A Field Guide to

Common Aquatic and Riparian Plants of New Hampshire

New Hampshire Department of Environmental Services
Volunteer River Assessment Program

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A Field Guide to Common Aquatic and Riparian Plants of New Hampshire

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References

- Borman, Susan; Korth, Robert; Temte, Jo. *Through the Looking Glass: A Field Guide to Aquatic Plants,* Wisconsin Lake Partnership, 1999.
- Magee, Dennis W. *Freshwater Wetlands: A Guide to Common Indicator Plants of the Northeast,* University of Massachusetts Press, 1981.
- New Hampshire Department of Agriculture, Markets & Food and New Hampshire Invasive Species Committee. *Guide to Invasive Upland Plant Species in New Hampshire,* NH Department of Agriculture, Markets, & Food 2005.
- Niering, William A. *National Audubon Society Nature Guides: Wetlands*, Chanticleer Press, Inc., 1997
- New England Wildflower Society. *Field Manual of Invasive Plants of the Northeast,* 2004.
- Northeastern Wetland Flora: *Field Office Guide to Plant Species*, USDA – NRCS/Northeastern National Technical Center, Chester, Pennsylvania
- Peterson, Lee Allen. *A Field Guide to Edible Wild Plants of Eastern and Central North America,* Houghton Mifflin Company, 1977.
- Redington, Charles B. *Plants in Wetlands: Field Guide to Biological Interactions*, Kendall/Hunt Publishing Company, 1994.
- Smagula, Amy; Connor, Jody. *Aquatic Plants & Algae of New Hampshire's Lakes and Ponds,* New Hampshire Department of Environmental Services, 2007.
- Tiner, R.W., Jr. *Field Guide to Nontidal Wetland Identification*, Maryland Department of Natural Resources, Annapolis, MD and U.S. Fish and Wildlife Service, Newton Corner, MA. 1988.
- Uva, Richard; Neal, Joseph C.; DiTomaso, Joseph M. *Weeds of the Northeast,* Cornell University, 1997.

Introduction

Riparian Area: *An area of land and vegetation adjacent to a stream that has a direct effect on the stream. This includes woodlands, vegetation, and floodplains.*

Purpose of This Guide

This field guide provides brief, simple, and easy identification of common aquatic and riparian plants, shrubs, and trees of New Hampshire. Although information in this guide is drawn from several sources, it is not intended to be a comprehensive listing of all the aquatic and riparian plant species in New Hampshire. Hopefully, it will provide the casual observer with aid in identification of the most frequently encountered species and references to assist in further, more detailed studies for those wishing to know more about riparian ecosystems. Use of additional field guides to supplement this one and to identify plants not included in this guide is suggested. Other helpful field guides can be found in Appendix A.

How to Identify Plants

There are several ways to identify plants. In field guides, they are typically identified by photos, drawings, and descriptions. In the field, they can also be identified by touch, taste, smell, color, and form. Their branching habit, leaf form, and vein pattern can also aid in identification. Plants can also exhibit different characteristics during different times of the year. In addition, it is useful to know their habitat, or place where they grow.

Organization of This Guide

This field guide is organized into six sections:

- **In the Water: Submerged Aquatic Plants:** Plants that have most of their leaves growing under water; some floating leaves may also be present. They are found from shallow to deep zones.
- **On the Water: Floating Plants:** Plants that are rooted with floating broad leaves.
- **On the Edge: Emergent Herbaceous Plants:** Plants that have leaves that extend above the water's surface and are usually found in shallow water.
- **Ferns:** Non-flowering plants that bear spores rather than seeds with flattened leaf-like "fronds" that are further divided.
- **Woody Shrubs:** Woody plants which are generally shorter than trees and smaller in trunk size. They have clusters of stems rising directly from the ground and generally have a "bushy" appearance with no special crown shape.
- **Climbing Vines:** Plants with a weak stem that derive support from climbing, twining, or creeping along a surface.
- **The Canopy (Trees):** Woody plants that usually grow from the ground with a single erect stem or trunk. The main stem may be massive and is often unbranched for several feet above the ground. Trees can reach a considerable height at maturity.

A plant species will often have several common names. This field guide is organized alphabetically by the preferred or most-used common name, with the Latin/scientific name below.

Plant species descriptions include the following:

- **Status:** Whether the plant is native or non-native/exotic/invasive. Those plants that are non-native/exotic/invasive which are also prohibited in New Hampshire are identified as such.
- **Habitat:** Describes the best conditions for growth of this plant and where to locate it.
- **Height:** Describes how tall or long the plant grows.
- **Bark:** In the Woody Shrub and Tree sections, describes the unique features of the bark.
- **Buds:** In the Woody Shrub and Tree sections, describes the unique features of the buds.
- **Stem:** In the Woody Shrub section, describes the unique features of the stem.
- **Leaves:** Describes the unique features of the leaves.
- **Flowers:** Describes the unique features of the flowers.
- **Flowering Period:** Describes the time of year in which the flowers bloom.
- **Fruit:** Describes the unique features of the fruit.
- **Twigs:** In the Woody Shrub and Tree sections, describes the unique features of the twigs.
- **Value:** Explains the worth of the plant to the other members of the ecosystem.
- **Similar Species:** Describes the unique features to help distinguish this plant from others. Additional information about some of the related plants is also provided.

In addition, appendices to this field guide include:

- Appendix A: Other Helpful Field Guides
- Appendix B: Glossary of Terms
- Appendix C: Leaf Shapes and Arrangements
- Appendix D: Native Shoreland/Riparian Buffer Plantings for New Hampshire

For More Information on Exotic Species

Additional information on exotic aquatic plants can be obtained by contacting:

New Hampshire Department of Environmental Services
Exotic Species Program
29 Hazen Drive, PO Box 95
Concord, NH 03302
(603) 271-2248
http://www.des.nh.gov/WMB/ExoticSpecies/

While additional information on exotic terrestrial plants can be obtained by contacting:

New Hampshire Department of Agriculture, Markets & Food
Invasive Species Program
25 Capitol Street, Second Floor
Concord, NH 03302
(603) 271-2561
http://nh.gov/agric/divisions/plant_industry/plants_insects.htm

Enjoy a Riparian River-Walk!

I hope this field guide will inspire you to increase your interest and knowledge of aquatic plants and their relationship in riparian environments. Rivers and streams are fragile ecosystems of natural beauty and intrigue. I encourage you to enjoy a riparian "river-walk" during each season and not only study the vegetative communities but their interaction with both terrestrial and aquatic insects, fish, and other wildlife.

Jen Drociak

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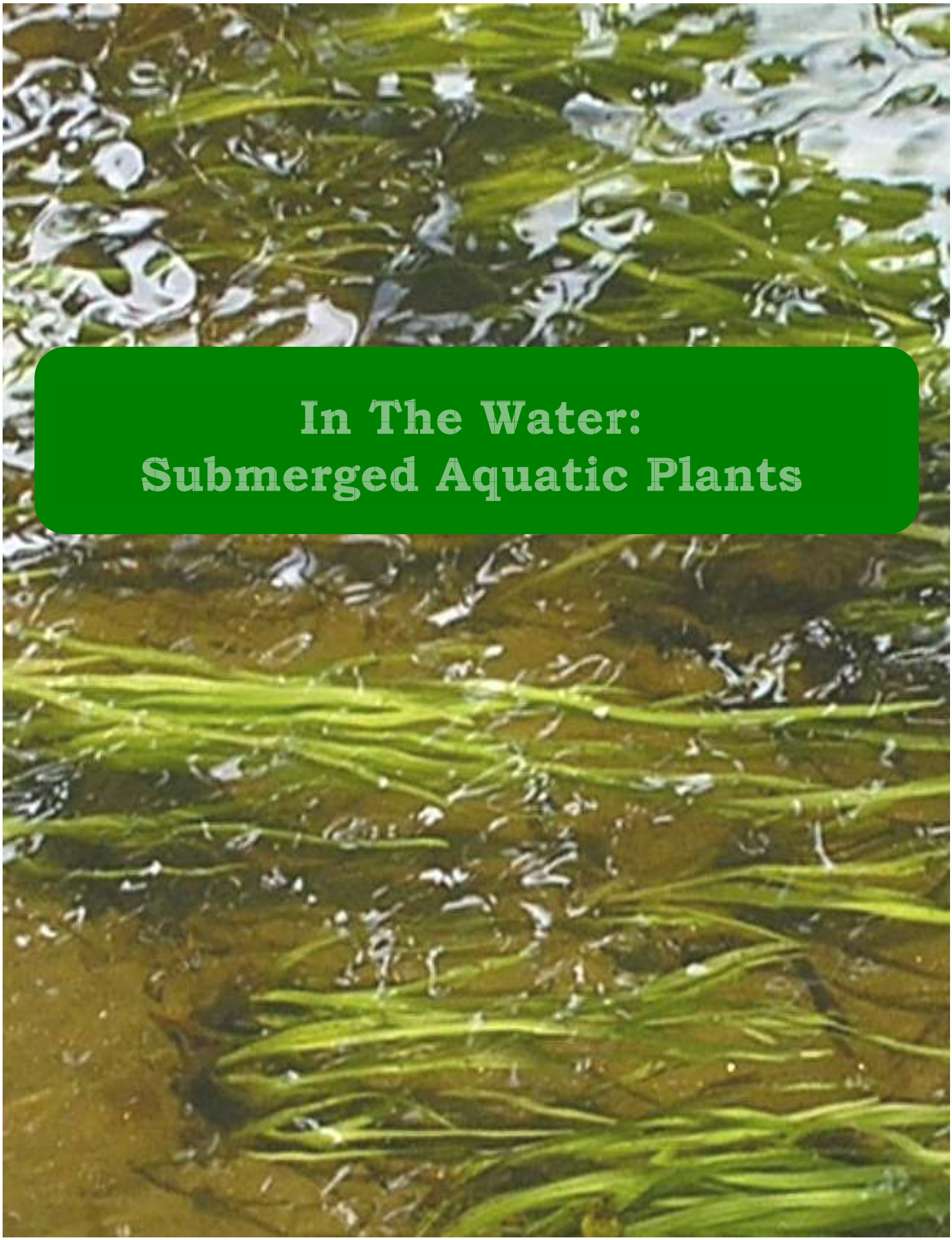


