

**NATIVE
AQUATIC
PLANTS
OF
VERMONT**

Pontederia cordata

(PON-te-DIR-ee-a CORE-da-ta)

Pickerel Weed

Pickerel weed provides shade and shelter for small fish.



Vermont DEC Staff

Robert H. Mohlenbrock. USDA NRCS. 1995.
Northeast wetland flora: Field office guide to plant species.

Pickereel Weed

The emergent mass of stems and leaves provide wave-buffering protection for shoreline stabilization.

Although slow to spread, the root base of this plant thoroughly covers the sediments with a tough vegetative mat.

Networks of rhizomes (underground stems) and leaves offer shade and shelter for fish.

Flowering stalks are havens for many insects – some seeking nectar and others a spot to rest.

Each flower blooms for only one day and then the upper petals curl inward and a corky, ridged fruit develops.

Late in the season, fruiting stalks bend toward the water and seeds are washed away to new locations.

The seed of pickerelweed is consumed by waterfowl and muskrats.

This species is also used extensively in water gardening, due to its showy violet to blue flowers.

This plant is typically found growing in the unconsolidated sediments of marshes, streams, shallow lakes, and ponds.

Sagittaria latifolia

(saj-e-TARE-ee-a lah-ti-FOL-ee-a)

Duck Potato



Sagittaria latifolia is called duck potato because it is thought that the egg-shaped roots are consumed by ducks.



Paul L. Redfearn, Jr. *Photographs of Flowering Plants of the Ozarks and the Interior Highlands of North America*

Duck Potato

This is a multipurpose emergent plant, however the greatest value this species offers is as food and cover for aquatic animal life.

The seed and tubers of duck potato are consumed by waterfowl, songbirds, wading birds, muskrats, and beaver.

The emergent foliage also provides cover for these animals, as well as for fish and aquatic insects.

During the growing season, this plant extracts significant amounts of nutrients and metals from sediments and water.

Turbidity and wave energy is reduced by adequately stocked and healthy stands.

Typically found in marshes, swamps, forested seeps, ditches, and in the shallows of streams, lakes and ponds.

Produces starchy tubers which were a food source for native groups throughout much of North America.

Typha latifolia (TIE-fah lah-te-FOL-ee-a) **Broadleaf Cattail**



The cattail is known as “the supermarket of the swamp”. The roots can be eaten whole or ground into flour. The rhizomes (underground stems) are said to contain as much protein as rice and more carbohydrate than potato. The young shoots are eaten in salads and the pollen used in baked goods.



Mike Haddock 2004
<http://www.lib.ksu.edu/wildflower/broadcattail.html>

Broadleaf Cattail

All parts of the cattail are edible when gathered at the appropriate stage of growth.

Uses include wildlife food and shelter, wetland restoration, and wastewater tertiary treatment.

Provides nesting habitat for many marsh birds.

Shoots and rhizomes (underground stems) are consumed by muskrats and geese.

Submersed stalks provide spawning habitat and shelter for fish.

The caterpillar of the cattail moth eats seeds of the female flower spike while it produces a network of silky threads that hold the insulating fluff together for over-winter protection (Stokes 1985).

Cattails have an enormous capacity for growth. A single seed can produce a network of rhizomes and a hundred shoots in one growing season.

Used by Native Americans for making baskets, rope, boats, mats of varying sizes for sleeping, sitting, or working, bedding material, ceremonial bundles, caulking materials, torches, tender and insulation.

Found in or near water, in marshes, lakeshores, river backwaters and roadside ditches.

Brasenia schreberi

(brass-EEN-ee-a SHRE-ber-i)

Watershield



In Japan, the young leaves and stems of watershield are gathered and served as a salad with vinegar dressing.



Robert H. Mohlenbrock. USDA NRCS. 1995. *Northeast wetland flora:*

Field office guide to plant species.

William S. Justice, USDA-NRCS

Watershield

Source of food and cover for mammals and bird species.

Flowers are hermaphroditic (have both male and female organs) and are pollinated by beetles and wind .

Stems and leaf stalks are elastic, allowing the floating leaves to ride the waves without uprooting the rhizomes (underground stems).

Leaf stalks attach to the middle of the leaves, creating a bull's eye effect.

Seeds, leaves, stems and buds are eaten by a variety of waterfowl.

Floating leaves offer shade and shelter for fish and invertebrates.

All submersed parts of the plant are covered with a thick, clear, gelatinous coating.

