

The Borough of Mountain Lakes

The Aquatic Plants of Mountain Lakes



BOROUGH OF MOUNTAIN LAKES

LISTED IN NATIONAL AND STATE REGISTERS OF HISTORIC PLACES

Created March 2017

Borough of Mountain Lakes

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Mountain Lakes, NJ
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In this guide:

Red indicates an Invasive species
Blue indicates a Native species
Green indicates an Algal species

Call to Action!

Please Contact
Borough Manager
manager@mtnlakes.org

Introduction to Aquatic Plants

Aquatic plants in a lake come in many different sizes, shapes and function. This diversity is similar to the different components of a forest, having low grasses, understory shrubs, diminutive trees and vines, and canopy forming trees. Different aquatic plants inhabit different ecological niches depending on a myriad of physical, chemical and biological conditions.

Although many lake recreational users view aquatic plants as nuisance “weeds”, a balanced native aquatic plant community has several important ecological functions. These include:

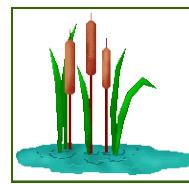
- Shoreline Buffer
- Sediment Stabilization
- Wildlife Habitat
- Aesthetics
- Nutrient Uptake

Aquatic plants fall into the following broad categories. **Submersed** aquatic plants grow along the lake bottom and are entirely submerged save perhaps for flowers or seeds. **Floating-leaf plants** include duckweeds and lilies, and have leaves on the surface of a lake. **Emergent** plants have roots in standing water, but the majority of the plant occurs above the water's surface. Finally, some aquatic plant growth is actually **macro-algae**. Below are a list of icons for the aquatic plants in this guide.

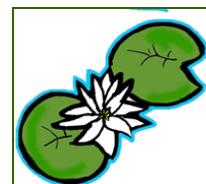
ICON KEY



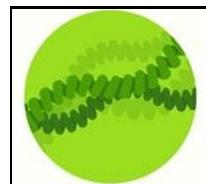
Submersed



Emergent



Floating-leaf



Macro-algae

Summary of Aquatic Plants at Mt. Lakes

	Birchwood Lake	Crystal Lake	Sunset Lake	Olive Lake	Shadow Lake	Cove Pond	Grunden's Pond	Mountain Lake	Wildwood Lake
Eurasian Water Milfoil							X	X	X
Ribbon-leaf Pondweed	X							X	
Common Bladderwort	X							X	
Coontail						X		X	X
Spiny Hornwort						X		X	
Southern Naiad								X	X
Slender Naiad								X	X
Brittle Naiad			X	X				X	X
Leafy Pondweed			X	X			X	X	X
White Water Lily	X	X	X		X	X		X	X
Spatterdock	X	X	X						
Watershield	X								
Muskgrass			X	X					X
Robbin's Pondweed	X								
Low Water Milfoil	X								
Small Duckweed					X	X	X	X	X
Bassweed		X							X
Water Primrose								X	X
Creeping Bladderwort	X				X	X			X
Curly-leaf Pondweed	X	X	X				X	X	X
Slender Riccia					X	X	X	X	
Waterthread Pondweed	X						X	X	
Stonewort							X	X	
Watermoss	X	X							
Creeping Water Primrose							X		X
Small Pondweed		X							
Purple Loosestrife	X	X	X					X	X
Common Reed		X							
Cattail	X							X	X
Fanwort									X
Watermeal					X	X	X	X	

Bassweed (*Potamogeton amplifolius*)



Native (*Potamogeton amplifolius*. Common Names: Large-leaf Pondweed, Bass Weed, Musky Weed.): Bass weed has robust stems that originate from black-scaled rhizomes. The submersed leaves of bass weed are among the broadest in the region. The submersed leaves are arched and slightly folded, attached to stems via stalks, and possess many (25-37) veins. Floating leaves are produced on long stalks (8-30 cm). Stipules are large, free and taper to a sharp point. Flowers, and later in the season, fruit are densely packed onto a spike. Bass weed prefers soft sediments in water one to four meters deep. This plant is sensitive to increased turbidity and also has difficulty recovering from top-cutting, from such devices as boat propellers and aquatic plant harvesters. As its name implies the broad leaves of this submersed plant provides abundant shade, shelter and foraging opportunities for fish. The high number of nutlets produced per plant make it an excellent waterfowl food source.