In The Water: Submerged Aquatic Plants

BLADDERWORT
Utricularia spp.

- **Status:** Native. Approximately 10 species in New Hampshire.
- **Habitat:** Lakes, ponds, slow-moving streams and rivers, bogs.
- **Height:** 2-3 feet long.
- **Stem:** Long, slender, flexible, branched, typically becoming detached from roots and free-floating.
- **Leaves:** Alternate, filamentous, finely-forked, with attached "bladders."
- **Flower:** Stalks occurring at irregular intervals along stem. Each stalk bearing 6-20 small, pink to yellow, two-lipped "snapdragon-like" flowers and emerging several inches out of the water or mud.
- **Flowering Period:** June into September.
- **Fruit:** Capsule containing many seeds.
- **Value:** Provides food and cover for fish. Since they are free-floating, they can grow in areas with very loose sediment providing needed fish habitat in areas that are not readily colonized by rooted plants.

Similar Species: Fanwort (*Cabomba caroliniana*); buttercup (*Ranunculus spp.*); coontail (*Ceratophyllum spp.*), milfoil (*Myriophyllum spp.*). Bladderwort may be distinguished from these plants by the alternate, forked leaves branching from the base into 2 main divisions and presence of the "bladders" on the leaves. (Smagula and Connor, 2007)

Bladderwort may resemble the milfoils, but there are two distinguishing features. One is the bladders on the leaves, the other is that milfoils have feather-like leaves that have one central leaf stem with nearly opposite unbranched leaflets. The leaflets of bladderwort are more branched and forked. (Smagula and Connor, 2007)

This carnivorous plant has trigger hairs on each bladder that open a trap-door and suck in water along with the organism that triggered the reaction. These organisms can range from insect larvae to tiny zooplankton. Once inside the bladders, the organism is digested by enzymes found there. Special cells then take the digested material from the bladders and move it to the stem. (Smagula and Connor, 2007)

COONTAIL/HORNWORT
Ceratophyllum demersum

- **Status:** Native
- **Habitat:** Lakes, ponds, slow-moving streams and rivers.
- **Height:** Variable according to water depth.
- **Stem:** Long, toothed, trailing, much branched.
- **Leaves:** Whorled, smooth, up to 1 ½ inches long, 3 forks, nearly thread-like, flattened and toothed segments.
- **Flower:** Tiny, purplish-green, found where the leaf attaches to the stem and stays entirely submerged. Male and female occurring separately.
- **Flowering Period:** July through September.
- **Fruit:** Dark brown seed, approximately ¼ inch long, with two spines at the base and one at the tip.
- **Value:** The stiff whorls of leaves offer habitat for many species, especially during the winter when many other plants are reduced to roots and rhizomes. Both foliage and fruit are grazed by waterfowl. Bushy stems are home to many invertebrates and provide important shelter and foraging opportunities for fish.
- **Similar Species:** Mermaid-weed (*Proserpinaca palustris*); fanwort (*Cabomba caroliniana*); buttercup (*Ranunculus spp.*). Coontail may be distinguished from these plants by its whorled, toothed leaves, its tiny sessile axillary flowers and beaked fruits. (Smagula and Connor, 2007)

  The whorled leaves often cause the plant to be confused with water milfoil. This plant has a plastic-like feel and leaves tend to be thickly clustered at the tips of the stems. The leaves are completely whorled around the stem and forked; milfoil leaves are distinctly feather-like. (Smagula and Connor, 2007)

VARIABLE WATER MILFOIL
Myriophyllum heterophyllum

- **Status: Non-Native/Exotic, Invasive. This species is prohibited in New Hampshire.**
- **Habitat:** Lakes, ponds, slow-moving streams and rivers.
- **Height:** Slender, flexible, long (up to 15 feet). Tip often emerging above water when flowering. Data from a University of New Hampshire study can suggest that variable water milfoil can grow an inch per day.
- **Stem:** Round, thick, reddish. If broken in half the stem resembles a "wheel spoke".
- **Leaves:** Mostly submerged, opposite or in whorls of 4 to 6 and can grow up to 2 inches long. Leaves on upper stem are whorled, and may be whorled or alternate on lower stem. Emerged leaves occurring only toward the stem tips.
- **Flower:** Small, inconspicuous, brownish, occurring singly in the axils of the upper leaves, usually above water during flowering.
- **Flowering Period:** In July, flowers emerge from the water and are in a spike up to 6 inches tall. Can also form a succulent amphibious form when water levels recede.
- **Fruit:** Very small, four-lobed, nutlike.
- **Similar Species:** Mermaid-weed (*Proserpinaca palustris*), fanwort (*Cabomba caroliniana*), buttercup (*Ranunculus spp.*), coontail (*Ceratophyllum spp.*). Variable milfoil may be distinguished from these plants by the numerous, scattered, finely pinnately dissected leaves and floating or upright stem. (Smagula and Connor, 2007)

  The plant is more robust than the other water milfoil species. It has a very thick and heavy stem. It can only be positively identified with the flower present or by DNA analysis. (Smagula and Connor, 2007)

  Fragments of variable milfoil are made by passing boats, wave action, and auto-fragmentation. These fragments may float freely and spread for one or two weeks as they generate roots. Once roots make contact with sediment, the fragment attaches; the roots spread laterally and expand the footprint of the colony. With one fragment an entire colony can arise. Colonies can outcompete native plants, reducing biodiversity. (Smagula and Connor, 2007)

WATERWEED/DITCHMOSS
Elodea Canadensis, E. nuttallii

- **Status:** Native
- **Habitat:** Lakes, ponds, slow-moving streams and rivers.
- **Height:** Up to 2 feet long; occasionally forming dense colonies.
- **Stem:** Slender, smooth, branched.
- **Leaves:** Long, upper and middle leaves in whorls of 3 with very finely-toothed margins. Those of the male plants linear or lanceolate, pointed at the tip, up to ½ inch long. Those of the female plants broadly lanceolate, rounded or slightly pointed at the tip, up to 5/8 inch long.
- **Flower:** Green or white with 3 petals.
- **Flowering Period:** July to September.
- **Fruit:** A few to many-seeded cylindrical capsule.
- **Value:** Branching stems offer valuable habitat and grazing opportunities for fish. Also provides food for muskrats and waterfowl. They can eat the plant itself or feed on a wide variety of invertebrates that use the plant as habitat.
- **Similar Species:** Commonly mistaken for its invasive relative, Brazillian elodea. It can be distinguished by its smooth leaf margins.