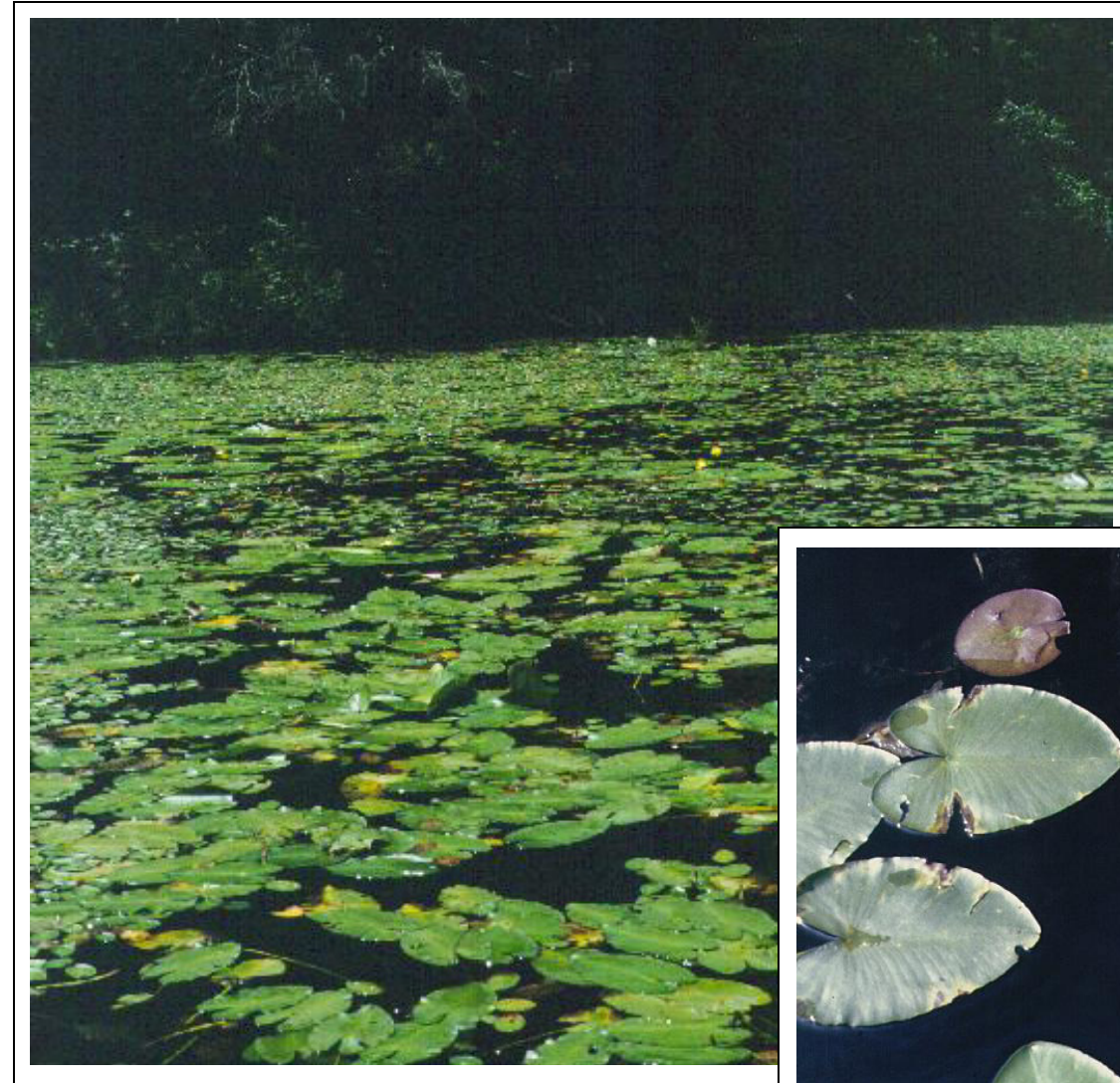
Leaves are astringent. They are crushed and applied to abscesses and boils, and are used in the treatment of tuberculosis and dysentery.

Plant has phytotoxic properties that allow it to inhibit the growth of other plants nearby and therefore allow it to become dominant. This gives it a potential for the natural control of invasive water weeds.

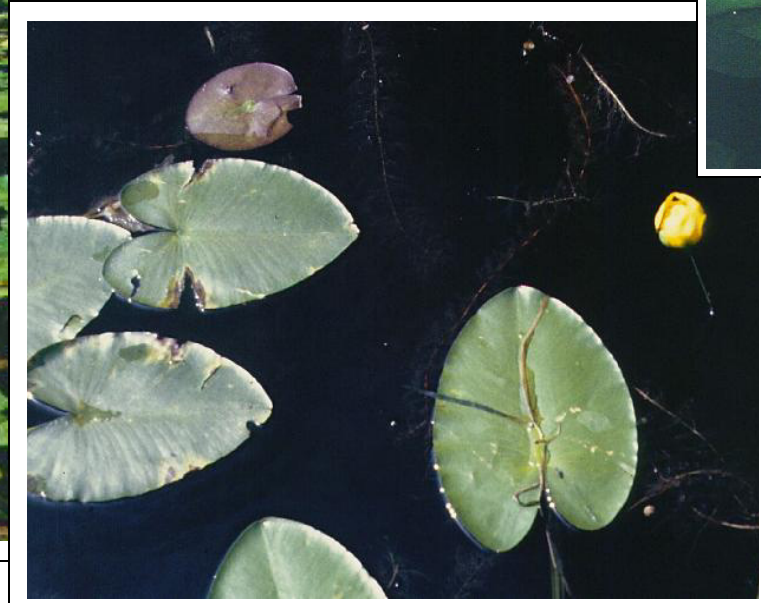
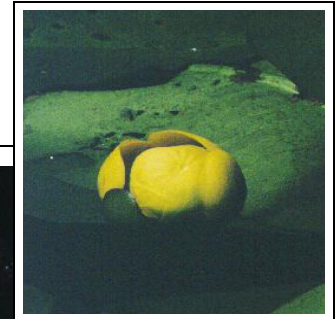
Nuphar variegata

(NU-far var-ee-a-GAT-a)

Variegated Yellow Pond Lily



Native Americans used both the roots and seeds of yellow pond lily. The roots were boiled, baked or dried for flour. The seeds were also ground for flour or popped like popcorn.



Variegated Yellow Pond Lily

Flowers are globular or saucer-shaped with five to six yellow sepals that often have a deep red patch at the base.

Usually found in ponds or slow moving streams.

Flowering is more abundant in well-lit areas.

Flowers open during the day and close at night.

Flowers smell like fermenting fruit, which attracts pollinating insects.

Sepals (floral leaves) eventually drop off and the central flower structure develops into a fleshy, round fruit.

Anchors the shallow water community and provides food for many residents.

Waterfowl, including mallard, pintail, ringneck and scaup, consume the seeds.

Deer graze on the stems, leaves and flowers.

