

# Watch List of **Invasive** Aquatic Plants & Animals



### ***Greetings Conway Lake Volunteers***

This guide to invasive aquatic plants and animals was developed to assist you in identifying invasive species that could appear in Conway Lake. For more information on these species and additional photographs visit the CLCA website ([conwaylake.org](http://conwaylake.org)). The website includes an active "Blog" with a folder containing descriptions of potential invasive species.

Please forward any findings/questions you might have to those of us listed on the AIS Patrol landing page, located on the CLCA website.

*Thanks for your help!*  
*Maria Gross & Don Yurewicz*

## **If You Find a Suspicious Plant or Animal**

Following the procedures outlined below will help ensure the timely, accurate identification of your specimen.

1. **Mark the location** with a weighted buoy, get a GPS location and photo using the SOLOCATOR app on your phone, describe the location as to Zone and Grid number and any additional geographic markers. In the event that your plant is invasive this will help the NH DES quickly locate the infestation and take proper action.
2. **Collect a sample** - When collecting samples be sure not to remove the whole plant or create fragments that could float away and spread the plant elsewhere in the lake.
  - **Snip off one or two pieces** of stem from the plant (roughly 8 to 12 inches long) including as many different features as you can (flowers, fruits, leaves, etc.).
  - **Place the sample in a Ziplock bag** and keep your plant specimen in water, in a cool place (e.g. refrigerator). This will help keep it fresh until you are ready to photograph or ship. **IMPORTANT:** Depending upon the plant, a photograph may not be adequate. We may need to see the physical specimen, so please do not discard it until you hear from us. (Be sure to keep it fresh, as described above).
  - **Photograph the sample** - float the plant in a tray of water long enough to stretch the sample out fully, with enough water for the plant to float freely. The tray bottom should be white (or clear and placed on a white surface). Put something in the photos to show scale e.g. a ruler or coin. Take a high-resolution digital picture. The image must be in focus and show the greatest amount of detail possible. Adjust lighting to minimize glare. If possible, take close-ups of specific features, such as individual leaves, a single whorl of leaves, flowers, fruits, or other structures.
3. **Contact** Maria Gross (603-491-3107 / [maria.m.gross@gmail.com](mailto:maria.m.gross@gmail.com)) or Don Yurewicz (713-253-1211 / [dyurewicz@gmail.com](mailto:dyurewicz@gmail.com)) and post on the BLOG. If necessary we will ship or take the sample to Amy Smagula with the NH DES in Concord. Amy's Contact information:

Cell: 603-419-9325

Limnologist/Exotic Species Program Coordinator NH Department of Environmental Services 29 Hazen Drive,  
Concord, NH 03301

Phone: 603-271-2248 Fax: 603-271-7894

E-mail: [Amy.Smagula@des.nh.gov](mailto:Amy.Smagula@des.nh.gov)

Web: [www.des.state.nh.us/wmb/exoticspecies](http://www.des.state.nh.us/wmb/exoticspecies)



# Variable-Leaf Milfoil

(*Myriophyllum heterophyllum*)

**This is the most common Invasive specie in NH and Maine.** It is present in 75 locations in NH including Ossipee, Squam and Winnepesaukee lakes.