  There are two common species of waterweed in New Hampshire, *E.canadensis* and *E.nuttalii*. *Elodea canadensis* tends to have slightly broader leaves with blunt tips, whereas E.nuttalii tends to have thinner, more needle-like leaves that are pointed at the tips. (Smagula and Connor, 2007)

  E.nuttalii can be found in alkaline to acidic environments, and *E.canadensis* can be found in alkaline or neutral systems. (Smagula and Connor, 2007)

WILD CELERY/TAPE GRASS
Vallisneria americana

- **Status:** Native
- **Habitat:** Lakes, ponds, slow-moving streams and rivers. In water 4 - 6 feet deep.
- **Height:** 1-3 feet long.
- **Stem:** Slender, embedded horizontally in the mud near the surface and usually rooting at intervals.
- **Leaves:** Narrow, ribbon-like, 1-3 feet in length, with a light-colored center stripe, mostly submerged with the tips floating.
- **Flower:** Unisexual; the female flower solitary and floating at the surface at the end of a long stalk. The male flower on another plant, submerged and attached to a short stalk near the bottom, breaking off and floating to the surface at flowering time.
- **Flowering Period:** July to October.
- **Fruit:** Cylindrical pod up to 2 inches long, attached to a long stalk which coils up, drawing the fruit under water to mature.
- **Value:** Source of food for waterfowl. All portions of the plant are consumed; foliage, rhizomes, tubers, and fruit. Muskrat are also known to graze on it. Beds provide shade, shelter, and food for fish.
- **Similar Species:** Often confused with the submerged leaves of bur-reed. Tape grass can be distinguished by its heavy air-filled leaves, vertically veined centers, and lightly veined edges. Unlike bur-reed, this plant has no rib on the back of the leaf.

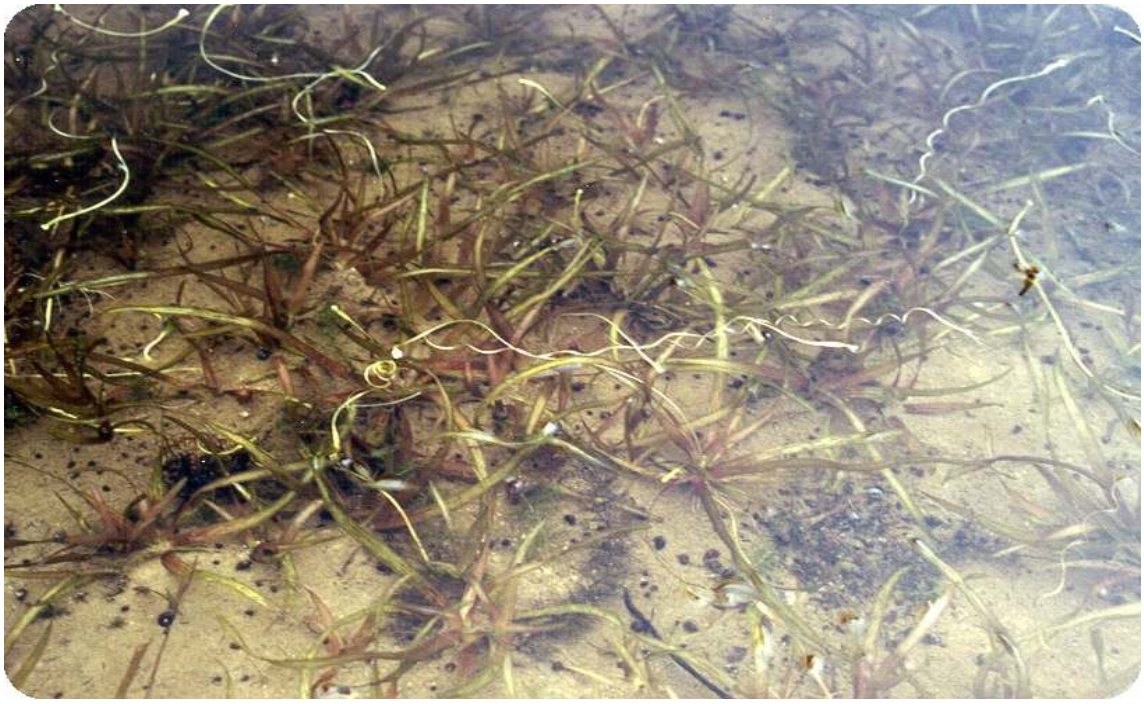
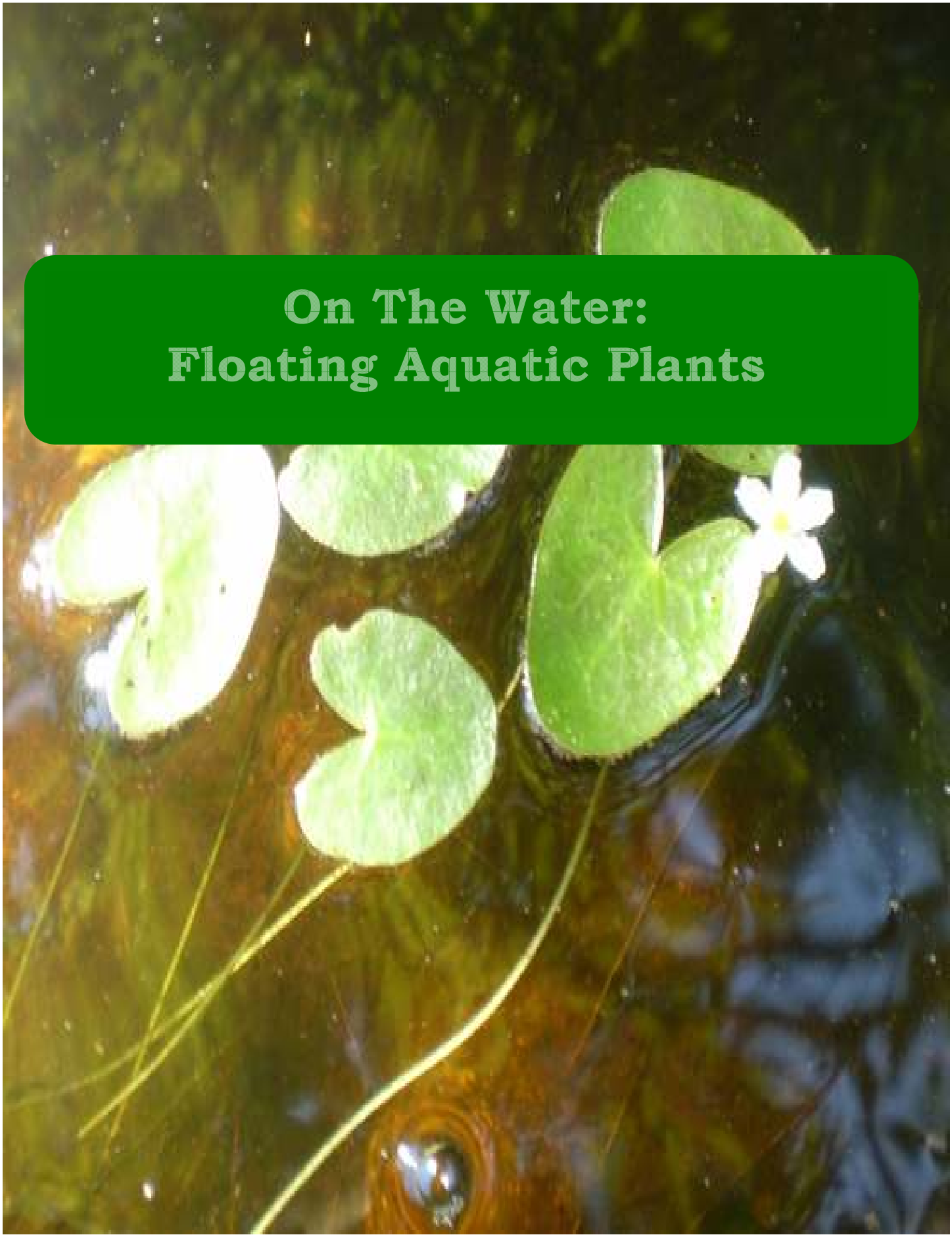


Photo courtesy of Amy Smagula



On The Water: Floating Aquatic Plants

FLOATING HEART
Nyphoides cordata

- **Status:** Native
- **Habitat:** Lakes, ponds, slow-moving streams and rivers.
- **Stem:** Round in cross section.
- **Leaves:** Small, heart-shaped, reddish to purple. Approximately 1 – 1 ½ inches wide.
- **Flower:** Small, white, 5 petals.
- **Flowering Period:** Mid-summer.
- **Similar Species:** The leaves are often confused with those of the yellow water lily but are only about the size of a half-dollar, and the shape resembles a heart, with the same soft V-shape of the yellow water lily. Floating heart has a small white flower that can be found in mid-summer; yellow water lily has a large yellow flower that blooms most of the summer. (Smagula and Connor, 2007)

WATERSHIELD
Brasenia schreberi

- **Status:** Native
- **Habitat:** Lakes, ponds, slow-moving streams and rivers.
- **Stem:** Round in cross section. Attached to the center of the underside of the leaf.
- **Leaves:** Oval. Undersides are dark pink. Leaves approximately 4 inches wide. Underside of the leaves and stem have a jelly-like coating that protects them from being eaten by insects.
- **Flower:** Small, dark pink to purple, 6 petals.
- **Flowering Period:** July.
- **Similar Species:** Resembles the leaves of the water lily as well as those of floating heart.