Brittle Naiad (*Najas minor*)



Invasive (*Najas minor*. Common Names: brittle water nymph, European naiad.): Brittle naiad is a submersed annual that flowers in August to October. It resembles other naiads, except its leaves are highly toothed with 6-15 spinnules on each side of the leaf, visible without the aid of magnification. The leaves are opposite, simple, thread-like, and usually lime-green in color, often with a "brittle" feel to them. Brittle naiad fruit are narrow, slightly curved, and marked with 10-18 longitudinal ribs, resembling a ladder. Brittle naiad has been introduced from Europe in the early 1900's, and can be found in most of the northeastern states. Brittle naiad prefers sandy and gravel substrates, but can tolerate a wide range of bottom types. It's tolerant of turbid and eutrophic conditions. Waterfowl graze on the fruit.



Cattail (*Typha latifolia*)



Native (*Typha latifolia*: Common Names: broadleaf cattail, common cattail.): Cattails appear along shorelines and wetlands, often mixed in with giant reed grass, forming dense stands. Broad sword-like leaves are a distinctive characteristic of this species along with a brown, cylindrical flowering spike. During the months of fall the flowering spike becomes a mass of white, like a cotton ball. Flowering occurs between the months of April to June. Reproduction is via hardy rhizomes that provide excellent sediment stabilization. Cattails provide favorable habitat for birds and muskrats, in addition to providing shade and shelter for foraging fish. Although considered a native species, cattails can rapidly spread and reach nuisance monotype stands. These stands tend to crowd out desirable native emergent aquatic plant growth, and can require control.



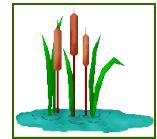
Common Bladderwort (*Utricularia vulgaris*)



Native (*Utricularia vulgaris*: Common Names: common bladderwort, great bladderwort.): Common bladderwort is a free-floating plant that can reach 2-3 meters in length. Since they are free-floating, they can grow in areas with very loose sediment. Along its stem are finely divided leaf-like branches, forked 3-7 times. Scattered about the branches are numerous bladders, used to capture prey ranging from the size of unicellular protozoans (such as *Euglena*), to mosquito larvae. Prey is slowly digested inside the bladders by enzymes. Common bladderwort produce small yellow flowers that protrude above the water. Stems of common bladderwort provide food and cover for fish.



Common Reed (*Phragmites australis*)



Invasive. (Common Names: giant reed, giant reed grass, common reed): Common reed grass grows from stout rhizomes with hardy stems that can reach heights of 2 to 4 meters. Some stems are topped with a spreading cluster of spikelets that have long silky hairs, giving the overall structure the appearance of a feather duster. Common reed grows in disturbed areas, wet soils, and along lake, pond or wetland margins in standing water up to 2 meters deep. Its primary mode of reproduction is via bud formation on hardy rhizomes. Common reed is excellent at shoreline and sediment stabilization, but its very aggressive while spreading. Often it crowds out desirable native plant growth, and reduces biodiversity of a site. It provides very little food for waterfowl, but muskrats graze on it. In winter, the standing stalks provide limited cover and habitat.



Coontail (*Ceratophyllum demersum*)



Native. (Common Names: coontail, hornwort.): Coontail has long trailing stems that lack true roots, although it can become loosely anchored to sediment by modified leaves. The leaves are stiff, and arranged in whorls of 5-12 at each node. Each leaf is forked only once or twice, and has teeth along the margins. The whorls of leaves are spaced closer at the end of the stem, creating a raccoon tail appearance. Coontail is tolerant of low light conditions, and since it is not rooted, it can drift into different depth zones. Coontail can also tolerate cool water and can overwinter as a green plant under the ice. Typically, it reproduces via fragmentation. Bushy stems of coontail provide valuable habitat for invertebrates and fish (especially during winter), and the leaves are occasionally grazed on by waterfowl.



