Invasive Weed Identification Guide

W2O!

Weeds Watch Out!

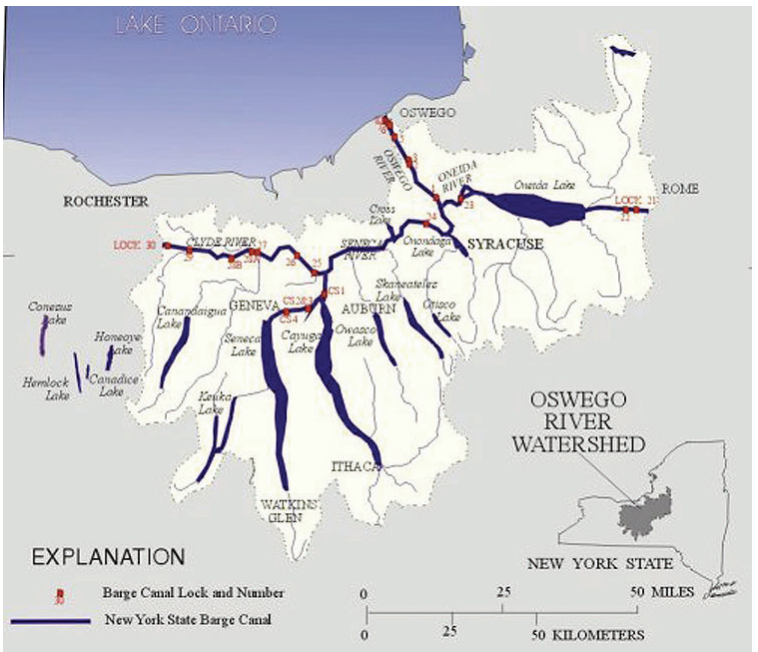
Stop Invasive Aquatic Plants

Aquatic Plants: The Good & The Bad

Our lakes and rivers would seem barren without lush plants along the shore. Plants do more than give us pleasing vistas—they are havens for wildlife and birds. Fish rely on aquatic plants for food and habitat. Plants improve water quality by absorbing nutrients and filtering pollutants. They protect the lake shoreline by holding soil on the lake bottom and water's edge—which in turn reduces erosion. Aquatic plants are an important part of the lakeshore environment.

As beneficial as aquatic plants are, some can create problems and become nuisance weeds. Some plants not native to an area are called "invasive" or "nuisance" plants. As they proliferate, invasive aquatic plants can impede boaters and swimmers, and generally lower the aesthetic and economic value of the waterbody. Infested waterways decrease property values, hurt tourism, impact fisheries, and cost communities money required to control and manage the invasive weeds.

Non-native, invasive species are introduced into and spread throughout the Oswego River Basin region by various methods. One of the easiest, and most common way for invasive weeds to be introduced is by "hitching a ride" on boats as they navigate various waterbodies. Some species can also be introduced unintentionally when they are used in gardens and landscaping near a waterway. Additionally, when people dispose of aquatic plants by emptying their aquariums into a nearby waterway, non-native, nuisance plants are introduced into the region.



Preventing the introduction and spread of invasive weeds is essential to the health of the Oswego River Basin. You can help, starting with early detection. Learn to identify native and non-native plants. If invasive plants are spreading to a new area, report the sighting to the project leaders listed on the back cover of this guide.

Glossary and Plant Index

Glossary

Alternate: Leaves spaced singly along a stem

Emergent: Found in shallow water with a large portion of stems and leaves growing above (emerging from) the water surface

Floating: Have leaves that float on top of the water

Leaflets: Individual segments radiating from a common stem, that together make up a leaf

Lobe: Portion of a leaf that projects outward and divides the leaf into distinct parts, but not enough to make them separate leaflets; lobes may be rounded or pointed

Margin: Leaf edge

Mid-rib: Central vein of a leaf, running from base to tip

Opposite: Leaves spaced in pairs, one on each side of the stem

Rosette: Leaves arranged in a radiating pattern at the base of the plant

Submersed: Growing underwater

Toothed margin: Shallow bumps

Tuber: Thickened portion of stem, providing food storage for the plant

Whorl: Arrangement of 3 or more leaves or flowers radiating from a common point

This guide will help you to recognize the difference between aquatic invasive weeds and their native look-a-likes found in the Central New York region. In addition there are suggestions as to what to do if you identify an invasive weed. For the purpose of this guide, plants are separated into two categories: Invasive Weed, on the left, and Native Plant, on the facing page. Note that several invasive weeds share one or two native look-a-likes.

Invasive Weed: Non-native nuisance plants that have been identified either in the Oswego River Basin or in neighboring watersheds. It is important to prevent the spread of these plants.

Native Plant: Plants that look similar to invasive weeds but are beneficial to the ecosystem, and should be left alone and allowed to grow.

Invasive Weed Index

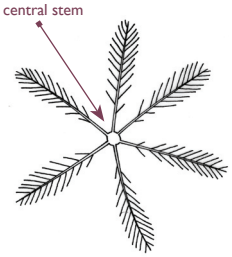
Floating plants:

- Free floater—European frogbit (p. 4)
- Rooted to sediment—Water chestnut (p. 6)

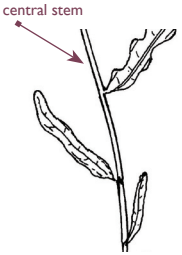
Submersed plants:

- Whorl leaf pattern—Hydrilla (p. 8)
- Whorl leaf pattern—Brazilian waterweed (p. 10)
- Lasagne-like leaves—Curly-leaved pondweed (p. 12)
- Grass-like leaves—Starry stonewort (p. 14)
- Finely divided leaves—Eurasian watermilfoil (p. 16)
- Finely divided leaves—Fanwort (p. 18)

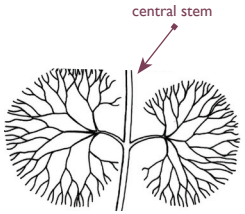
Control & Eradication Techniques



Whorled Leaf Pattern



Alternate Leaf Pattern



Opposite Leaf Pattern

Frequently invasive plants are introduced into new waterbodies by boats, trailers, bait buckets and fishing tackle. Prevention is crucial, and can be accomplished if everyone cleans their boats and equipment on dry land when leaving a waterbody. Once invasive weeds start growing in an area, control methods must be employed to prevent a large infestation from becoming established.

Early detection and rapid response are both important. To be sure of proper identification and early detection of invasive weeds, please use this guide to become familiar with both the native and non-native plants in the region. If you find an invasive weed in a new area within the Oswego River Basin, please inform one of the project leaders listed on the back of this guide at once so that new populations of invasive plants can be verified and promptly removed.