Hybrid invasive water-milfoil collected in Maine



Emergent Flowering Top

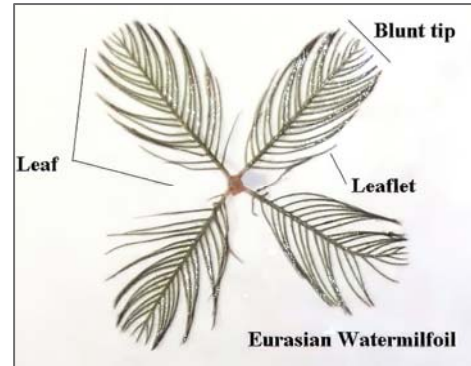
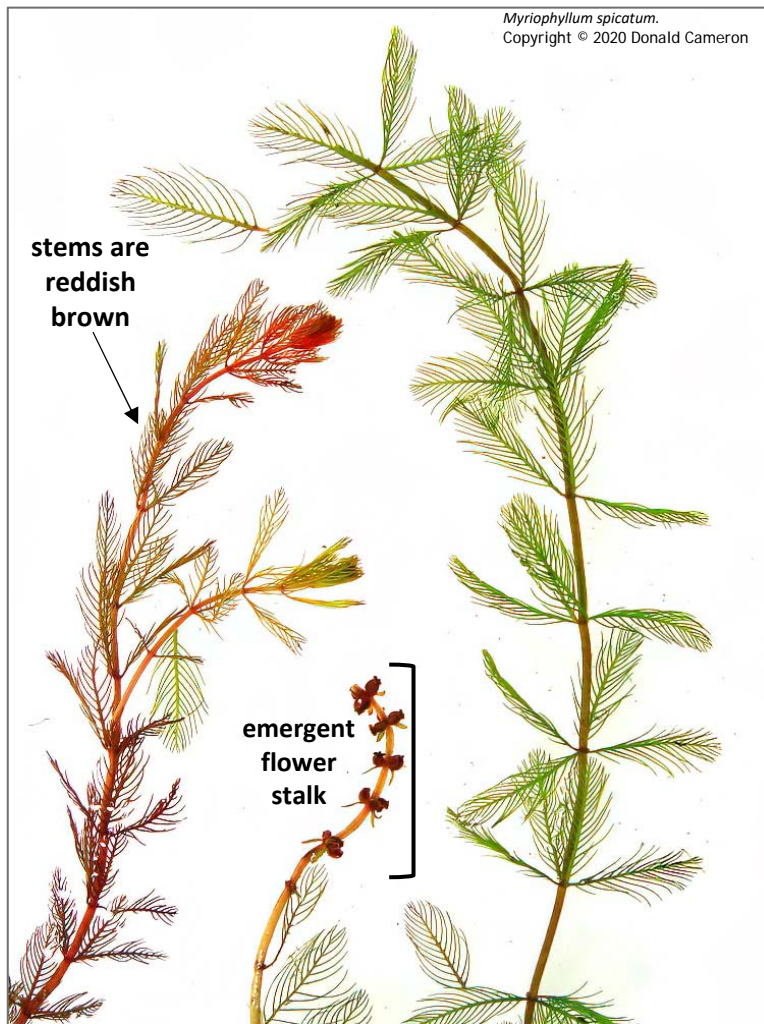
- Variable milfoil has a **very stiff, thick stem** and is **more robust than the other milfoil species**.
- The leaves are in **whorls of 4 to 6** and can grow up to 2 inches long.
- Forms very dense growths and can dominate other plants. It can grow up to 15 ft in length.
- In July, flowers emerge from the water and are in a spike up to 6 inches tall with distinctive oval-shaped, toothed bracts.
- Hybrid forms are common.
- **Look Alikes:** may be confused with bladderworts, water marigold and other leafy water-milfoils.



# Eurasian Water-Milfoil

(*Myriophyllum spicatum*)

Eurasian milfoil is not common in NH or Maine but it is present so be vigilant!



- Leaves are feather-like with four leaves arranged in a whorl.
- There are typically 12 to 24 pairs of thread-like leaflets on each leaf.
- Since the leaves of other milfoil species generally have fewer than 14 leaflet pairs, counting leaflets can provide helpful clues to identifying Eurasian water-milfoil.