Creeping Bladderwort (*Utricularia gibba*)

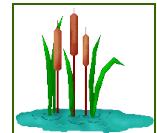


Native (*Utricularia gibba*). Common Names: creeping bladderwort, humped bladderwort, cone-spur bladderwort.). Creeping bladderwort has a small (usually less than 10 cm long), delicate, free-floating stem. It often forms tangled mats in quiet shallow waters, often associated with bogs, or stranded on soil. It is sometimes mistaken for algae. It has short side branches that fork once or twice, a defining characteristic. Small bladders, used to capture live prey, are situated on these side branches. Small yellow snap-dragon-like flowers are produced on a short stalk. Mats of creeping bladderwort offer limited cover and foraging opportunities for fish.

*Creeping Bladderwort
is considered to be
rare, ranking as S3, in New Jersey
according to Natural Heritage.*



Creeping Water Primrose (*Ludwigia peploides*)



Invasive (*Ludwigia peploides*). Common names: Floating water willow, floating primrose willow.) Creeping water primrose is native to South America, but has become introduced to many locations in the Northeast. The leaves are alternate and can vary in shape from long and thin to round or egg-shape. They are dark green with a lighter green midrib. It has fleshy stems that can be emergent on mud flats, or a floating form. Bright yellow flowers with five petals are produced. Its creeping stems and hardy nature classifies it as an aggressive spreader. It typically occurs in slow moving streams, canals, and along the margins of marshes and lakes.



Curly Leaf Pondweed (*Potamogeton crispus*)



Invasive (*Potamogeton crispus*. Common Name: curly-leaf pondweed.): Curly-leaf pondweed has spaghetti-like stems that often reach the surface by mid-June. Its submerged leaves are oblong, and attached directly to the stem in an alternate pattern. The margins of the leaves are wavy and finely serrated, hence its name. No floating leaves are produced. Curly-leaf pondweed can tolerate turbid water conditions better than most other aquatic plants. In late summer, curly-leaf pondweed enters its summer dormancy stage. It naturally dies off (often creating a sudden loss of habitat and releasing nutrients into the water to fuel algae growth) and produces vegetative buds called turions. These pine cone-like turions germinate when the water gets cooler in the autumn and give way to a winter growth form that allows it to thrive under ice and snow cover, providing habitat for fish and invertebrates.



Eurasian Water Milfoil (*Myriophyllum spicatum*)



Invasive (*Myriophyllum spicatum*. Common Names: Asian water milfoil, milfoil.): Eurasian water milfoil has long (2 meters or more) spaghetti-like stems that grow from submerged rhizomes. The stems often branch repeatedly at the water's surface creating a canopy that can crowd out other vegetation, and obstruct recreation and boat navigation. The leaves are arranged in whorls of 4 to 5, and spread out along the stem. The leaves are divided like a feather, resembling the bones on a fish spine. Eurasian water milfoil is an exotic species originating in Europe and Asia, but its range now includes most of the United States. Its ability to grow in cool water and at low light conditions gives it an early season advantage over other native submerged plants. In addition to reproducing via fruit production, it can also reproduce via fragmentation. Waterfowl graze on Eurasian water milfoil, and its vegetation provides habitat for invertebrates. However, studies have determined mixed beds of native pondweeds and wild celery can support more diverse invertebrate populations.



Fanwort (*Cabomba caroliniana*)



Invasive (*Cabomba caroliniana*. Common Name: fanwort.): Fanwort is a submerged rooted herb, native to Southeastern United States, from Virginia to South Florida. A popular aquarium plant, fanwort has since spread to much of the Northeast, and even parts of the Northwest, and is considered a non-native invasive species in these regions. Fanwort prefers sluggish streams, or acidic ponds and lakes. It can reach six feet long, and can colonize water up to ten feet deep. Fanwort has slender stems covered with a thin gelatinous slime, and two types of leaves. Submerged leaves are green and situated in a whorl pattern, similar to a fan. The floating leaves are alternate and linear, about one half to one inch in diameter. Fanwort blooms in the fall, producing small white flowers with a slight pinkish tint. Although it can reproduce via seed germination, it can also reproduce by fragmentation. In late summer, the stems become brittle, and break easily. The loose fragments can then rapidly move throughout the aquatic system due to natural water flow patterns. Unattached plants can even continue to grow, indicating it removes most of its nutrients directly from the water column instead of the sediment. Due to its rapid spreading, it can occur in dense stands, clogging streams or canals, and impairing aquatic systems. Fanwort provides suitable habitat for aquatic invertebrates and