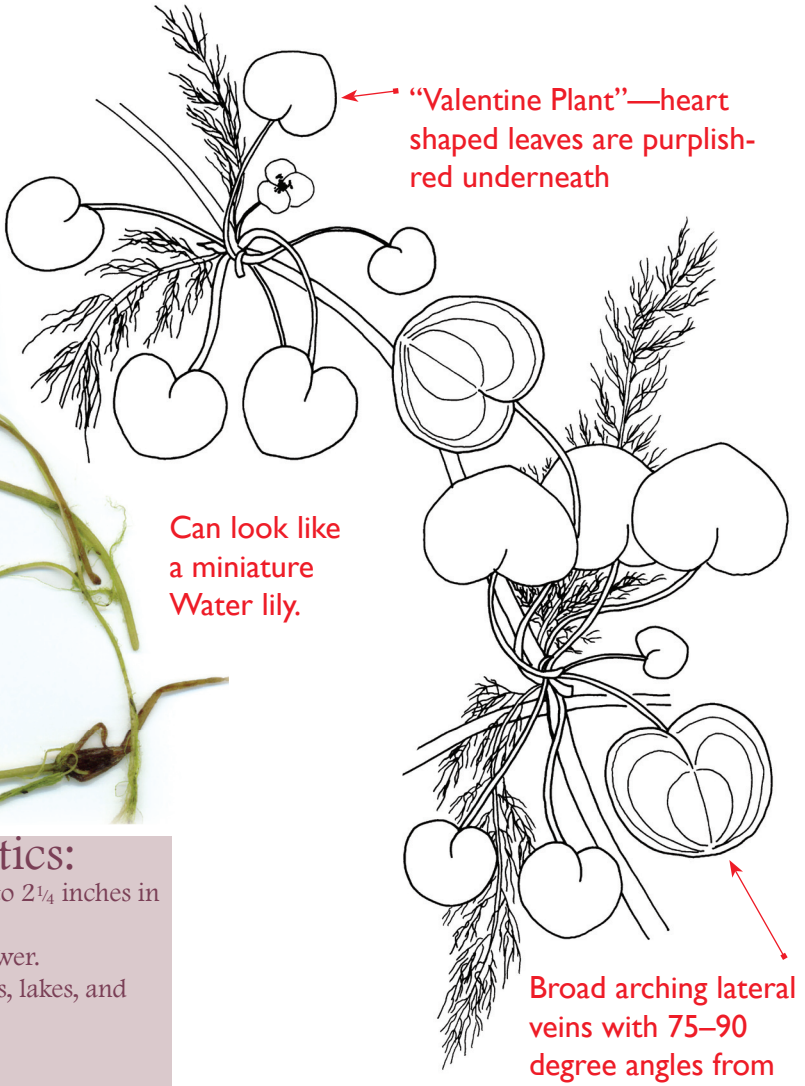
These plants both grow and spread by various methods, and therefore control and eradication planning needs to be specific to each plant species. Some plants spread by fragmentation. Plants that spread by fragmentation can grow from pieces of the original plant with no need for seeds. Other plants reproduce by seeds or buds. To maximize the benefit, control methods should be undertaken in the spring or very early summer before plants set seed.

Control techniques include physical, chemical and biological methods. Physical control includes raking, cutting or harvesting vegetation. Since many invasive weeds can spread by fragmentation, care should be taken to prevent fragments from being carried away by water. In some cases hand pulling can be an effective control technique, as long as the entire plant is pulled, not just the upper portion. Biological control uses specific insects as natural predators of invasive weeds. Chemical methods require permits from the NYS Department of Environmental Conservation. Please contact one of the leaders listed on the back of this guide for more information.

Invasive Weed

Plant posing a threat to the Oswego River Basin.

European frogbit *(Hydrocharis morsus-ranae)*



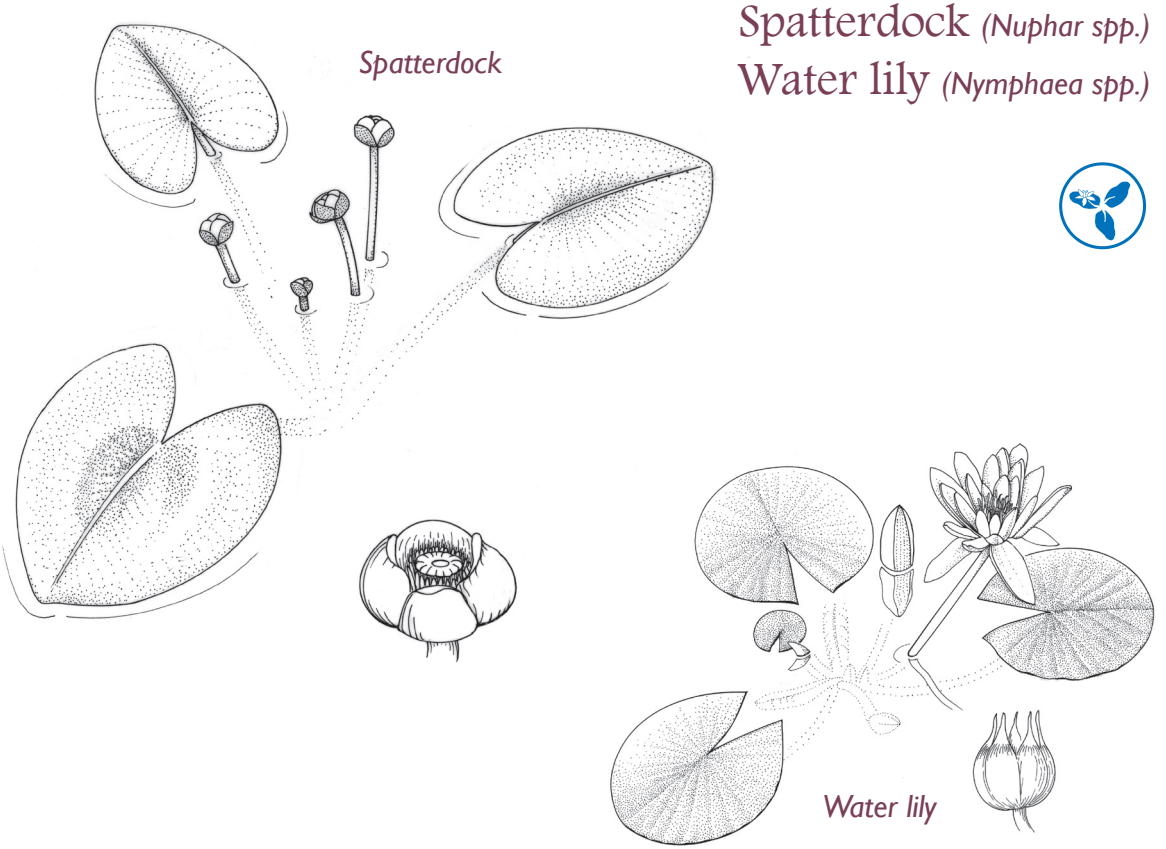
Other Characteristics:

- Leaves measure a half inch to 2¼ inches in length and width.
- White, single, 3-petalled flower.
- Inhabits quiet edges of rivers, lakes, and open marshes.

Native Plant

Beneficial plants that look like Frogbit and Water chestnut

Spatterdock *(Nuphar spp.)*
Water lily *(Nymphaea spp.)*



Assume Spatterdock if:

- Heart-shaped leaves, up to 16 inches long.
- Parallel or overlapping rounded lobes.
- Yellow flowers.
- Large mid-rib.
- Found in ponds or slow moving waters.

