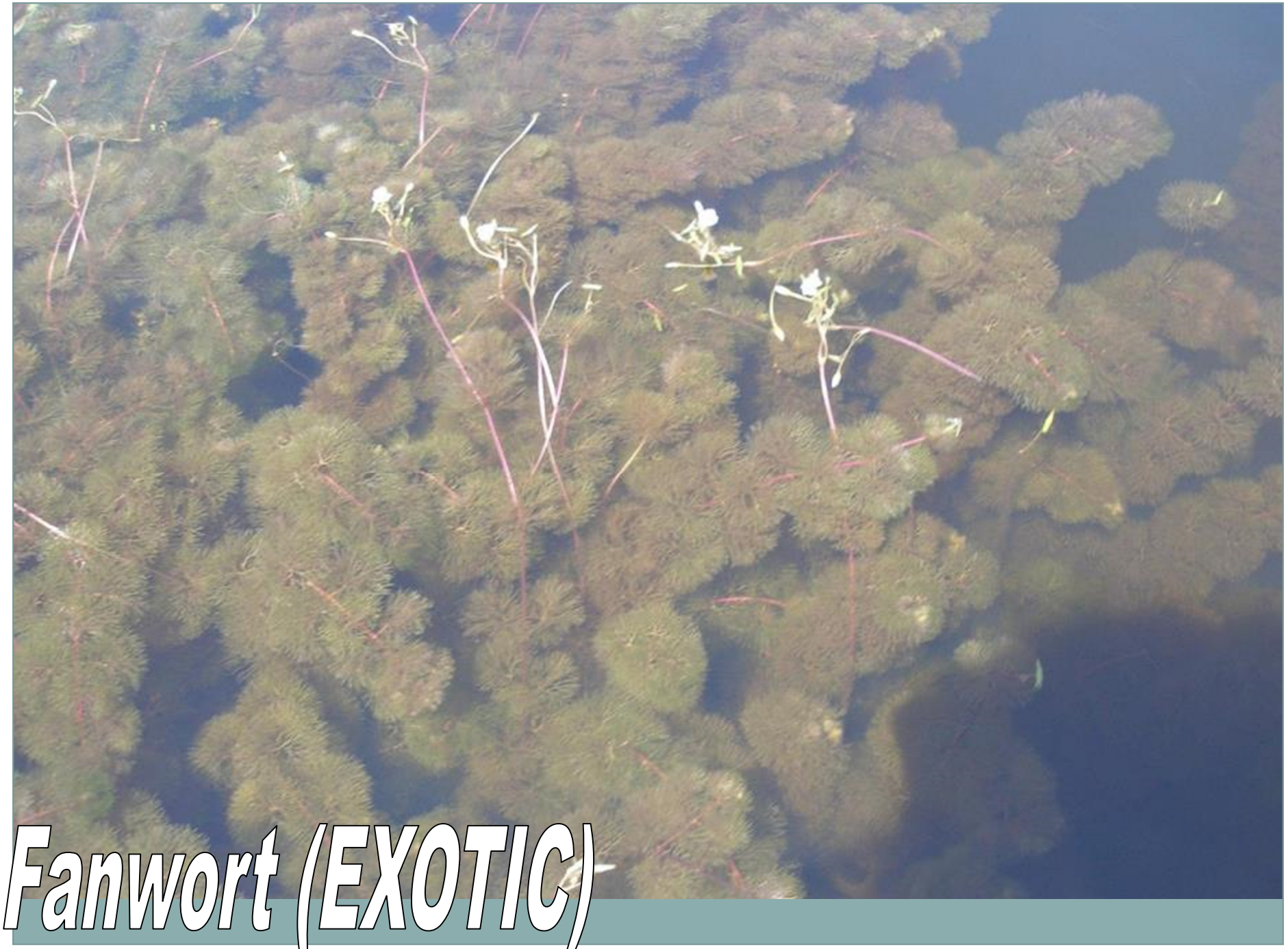
Large bladderwort leaf that lost bladders. Notice it appears like a feather, but not a true feather. It is lacier and branching at the tip.

Intermediate bladderwort leaves are alternate along stem. Bladders are on a separate stem.

Branching leaves arranged oppose along stem. Note leaf is attached by a short stem to main stem of plant.