Leafy Pondweed (*Potamogeton foliosus*)



Native (*Potamogeton foliosus*: Common Name: leafy pondweed.): Leafy pondweed has freely branched stems that hold slender submerged leaves that become slightly more narrow as they approach the stem. The leaf contains 3-5 veins and often tapers to a point. No floating leaves are produced. It produces early season fruits in tight clusters on short stalks in the leaf axils. These early season fruits are often the first grazed upon by waterfowl during the season. Muskrat, beaver, deer and even moose also graze on the fruit. It inhabits a wide range of habitats, but usually prefers shallow water. It has a high tolerance for eutrophic conditions, allowing it to even colonize secondary water treatment ponds.



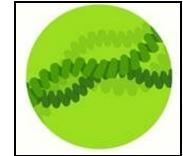
Low Water Milfoil (*Myriophyllum humile*)



Native (*Myriophyllum humile*. Common Name: Lowly water milfoil.). Low water milfoil is a submersed perennial with delicate stems usually less than one meter long. From these stems are mainly alternate short stalks, with 4 to 8 pairs of capillary-divided leaves. The minute fruit are round-backed and smooth, a distinguishing characteristic of this milfoil. Flowers are produced in axils of submersed and emersed leaves. Low water milfoil inhabits shallow ponds and streams, preferring muddy banks after water recedes. The entire low water milfoil plant is considered a low grade duck food, and beds of low water milfoil provide cover and suitable habitat for small fish and aquatic invertebrates.



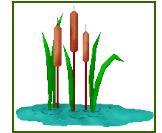
Muskgrass (*Chara sp.*)



Native (*Chara* sp. Common Names: muskgrass, chara.): Muskgrass is actually a multi-branched algae that appears as a higher plant. It is simple in structure and has rhizoids instead of true roots. The branches of muskgrass have ridges that are often encrusted with calcium carbonate. This grants the entire structure a “crusty” feel and appearance. The side branches develop in whorls that look like the spokes in a wheel. Muskgrass is easily identified by a pungent, skunky odor. It prefers softer sediments, and can often be found in deeper water than other plants. As such, it's considered an early pioneer, the first species to colonize a disturbed lakebed.



Purple Loosestrife (*Lythrum salicaria*)



Invasive (*Lythrum salicaria*: Common Names: purple loosestrife,): Purple loosestrife was first introduced to the east coast of North America as an ornamental species. It further spread along canals, ditches, roads, and is now fairly common along shorelines. This species can easily out compete other emergent species, such as cattails and other wetland plants. Purple loosestrife contains numerous purple flowers that are clustered at the top of the plant in a conical shape. It has a woody, typically green to dark brown, stalk that can exceed heights as tall as 6 feet. Their seeds typically spread by moving water, wind and by wetland animals. This emergent forms dense, impenetrable strands, with reduced suitability for shelter and nesting sites for ducks, geese, muskrats, frogs and turtles.



Ribbon-Leaf Pondweed (*Potamogeton epihydrus*)



Native (*Potamogeton epihydrus*: Common Name: ribbon-leaf pondweed): Ribbon-leaf pondweed has flattened stems and two types of leaves. The submerged leaves are alternate on the stem, lack a leaf stalk, and are long tape-like in shape. Each leaf, which can reach lengths up to 2 meters long, has a prominent stripe of pale green hollow cells flanking the midvein, and 5 to 13 other veins. Stipules are not fused to the leaf. Floating leaves are egg or ellipse-shaped, and supported by a leaf stalk about as long as the leaf itself. Fruiting stalks are located at the top of the stem and packed with flattened disk-shaped fruits. It is typically found growing in low alkalinity environments, and in a variety of substrates. Seeds are highly sought after by all manner of waterfowl.