Assume Water lily if:

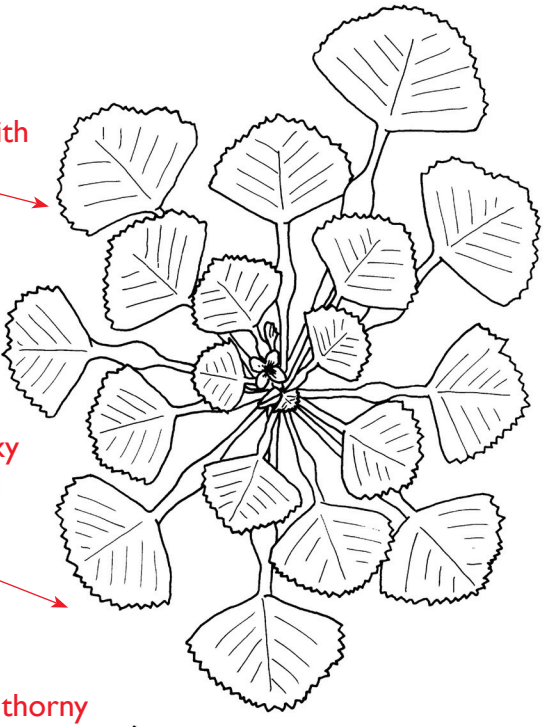
- Round leaves with pointed lobes, 6–8 inches in length.
- Many-petalled white flowers float on water surface.
- Veins on leaf radiate out from where leaf and stem meet.
- Found in quiet waters.

Invasive Weed

Plant posing a threat to the Oswego River Basin

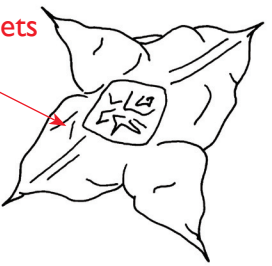
Water chestnut *(Trapa natans)*

Floating leaves are triangular shaped with toothed margins.



Leaves are waxy on the top and hairy on the underside.

Produces thorny four-pointed nutlets in early summer.



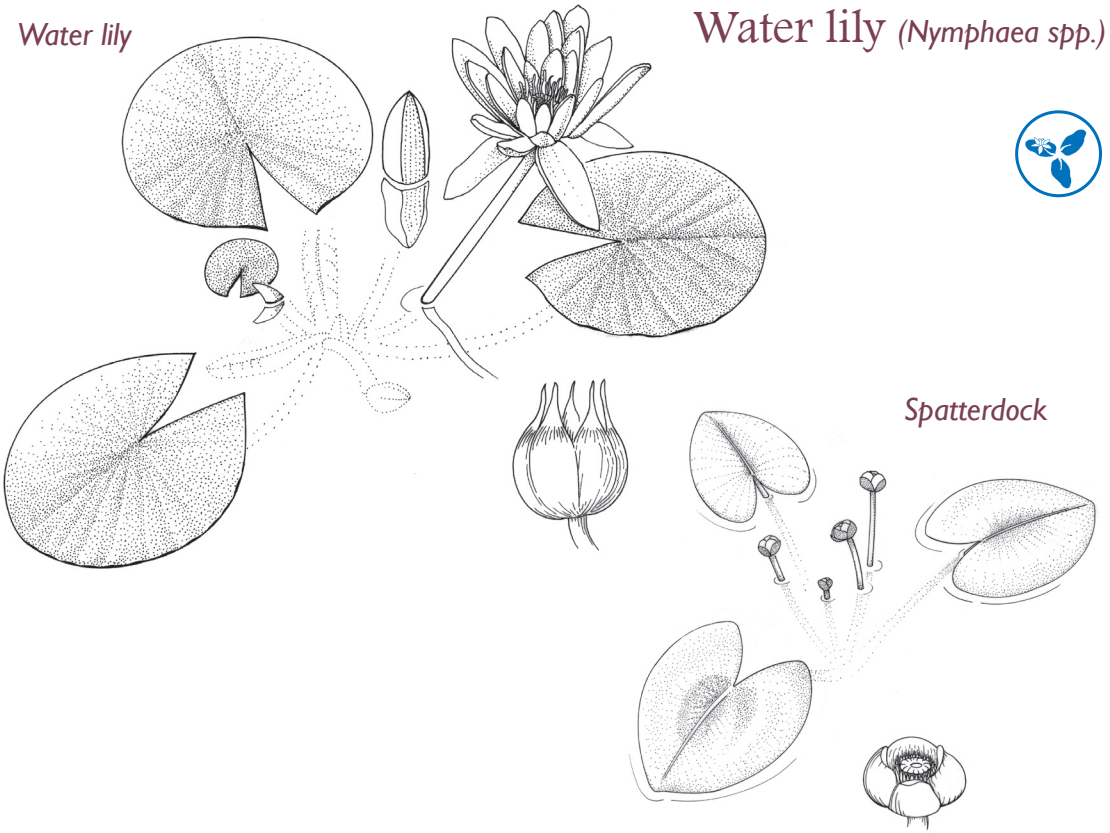
Other Characteristics:

- Submersed leaves are feather-like, opposite pattern along stem.
- Can grow in deep water up to16 feet.
- Inhabits lakes, ponds, and slow moving waters.

Native Plant

Beneficial plants that look like Water chestnut and Frogbit

Spatterdock *(Nuphar spp.)*
Water lily *(Nymphaea spp.)*



Assume Water lily if:

- Round leaves with pointed lobes, 6–8 inches in length.
- Many-petalled white flowers float on water surface.
- Veins on leaf radiate out from where leaf and stem meet.
- Found in quiet waters.