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





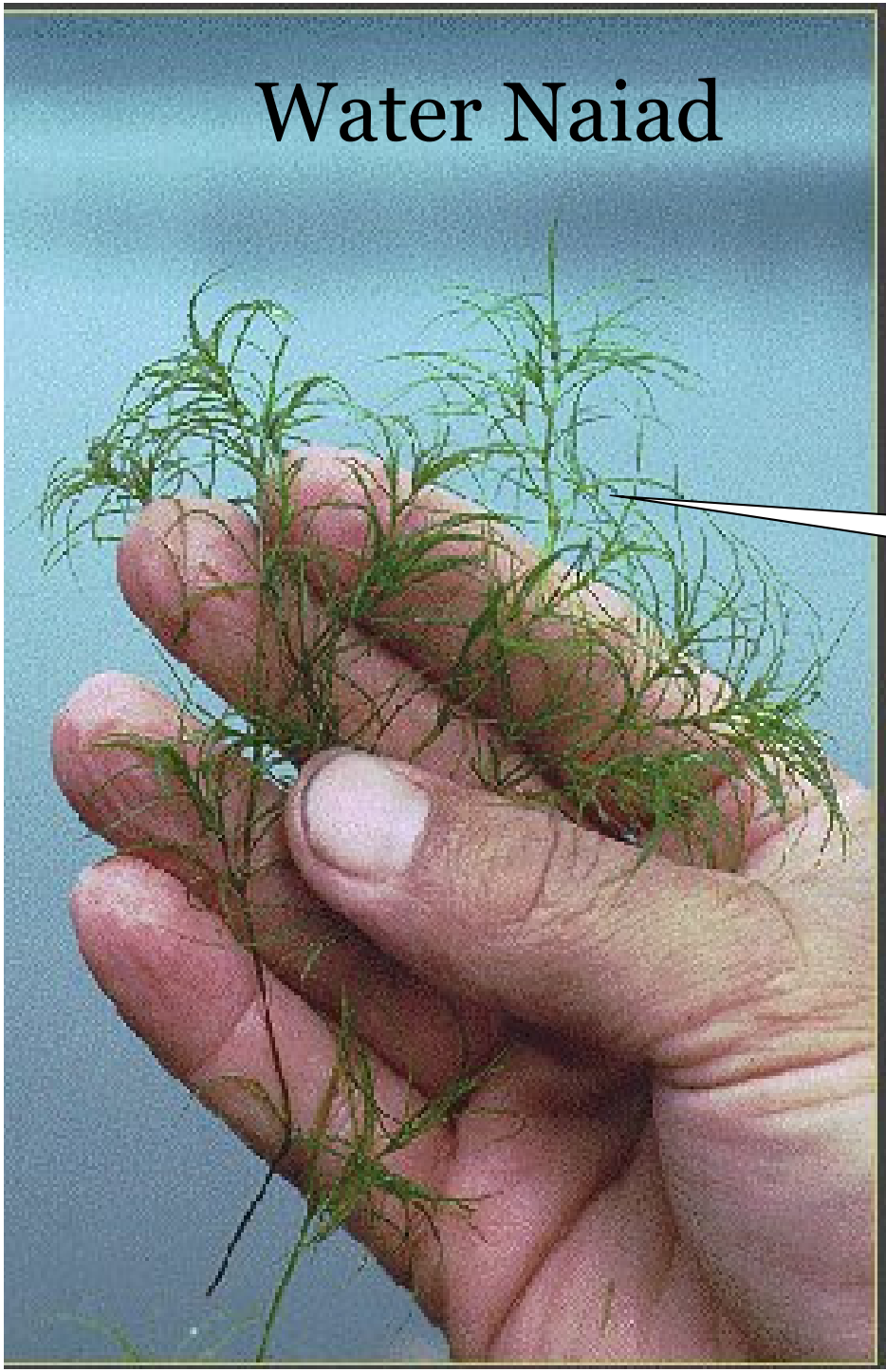
Fanwort (EXOTIC)