Robbin's Pondweed (*Potamogeton robbinsii*)



Native (*Potamogeton robbinsii*. Common Name: Fern Pondweed.). Robbin's pondweed has robust stems that emerge from spreading rhizomes. The leaves are strongly ranked creating a fern-like appearance most clearly observed while still submerged. Its distinct closely-spaced fern-like leaves give it a unique appearance among the pondweeds of our region. Each leaf is firm and linear, with a base that wraps around the stem. At the stem it has ear-like lobes fused with a fibrous stipule. No floating leaves are produced. Robbin's pondweed thrives in deeper

Robbin's Pondweed is considered to be imperiled, ranking as S2 in New Jersey according to Natural Heritage.

water, and under some



circumstances, it can overwinter green. Robbin's pondweed creates suitable invertebrate habitat, and cover for lie-in-wait predaceous fish, such as pickerel and pike.

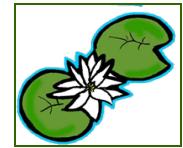
Slender Naiad (*Najas flexilis*)



Native (*Najas flexilis*: Common Names: slender naiad, bushy pondweed.): Slender naiad has fine-branched stems that can taper to lengths of one meter, originating from delicate rootstalks. Plant shape varies; sometimes compact and bushy, other times long and slender, depending on growing conditions. The leaves are short (1-4 cm long) and very finely serrated (requiring magnification to detect), tapering to a point. It is found in a variety of habitats, and can colonize sandy or gravelly substrates. If conditions are ideal, it can reach nuisance densities. It is a true annual, and dies off in the fall, relying on seed dispersal to return the next year. It is an important food source for waterfowl.



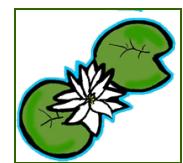
Slender Riccia (*Riccia fluitans*)



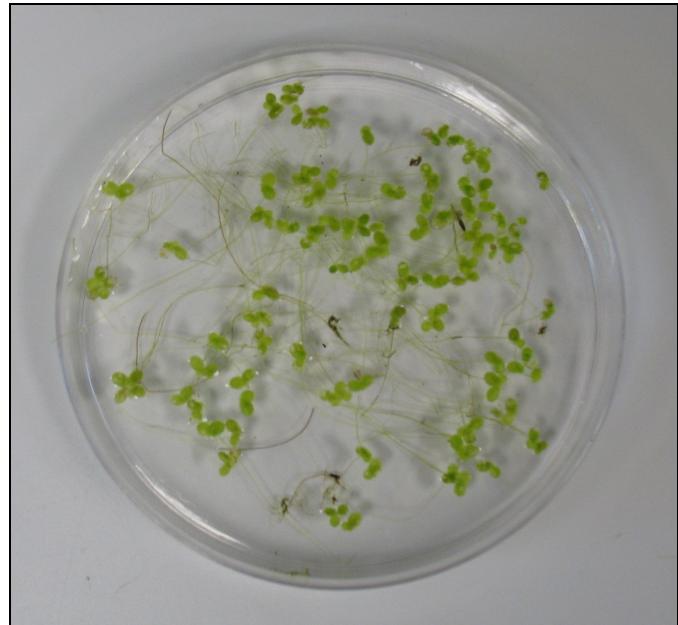
Native (*Riccia fluitans*. Common Names: Riccia.). Slender riccia is a rootless liverwort with forked stems often intertwined like a jigsaw puzzle. Closer examination of the flattened thallus (the forked stem-like body), it appears to be a miniature set of antlers. Since it is rootless, it moves about its habitat based wind and/or water movement much like duckweed. Thus it is not dependant on sediment depth or type, although it requires high water nutrients to sustain its growth. Slender riccia is a non-flowering plant that reproduces via spores. Although it is consumed by waterfowl, its probably just a byproduct of grazing as the waterfowl target duckweed species intermingled with it. The floating “footloose liverwort” does provide shade and minimal shelter opportunities for fish.