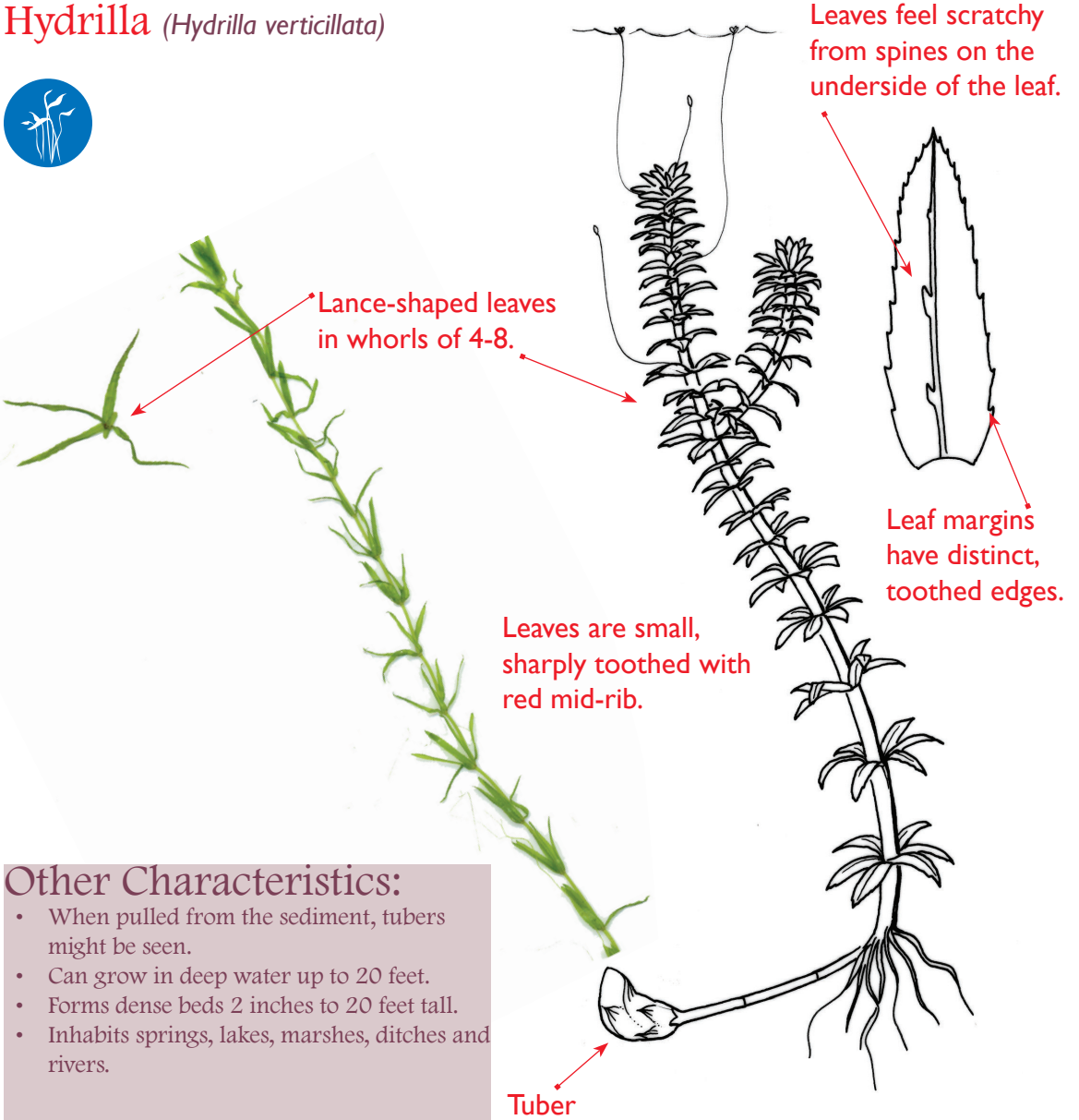
Assume Spatterdock if:

- Heart-shaped leaves, up to 16 inches long.
- Parallel or overlapping rounded lobes.
- Yellow flowers.
- Large mid-rib.
- Found in ponds or slow moving waters.

Invasive Weed

Plant posing a threat to the Oswego River Basin

Hydrilla *(Hydrilla verticillata)*



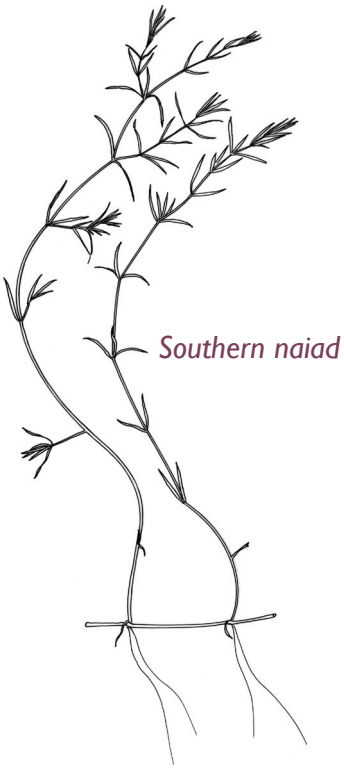
Other Characteristics:

- When pulled from the sediment, tubers might be seen.
- Can grow in deep water up to 20 feet.
- Forms dense beds 2 inches to 20 feet tall.
- Inhabits springs, lakes, marshes, ditches and rivers.

Native Plant

Beneficial plants that look like Hydrilla and Brazilian waterweed

Southern naiad *(Najas guadalupensis)*



Southern naiad

Assume Southern naiad if:

- Leaves are narrow, ribbon-like with broad base where they attach to stem.
- Leaves are arranged in pairs on opposite sides of the stem.
- The leaf is tapered with small teeth.
- Leaves are deep-green to purplish-green.

American elodea *(Elodea, spp.)*

American elodea

Assume American elodea if:

- Small, lance-shaped leaves in whorls of no more than three.
- Leaves appear and feel smooth.
- Lack of spines on the mid-rib.
- No tubers when pulled from the sediment.

Invasive Weed

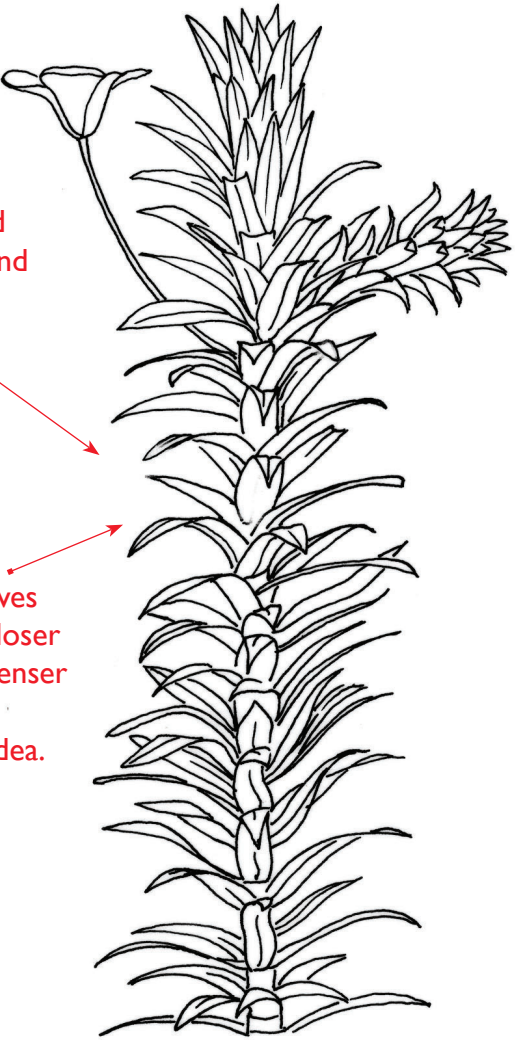
Plant posing a threat to the Oswego River Basin

Brazilian waterweed *(Egeria densa)*

4–6 leaves per whorl.

Lance-shaped leaves arranged in whorls around stem.

Whorls of leaves are typically closer together or denser than those of American elodea.