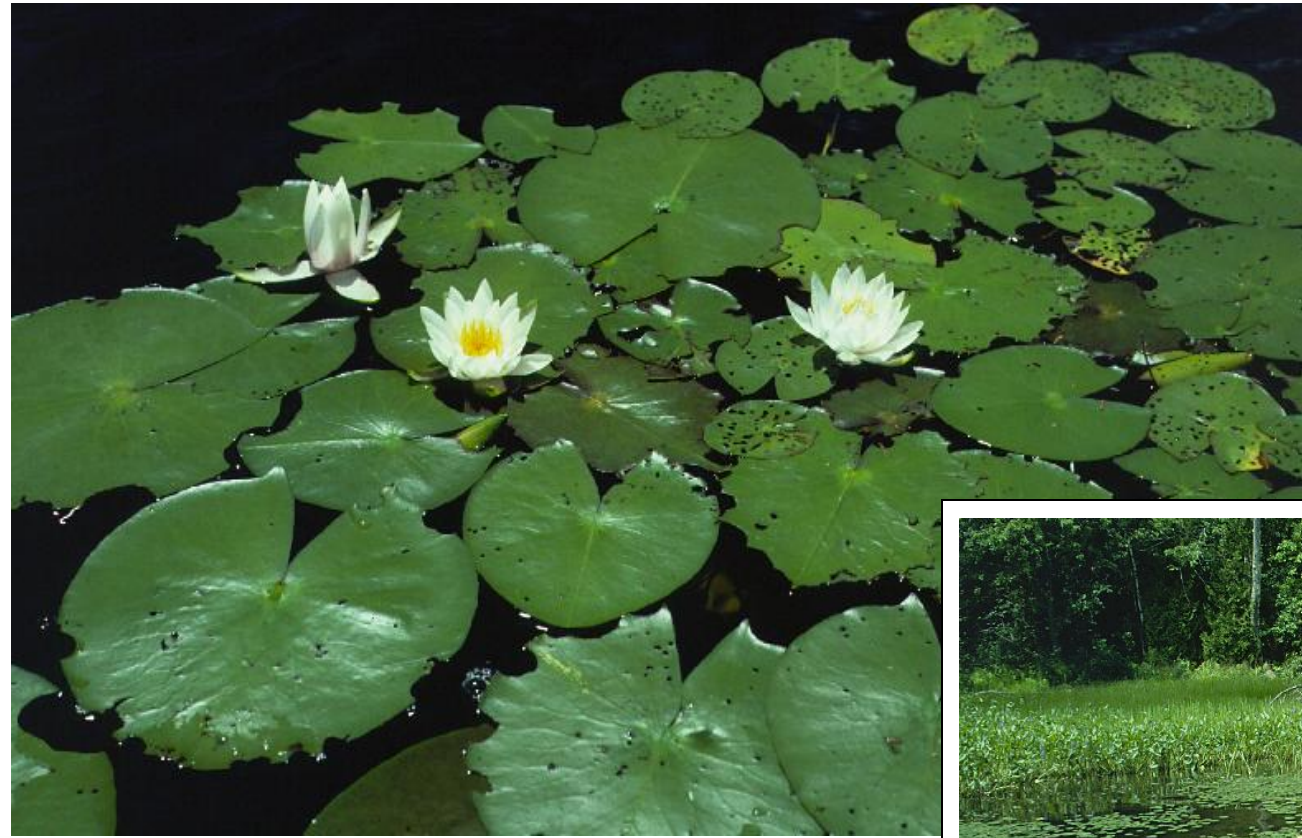
Muskrat, beaver and porcupine eat the rhizomes (underground stems).

Leaves offer shade and shelter for fish and habitat for invertebrates.

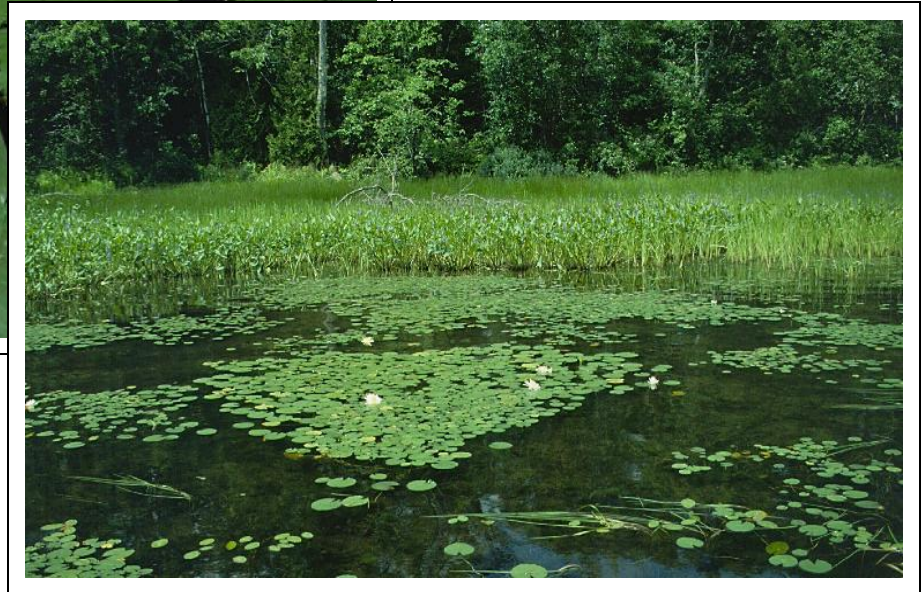
Nymphaea odorata

(nim-FAY-a O-dor-AH-ta)

White Water Lily



In medieval times, white water lily was used in love potions. The flower had to be picked during the night of a full moon. The person collecting it had to keep their ears plugged in order to avoid being bewitched by water nymphs.



White Water Lily

Found in ponds, lakes, sluggish streams and rivers, pools in marshes, ditches, and canals.

Flowers are hermaphroditic (have both male and female organs) and are pollinated by flies and beetles.

Flowers open during the morning hours and are closed by the mid-afternoon.

When flowers are done blooming, they sink below the water surface where seeds mature inside a fleshy fruit.

Stalks are flexible and round in cross section with four large air tunnels.

Rhizomes are eaten by deer, muskrat, beaver, moose and porcupine.

Leaves offer shade and shelter for fish.

A tea made from the roots is used in the treatment of tuberculosis, chronic bronchial complaints, diarrhea, dysentery, gastrointestinal inflammation, gonorrhea, inflamed glands, mouth sores and to stop bleeding.