Small Duckweed (*Lemna minor*)



Native (*Lemna minor*. Common Names: Small duckweed, water lentil, lesser duckweed.). Small duckweed is a free floating plant, with round to oval-shaped leaf bodies typically referred to as fronds. The fronds are small (typically less than 0.5 cm in diameter), and it can occur in large densities that can create a dense mat on the water's surface. Each frond contains three faint nerves, a single root (a characteristic used to distinguish it from other duckweeds), and no stem. Although it can produce flowers, it usually reproduces via budding at a tremendous rate. Its population can double in three to five days. Since it is free floating, it drifts with the wind or water current, and is often found intermixed with other duckweeds. Since it's not attached to the sediment, it derives nutrients directly from the water, and is often associated with eutrophic conditions. It over winters by producing turions late in the season. Small duckweed is extremely nutritious and can provide up to 90% of the dietary needs for waterfowl. It's also consumed by muskrat, beaver and fish, and dense mats of duckweed can actually inhibit mosquito breeding.



Small Pondweed (*Potamogeton pusillus*)



Native (*Potamogeton pusillus*. Common Name: Small Pondweed.): Small pondweed has slender stems and a slight rhizome that branches repeatedly near the ends. Only submerged leaves are produced, and these are linear, attaching directly to the stem of the plant. The leaves have three veins and the mid-vein is usually bordered by several rows of lacunar (hollow) cells. There is usually a pair of raised glands at the base of the leaf attachment. Membranous stipules are wrapped around the stem in early growth, but as the plant ages, these tend to break down and become shredded in appearance and free. Flowers and fruits are produced in 1 to 4 whorls on a slender stalk. The fruit is plump with a smooth back and a short hooked beak. Small pondweed can tolerate turbid environments and inhabits shallow zones to a depth of 3 meters. Small pondweed is grazed upon by waterfowl, muskrat, deer, beaver, and even moose. Locally, it can be a very important link in the ecological balance of a lake system. It also provides suitable grazing opportunities and cover



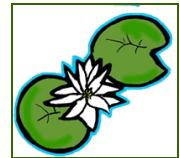
Southern Naiad (*Najas guadalupensis*)



Native (*Najas guadalupensis*. Common Names: Southern water nymph, bushy pondweed.): Southern naiad is an annual aquatic plant that can form dense stands of rooted vegetation. Its ribbon-like leaves are dark-green to greenish-purple, and are wider and less pointed than slender naiad. Flowers occur at the base of the leaves, but are so small, they usually require magnification to detect. Southern naiad is widely distributed, but tends to be less common than slender naiad in northern zones. There is some debate by botanists on if this is an exotic species in parts of the Northeast. Southern naiad reproduces by seeds and fragmentation.



Spatterdock (*Nuphar variegata*)



Native (*Nuphar variegata*. Common Name: yellow pond lily, bullhead pond lily, spatterdock.): Spatterdock leaf stalks that emerge directly from a submerged fleshy rhizome. Spatterdock has heart-shaped leaves with a prominent notch and rounded lobes. Depending on the habitat, these leaves can be held aloft via erect stems. A distinguishing characteristic of spatterdock is the leaf stalk, which bears a winged margin. Flowering occurs in the summer and, the flowers open during the day and close at night. Spatterdock typically inhabits quiet waters less than two meters deep with a soft substrate, such as ponds, shallow lakes and slow-moving streams. The leaves offer shade and protection for fish, and the leaves, stems, and flowers are grazed upon by muskrats, beaver, and sometimes, even deer.



Spiny Hornwort (*Ceratophyllum echinatum*)



Native (*Ceratophyllum echinatum*: Common Names: coontail, hornwort): Spiny hornwort is a type of coontail that inhabits low-pH, soft water lakes. It has long trailing stems that lack true root systems.

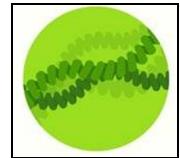
Its somewhat stiff leaves are arranged in whorls. Spiny hornwort leaves are forked 3-4 times and possess small spines.