Other Characteristics:

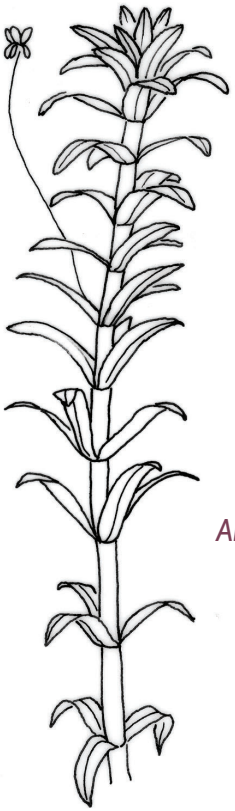
- Leaves feel smooth.
- Small serrations along the leaf margin are difficult to see with the naked eye.
- Can be found in both still and flowing waters of lakes, ponds, small streams, and ditches.

Native Plant

Beneficial plants that look like Brazilian waterweed and Hydrilla

American elodea *(Elodea spp.)*

Southern naiad *(Najas guadalupensis)*



American elodea

Southern naiad

Assume American elodea if:

- Small, lance-shaped leaves in whorls of no more than three.
- Leaves appear and feel smooth.
- Lack of spines on the mid-rib.
- No tubers when pulled from the sediment.

Assume Southern naiad if:

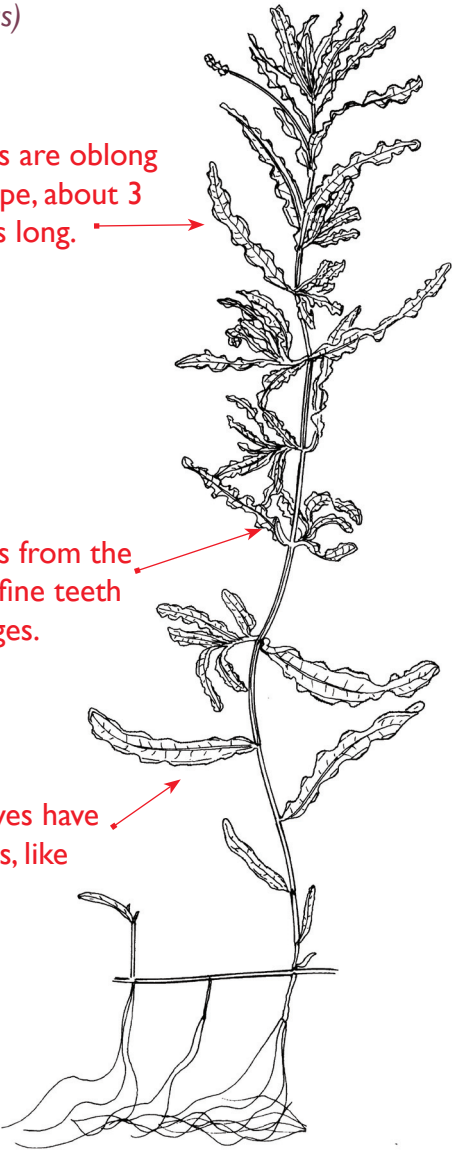
- Leaves are narrow, ribbon-like with broad base where they attach to stem.
- Leaves are arranged in pairs on opposite sides of the stem.
- The leaf is tapered with small teeth.
- Leaves are deep-green to purplish-green.

Invasive Weed

Plant posing a threat to the Oswego River Basin

Curly-leaved pondweed *(Potamogeton crispus)*

Flat, reddish-brown stems grow 1–3 feet long.



Leaves are oblong in shape, about 3 inches long.

Crispy feel comes from the wavy aspect and fine teeth along the leaf edges.

Reddish-green leaves have distinct wavy edges, like lasagne noodles.

Other Characteristics:

- Grows under ice in early spring; dies back after Fourth of July.
- Spring leaves are wider than winter leaves and have less wavy leaf margins.
- Inhabits lakes, ponds, and streams.

Native Plant

Beneficial plant that looks like Curly-leaved pondweed

Clasping-leaved pondweed *(Potamogeton perfoliatus)*

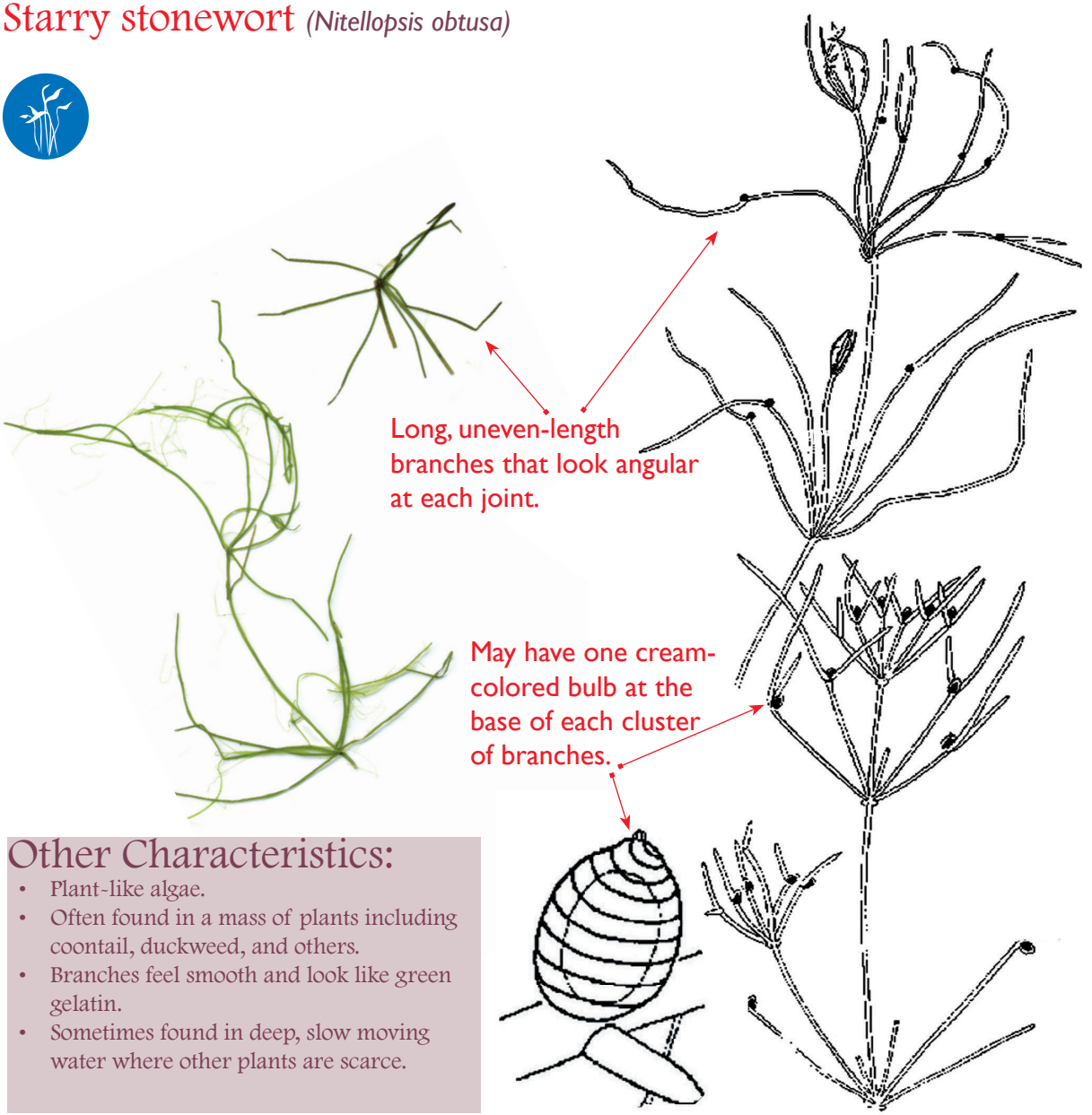
Assume Clasping-leaved if:

- Wide, oval-shaped leaves have smooth edges.
- In shallow water, plants have thicker, darker green foliage than do plants growing in deeper water.
- Leaf margins are slightly crisped.
- Basal parts of leaves clasp straight and slender plant stems.
- Inhabits lakes and streams.