WHITE WATER LILY
Nymphea ordorata

- **Status:** Native
- **Habitat:** Lakes, ponds, slow-moving streams and rivers.
- **Stem:** Round in cross section, attached to the center of the underside of the leaf.
- **Leaves:** Round with a V-shaped notch on one side. Up to 12 inches wide.
- **Flower:** Large, white, sweet-smelling. Up to 4 inches wide.
- **Flowering Period:** June - September
- **Similar Species:** White water lily can be distinguished from the yellow water lily and floating heart by the V-shaped notch near the stem attachment and the more rounded shape of the leaf.

  Both the yellow water lily and floating heart have a more rounded heart-shaped notch. Yellow water lily leaves are much more oval than the white water lily, which has a circular leaf. Floating heart leaves are no more than a few inches in length. (Smagula and Connor, 2007)

YELLOW WATER LILY
Nuphar variegata

- **Status:** Native
- **Habitat:** Lakes, ponds, slow-moving streams and rivers.
- **Stem:** Triangular in cross section, attached to the lobed end of the underside of the leaf.
- **Leaves:** Giant, floating. Up to 12 to 15 inches wide.
- **Flower:** Yellow flower petals appear cupped around the inner flower parts and do not open completely like those of the white water lily.
- **Flowering Period:** June – September
- **Similar Species:** Often confused with floating heart and white water lily though floating heart is much smaller in leaf length and width. The white water lily also has a much more rounded leaf with a sharp V-shaped notch. (Smagula and Connor, 2007)

DUCKWEED
Lemna spp.

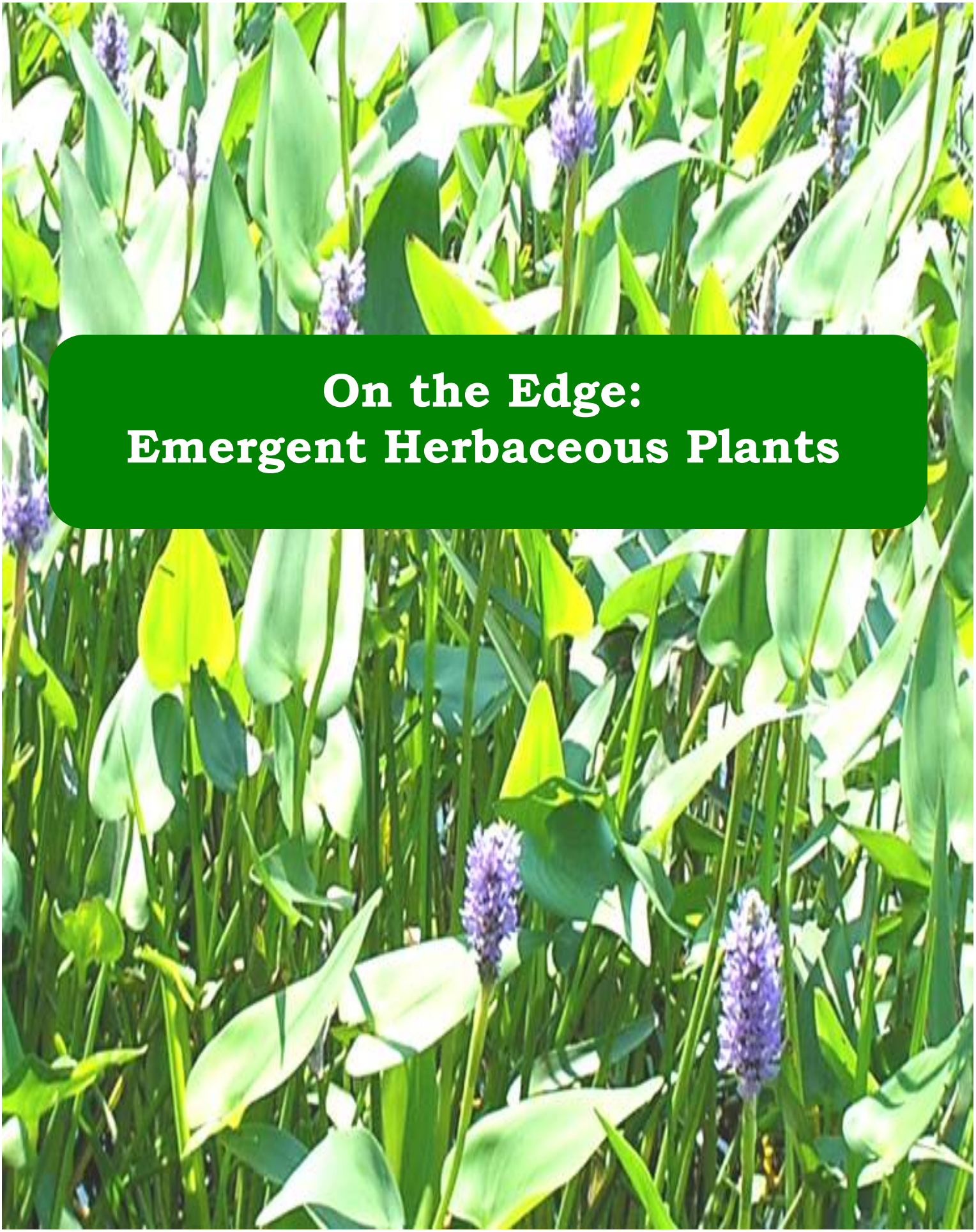
- **Status:** Native
- **Habitat:** Surfaces of some lakes, ponds, slow-moving streams and rivers and often in stagnant waters of wetland areas.
- **Stem:** No true stems.
- **Leaves:** This plant has no true leaves or stems and only has a flat, green plant body called a thallus. They are very small, only about 1/16 of an inch wide. (Smagula and Connor, 2007)

  Duckweeds blanket the water surface in colonies. There may be one or more roots hanging into the water, but the plant is free-floating.
- **Flower:** This plant rarely flowers.
- **Similar Species:** Many people think that dense growths of duckweed resemble an algae bloom. (Smagula and Connor, 2007)

WATERMEAL
Wolfifa spp.

- **Status:** Native
- **Habitat:** Lakes, ponds, slow-moving streams and rivers.
- **Stem:** No true stems.
- **Leaves:** Elliptical and flat.
- **Flower:** This plant rarely flowers but is considered the world's smallest flowering plant.
- **Similar Species:** Unlike duckweed, this plant completely lacks roots and must be inspected closely to detect this difference. Watermeal may also resemble an algae bloom, but can be distinguished by simply touching the water's surface to see if tiny plants are stuck to your fingers (watermeal) or if the water has a slimy film (algae). It is commonly found growing along with duckweed. (Smagula and Connor, 2007)

Photo courtesy of Amy Smagula



On the Edge: Emergent Herbaceous Plants

ARROW ARUM
Peltandra virginica

- **Status:** Native
- **Habitat:** Edges of lakes, ponds, marshes, streams and rivers. In mud or shallow water.
- **Height:** Up to 2 feet tall, growing in loose colonies.
- **Stem:** Lacking a true stem. Leaf and flower stalks arising from a thick root.
- **Leaves:** Large, arrow-shaped. Lower lobes separating and tapering to the tips. Each lobe and the main stem have one prominent central vein from which other smaller veins originate. The smaller veins are parallel to one another. Leaf blade with a vein running along the entire outline just inside the margin.
- **Flower:** Vertically-curled, green. Very small, spathe almost completely covering the thin, whitish, fleshy spike. White male flowers above green female flowers, sheath tapering to the base and tip, green outside and white inside. Flowering cluster at the end of a long, naked stalk.
- **Flowering Period:** May to July.
- **Fruit:** Easily identified in the fall by its cluster of greenish-brown berries enclosed in a green leathery case, the stalk curved downward at maturity.
- **Similar Species:** Arrowhead (*Sagattaria latifolia*). Arrow Arum may be distinguished by its 3 prominent veins.

