



Aquatic Plant Identification Workshop: Invasives vs. Natives

Lakes Congress 2026

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Today's workshop

1. What Makes an Aquatic Plant Invasive?
2. Impacts of Invasive Aquatic Plants
3. Definitions & Identification Basics
4. Common Invasive Species and Their Look-alikes
5. Recommended Identification Resources
6. Test your knowledge

Questions are welcome!





What makes an aquatic plant invasive?





Invasive plant qualities:

- Grow uninhibited by predators/competition
- Vegetative and environmental growth advantage(s) over other plants
- Warmer lake water
- Change local ecosystem
- Allelopathy (prevent other plants from growing)





Why are aquatic invasive plants so bad for our lakes?





Why are aquatic invasive species so bad for our lakes?

- Outcompete native plants for sun and space
- Alter habitats that native animals depend on
- Reduced water movement = warmer lake water
- Warmer lake water = more plant growth
- More nutrients = more algae



**Why are aquatic
invasive species so
bad for us?**



Why are aquatic invasive species so bad for us?

- Dangerous to swimmers and harmful for equipment
- Degrade recreation
- Harm our local and state tourism
- Expensive & slow to fix!!
- Reduce property value (as much as 20-30%!!)
- More nutrients = possible cyanobacteria blooms



Build your ID Skills



Dichotomous Key

Used to help identify aquatic plants. It may be easier to identify plant characteristics when plants are submerged in water. A magnifying glass may also be useful to see detail.

Leaf Arrangements



Alternate



Opposite



Whorled

Leaf Margins



Entire



Toothed or
Serrated



Pinnately
Lobed



Finely Divided

Leaf Shapes



Triangular



Heart



Strap or
Elongate



Oval



Elliptical

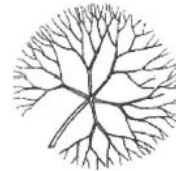


Lance or
Blade

Finely-divided Leaf Patterns



Fork-divided



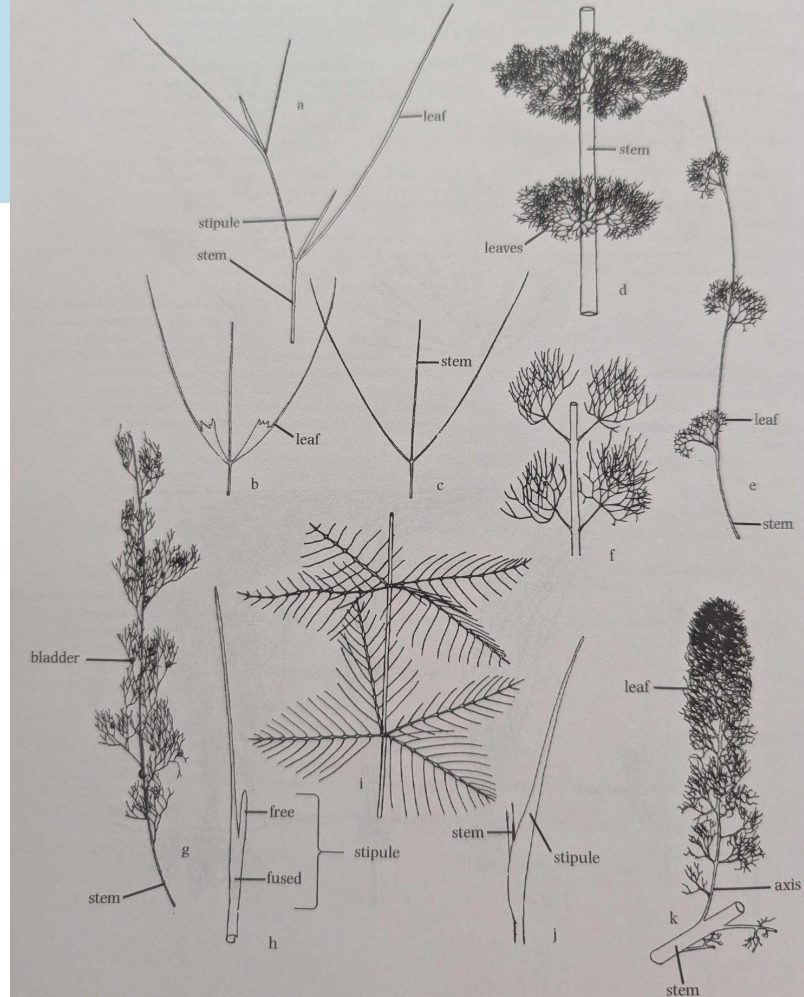
Branch-divided



Feather-divided

Commonly Used Planty Definitions

- **Leaf vs. Leaflet:** A leaf is the whole leaf; leaflets are its smaller parts.
- **Emergent:** plants have leaves and flowers that extend above water's surface
- **Node:** the point on a stem from which a leaf or branch grows.
- **Bladder:** sack-like structures used for capturing invertebrate prey.
- **Rosette:** leaves arranged in a radiating pattern