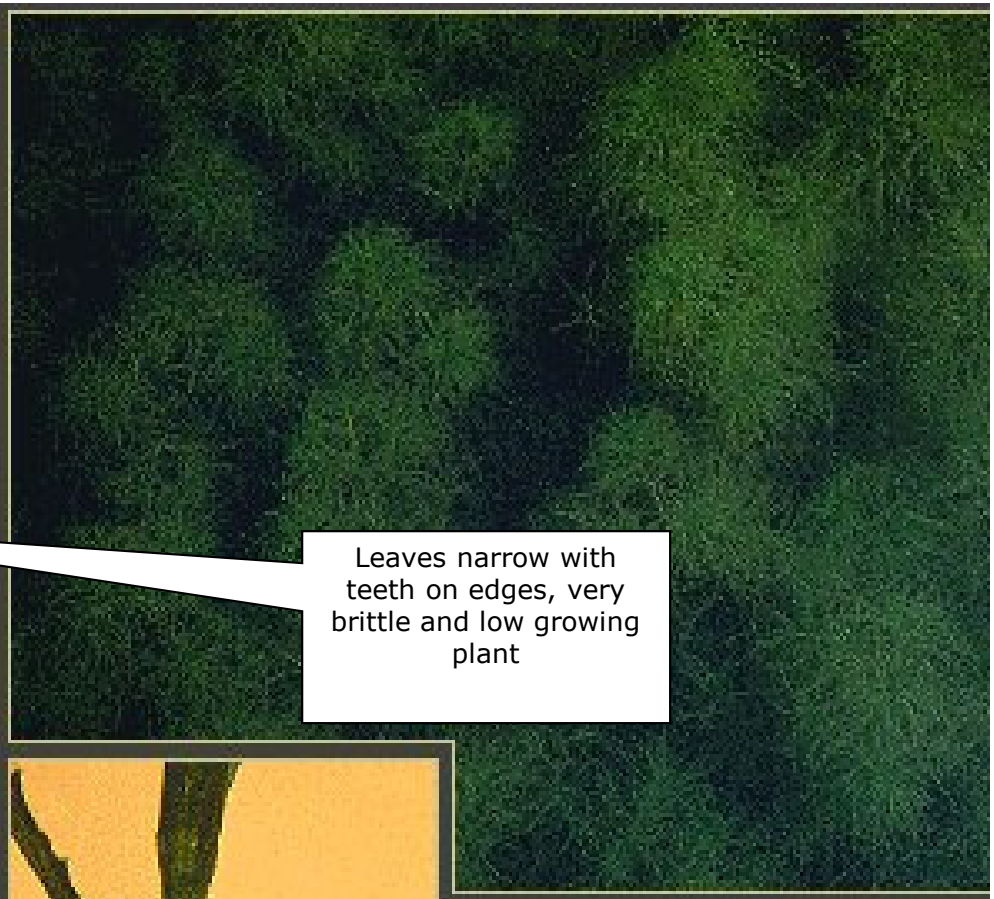
Curly-leaf Pondweed

Small narrow leaves whorled around stem. Note teeth on leaf edge for hydrilla.