A poultice made from the roots is used in the treatment of swellings, boils, tumors, and inflamed skin.

Flowers have a delicious scent tinted with rose and are most fragrant in the morning.

Potamogeton natans

(POT-a-mo-GEE-ton NAY-tanz)

Floating Pondweed



Roots and stems of floating pondweed are edible.



William & Wilma Follette. USDA NRCS. 1992.
Western wetland flora: Field office guide to plant species.

Floating Pondweed

Stalk looks “pinched” where it attaches to leaf, so the leaf blade is at a right angle to the stalk and lays flat on the water.

Can be used as an oxygenator of ponds.

Fish like to spawn amongst this plant.

Can tolerate a variety of sediment types and water chemistries.

Upper portions of the stem die back in the fall.

The fruit is held on its stalk until late in the growing season. It provides valuable grazing opportunities for ducks and geese, including scaup and blue-winged teal.

Portions of the plant are eaten by muskrat, beaver, deer and moose.

Provides shade and foraging opportunities for fish.

Ceratophyllum demersum

(cer-at-oh-FILL-um de-MER-sum)

Coontail

Tips of branches are crowded with leaves giving this plant a "coontail" resemblance.



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Robert H. Mohlenbrock. USDA NRCS. 1995.
Northeast wetland flora:
Field office guide to plant species.

Coontail

Grows in ponds and bogs.

Leaves are stiff and arranged in whorls. Each leaf is forked once or twice. Leaf divisions have teeth along the margins that are tipped with a small spine. Whorls of leaves are usually more closely spaced near the ends of branches, creating the raccoon tail appearance.

Plant is cooling and useful in the treatment of biliousness and scorpion stings.

Good pond oxygenator, usually grows submerged in the water but is sometimes found floating on the surface.

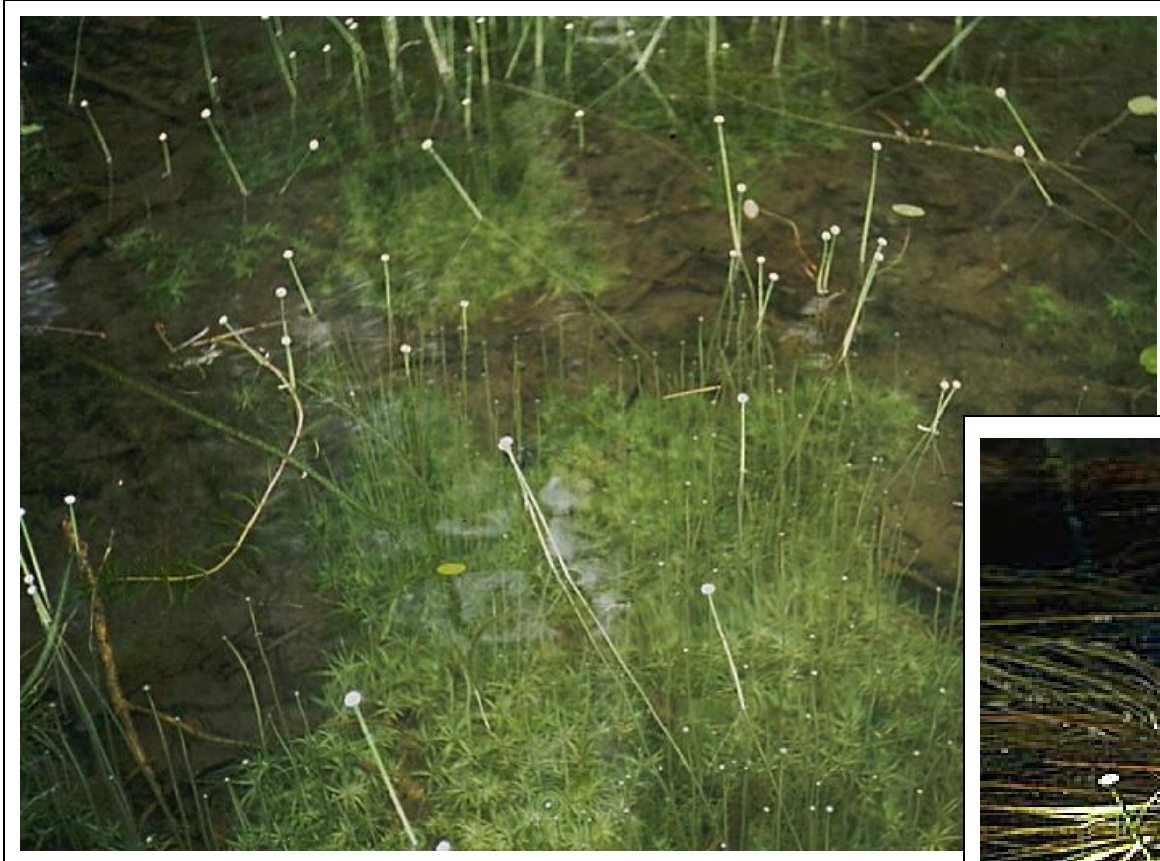
Pollination takes place under water. Anthers of male flowers break off the plant and float to the surface where they release their pollen grains. These then sink under the water to fertilize the tiny female flowers that are tucked in the leaf axils.

Provides good shelter for young fish.

Eriocaulon aquaticum

(er-ee-oh-CALL-on ah-KWA-ti-cum)

Pipewort



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While many aquatic plants rely on wind or water for cross-pollination, pipewort attracts insects to serve as pollinators.



Jim Stasz. NJ.

Pipewort

The genus name, "Eriocaulon", comes from the Greek "*erion*", for "wool", and "*kaulos*", for "plant stem"; hence "wooly stem".

"Pipewort", comes from the pipe-like shape of the flower stalk, combined with the Anglo-Saxon word for plant, which is "wort".

Usually found growing in clear, shallow waters of lakes and ponds, on a bottom of sand or peat.