Invasive Weed

Plant posing a threat to the Oswego River Basin

Starry stonewort *(Nitellopsis obtusa)*



Other Characteristics:

- Plant-like algae.
- Often found in a mass of plants including coontail, duckweed, and others.
- Branches feel smooth and look like green gelatin.
- Sometimes found in deep, slow moving water where other plants are scarce.

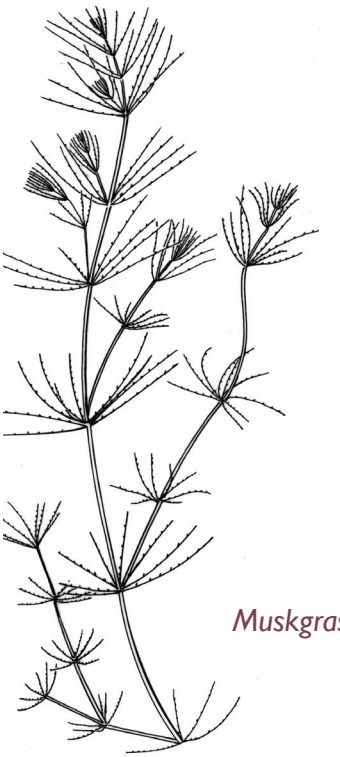
Native Plant

Beneficial plants that look like Starry stonewort

Nitella *(Nitella, spp.)*

Muskgrass *(Chara, spp.)*

Nitella



Muskgrass

Assume Nitella if:

- Branches are smooth and flexible.
- Branches/leaves are translucent green.
- Branches arranged in whorls around stem.
- Lacks roots. Attaches to the sediment by root-like structures called "holdfasts."
- May be free-floating above sediment.
- Inhabits shallow and deep waters of lakes and bogs.

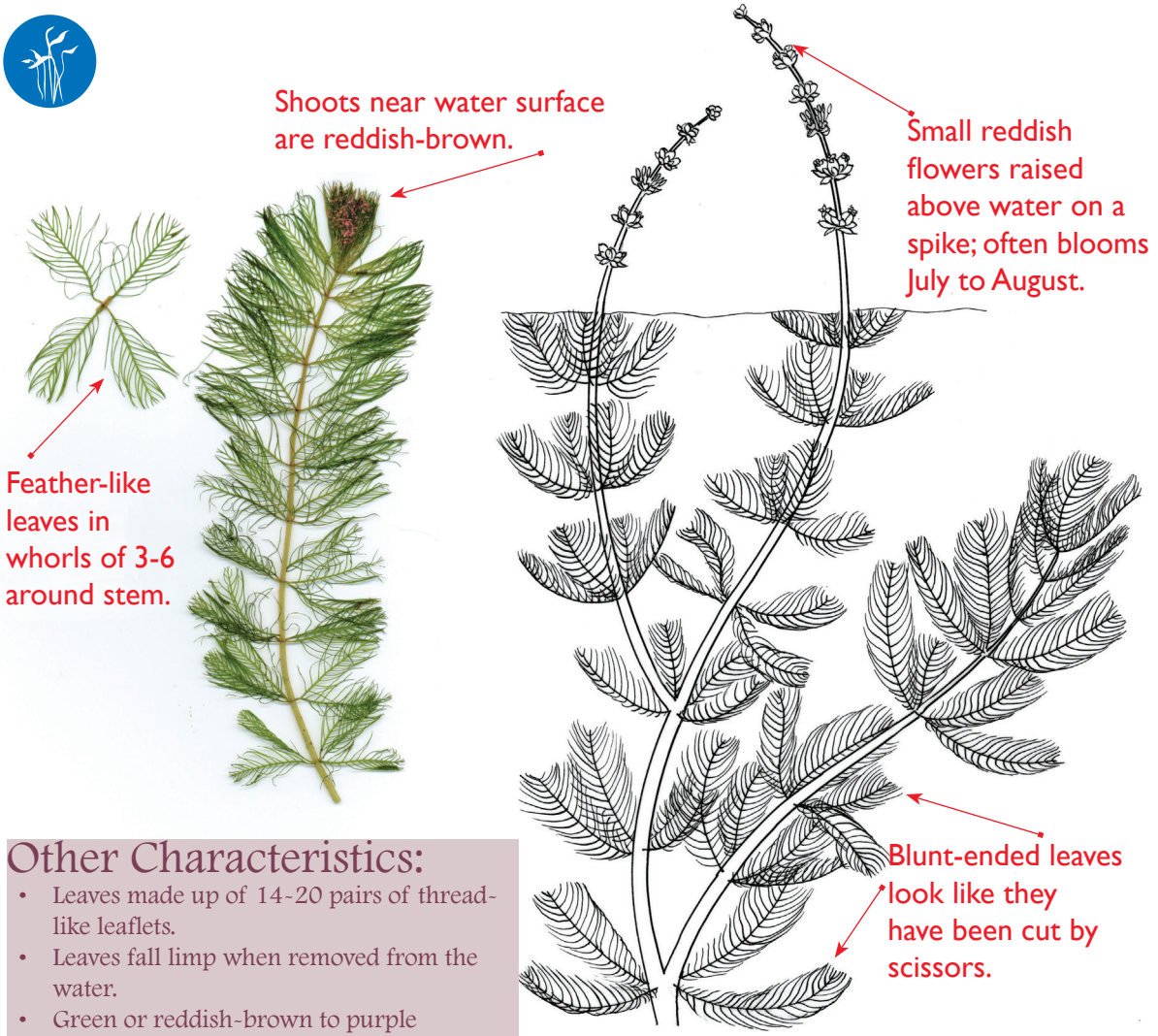
Assume Muskgrass if:

- Plant is covered in a brittle, scaly coating.
- Often smells "skunky" when squashed.
- Branches are hard and ridged.
- Feels gritty when crushed.
- Inhabits fresh to brackish (salty) waters; both shallow and deep.