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

Water Naiad





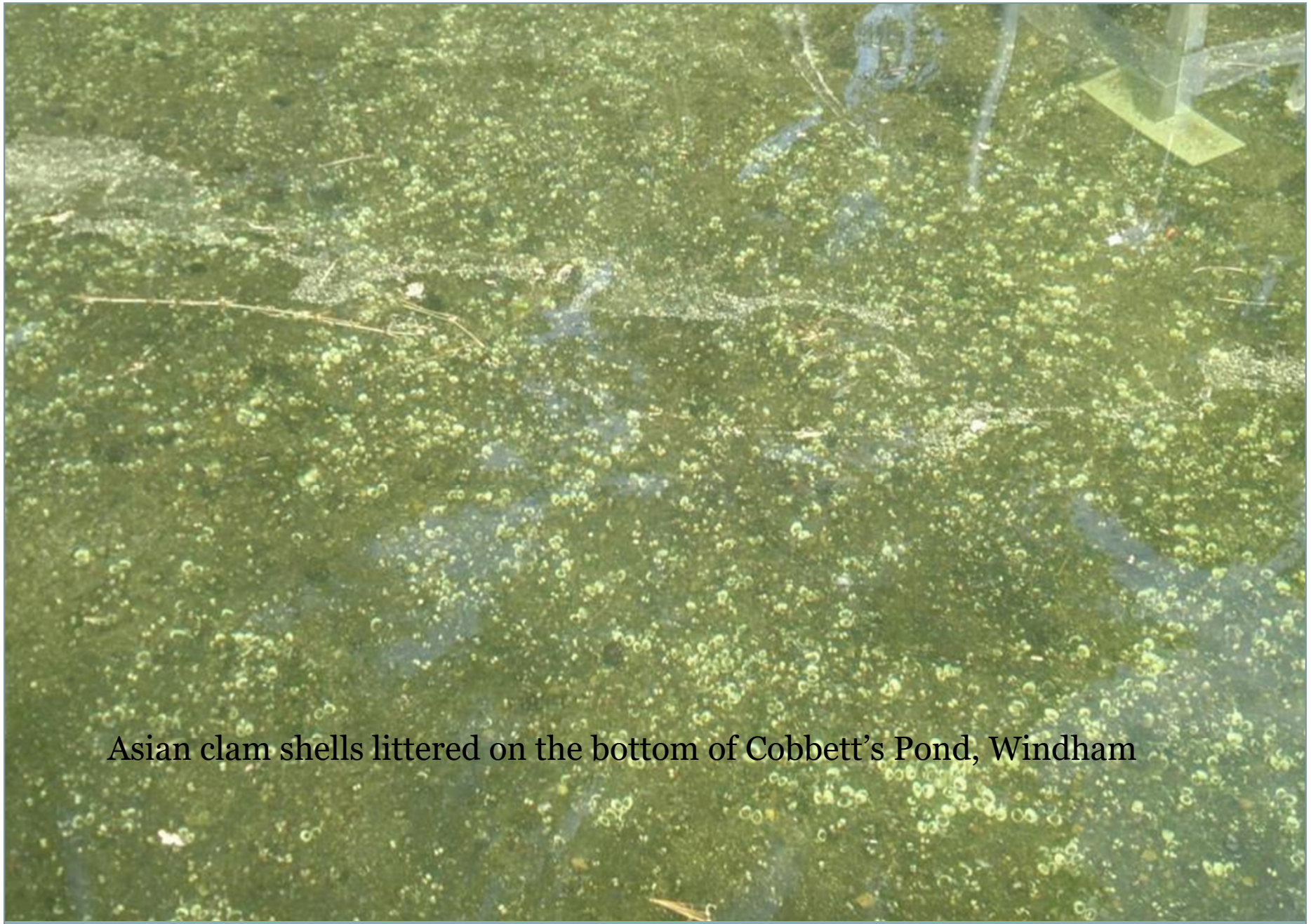
Leaves narrow with teeth on edges, very brittle and low growing plant