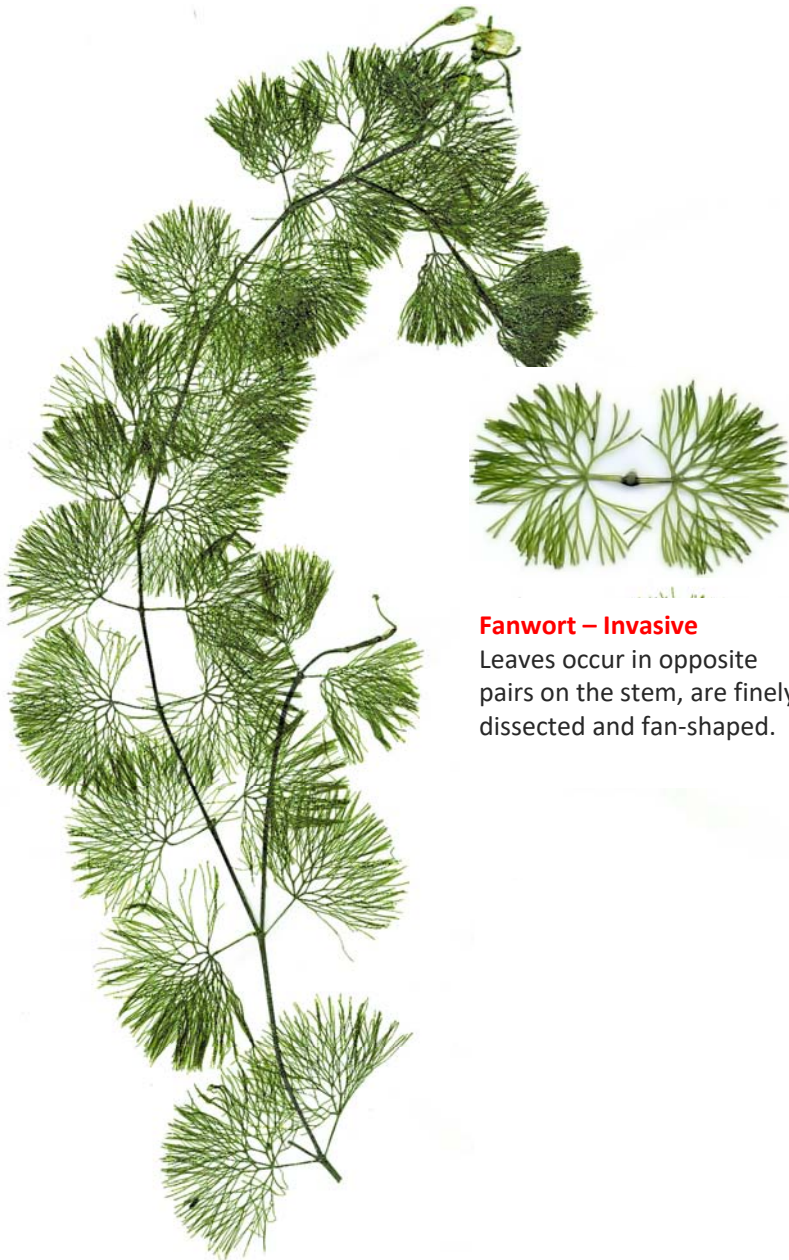
Eurasian milfoil infestation in a Michigan Lake

- Flower stalks, when present, stick up above the water.
- Prefers water depths 3' to 14'.
- The stems stretch toward the surface and then branch profusely to form thick floating canopies that shade out native vegetation where they interfere with recreation.
- Local spread is vigorous in mid summer. The colony expands by lateral root stolons to form new plants and the dispersal of self-generated fragments. By mid to late summer flowering spikes typically emerge from the water but not all Milfoil colonies produce flowers. The seeds are not considered important to its propagation. Most regeneration and dispersal of Eurasian watermilfoil within lakes occurs primarily by the lateral stolon growth and secondarily by fragmentation.
- **Look Alikes:** May be confused with **bladderworts, water marigold, fanwort and other leafy water-milfoils.**

# Fanwort

(*Cabomba caroliniana*)

Fanwort is present in several lakes and ponds in NH as well as the Nashua River



## Fanwort – Invasive

Leaves occur in opposite pairs on the stem, are finely dissected and fan-shaped.



fanwort  
*Cabomba caroliniana*  
Photo by Jeff Schardt  
© 2009 FWC Invasive Plant Management Section



## Native Look Alike Water Marigold

Fanwort and Water Marigold can easily be distinguished from one another in cross section. **Water Marigold** leaves are very dissected and appear whorled around the main stem.

- Fanwort is a submerged bright green aquatic plant. The leaves occur in opposite pairs on the stem, are finely dissected and fan-shaped.
- Floating, lily-like leaves are found on the water's surface during flower production in August or September. Flowers are small, white and emergent. This plant stands 2-12 feet tall in the water column.
- **Look Alikes:** Fanwort can be confused with the native **Water Marigold** but can easily be distinguished if viewed in cross-section (see above).