ARROWHEAD/DUCK-POTATO
Sagittaria spp.

- **Status:** Native. There are several species in New Hampshire; *S.latifolia and S.graminea* are the most common.
- **Habitat:** Edges of lakes, ponds, marshes, streams and rivers. In mud or completely submerged.
- **Height:** Up to 1 ½ feet tall.
- **Stem:** Lacking an upright visible stem. Leaves and flowering stalk arising from a fibrous rooted base. Several underground runners each giving rise to a tuber the size of a small potato up to 2 inches wide.
- **Leaves:** Shape is variable within and between species. Leaves can be broadly or narrowly arrow-shaped, lance-shaped, or tape-like. Leaves appear to clasp the base of the flowering stalk. Leaf veins all originate from the point where the stem connects to the leaf, and radiate outward from that point.
- **Flower:** White petals in whorls of three with a yellow center, up to 1 ½ inch wide. Male flowers at the top with female ones lower on the flower stalk.
- **Flowering Period:** July through September.
- **Fruit:** Flat, winged, crowded in a flattened head up to ½ inch wide. Ball-shaped fruit clusters of green nutlets.
- **Value:** Known as “duck potatoes”, Arrowhead produces edible starchy tubers beneath the mud, eaten by ducks and muskrats.

BLUE-FLAG IRIS
Iris versicolor

- **Status:** Native
- **Habitat:** Edges of lakes, ponds, marshes, streams and rivers. In less than 3 feet of water.
- **Height:** Up to 3 feet tall. Growing in small colonies.
- **Stem:** Upright, robust, flattened on one side, simple or with one or two branches, from creeping rhizomes embedded in the mud. Rhizome very shallow and sometimes exposed above the sediment.
- **Leaves:** Appearing basal but actually alternate, bluish-green, sword-like and up to 14 inches long and ¾ inch wide ascending in a flat plane or fan-like arrangement. Flower stalks are taller than the leaves.
- **Flower:** Large, purplish-blue, stalked, with 3 larger outer drooping petals, whitish toward the base, and 3 upright smaller petals in the center.
- **Flowering Period:** June through July.
- **Fruit:** Capsule up to 2 ½ inches long with 3 rounded edges, contains numerous flattened seeds often persisting into winter.
- **Value:** Provides food and cover for waterfowl and wildlife.
- **Similar Species:** Leaves may be confused with those of cattail (*Typha* spp.)or sweet flag *(Acorus calmus)*. Blue flag iris may be distinguished by blueish-green leaves arranged in flat plane.

Photo courtesy of Amy Smagula

BLUE VERVAIN
Verbena hastata

- **Status:** Native
- **Habitat:** Edges of ponds, marshes, streams and rivers.
- **Height:** Up to 4 feet tall growing in small colonies.
- **Stem:** Rough, four-sided, fairly straight, arising from a fibrous rooted base.
- **Leaves:** Up to 6 inches long, stalked, toothed, tapered at the tip, with a rough surface.
- **Flower:** 5 small blue petals in a pencil-like spike occurring singly or in clusters with individual flowers blooming periodically from the base to the top of spike.
- **Flowering Period:** July into October.
- **Fruit:** Separating into four nutlets.

BONESET /THOROUGHWORT
Eupatorium perfoliatum

- **Status:** Native
- **Habitat:** Wet meadows, marshes, edges of lakes, ponds, streams, and rivers.
- **Height:** Up to 5 feet tall. Branched, growing in small colonies.
- **Stem:** Upright, robust, lightly-downy, arising from a fibrous rooted base.
- **Leaves:** Opposite, lanceolate, tapering and pointed at the tip, toothed, with the base clasping the stem. Heavily veined. Up to 8 inches long and 2 inches wide at the base.
- **Flower:** Whitish in 3-4 terminal clusters up to 8 inches long.
- **Flowering Period:** Late July through October.

BUR-REED
Sparganium eurycarpum

- **Status:** Native
- **Habitat:** Edges of lakes, ponds, streams, and rivers. Emergent in shallow water up to 1 foot deep or submerged in water up to 4 feet deep.
- **Height:** Up to 3 feet tall.
- **Stem:** Upright, stout, smooth, arising from rhizomes embedded horizontally in the mud a few inches beneath the surface. Zigzag stalks.
- **Leaves:** Alternate, linear, up to 4 feet long. Emergent stem leaves narrow, up to 1 ½ feet tall, triangular in cross-section, and ridged on their back side. Certain species are erect while others are floating and ribbon-like.
- **Flower:** Lower bulbs or burs are clusters of greenish female flowers. Upper smaller burs are white male flowers.
- **Flowering Period:** June through August.
- **Fruit:** A burr-like head on a short or long stalk.
- **Value:** Colonies provide nesting sites for waterfowl and shorebirds. The fruit is eaten by a variety of waterfowl and the whole plant is grazed by muskrat and deer.
- **Similar Species:** This plant is easily confused with wild celery (*Vallisneria americana*) if the leaves are tape-like, or with young cattail *(Typha spp.)* if leaves are emergent. For the floating form, bur-reed has a ridge down the back of the long leaf. When erect and emergent, leaves are shorter in height than those of cattail, with a distinct ridge or almost triangular cross section. When in fruit, the spiky burr-like fruit is distinctive. (Smagula and Connor, 2007)

CARDINAL FLOWER
Lobelia cardinalis

- **Status:** Native
- **Habitat:** Shrub and forested wetlands, shaded edges streams and rivers.
- **Height:** Up to 5 feet tall, often growing in large colonies.
- **Stem:** Smooth, stout, arising from a horizontal rhizome embedded shallowly in mud.
- **Leaves:** Alternate, lanceolate to oblong, toothed, tapering at both ends. Lower leaves short-stalked, upper leaves stalkless. Up to 6 inches long and 1 ½ inches wide. Smooth to slightly downy, thin.
- **Flower:** Long, bright-red 2-lipped tubular flower occurring on terminal spike, with the upper lip 2-lobed and lower lip 3-lobed.
- **Flowering Period:** July into October.
- **Fruit:** Many-seeded capsule with two portions.
- **Value:** Cardinal flower is pollinated mostly by hummingbirds, since most insects find it difficult to navigate the long tubular flowers.

BROAD-LEAF CATTAIL
Typha latifolia

- **Status:** Native
- **Habitat:** Marshes, wet swales, edges of lakes and ponds, streams, and rivers.
- **Height:** Up to 10 feet tall.
- **Stem:** Upright, stiff, growing in dense stands from thick, extensively -creeping underground rhizomes.
- **Leaves:** Green or bluish-green, upright, linear, 2-6 feet long and up to 1 inch wide arising from base or alternating along the stem. Leaves have a spongy feel.
- **Flower:** Many small flowers packed into tight cigar-like clusters creating a lower female spike topped by a smaller male spike with no gap between the two flower types. Female spike persists turning into the familiar dark brown "tail."
- **Flowering Period:** June into August.
- **Fruit:** Small, seed-like, surrounded by many bristles attached to the base.
- **Value:** Provides nesting habitat for many birds, such as the red-winged blackbird. Shoots and rhizomes are eaten by muskrats and geese. Submersed stalks provide spawning habitat and shelter for fish. One of only a few plants where all parts are edible to humans.
- **Similar Species:** Narrow-leaf cattail (*Typha angustifolia*) has narrower leaves, a narrower fruiting head, and a gap between the male and female flower clusters.