Invasive Weed

Plant posing a threat to the Oswego River Basin

Eurasian watermilfoil *(Myriophyllum spicatum)*



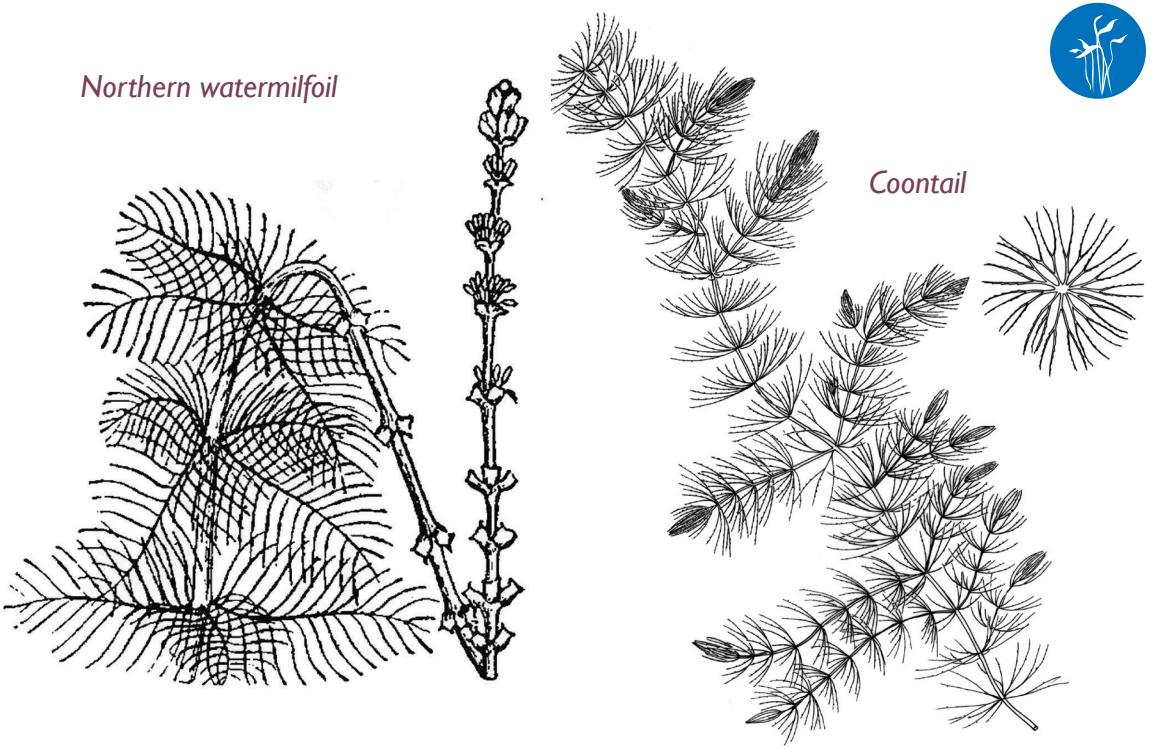
Other Characteristics:

- Leaves made up of 14-20 pairs of thread-like leaflets.
- Leaves fall limp when removed from the water.
- Green or reddish-brown to purple branching stems.
- Inhabits lakes, rivers, and ponds.

Native Plant

Beneficial plants that look like Eurasian watermilfoil

Northern watermilfoil *(Myriophyllum sibiricum)*
Coontail *(Ceratophyllum demersum)*



Assume N. watermilfoil if:

- Whorls of 4-5 of feather-like leaves.
- Leaves made up of 5-12 thread-like leaflets.
- Leaves tend to be stiff when removed from water.
- Leaf tip is tapered.
- Tips and shoots lack reddish-brown color.
- Inhabits lakes, ponds, and rivers

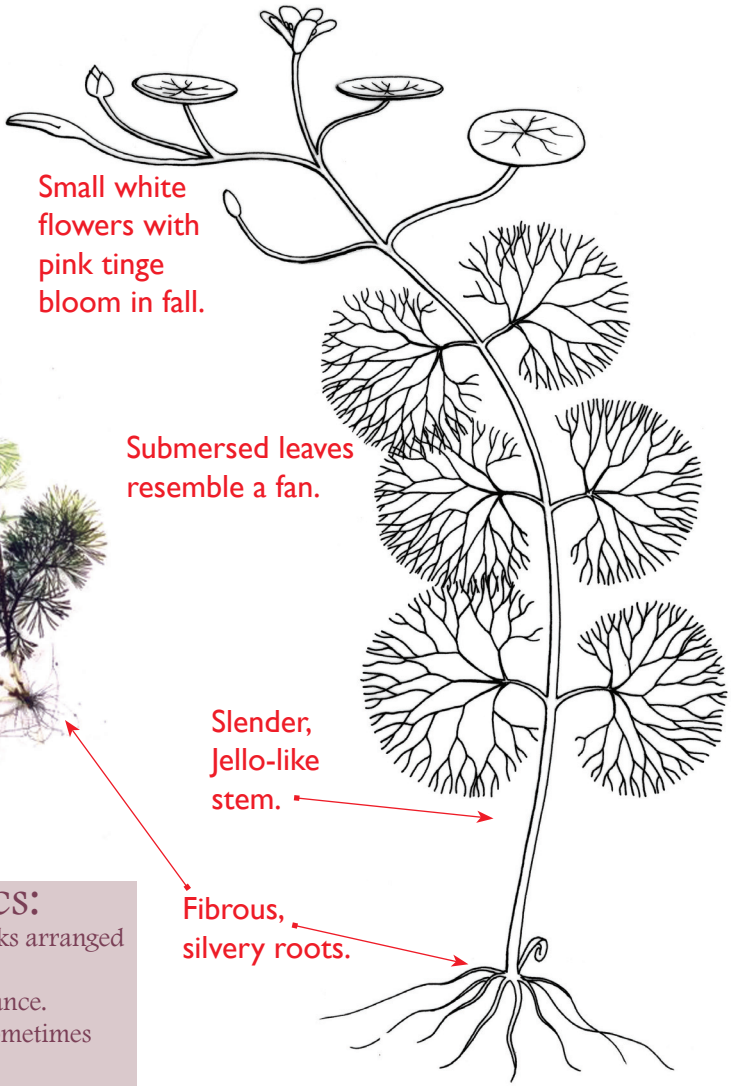
Assume Coontail if:

- Leaves are not feather-like.
- Bristle-like leaves are toothed and have forked division.
- Whorls of leaves are tight at tips, resembling a raccoon tail.
- Leaves keep their shape out of water.
- Inhabits slow moving waters of streams and rivers, as well as lakes and ponds.