Common Aquatic Invasive Plants in New Hampshire

- Variable milfoil
- Eurasian watermilfoil
- Fanwort
- Curly-leaf pondweed
- European naiad
- Water chestnut
- Bonus: Hydrilla
- Bonus: Water violet



Variable milfoil

(*Myriophyllum heterophyllum*)

Key Characteristics

- Leaves arranged in whorls (circles) around a thick red or green stem, often resembling a paint roller under the water when mature.
- When submerged, leaves are delicate and feather-like.

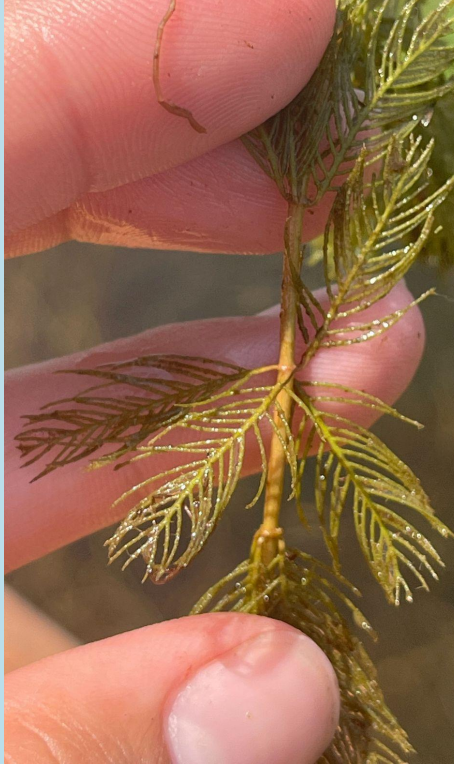


Eurasian milfoil

(*Myriophyllum spicatum*)

Key Characteristics

- Leaves resemble a feather with blunt ends, appearing to have been cut by scissors.
- Each leaf most commonly has 12 to 24 pairs of leaflets, in whorls of 3-6
- Stems are often brown to reddish in color.



Variable and Eurasian milfoil native look-alikes



Coontail
(*Ceratophyllum* spp.)



Bladderworts
(*Utricularia* spp.)



Mermaid-weed
(*Proserpinaca palustris*)



Native milfoil
(*Myriophyllum* spp.)



Fanwort

(*Cabomba caroliniana*)

Key Characteristics

- Underwater leaves resemble fans with handles connecting to the main stem, approx. 2 inches across.
- Produces small white flowers, sometimes accompanied by tiny, diamond-shaped floating leaves.

Fanwort: Native plant look-alikes



Crowsfoot/Aquatic
buttercup (*Ranunculus spp.*)



Bladderworts
(*Utricularia spp.*)



Native milfoils
(*Myriophyllum spp.*)



Curly-leaf pondweed

(*Potamogeton crispus*)

Key Characteristics

- Wavy, lasagna-like leaves with small "teeth" along edges.
- New leaf growth is a brighter green, and older growth is olive to brown in color.
- Produces dense leaf packets in late summer, "turions" which can stick to carpeted trailers and ropes.





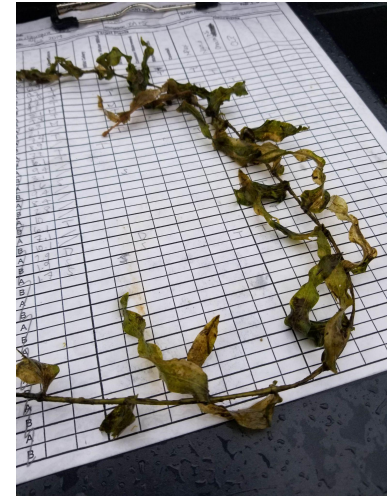
Curly-leaf pondweed: Native plant look-alikes



Ribbonleaf pondweed
(*Potamogeton epihydrus*)



Clasping-leaf pondweed
(*P. perfoliatus*)



Spotted pondweed
(*P. pulcher*)



European naiad

(*Najas minor*)

Key Characteristics

- Leaves are recurved (arched).
- Leaves have saw-like edges.
- Older plants become brittle and heavily branched and appear as green or green-red tufts in and out of the water.