A. Bove, VT DEC

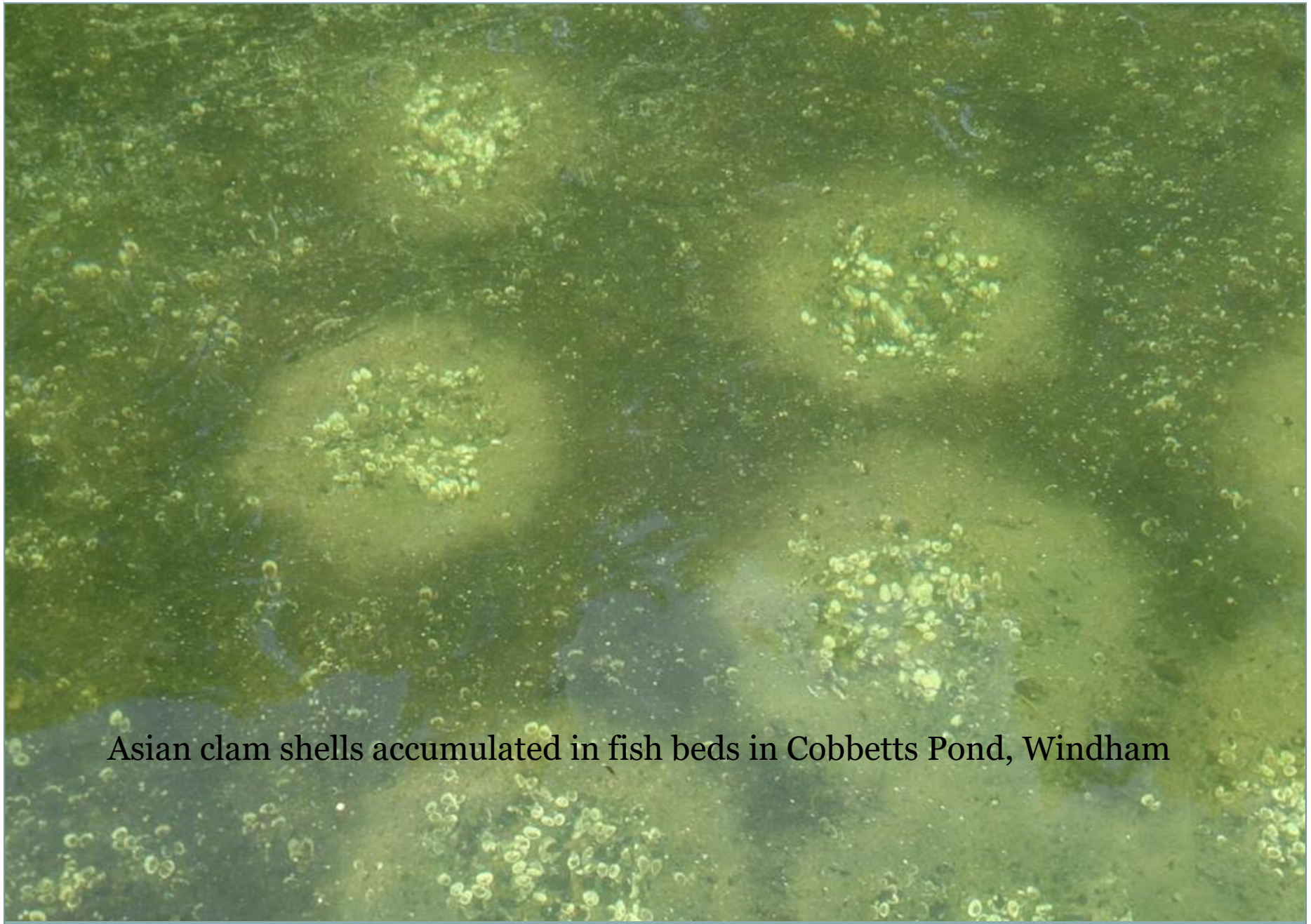
Invasive Aquatic Animals

Asian Clam

Roughly the diameter of a dime, sometimes a quarter



Asian clam shells littered on the bottom of Cobbett's Pond, Windham



Asian clam shells accumulated in fish beds in Cobbetts Pond, Windham

Chinese Mystery Snail

Zebra Mussel

Roughly the size of a pistachio nut

Invasive Species Mantra

- Prevention
- Early Detection
- Rapid Response
- Management

Prevention

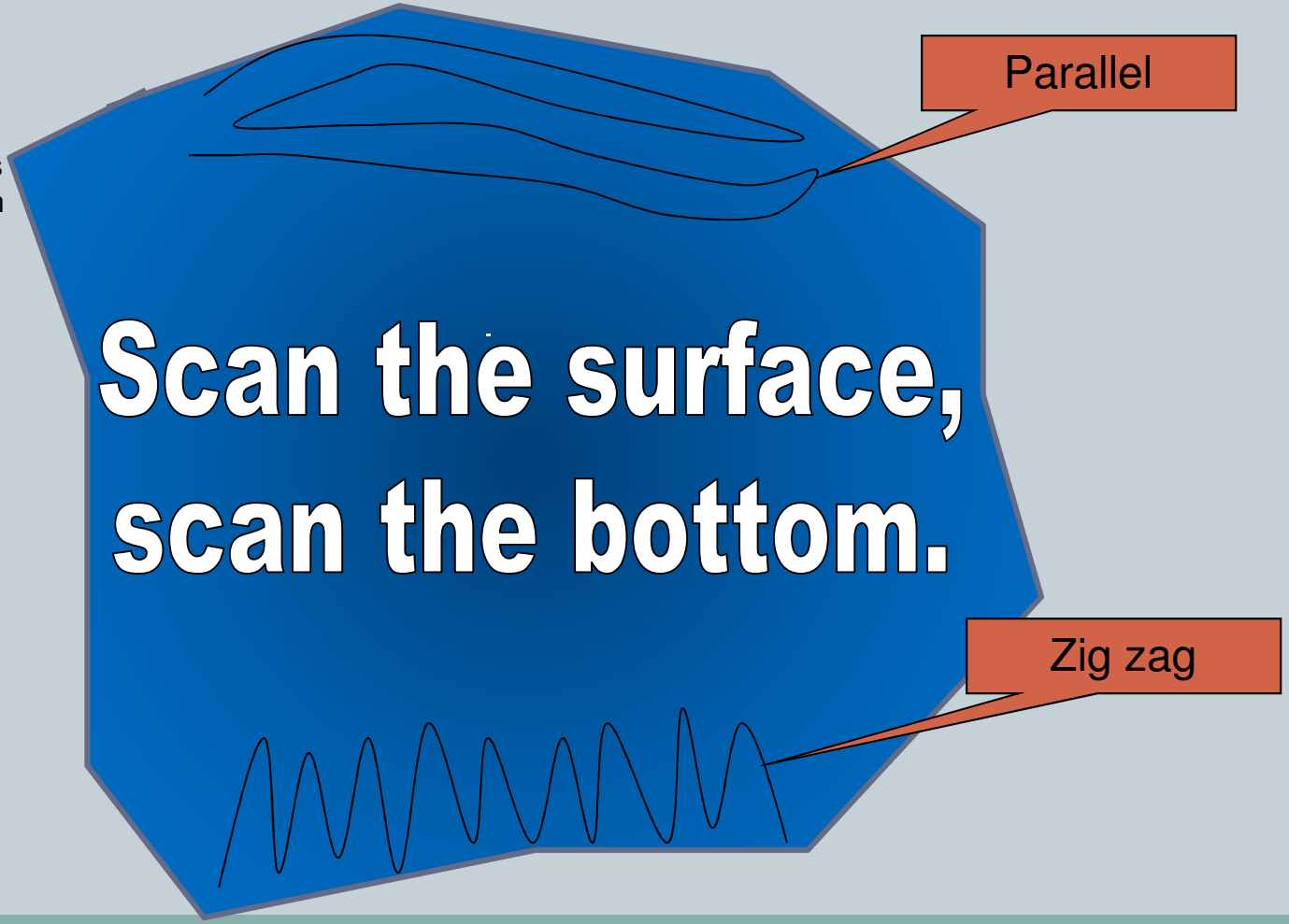
- Lake Host Program
- Signs at all public access sites
- Information/pamphlets at kiosks
- New Clean, Drain, Dry card coming soon
- Newsletters/newspapers/town mailings,etc.

Early Detection and Survey Work

- Early detection with the Weed Watcher Program
- Survey Work
- Survey Methods
  - Invasive Aquatic Plants
    - Boat survey and GPS
    - Diver and GPS
  - Invasive Aquatic Animals
    - Visual
    - Sediment sample sieving
    - Vegetation/dock/hard surface surveys

On the Water

- Break the shoreline into sections and have volunteers sign up for each section
- From shore move in a zig-zag or parallel pattern out to deeper water to maximize how much area you cover in your survey.
- Alternate methods each month to cross over areas for thorough checking.



What You Are Looking For?

- Anything in the water that is new or out of place (was not there last month, last year, etc)
- Anything that appears to be growing quickly and taking over, appearing bigger each month
- Anything very bright green in color for plants
- Any animals like mussels or clams that appear to be very high in number
- There are 29 invasive aquatic plants of concern, but the biggest threats to most waterbodies are from variable milfoil, but some regional concerns exist.

If You Find Something

- Mark it
  - With a buoy
  - With GPS
  - Triangulation
  - Flag shoreline
  - Notes on site (distance off shore, water depth, landmark)