Invasive Weed

Plant posing a threat to the Oswego River Basin

Fanwort *(Cabomba caroliniana)*



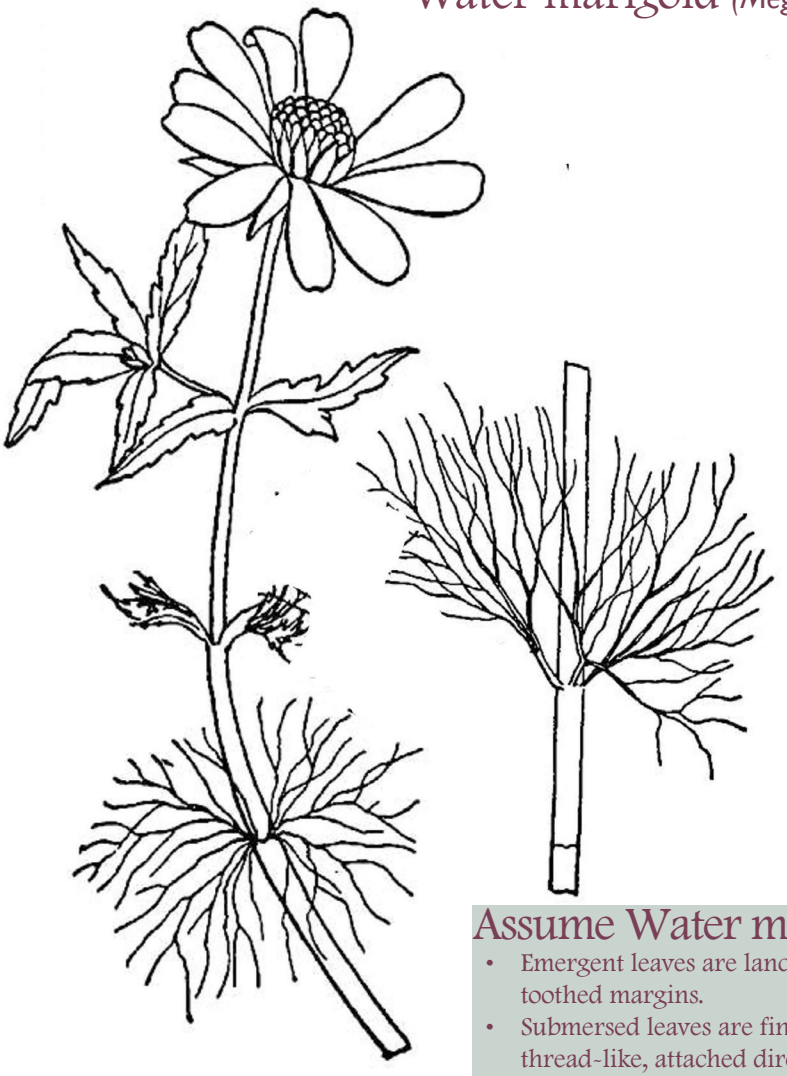
Other Characteristics:

- Fan-shaped leaves on short stalks arranged in opposite pairs.
- Stems have a “tubular” appearance.
- Small oval floating leaves are sometimes present.
- Sometimes the plant looks reddish.
- Can be found in lakes, ponds, and quiet streams.

Native Plant

Beneficial plant that looks like Fanwort.

Water marigold *(Megalondonta beckii)*



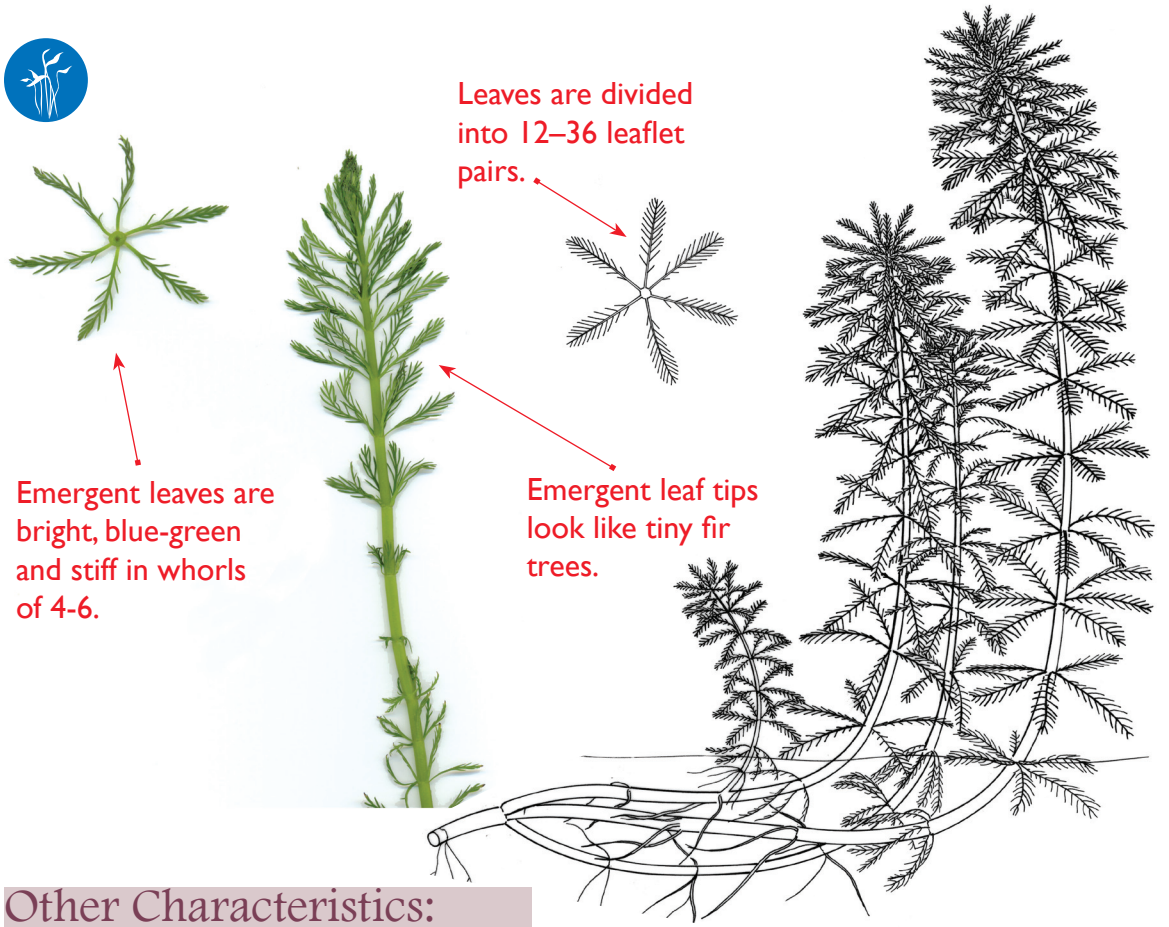
Assume Water marigold if:

- Emergent leaves are lance-shaped with toothed margins.
- Submersed leaves are finely divided and thread-like, attached directly to the plant's stem.
- Produces yellow flowers July to September.
- Can be found on lakeshores and in ponds and slow moving streams.

Invasive Weed

Plant posing a threat to the Oswego River Basin

Parrotfeather *(Myriophyllum aquaticum)*



Other Characteristics:

- Leaves are rigid, deeply serrated, and profuse.
- Woody stems can grow over 5 feet long.
- Prefers slow-moving waters of streams, rivers and ditches; also found in shallow lakes and ponds.

Weeds Watch Out! is an education and outreach program that will help to control the spread of invasive aquatic plant species into, within, and from the Oswego River Basin, a sub-basin of Lake Ontario. **W2O!** has established strong inter-watershed relationships in the Oswego River Basin to effectively address current and future invasive aquatic plant issues in a coordinated manner. For more information, visit the web at www.co.cayuga.ny.us/wqma/weedswatchout/.

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