# Hydrilla and Brazilian Elodea

Hydrilla is present in the nearby states of Maine, Massachusetts, Connecticut, and Pennsylvania, and Brazilian elodea is present in Nuts Pond in Manchester. **Hydrilla is the most invasive submergent plant in the United States**



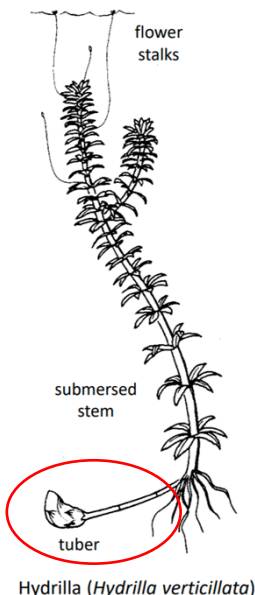
**Hydrilla**

- a. whorls of 4 or more leaves
- b. Leaves often have visibly toothed edge
- c. Leaf vein often has small visible spines



**Brazilian Elodea**

- a. whorls of 4 or more leaves
- b. Leaves do not have visibly toothed edge
- c. Leaf vein is smooth underneath



Hydrilla (*Hydrilla verticillata*)

- Hydrilla and Brazilian Elodea have narrow leaves whorled around the main stem. Leaves are toothed along the margins of the leaves, and may also be toothed along the rib on the underside of the leaf.
- The **leaves are in whorls of four to six**, and are approximately one-third to two-thirds inches long. The stems of Hydrilla can grow to 20 feet or more. A small white flower emerges in July, often detaching from the plant and drifting.
- Hydrilla can be differentiated from Brazilian Elodea by its rough texture and larger teeth on its leaf margins. The presence of tubers on hydrilla can also be a good distinction between the plants (see image on left).
- **Look alikes: Hydrilla and Brazilian elodea can be confused with Native Water Weed. Native waterweed, however, only has whorls of 3 leaves.**

# Cross-sections of Submerged Plants With Feathery Leaves



## Milfoil – Native

8-7 pairs of leaflets per leaf. Whorls of leaves packed closely on stem.



## Variable Milfoil – Exotic

Leaves are in whorls of 4 to 6 and can grow up to 2 inches long.



## Eurasian Milfoil – Exotic

The leaves of Eurasian milfoil are finely feather-divided, typically with **12- 24 pairs of thread-like leaflets on each leaf.**



## Water Marigold – Native

Stem cross-section showing two oppositely arranged leaves, each dividing three times where attached directly to the stem.



## Fanwort – Exotic

- Leaves occur in opposite pairs on the stem, are finely dissected and fan-shaped.



## Water Crowfoot – Native

Leaves can be branching, dissected, and fan-like, or lobed.



## Coontail – Native

Leaves are fork-divided and arranged in whorls of 5 to 12 leaves.



## Waterweed – Native

- 3 leaves/whorl.
- Hybrid forms may have 4 leaves/whorl



## Hydrilla - Exotic

- 4 or more leaves/whorl
- Leaves are markedly serrated



## Brazilian Elodia - Exotic

- 4 or more leaves/whorl



# Spiny Naiad

(*Najas minor*)

Spiny Naiad has been found in 7 New Hampshire lakes and is present in nearby Maine lakes



Spiny Naiad collected by diver Cliff Cabral in a nearby lake in Maine

- Spiny naiad can be rooted or floating.
- Leaves are paired, sometimes appearing whorled, and usually bunched at leaf axils.
- Leaves are typically stiff, curled and pointed, and have spines along the margins that are visible to the naked eye, if not a hand lens. Leaves are about 1 mm wide and 0.5 to 3.5 cm long
- **Look Alikes:** This plant is similar to native water naiad but is distinguished by its thicker and broader leaves with serrated edges.



# Curly-Leaf Pondweed

(*Potamogeton crispus*)

Curly Leaf Pondweed has been found in Lake Winnepesaukee and in nearby lakes in Maine so we should be on the lookout for this exotic in Conway Lake.



- Thin submerged leaves have wavy margins and distinct “teeth”.
- Leaves are 3-4 inch long, 1/4 inch wide.
- It has a thick, hard, fruiting body on the top of the plant.
- **Look Alikes:** This plant could be confused with **claspingleaf pondweed** because the leaves are also curly. The difference is the presence of teeth on the margins of the leaves of curly-leaf pondweed. Claspingleaf pondweed has not known to be in Conway Lake.