The fruit of spiny hornwort has numerous spines of various lengths around its margin, and a rough surface. Spiny hornwort has a tolerance for cool water, and low-light conditions. In addition to seeds it can reproduce by fragmentation. Waterfowl graze on its foliage and fruit, and its leaves host a myriad of aquatic insects.

Spiny Hornwort is considered to be extremely rare, ranking as S1, in New Jersey according to Natural Heritage.



Stonewort (*Nitella* sp.)



Native (*Nitella* sp. Common Names: stonewort, nitella.): Stonewort is actually a multi-branched algae that appears as a higher plant. It lacks conductive tissue and roots, using simple anchoring structures called rhizoids. Stem lengths can reach 0.5 meters, and leaves are arranged in whorls. Although similar in appearance to muskgrass, stonewort has smooth stems and branches, and lacks the distinct musky odor. Stonewort tends to have much more delicate stems and structures and typically lacks calcification. Stonewort inhabits soft sediments in the deeper water of lakes. It can be found as deep as 10 meters. Fish and waterfowl graze on stonewort.



Watermoss (*Fontinalis* sp.)



Native (*Fontinalis* sp. Common Name: water moss, brook moss, fountain moss.): Watermosses are very common throughout the Northeast, and typical occur in moving water (rivers, streams, canals) and still waters (lake and pond margins). Watermosses are submerged mosses that are attached to rocks, trees, logs, and other hard substrates by false rootlets located at the base of their stems. The stems are dark-green to brown, reaching about one foot long. The leaves share a similar color as the stems, and are usually ovate with fine-toothed margins. Water moss is utilized by aquatic invertebrates, and as a breeding site for small fish. Water moss rarely reaches nuisance levels.



Water Primrose (*Ludwigia* sp.)



Native. Common Names: Ludwigia, primrose.) Water primrose is a perennial plant that often grows along lake shorelines or in moist habitats. There are several native water primrose species that occur in the region, and these are not to be confused with the invasive creeping water primrose (see above). There is also a submersed form with only the tips exposed. Water primrose usually is less than 50 cm in total length and has opposite elliptical leaves. It often takes on a reddish to purple hue, and has small green to red flowers. It commonly occurs in shallow waters, such as ditches, ponds, streams, lake margins and freshwater marshes. Submersed water primrose offers some habitat for juvenile fish and aquatic invertebrates, but its leaves and fruit provides little nutritional value for grazing waterfowl.



Watershield (*Brasenia schreberi*)



Native. Common Names: common water shield, water target.) Watershield is a floating-leaf aquatic plant similar to water lilies. Its stem and leaves are elastic, and are attached to a rooted rhizome that acts as an anchor and source of stored nutrients. The leaf stalks are attached to the middle of the leaf, creating a bull's eye effect, hence its name water target. The leaves are green on the upper surface, and purple underneath. Maroon to purple flowers peak above the water's surface on short, stout stalks. Watershield is usually coated with a clear gelatinous slime on the stem and underside of the leaves. Watershield prefers soft-water lakes and ponds in sediments containing decomposing organic matter. The whole plant is consumed by waterfowl, and the floating leaves provide shade and cover for fish.



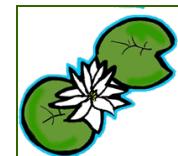
Waterthread Pondweed (*Potamogeton diversifolius*)