COMMON REED
Phragmites australis

- **Status: Most stands are Non-Native/Exotic, Invasive. This species is prohibited in New Hampshire.** *Phragmites australis* has been present in wetlands for millennia, but a non-native European species has crossbred with *P. australis* and has formed an invasive plant.
- **Habitat:** Fresh and brackish marshes, edges of lakes and ponds, streams, rivers, and in roadside ditches. Full to partial sun.
- **Height:** Upright, 4-14 feet tall, usually forming dense colonies.
- **Stem:** Called "culms", are large, hollow, and grow up to 1 inch wide.
- **Leaves:** Bluish-green, lanceolate, close together and usually sticking out from stems at a large angle, up to 2 feet long and 1 inch wide.
- **Flower:** Clusters ½ - 1 foot long, often purple when young and whitish and fluffy when old.
- **Flowering Period:** Late July to October.
- **Fruit:** Rarely produces seed but spreads vigorously by rhizomes, often running over the surface of the ground.
- **Value:** This plant has little to offer to birds and mammals besides cover. *Phragmites* often outcompetes other native wetland plants, thus limiting the plant diversity and food source value of the wetland. The only animal that feeds on this to any extent is the muskrat. (Smagula and Connor, 2007)
- **Similar Species:** Sometimes confused with reed canary grass since they both form dense stands at disturbed sites. Reed canary grass *(Phalaris arundinacea)* can be distinguished by its shorter and narrower leaves, spikelets with only one flower, and its shorter height.

How To Distinguish Native From Non-Native *Phragmites*

- **Stems:** Stems on the non-native variety are typically green, but may have a little purple color along the nodes. Stems on the native variety have some chestnut or purple color where leaves are pulled back, exposing the stem. Stems of the native variety are also often shiny and black spots often appear late in the growing season.
- **Leaf Collars:** Leaf collars on the non-native variety are always green, while leaf collars on the native variety may be purple.
- **Leaf Sheaths:** On fall stems, the leaf sheaths on the non-native variety remain attached. Leaf sheaths on the native variety are lost or very loosely attached so leaves drop off the native plants before the introduced plants. This is the best indicator based seasonal changes that distinguishes native or non-native varieties.

JEWELWEED/SPOTTED TOUCH-ME NOT
Impatiens capensis

- **Status:** Native
- **Habitat:** Shrub and forested wetlands, edges of lakes, ponds, streams, and rivers.
- **Height:** Up to 4 feet tall. Often growing in dense colonies.
- **Stem:** Upright, smooth, slightly branching, hollow, somewhat succulent, slightly translucent.
- **Leaves:** Alternate, egg-shaped, toothed on stalks up to 4 inches long. Silvery appearance when held under water and appear completely dry upon removal. Size and color of foliage vary with differences in light exposure and available moisture.
- **Flower:** Few to several dangling orange-yellow three-petaled tubular/funnel-shaped flowers with reddish brown spots and curved spur at their ends.
- **Flowering Period:** June through September.
- **Fruit:** Flat, green capsules approximately 1 inch long, which at maturity burst when touched, ejecting dark-brown seeds.
- **Value:** Especially adapted to hummingbird pollination, but bees and butterflies are also important pollinators.

The sap from this plant has been clinically proven to relieve skin rashes. Jewelweed can be applied to the affected part of the body and neutralizes the urishol oil produced by poison ivy and poison oak. (Smagula and Connor, 2007)

JOE PYE WEED
Eupatorium maculatum

- **Status:** Native
- **Habitat:** Marshes, wet meadows, edges of lakes, ponds, streams, and rivers.
- **Height:** Up to 6 feet tall. Branched, growing in small to medium-sized colonies.
- **Stem:** Stout, smooth, purple or purple-spotted, somewhat rough toward the top, arising from a fibrous rooted base.
- **Leaves:** Lanceolate, toothed, rough, short-stalked, with large single mid-vein. Up to 8 inches long and 2 ½ inches wide, tapered at the base and tip, in whorls of 3-7.
- **Flower:** Small, rose-purple, in dense, flat-topped clusters at the top of the stem and at the ends of the branches.
- **Flowering Period:** July through September.
- **Fruit:** Angular nutlet with a plume of fine bristles at the top.

PICKERELWEED
Pontedaria cordata

- **Status:** Native
- **Habitat:** Marshes, edges of lakes, ponds, streams, and rivers.
- **Height:** Up to 3 feet tall, often growing in dense colonies.
- **Stem:** Upright, stout, smooth, arising from a rhizome, bearing one leaf and one terminal spike.
- **Leaves:** Basal and alternate, very large, arrowhead to heart-shaped, glossy, with prominent parallel veins, blunt tip, on a spongy leaf stalk.
- **Flower:** Many small, tubular, violet-blue flowers approximately ½ inch long, on solitary spike with a sheath at the base.
- **Flowering Period:** June through August.
- **Fruit:** Small, bladder-like, with toothed ridges, containing one seed.
- **Value:** Seeds are consumed by waterfowl and muskrats. Networks of rhizomes and leaves also offer shade and shelter for fish.
- **Similar Species:** This plant can be distinguished from its close look-alikes, arrow arum and arrowhead by its light bluish-purple flower spike. Bases of the leaves are more rounded whereas arrowhead and arrow arum leaves are more pointed. (Smagula and Connor, 2007)

PURPLE LOOSESTRIFE
Lythrum salicaria

- **Status:** **Non-Native/Exotic, Invasive. This species is prohibited in New Hampshire.**
- **Habitat:** Marshes, edges of lakes, ponds, streams, rivers, and in roadside ditches. Full to partial sun.
- **Height:** 2-6 feet tall.
- **Stem:** Upright, smooth to slightly-downy. Square, four-sided, almost woody.
- **Leaves:** Opposite to whorled, lanceolate, often with heart-shaped bases somewhat clasping stem sometimes in whorls of 3. Gradually tapering to a point, 3 to 4 inches long and ½ to 1 inch wide.
- **Flower:** 5-7 purple petals in a dense terminal spike.
- **Flowering Period:** July through September.
- **Fruit:** Many-seeded capsule.
- **Value:** Little wildlife value. Seeds are low in nutrition, and roots are too woody. The flowers are attractive to insects. They produce nectar and are regularly visited by honeybees.

  This plant outcompetes other wetland plants, which are beneficial food sources for wildlife and insects. It reproduces by producing millions of seeds per plant and quickly takes over the landscape when introduced. It also spreads by rhizome. (Smagula and Connor, 2007)

REED CANARY GRASS
Phalaris arundinacea

- **Status:** **Non-Native/Exotic, Invasive.**
- **Habitat:** Swales, marshes, edges of lakes, ponds, streams, and rivers. Although it is usually a shoreline plant, it can survive in knee-deep water by sprouting "water roots" on the submersed portion of the stem. Forms dense stands in disturbed areas where clearing, grading, siltation, filling, or other disruptions have created an opening with moist soil.
- **Height:** Up to 7 feet tall. Often growing in dense colonies.
- **Stem:** Upright, stiff, from extensively-creeping rhizomes.
- **Leaves:** Alternate, upright, grayish-green, open sheath and ligule at the leaf axis. Blades fairly long and narrow, up to 12 inches long and ¾ inches wide.
- **Flower:** Green to greenish-purple spikelets, single-flowered, lanceolate, dense. Terminal inflorescence up to 7 inches long, branched and compressed early in the season but opening after fertilization.
- **Flowering Period:** June through August.
- **Value:** Low food value. Provides summer cover and habitat for waterfowl at disturbed sites. However, it tends to mat down in winter providing little winter cover for wildlife.
- **Similar Species:** Sometimes confused with bluejoint grass (*Calamagrostis canadensis*). However, the spikelets of bluejoint are in a loose, open arrangement and the nodes have a bluish to purplish cast.

SOFT-STEMMED BULRUSH
Scirpus validus

- **Status:** Native
- **Habitat:** Wetlands, edges of lakes, ponds, streams, and rivers. Usually growing in water less than 5 feet deep. Tends to be found on "muckier" substrate and will grow in stagnant water.
- **Height:** Usually up to 5 feet, but can grow up to 10 feet tall. Often growing in extensive colonies.
- **Stem:** Upright, grayish-green, often arching, up to ¾ inch thick at the base, arising from stout, reddish rhizomes. Soft, round, tapering to a point.
- **Leaves:** No apparent leaves.
- **Flowers:** Inconspicuous, many-stalked budlike spikelets covered by reddish-brown scales located immediately below the top of stem. Clusters mostly drooping, but not in higher salinity areas.
- **Flowering Period:** June into September.
- **Fruit:** Seed-like nutlet with 4-6 bristles attached to the base.
- **Value:** Provides habitat for invertebrates and shelter for young fish. Nutlets consumed by a variety of waterfowl, marsh birds, and upland birds. Stems and rhizomes eaten by geese and muskrat. Also provides nesting material and cover for waterfowl, marsh birds, and muskrat.