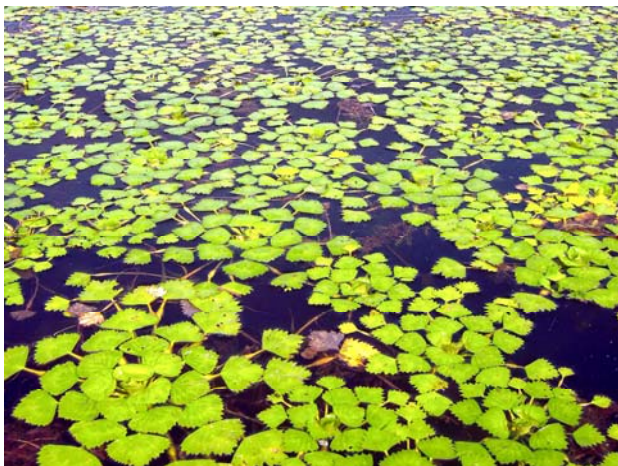
# Water Chestnut

(*Trapa natans*)

Water Chestnut has invaded portions of the Connecticut and Nashua rivers in New Hampshire and is present in nearby states.



Source: Northeast Invasive Aquatic Nuisance Species Panel



Water Chestnut infestation

- Floating leaves are somewhat triangular (or fan shaped) in form, with conspicuously toothed margins along the outside edges.
- The upper surface of the leaf is glossy, the undersides covered with soft hairs. The leaves are arranged in a loose, radiating pattern or rosette and joined to the submersed stem by long leaf stems, or petioles.
- Spongy inflated bladders in the petioles provide buoyancy for the rosette. The rosettes are anchored to the sediments on stems reaching lengths of up to 15 feet.
- Small white flowers appear above the rosettes in mid- to late-July.
- **Look Alikes** – There are no look alike for water chestnut



# Cyanobacteria Blooms

(*Trapa natans*)

Cyanobacteria blooms were reported in 29 different NH waterbodies in 2018. Blooms can occur as early as May and as late as November.

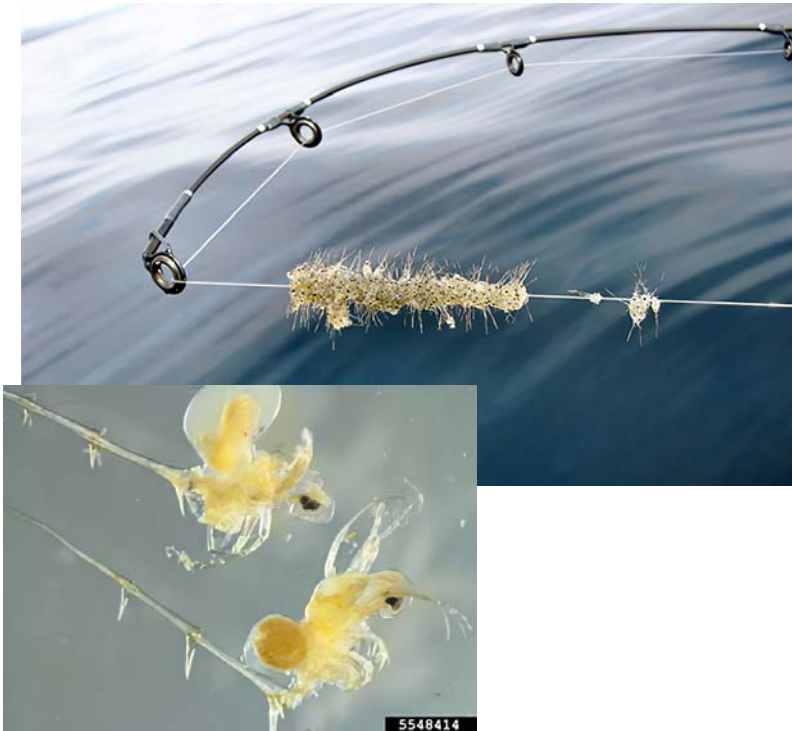


- Cyanobacteria are photosynthetic bacteria (not algae) and are a natural component in NH lakes. However, certain cyanobacteria **produce toxins and can present a serious health risk to animals and humans when present in large numbers in a lake or other body of water.**
- Cyanobacteria blooms are occurring more frequently in NH lakes and can be attributed to warming lake temperatures and increases in nutrient levels within lakes from runoff containing high levels of nitrogen and phosphorous (e.g. from fertilizers).
- **Look Alikes:** The green stuff you see floating on the lake might ***not*** be cyanobacteria! Here are a few identifiers:
  - If you see leaves or roots, or distinguishable parts, it's likely a tiny (and harmless) aquatic plant like **duckweed**.
  - Stringy, silky substances that can be draped over a stick are **filamentous green algae**.
  - If it's yellow and almost "dusty" in texture, it might *act* like cyanobacteria, but it's actually **tree pollen**.