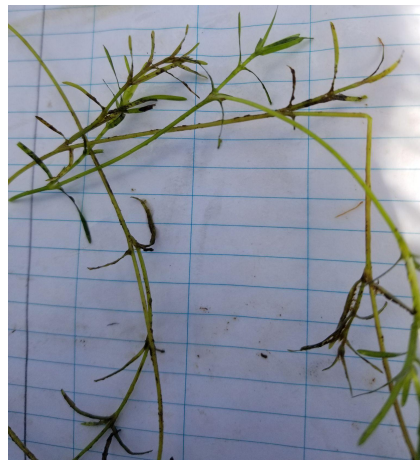
European naiad: Native plant look-alikes



Slender naiad
(*Najas flexilis*)



Muskgrass
(*Chara sp.*)



Southern naiad
(*Najas guadalupensis*)



Thin-leaf
pondweeds
(*Potamogeton spp.*)



Water chestnut

(*Trapa natans*)

Key Characteristics

- Floats similar to waterlilies but appears as a layered wheel of shield-like leaves.
- Submerged leaves are feathery and whorled (circled) around its stem.
- Water chestnut commonly forms dense, rooted floating mats.
- Seeds (or nutlets) have four sharp barbs and attach under the floating plant part.



Water chestnut: Native plant look-alikes



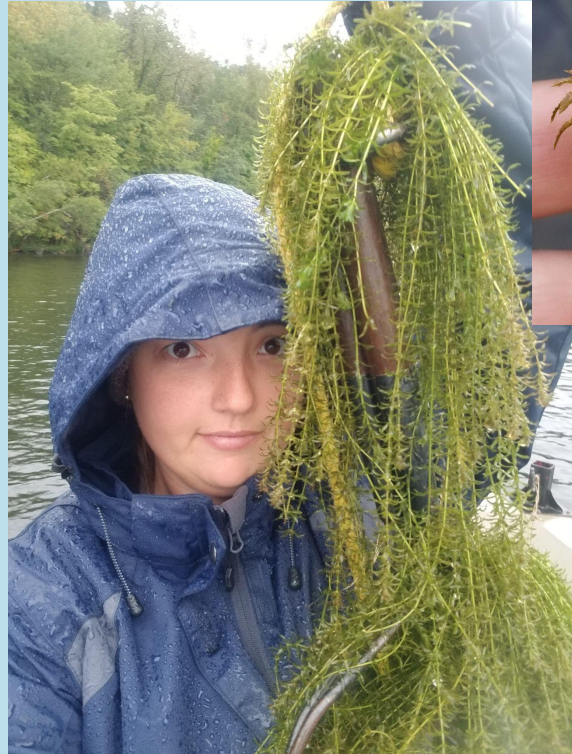


Hydrilla

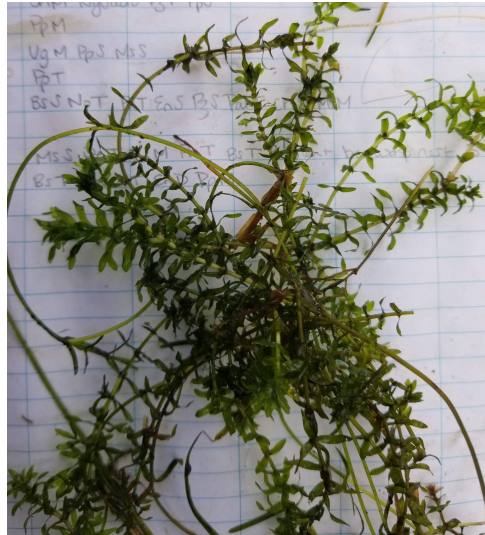
(*Hydrilla verticillata*)

Key Characteristics

- Whorls (circles) of slender, serrated leaves $\frac{3}{4}$ of an inch in size.
- Leaves are bright green with a pointed top and “toothed” edges visible to the naked eye.
- Five leaves are typically observed in each whorl but have been seen in groups of three to eight.



Hydrilla: Native plant look-alikes



The many faces of waterweed (*Elodea canadensis* and *E. nuttallii*)



Amy P. Smagula, Chief Aquatic Biologist,
NH Department of Environmental
Services

Water violet

(*Hottonia palustris*)

Key Characteristics

- Underwater leaves whorled along the stem, green, finely divided and feathery.
- Similar to invasive milfoil, but appearing hardier and generally larger.
- Small white to violet flowers grow in whorls of 3-7 on a spike above the water's surface.