After you find something and make note of location, collect a voucher specimen

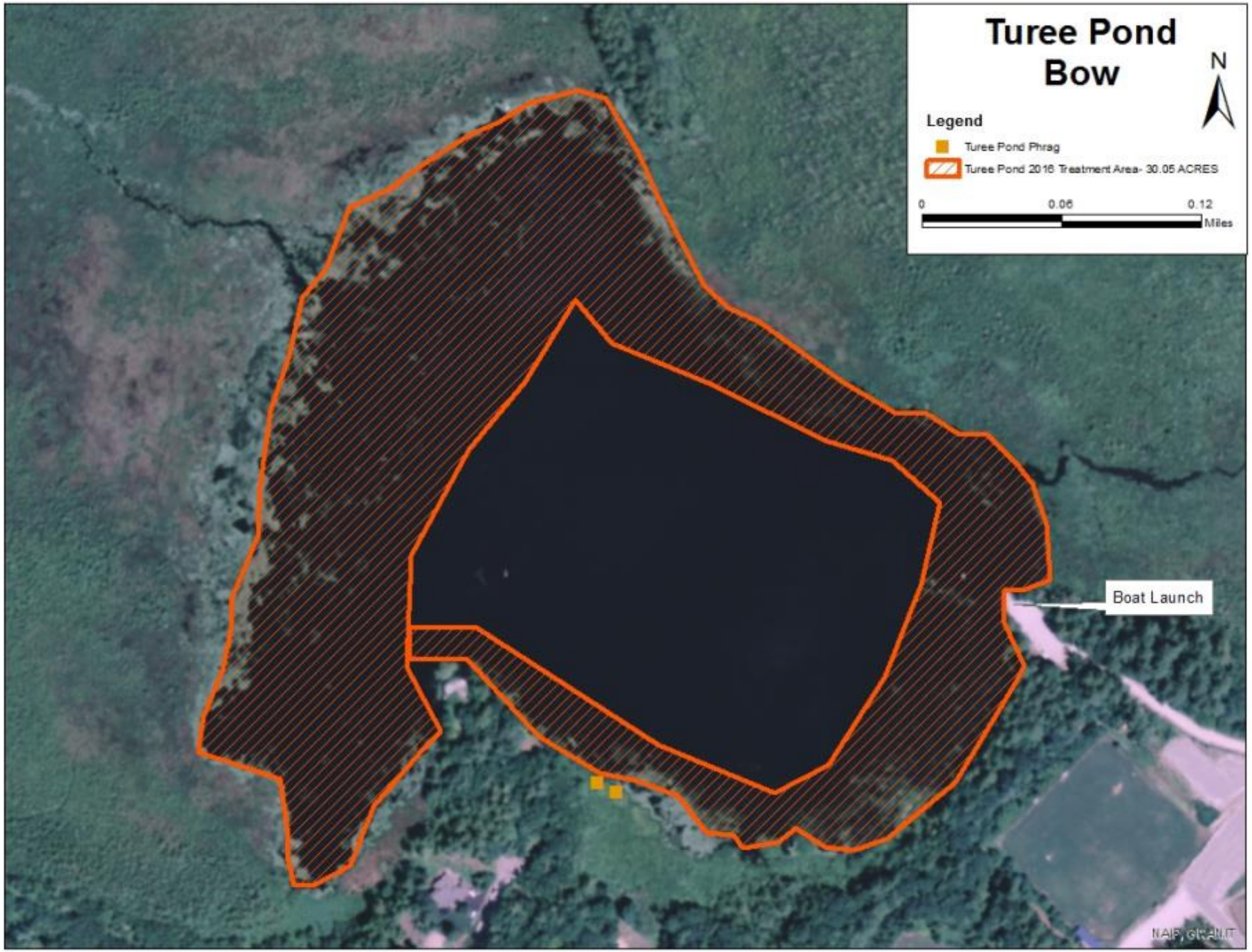
- Carefully collect a voucher specimen
  - Collect a representative piece of the plant species, being sure to collect any broken fragments that may drift away when you make the collection
  - If there are fruits or flowers be sure to collect those, and if not, then a representative piece of stem

What to do with your voucher specimen:

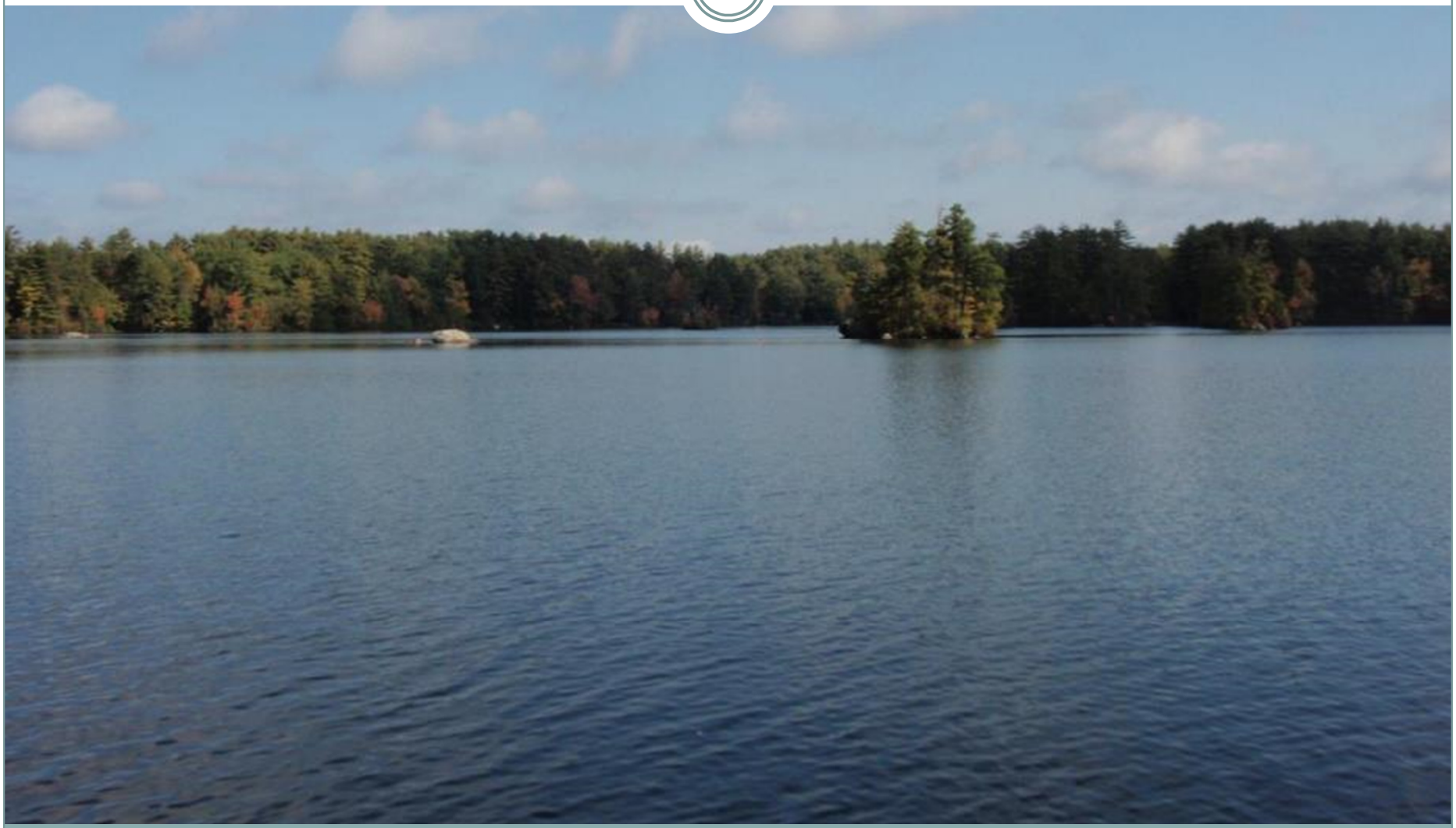
- Email and digital photo
  - Place the specimen on a piece of white paper/paper towel
  - Arrange it so leaves/flowers, etc can be seen clearly
  - Place a coin, pen or rule next to the specimen
  - Take a digital picture
  - Email it to Amy.Smagula@des.nh.gov for identification
- Snail Mail
  - Wrap the specimen in a moist paper towel
  - Seal it in a specimen bag that has a completed form on it
  - Mail that in an envelop to Amy Smagula, NH DES, 29 Hazen Drive, Concord, NH 03301

Management Options

- Physical control
  - Hand removal
  - Diver-Assisted Suction Harvesting (DASH)
  - Drawdown
- Mechanical control
  - Dredging
  - Hydro-raking
  - Mowing/harvesting
- Biological control
  - Using an introduced species to control the milfoil (insect, fish, etc)
- Chemical control
  - Aquatic herbicide


Turee Pond
Bow
N
Legend
Turee Pond Phrag
Turee Pond 2016 Treatment Area- 30.05 ACRES
0
0.06
0.12
Miles
Boat Launch

Questions/Discussion



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