SWAMP LOOSESTRIFE/WATER WILLOW
Decodon verticillatus

- **Status:** Native shrub becoming herbaceous toward the tips.
- **Habitat:** Wetlands, bogs, edges of lakes, ponds, streams, and rivers. Shallow water with muck or peat sediment. Can form floating mats in areas of very soft sediment.
- **Height:** Up to 5 feet tall.
- **Stem:** Ridgid, woody, smooth to slightly-downy, 3-9 feet long. The lower rooting stems are spongy and buttressed giving rise to new arching stems.
- **Leaves:** Opposite or in whorls of 3, gradually tapering to a point, 3-4 inches long and ½ to 1 inch wide, sessile or short-stalked.
- **Flower:** Pinkish-purple, bell-shaped, with 5-7 sepals and 5 petals, forming showy clusters in the axils of the middle to upper leaves.
- **Flowering Period:** July through August.
- **Fruit:** Small, brownish capsule with 3-5 partitions; the clusters sometimes persisting above the leaf scars throughout winter.
- **Value:** The many intertwining arching stems may form sizable clusters at the edges of lakes and sluggish streams or floating bog mats. Wherever a stem touches the water, air-filled, spongy tissue may develop. This tissue buoys the stem so that it may root and form a new arching stem.
- **Similar Species:** May be confused with the invasive purple loosestrife *(Lythrum salicaria).* Swamp loosestrife can be distinguished by the arching stems and showy axillary flower clusters as well as the round stem, instead of the square stem of purple loosestrife. (Smagula and Connor, 2007)

THREE-WAY SEDGE
Dulichium arundinaceum

- **Status:** Native
- **Habitat:** Marshes, wet meadows, edges of lakes, ponds, streams, and rivers. Extensive beds can be found in shallow (less than 3 feet) water. Grows in a variety of sediment types and can tolerate some turbidity.
- **Height:** Up to 3 feet tall, solitary or in small colonies.
- **Stem:** Round, hollow, jointed, arising from a horizontal rhizome.
- **Leaves:** Linear, up to 4 inches long and 3/8 inch wide with a conspicuous sheath, the latter closed except at the top.

  When looking down upon the plant, the leaves are lined up and appear to radiate from three angles away from the main stem. (Smagula and Connor, 2007)
- **Flower:** Inconspicuous, flattened, linear, sessile spikelets in the axils or two-ranked scales of the brownish spikelets, 8-10 along the axillary stalk.
- **Flowering Period:** July through October.
- **Fruit:** Flattened, brownish, seed-like nutlet topped with a beak.
- **Value:** Eaten occasionally by a variety of ducks and geese. Rhizomes and shoots also grazed by muskrats.

WOOL GRASS
Scirpus cyperinus

- **Status:** Native
- **Habitat:** Marshes, wet meadows, edges of lakes, ponds, streams, and rivers.
- **Height:** Up to 5 feet tall, growing in small colonies.
- **Stem:** Upright, robust, round to triangular, especially at the base.
- **Leaves:** Elongate, from base of stem, up to 2 feet long. Leaves immediately below the flower are in clusters of 3-5 and may reach 5 inches long and droop at the tips.
- **Flower:** Clusters of 6-12 spikelets at ends of drooping stems. Flower clusters up to 12 inches long, much branched.
- **Flowering Period:** August through September.
- **Fruit:** Whitish, seed-like nutlet with bristles much longer than the scales attached to the base, the bristles impart the wooly appearance to the spikelets.
- **Value:** Provides food and cover for waterfowl and other wildlife.

Ferns

CINNAMON FERN
Osmunda cinnamomea

- **Status:** Native
- **Habitat:** Shrub and forested wetlands, edges of lakes, ponds, streams, and rivers. Often growing near somewhat similar and related interrupted fern *(Polystichum arostichoides).*
- **Height:** Up to 3 feet tall.
- **Stem:** Upright, stout, smooth, green, and covered with cinnamon-colored wooly stalk.
- **Leaves:** Sterile (vegetative) fronds up to 3 feet high, upright to slightly arched, lance-shaped with 20+ opposite leaflets. Fertile fronds do not persist through the summer whereas vegetative fronds remain until first frost.
- **Reproduction:** Club-like fertile frond with groups of spore cases on leaflets that hug the main axis.
- **Fruiting Period:** Spring.

OSTRICH FERN
Pteretis pensylvanica

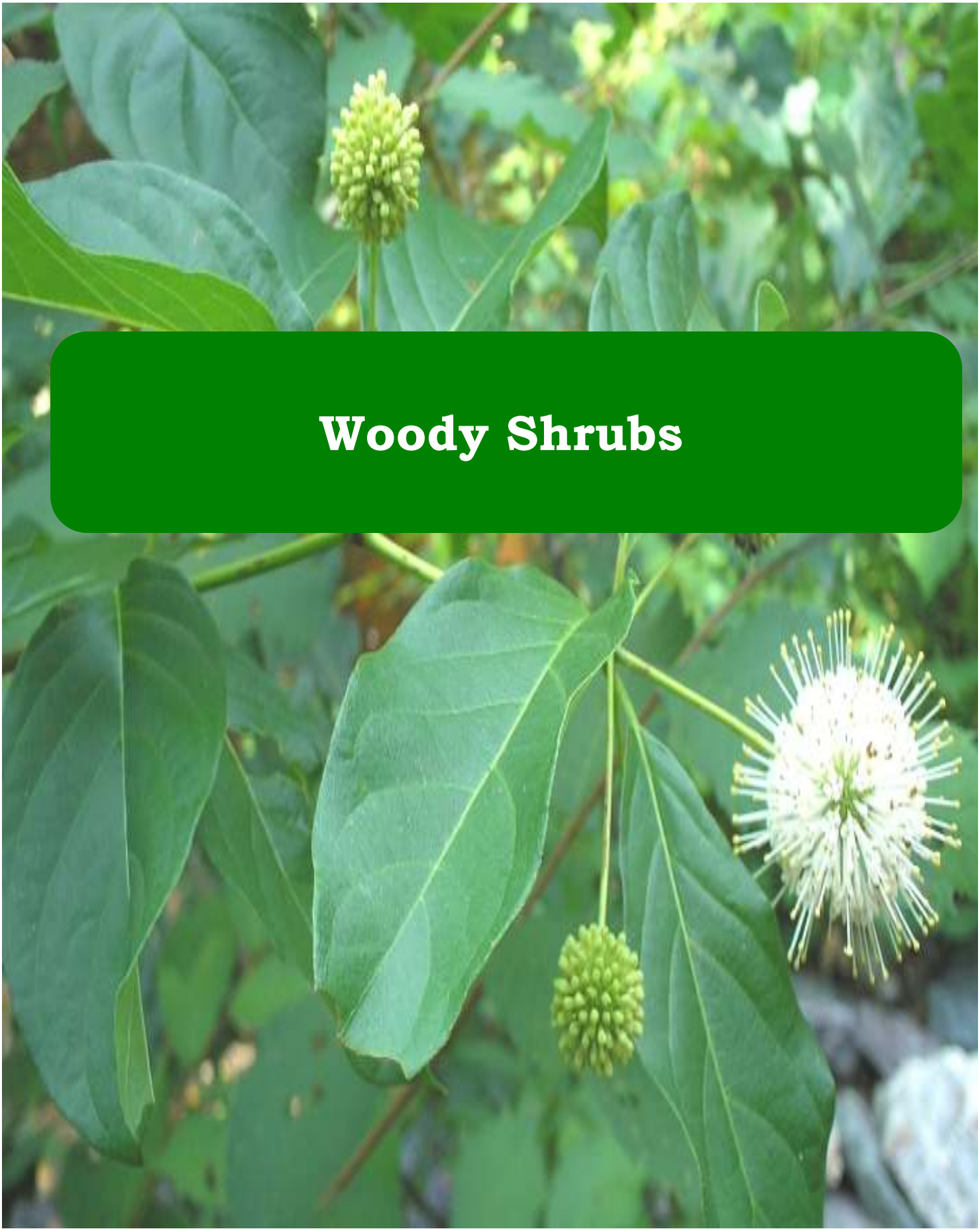
- **Status:** Native
- **Habitat:** Shrub and forested wetlands, edges of lakes, ponds, streams, and rivers.
- **Height:** Up to 6 feet tall, forming tussocks or clumps.
- **Stem:** Stout, naked for up 1 foot from the base, green, flattened and black at the base, covered with papery brown scales. Arising from a forking, shallowly-embedded rhizome and giving rise to stout, black, scaly runners.
- **Leaves:** Sterile fronds forming circles, gradually narrowed at the base and abruptly narrowed to the tip. Fertile fronds up to 2 feet tall and 2 inches wide, naked for approximately half their length, the naked portions shiny brown, crowded, spreading or ascending branches often overlapping or twisted, light green at first turning dark green and eventually brown.
- **Reproduction:** Leaf segments with spore cases beneath, become rolled into small, hard, berry-like structures, joined along the branches of the fertile frond.
- **Fruiting Period:** July – August. Persisting over winter.
- **Similar Species:** Cinnamon fern *(Osmunda cinnamomea).* Ostrich fern may be distinguished by the gradually narrow base, and papery scales rather than cinnamon-colored pubescence on the stalk.