Occasionally seen growing above the waterline on moist shores where a dry summer has drawn down the lake levels; also bogs and muskeg.

One of several species of aquatic plants able to take up carbon dioxide from the roots.

Beds of pipewort create shallow water structure for young fish, amphibians and invertebrates.

Leaves are sometimes grazed by ducks including black duck and American wigeon.

Megalodonta beckii

(Megalo-DON-ta BECK-ee-i)

Water Marigold



Water marigold is considered an indicator species. It is sensitive to changes in water quality, and may be one of the first submersed plants to disappear from a lake when water quality declines.

Water Marigold

Leaves are adapted to their surroundings and can take advantage of either life in the air, or life in the water. The leaves below water are finely cut into many thread-like divisions while the leaves above are lance-shaped with a toothed margin.

Submersed leaves may be confused with coontail. Coontail has leaves that are stiff and toothed along the margin, while marigold's are flexible and lack teeth.

Submersed foliage offers shade, shelter and foraging opportunities for fish.

Daisy-like flowers attract passing insects.

Waterfowl and shorebirds consume the fruit.

Myriophyllum sibiricum

(MIR-ee-o-FILL-um si-BIR-i-cum)

Shortspike Watermilfoil



Sensitive to reduced water clarity, shortspike watermilfoil declines in lakes that become eutrophic.

Shortspike Water Milfoil

Distinguished from other native milfoils by whorled leaves and flowers.

Distinguished from the invader, Eurasian watermilfoil (*Myriophyllum spicatum*), which it closely resembles, by its less finely divided leaves and larger floral bracts.

Grows in shallow to deep water of lakes, ponds, marshes, ditches and sluggish streams.

Numerous reddish spikes often conspicuous on the water surface.

Presence significantly increases the abundance of most groups of macroinvertebrates.

The value of milfoil to macroinvertebrates is likely due more to its value as habitat than as food.

Leaves and fruit are consumed by a variety of waterfowl.

Feathery foliage traps detritus and provides invertebrate habitat.

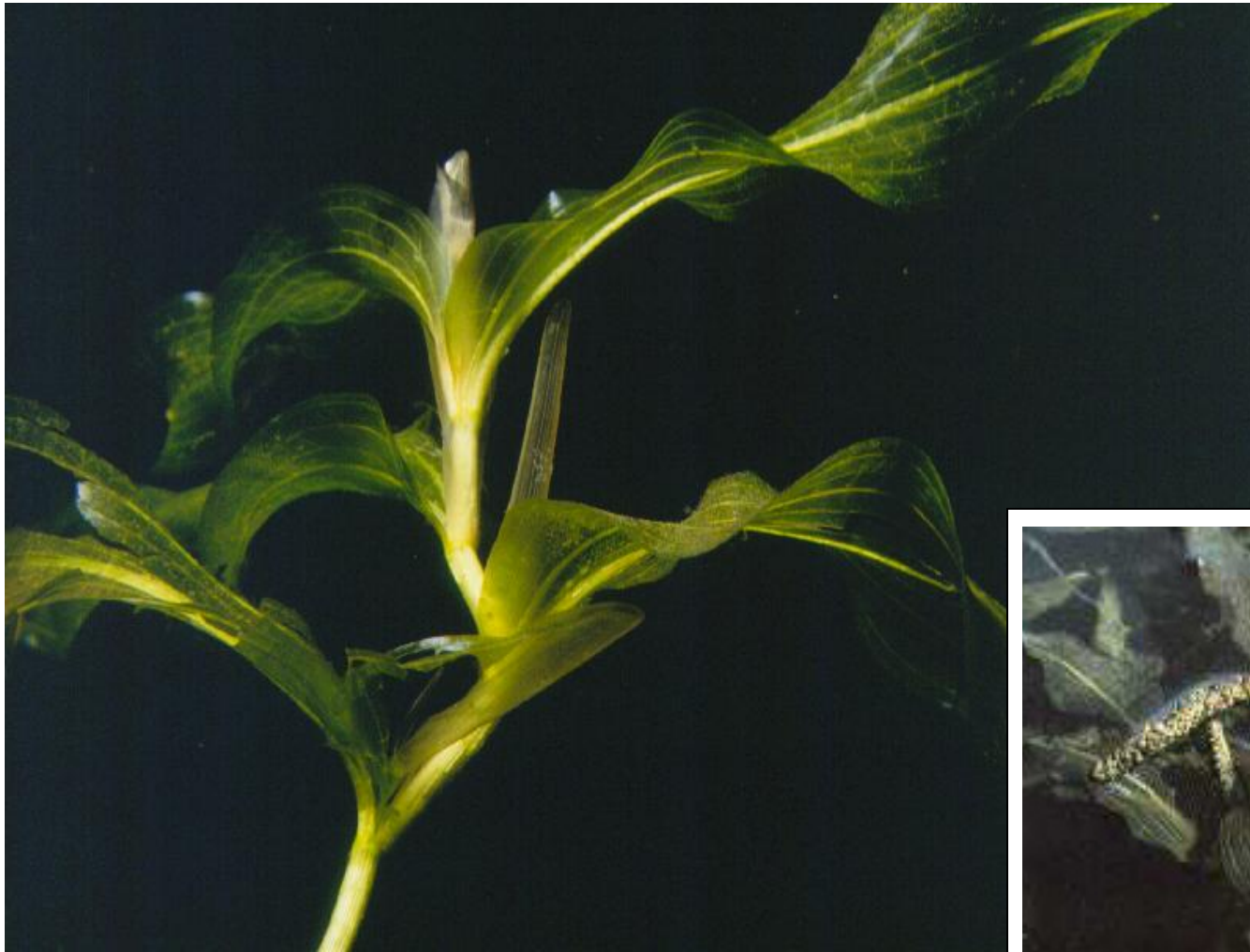
Beds of water milfoil offer shade, shelter and foraging opportunities for fish.