Water violet: Native plant look-alikes



Coontail
(*Ceratophyllum* spp.)



Bladderworts
(*Utricularia* spp.)



Mermaid-weed
(*Proserpinaca palustris*)



Aquatic buttercup
(*Ranunculus* spp.)

ENVIRONMENTAL Fact Sheet



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2026

BB-40

Law Prohibits Exotic Aquatic Plants

Since January 1, 1998, the sale, distribution, importation, propagation, transportation and introduction of key exotic aquatic plants has been prohibited (RSA 487:16-a). This law was designed as a tool for lake managers to help prevent the further spread of nuisance aquatic plants. Shortly after that, RSA 487:16-b was added, establishing penalties for violations of this act. It is hoped that by preventing their transport over land, their spread between waterbodies will be stopped. The following is a list of prohibited exotic aquatic species in New Hampshire.

Latin Name	Common Name
<i>Aldrovanda vesiculosa</i>	Waterwheel plant
<i>Butomus umbellatus</i>	Flowering rush
All <i>Cabomba</i> species, including but not limited to <i>Cabomba caroliniana</i>	Fanworts
<i>Crassula helmsii</i>	Swamp stonecrop
<i>Egeria densa</i>	Brazilian elodea
<i>Eichhornia crassipes</i>	Water hyacinth
<i>Epilobium hirsutum</i>	Great willow herb or hairy willow herb
<i>Glyceria maxima</i>	Reed sweet grass or manna grass
<i>Hottonia palustris</i>	Water violet
<i>Hydrilla verticillata</i>	Hydrilla or Anacharis
<i>Hydrocharis morsus-ranae</i>	Frogbit
<i>Hygrophila polysperma</i>	East Indian hygrophila
<i>Ipomoea aquatica</i>	Water spinach
<i>Iris pseudocarus</i>	Yellow iris or yellow flag iris
<i>Lagarosiphon major</i>	African oxygen weed
<i>Limnophila sessiliflora</i>	Ambulia
<i>Lythrum salicaria</i> , <i>L. virgatum</i> , <i>L. alatum</i> and their cultivars	Purple loosestrife
<i>Marsilea quadrifolia</i>	Water fern
<i>Myosotis scorpioides</i>	Water forget-me-not

All *Myriophyllum* species, including but not limited to *Myriophyllum heterophyllum*, *M. spicatum*, and *M. aquaticum*.

<i>Najas minor</i>	Milfoils or feather-foils
<i>Nymphaoides peltata</i>	European naiad
<i>Phragmites australis</i> or <i>P. communis</i>	Yellow floating heart
<i>Pistia stratiotes</i>	Common reed
<i>Potamogeton crispus</i>	Water lettuce
<i>Sagittaria sagittifolia</i>	Curly-leaf pondweed
<i>Salvinia molesta</i>	Giant sagittaria
All <i>Trapa</i> species	Giant salvinia
<i>Typha gracilis</i>	Water chestnuts
<i>Typha laxmanii</i>	Slender cattail
<i>Typha minima</i>	Laxman's cattail
Any other aquatic invasive plants determined by NHDES to pose a risk to aquatic systems	Miniature cattail or micro-mini cattail

As of July 2026, there are 98 waterbodies in New Hampshire with known exotic plant infestations. In the last 20 years, foils and fanwort were the first exotic aquatic plants discovered. Since then, water chestnut, Brazilian curly-leaf pondweed and European naiad have also been found in New Hampshire waterbodies.

Why is this law come about?

In the 1960s, various lakes around the state have been plagued by nuisance aquatic plants such as exotic water hyacinth and fanwort. Others that do not grow directly in water, but in moist habitats, such as roadsides, ditches and wetlands, have been spreading rapidly. The pretty purple flower known as purple loosestrife and the tall, thin stem known as common reed are becoming sights in the state.

The further spread of these nuisance exotic plants, NHDES drafted rules to make RSA 487:16a-b enforceable. The rules include the above-listed prohibited species that are already, or may quickly become, established in New Hampshire. These rules are covered in chapter Env-Wq 1300 of state.