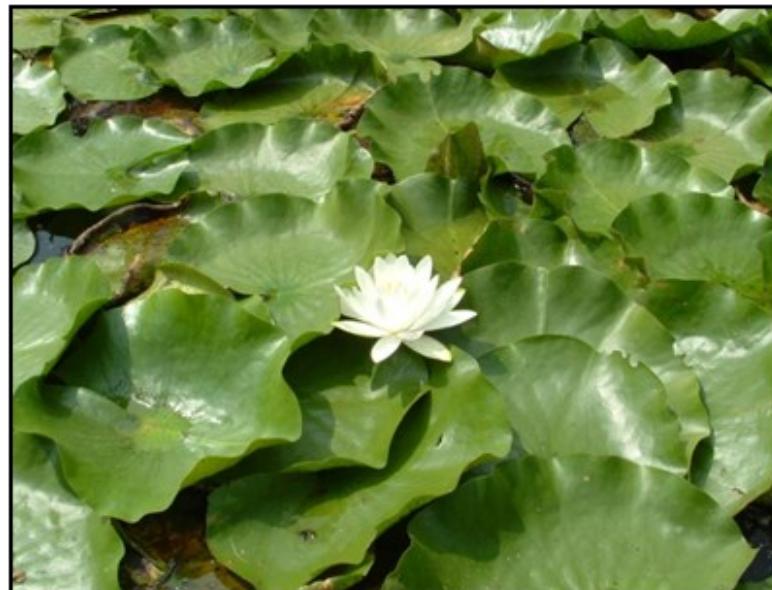
Native (*Potamogeton diversifolius*). Common Names: water thread pondweed, variable-leaf pondweed, snailseed pondweed.): Waterthread pondweed has narrow, linear leaves that range from 1 to 10 cm long and 0.1 to 1.5 mm wide. It is very similar to other thin-leaved pondweeds that occur in the region and often requires magnification to identify. However, the stipules are fused to the leave up to one half of their length. The submersed leaves have an obvious mid-vein and a single row of hollow cells on each side. Waterthread pondweed produces tiny floating leaves which are ellipse-shaped (0.5 cm to 4.0 mm long). The seeds are round and flat with a tiny beak and a raised dorsal ridge., often with the coiled embryo visible. Seeds and are formed in globe-shaped clusters of 1-15 on short stalks of the submersed leaves, but also on longer stalks of cylindrical spikes of 5 to 120 seeds in the axils of floating leaves. Aquatic botanists recognize several different varieties of this species which makes identification challenging. Seeds are consumed by waterfowl and mammals alike, and the submersed leaves may be colonized by invertebrates, and foraged upon by fish.



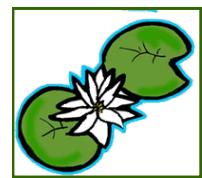
White Water Lily (*Nymphaea odorata*)



Native (*Nymphaea* sp. Common Name: white water lily, fragrant water lily.): White water lily leaf stalks emerge directly from a submerged fleshy rhizome. White water lilies have round floating leaves. Flowering occurs during the summer, and the flowers open during the day, and close during the night. Water lilies typically inhabit quiet water less than two meters deep, such as ponds, shallow lakes and slow-moving streams. The leaves offer shade and protection for fish, and the leaves, stems, and flowers are grazed upon by muskrats, beaver, and sometimes even deer.



Water meal (*Wolffia columbiana*)



Invasive: Common watermeal appears as pale green globes of vegetative matter without roots, stems or true leaves. It's one of the world's smallest flowering plants, but flowers are rarely found and require magnification to see. Watermeal usually reproduces by budding. Watermeal is typically found on the surface, intermingled with duckweeds. Its drifts with the water's current or wind, and therefore it grows independent of water depth, clarity or sediment type. In the fall it produces winter buds that sink to the bottom. In the spring, the buds become buoyant and float to the surface. Waterfowl, fish, and muskrats all include watermeal in their diets.





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*All pictures courtesy of
SOLitude Lake Management*

STOP THE SPREAD OF AQUATIC INVASIVE SPECIES!

CHECK Inspect boats and equipment for signs of aquatic hitchhikers

CLEAN Remove all plant material from boat props, live wells, boat hulls and other equipment

DRY Completely dry for at least 5 – 7 days all equipment that comes in contact with the water

WATCH LIST: INVASIVE AQUATIC PLANTS



Hydrilla (*Hydrilla verticillata*)

- Easily confused with native waterweeds
- Whorled leaves (typically 4 to 8)
- Leaf margins heavily serrated
- Produces tubers in sediment



Water Chestnut (*Trapa natans*)

- Floating rosette
- Triangular serrated leaves
- Produces large spiked fruit
- Tiny white flowers

These two invasive species have not been documented at Mountain Lakes