Potamogeton praelongus

(POT-a-mo-GEE-ton pray-LON-gus)

White-stem Pondweed

Under some conditions
white-stem pondweed
may remain evergreen
under the winter ice.



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Joe F. Duft. USDA NRCS. 1992.

Western wetland flora: Field office guide to plant species.

White-stem Pondweed

Found in deep, clear lakes, in up to 6 m of water.

Has broad, wavy-edged underwater leaves with leaf bases that wrap part way around the stem and no floating leaves.

Name derived from whitish stems.

Generally found in lakes with good water clarity.

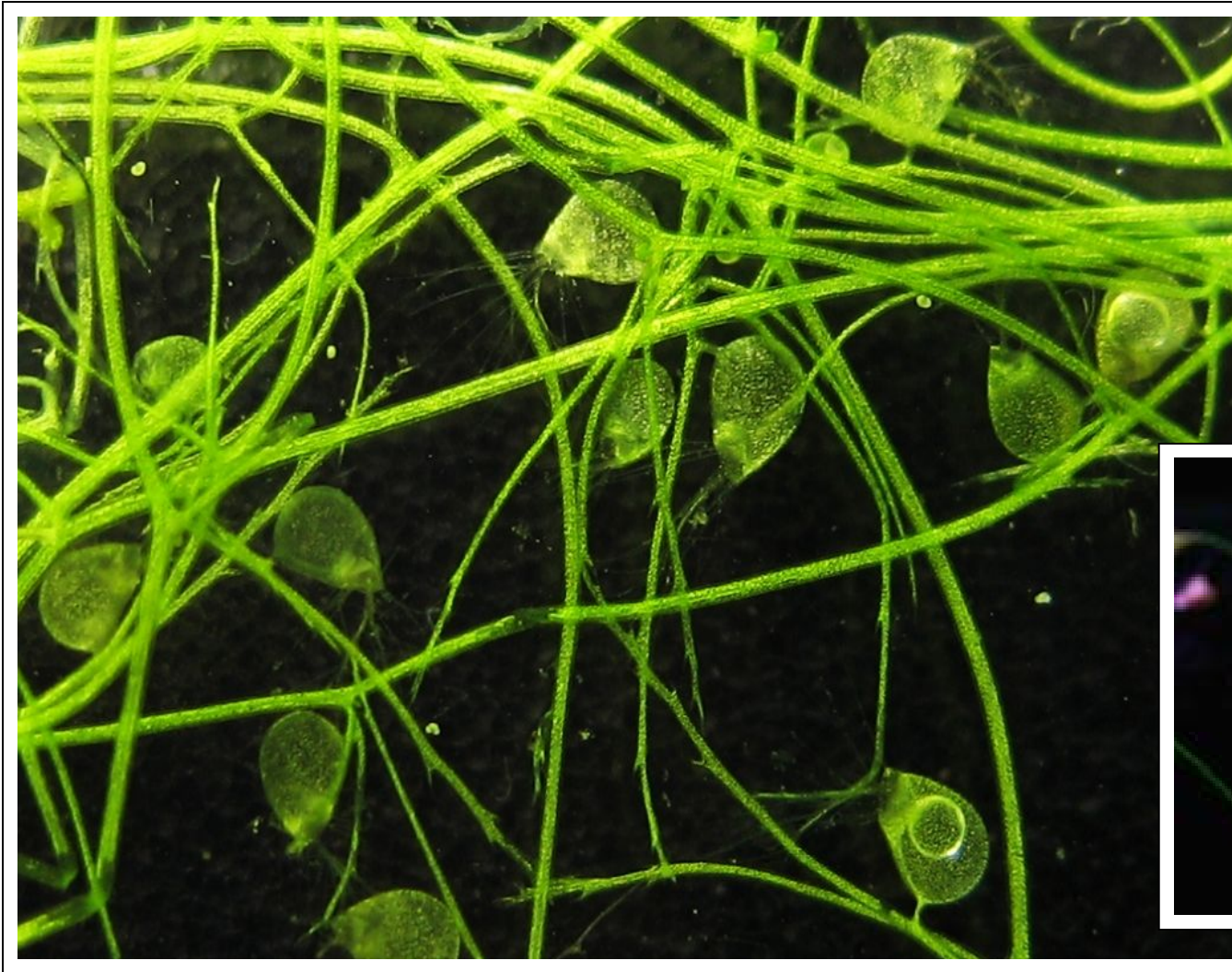
The fruit provides grazing opportunities for a variety of ducks and geese.

Portions of the plant may be consumed by muskrat, beaver, deer and moose.

Considered a good food producer for trout and valuable habitat for muskellunge.

Utricularia gibba
(u-TRICK-u-LAIR-ee-a GIB-ba)
Humped Bladderwort

Bladderworts are carnivorous plants that capture and digest aquatic insects and animals by means of small bladder like traps.



Photos from
<http://www.aquarium-kosmos.de/>

Humped Bladderwort

Bladder traps are primed with a partial vacuum, obtained by pumping water out of the bladder. This sucks in prey when they brush against trigger hairs connected to a small inward-opening trap-door. This whole process only takes ten to fifteen thousandths of a second. Enzymes are secreted to digest the prey and provide the plant with nutrients.

The name 'Utricularia' derives from the Latin word *utricularius*, which means : 'the master of a raft floated on bladders'.

The fine stems of this species are sometimes mistaken for algae.

Free-floating, and moves between depth zones.

Often found in quiet waters associated with bogs.