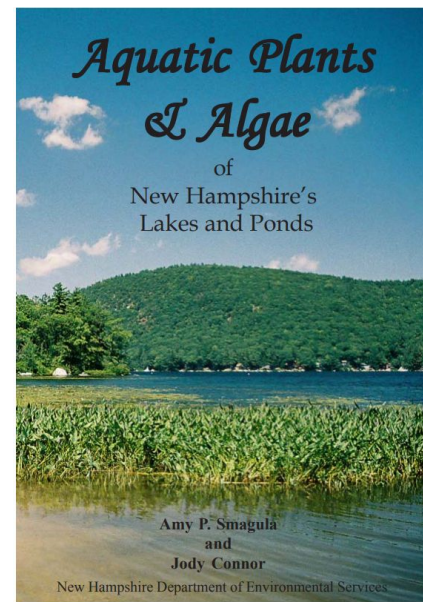
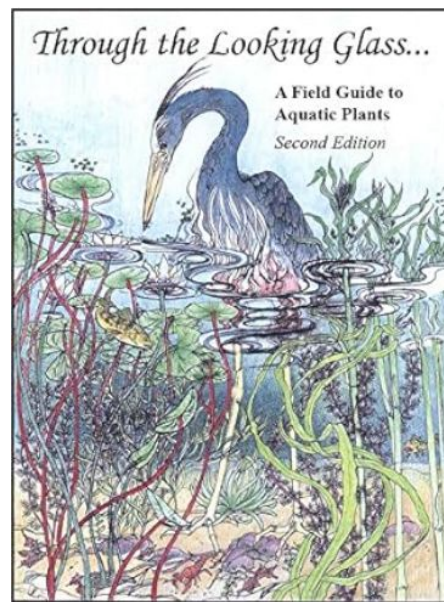
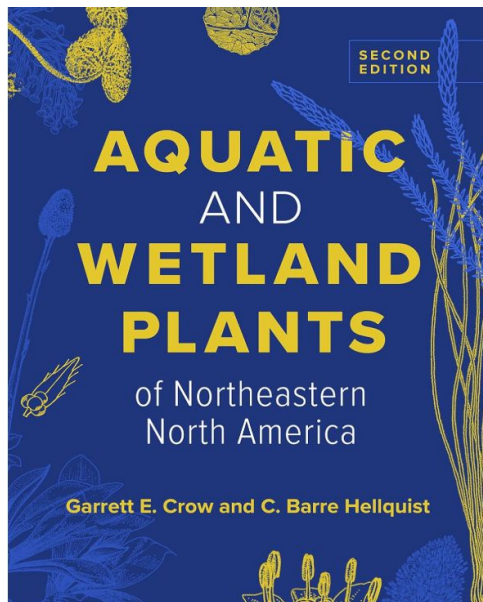
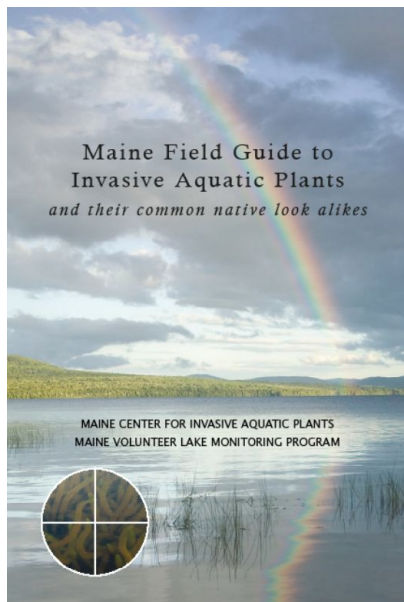
Why are these plants a problem?

Particular areas have attracted a variety of predators over time, including insects, birds, and mammals (and fungi), which prevent out-of-control plant growth. Exotic plants have been introduced to areas that are both inside and outside of the United States. Because they are not native, there are no natural predators to moderate their growth. Exotic species are thus able to establish themselves in a new habitat.

Exotic plants can take over large portions of the ecosystem to which they are introduced, displacing native species and increasing the aesthetic, recreational and monetary value of New Hampshire's waterbodies. Exotic species can also pose a threat to wildlife habitats.



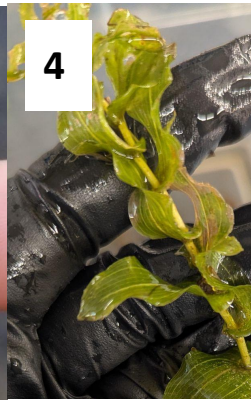
Enhance your ID skills with these resource recommendations



<https://nhlakes.org/aquatic-invasive-species-in-new-hampshire/>

Test your ID skills!

Using the sheets of paper, match the photos to the plant name





Test your ID skills! Bonus question

Using the sheets of paper, match the photos to the plant name

BONUS!





Thank you!

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