# Spiny Water Flea

(*Bythotrephes longimanus*)

Present in the Great Lakes and Lake Champlain.



- Spiny waterflea is a planktonic crustacean less than 15 mm (0.6 in) long. It is typified by a long abdominal spine with several barbs which protect it from predators.
- When they are grouped together, as ensnared on fishing lines and cables, they collect and form gelatinous blobs.
- They prey on smaller planktonic organisms and can decimate populations of native zooplankton resulting in a decreased food source for native fish and an increase in algal blooms. At their peak, their populations reproduce rapidly and can be as high as 100 individuals per cubic meter, sometimes taking over the biomass of the lake.

# Chinese Mystery Snail

(*Cipangopaludina chinensis*)

There are over 80 infestations of Chinese Mystery Snail in New Hampshire!



<http://www.moonlake.org/blog/2011/08/02/chinese-mystery-snail-update/>

- One of the main identification features of the mystery snails is their size. Adult snails are over 1 ½ inches in length (snail shell length is measured from the lip of the shell to the tip of the whorl).
- Shell color varies from olive green to brown to reddish brown.
- The shell has 6-7 whorls and no banding.
- They have an operculum (trapdoor), which seals off the snail from adverse water conditions.

Chinese Mystery Snails achieve very high densities and adversely affects aquatic food webs. It competes with native snails for food and habitat and may contribute to their decline. They may also transmit parasites and diseases. This species also clogs screens on any size water-intake pipe, making them an economic nuisance in addition to an ecological threat.



# Zebra Mussels

(*Dreissena Polymopha*)

The good news is that zebra mussels have not been found in any of New Hampshire's lakes, rivers or streams. The bad news is that they are found in waterbodies in nearby states including Connecticut, Vermont, and Massachusetts.



- Zebra mussels are small shellfish marked by alternating light and dark bands. They are typically two inches or less (roughly the size of a pistachio nut).
- They begin life as tiny free-swimming larvae and it is during this stage that they are most readily transported from one waterbody to another (attached to boating gear, in bilgewater, bait buckets, etc.) and also most difficult to detect.
- They attach to any hard surface they encounter - rocks, sediment, wood, intake pipes, moorings, boat hulls, native mussel beds, are all at risk of colonization.
- They are voracious filter feeders, straining out major portions of the phytoplankton population and effectively starving out many native zooplankton species. The gap created in the food web may cascade through the entire ecosystem. Source: *Maine Field Guide to Invasive Aquatic Plants*.

# Asian Clams

(*Corbicula fluminea*)

The Asian clam has been identified in 7 waterbodies within NH



- The Asian clam is a small (<50 mm) lightly-colored bivalve. The shell is oval-triangular shaped with distinct, concentric ridges.
- The outside of the shell is olive, or yellowish to black-brown in color, with 1-3 brown/purple colored radial bands (particularly in juveniles) and white erosion rings near the "beak".

Why are Asian clams a nuisance?

- The clam reproduces rapidly and is tolerant to cold waters adding to its success as an invasive species.
- The high concentration of nutrients (e.g. nitrogen) excreted by clams enhances the growth of algae. Slimy green algae blooms could dominate what are now clear and beautiful waterbodies.
- The clams quickly form dense mats of sharp shells in shallow sandy areas... not at all friendly to the feet of swimmers.

# **HELP STOP**

## **THE SPREAD OF INVASIVE SPECIES IN NH LAKES !!**

### **PLEASE CHECK YOUR BOAT + YOUR GEAR**

**Clean, Drain, Rinse and Dry**



### **ALWAYS REMEMBER:**

**ANY weed fragments,  
fresh or dried, can still propagate!**