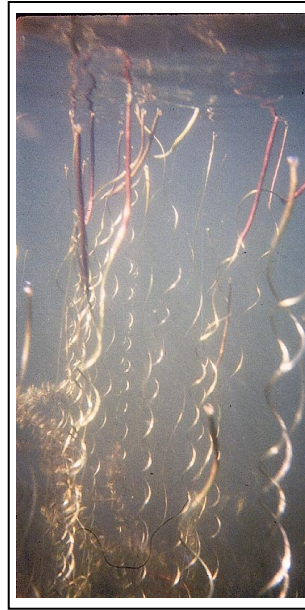
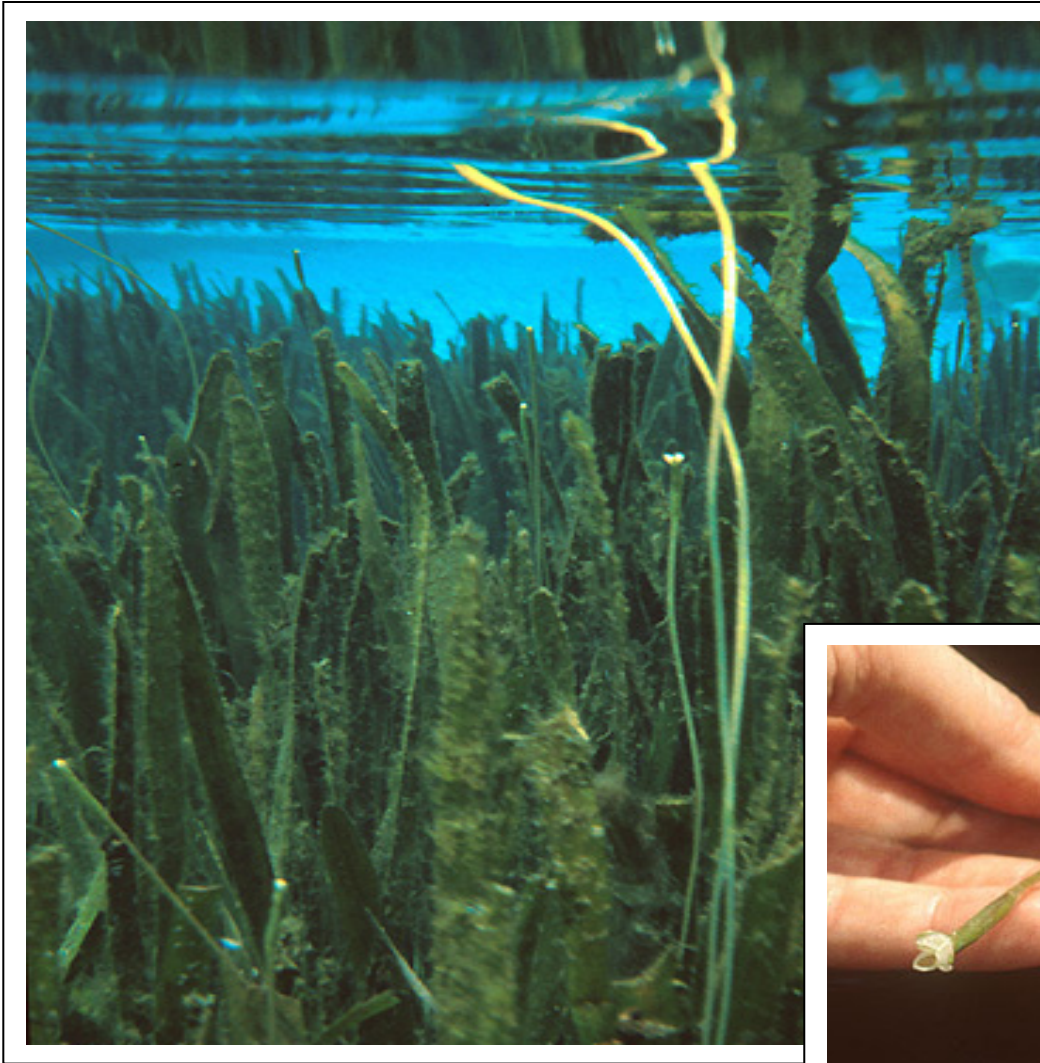
May survive the winter as stem fragments resting on the sediment.

Mats of bladderwort offer cover and foraging opportunities for fish.

Vallisneria americana

(VAL-is-NER-ee-a a-mer-e-KAN-a)

Tape Grass/Wild Celery



The common name "wild celery" is thought to come from the fact that ducks that eat a lot of *Vallisneria* have meat with a celery-like flavor.



Photos by Vic Ramey, University of Florida/IFAS

Wild Celery

Ribbon-like leaves that emerge in clusters along a creeping rhizome have a prominent central stripe and a cellophane-like consistency.

A valuable water oxygenator, the leaves can be up to 1 meter long.

Tiny male flowers are produced under water at the plant base and released to float on the water surface. Each flower is in a closed “floral envelope” that contains an air bubble. Once it has floated to the surface, the envelope opens and creates a sail that allows it to skim along the water.

Female flowers develop underwater, but are then raised to the surface by a fast-growing spiral-coiled stalk. After fertilization, the female flower is retracted beneath the surface and a long, capsular fruit develops.

Fertilization takes place when male flowers break off the plant, float to the surface and fall into a slight depression formed by the female flowers on the surface of the water.

The plant is tolerant of poor water clarity and will survive in a broad range of water chemistries.

Waterfowl consume all portions of the plant, including foliage, rhizomes, tubers and fruit.

Beds of wild celery are considered good fish habitat providing shade, shelter and feeding opportunities.

Potamogeton amplifolius

(POT-a-mo-GEE-ton AM-pli-FOL-ee-us)

Large-Leaf Pondweed



Fish biologists say that large-leaf pondweed is an extremely important plant for providing fish habitat!



Large-Leaf Pondweed

Submersed leaves are the broadest of any pondweed in the region.

**Leaves are arched and slightly folded,
as though they had been bent along the midvein.**

Blade is lined with many veins.

Floating leaves are oval on long stalks.

Stands of large-leaf pondweed are considered ecologically valuable habitat.

Efforts have been made to propagate it as part of littoral zone restoration projects.

Most often found in soft sediments in water one-to-several meters deep.

Sensitive to decreased water clarity and suffers when top-cut by motor boats.

Sometimes survives the winter as an evergreen.

Broad leaves offer shade and foraging opportunities for fish.

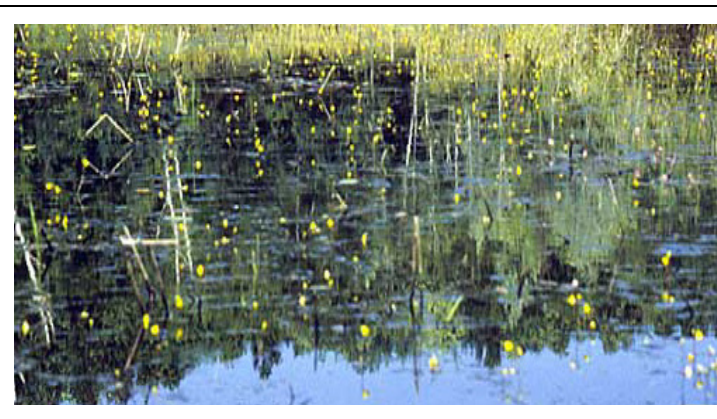
Produces abundant nutlets, which are consumed by waterfowl.

Utricularia vulgaris

(u-TRICK-u-LAIR-ee-a vul-GAR-es)

Common Bladderwort

Bladderworts are carnivorous plants that capture aquatic insects and animals by means of small bladder like traps.



Common Bladderwort

Young bladders are transparent and tinted green, but they become dark brown to black as they age.

Branches have fine spines (spicules) scattered along their margins.

Yellow, two-lipped flowers are produced on stalks that protrude above the water surface.

There may be 4-20 flowers per stalk.

Found in lakes, ponds, bog pools and standing water of roadside ditches.

A free-floating plant, common bladderwort can be found in water ranging from a few inches to several meters deep.

Most successful in still water where traps can function properly and stems are not torn by wave action.

Overwinters primarily by stem fragments and winter buds. As plants sink to the sediment and decay during the winter, buds become detached. In the spring, these buds develop air spaces and float to the surface where new growth begins.

Trailing stems provide food and cover for fish.

Potamogeton robbinsii

(POT-a-mo-GEE-ton row-BINS-ee-i)

Fern Pondweed



Offers good cover and foraging opportunities for fish, particularly northern pike.

Fern Pondweed

Leaves are two-ranked, creating a feather or fern-like appearance that is most evident when the plant is still in the water.

Each leaf is firm and linear, with a base that wraps around the stem.

Leaves are closely spaced with finely serrated margins.

No floating leaves are produced.

Thrives in deeper water than most other pondweeds in the region.

Sprouts in the spring from rhizomes and winter buds.

Flowering occurs by midsummer.

Fruit is rarely produced.

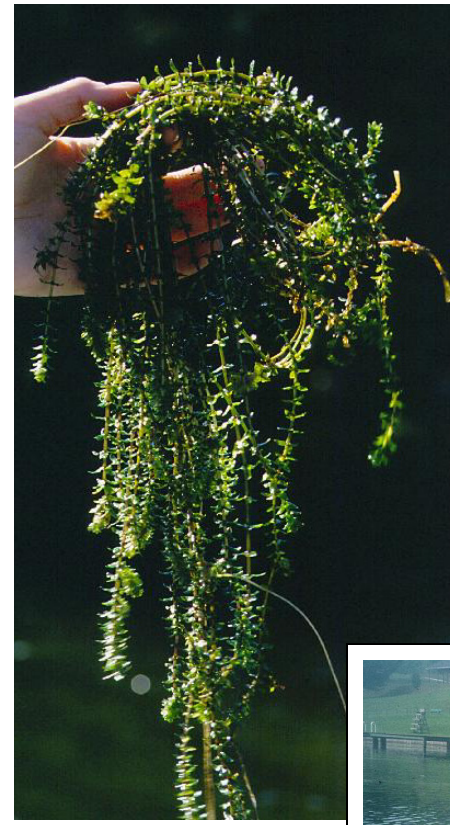
Under some conditions, portions of the plant may overwinter green.

Provides habitat for invertebrates that are grazed by waterfowl.

Elodea canadensis

(el-oh-DEE-a can-a-DEN-sis)

Common Waterweed



Elodea canadensis is an important food for ducks and other water birds.



Vermont DEC Staff
Photos

Common Waterweed

Small, lance-shaped leaves attach directly to the stem. Leaves are in whorls of three, or occasionally only two, and are more crowded toward the stem tips.

Branching stems often form a tangled mat.

Male and female flowers are on separate plants. Female flowers have three small white petals with a waxy surface that improves flotation. They are raised to the surface on a long, slender stalk.

Male flowers have a vase-like structure. At maturity, they are raised to the surface on thread-like stalks.

Male plants are quite rare. Since seeds are rarely produced, the plant spreads primarily by stem fragments.

Found in water depths ranging from ankle deep to several meters deep.

Often overwinters as an evergreen plant. Photosynthesis continues at a reduced rate under ice.

Branching stems offer valuable shelter and grazing opportunities for fish, although very dense stands can obstruct fish movement.

Provides food for muskrats and waterfowl. They either eat the plant itself, or a wide variety of invertebrates that use the plant as habitat.

Relatively tolerant of low light conditions.

Resources

The information contained in this guide was obtained from a variety of sources.

We relied especially on the following:

***Northeast wetland flora: Field office guide to plant species,*
USDA Natural Resource Conservation Service
<http://www.npwrc.usgs.gov/resource/plants/florane/>**

***Through the Looking Glass: A Field Guide to Aquatic Plants,*
Susan Borman, Robert Korth, Jo Temte
Published by the Wisconsin Lakes Partnership, 1997**

**Western wetland flora: Field office guide to plant species,
USDA Natural Resource Conservation Service
<http://www.npwrc.usgs.gov/resource/plants/florawe/>**

***Photographs of Flowering Plants of the Ozarks and the
Interior Highlands of North America,*
Paul L. Redfearn, Jr.
<http://biology.missouristate.edu/Herbarium/>**