ROYAL FERN
Osmunda regalis

- **Status:** Native
- **Habitat:** Shrub and forested wetlands, edges of lakes ponds, streams, and rivers.
- **Height:** Up to 5 feet tall, growing in scattered groups.
- **Stem:** Somewhat stout, naked for approximately half its length, greenish or reddish, arising from a stout, creeping rhizome.
- **Leaves:** Fronds with 5-7 pairs of nearly opposite, oblong, ascending divisions. The lowest pair slightly shorter than the others, each division divided into finely toothed, oblong, blunt alternate segments, 10-14 on each side. Fertile fronds terminated by a panicle appearing as a dense cluster of light brown structures.
- **Reproduction:** Spore cases clustered along short, naked leaf segments in a terminal panicle and often at the tips of some of the divisions. One of several ferns that produce their spores on modified leaflets, not on the underside of the fronds.
- **Fruiting Period:** Spring and early summer.

SENSITIVE FERN
Onoclea sensibilis

- **Status:** Native
- **Habitat:** Shrub and forested wetlands, edges of lakes, ponds, streams, and rivers.
- **Height:** Up to 3 feet tall. Growing solitary or scattered.
- **Stem:** Upright, stout, naked for nearly half its length, arising from a creeping rhizome.
- **Leaves:** Sterile fronds up to 3 feet tall, the blade with up to 16 pairs of wide segments having wavy margins. Fertile fronds shorter, the berry-like structures clustered in stiffly erect divisions, the entire structure appearing spike-like.
- **Reproduction:** Leaf segments with spore cases beneath which have become rolled into small, hard, black, berry-like structures appearing July through August and persisting over winter.
- **Fruiting Period:** July into October.



Woody Shrubs

NORTHERN ARROW-WOOD
Viburnum recognitum

- **Status:** Native
- **Habitat:** Shrub and forested wetlands, edges of lakes, ponds, streams, and rivers.
- **Height:** Up to 15 feet tall, forming thickets.
- **Bark:** Smooth and gray with a white pith.
- **Twigs:** Brownish-gray, hairless, highly branched, long, straight, slender, arrow-like, smooth.
- **Buds:** Reddish-brown with 2 pairs of scales. Opposite, pointed, approximately ¼ inch long, rounded scales with fringe of minute hairs along the borders.
- **Leaves:** Opposite, egg-shaped to round, with saw-like coarse teeth, 1-2 inches long and 3 inches wide, tapering to a point, with very prominent smooth veins.
- **Flower:** Numerous, small, white-petaled flowers on short stalks in a somewhat dense terminal flat cluster.
- **Flowering Period:** June through July.
- **Fruit:** Fleshy, blue-black, berry-like, approximately 1/3 inch wide, containing a flattened seed, appearing in August.

BUTTONBUSH
Cephalanthus occidentalis

- **Status:** Native
- **Habitat:** Shrub and forested wetlands, edges of lakes, ponds, streams, and rivers.
- **Height:** Up to 12 feet tall; typically 3-5 feet tall.
- **Bark:** Smooth and grayish when young, flaky and grayish when older. Light-brown pith.
- **Twigs:** Slender, round or angled, grayish-brown to purplish marked with light, elongated lenticels.
- **Buds:** Small in depressed areas, surrounded by bark.
- **Leaves:** Opposite or in whorls of 3-4. Shiny, dark-green above, lighter green and slightly downy beneath. Leathery, smooth, oblong to oval, 3-6 inches long, broad at the base, pointed at tips often with short red stalks.
- **Flower:** Densely clustered, spherical, creamy white ball-shaped flowers, long-stalked, often in groups of 3, 1- 1 ½ inch wide. Ripe heads brownish, fragrant.
- **Flowering Period:** July through August.
- **Fruit:** Small, triangular-shaped capsules, greenish in ball-like heads like the flowers. Persist into winter.
- **Value:** Butterfly and moth species are often found feeding on the sweet nectar of the tubular flowers because of their long, curled mouthparts. Caterpillar pupas are often found on buttonbush because of the food association with larvae and adults. (Smagula and Connor, 2007)

ELDERBERRY/BLACK-BERRIED ELDER
Sambucus canadensis

Elderberry showing fruit

- **Status:** Native
- **Habitat:** Shrub and forested wetlands, edges of streams and rivers.
- **Height:** Up to 12 feet tall, often forming thickets.
- **Bark:** Green.
- **Twigs:** Pale yellow-brown to light-brown with numerous large, raised lenticels. Ill-smelling when bruised. Fluted or squared pith very thick, white, and soft.
- **Buds:** Small, round to oval, covered with brownish scales.
- **Leaves:** Opposite, pinnately compound, with 5 to 11 leaflets, usually 7. Lanceolate to ovate, abruptly narrowing at the tip. Sharply-toothed. Lower leaflets often 3-parted. Smooth above, smooth or downy on veins beneath.
- **Flower:** Small, white, nicely-scented flowers with 5 white petals in a flat-topped cluster up to 6 inches wide, generally with 5 main branches.
- **Flowering Period:** Late June through July.
- **Fruit:** Juicy, purplish-black berries in flat-topped clusters containing many seeds, appearing late August to early October.
- **Value:** Produces fruit that makes tasty jelly and wine. It is also an important food source for many songbirds.

Elderberry showing flowers

GLOSSY BUCKTHORN
Rhamnus frangula

- **Status:** **Non-Native/Exotic, Invasive. This species is prohibited in New Hampshire.**
- **Habitat:** Generalist. Full-sun or shade, moist, dry, acidic, or basic soils. Woodland borders, forested wetlands, floodplain forests.
- **Height:** Up to 20 feet tall.
- **Twigs:** Grayish with whitish lenticels.
- **Buds:** Naked, downy, up to ¼ inch long.
- **Leaves:** Alternate, whorled, oblong, 4-5 inches long and 3-4 inches wide. Long growing season, leafing out in May and holding its leaves into November.
- **Flower:** Small, greenish-white, in small clusters in the leaf axis.
- **Flowering Period:** May through September. Flowers and fruits continuously from May through September. Plants often display buds, flowers, immature fruit, and mature fruit simultaneously.
- **Fruit:** Berry with 2-3 pits, approximately ¼ inch wide, turning from green to red and eventually blue-black. Often all three colored berries are on the plant at the same time. Sometimes difficult to recognize in a forested situation, due to its non-descript appearance, but easily recognized July through September due to masses of berries.

HIGHBUSH BLUEBERRY
Vaccinium corymbosum

- **Status:** Native.
- **Habitat:** Shrub and forested wetlands, rich woods, edges of lakes, ponds, streams and rivers.
- **Height:** Up to 15 feet tall, often forming thickets.
- **Bark:** Rough, brown. Stem and larger branches shreddy.
- **Twigs:** On some bushes reddish-brown, on other bushes they are yellow. Covered with small warty lenticels, zigzagged or angled.
- **Buds:** Flower buds red, plump, pointed, with spine-like pointed scales. Leaf buds smaller, two outer scales with hair-like point.
- **Leaves:** Alternate, pointed on both ends, green on both sides, untoothed. Lower side slightly wooly on the veins. Up to 3 inches long and 1 ½ inch wide. Deep red in autumn.
- **Flower:** Cylindrical, white or pink, up to ½ inch long and ¼ inch wide in dense terminal or lateral clusters.
- **Flowering Period:** April through June appearing when leaves are only half grown.
- **Fruit:** Blue-black berry, up to ½ inch wide with whitish bloom, sweet, in clusters.
- **Value:** Berries eaten by numerous birds and wildlife.
- **Similar Species:** Maleberry *(Lyonia ligustrina).* Highbush blueberry can be distinguished by its terminal clusters of fruit and by berries rather than capsules for fruit.

HOBBLEBUSH
Viburnum alnifolium

- **Status:** Native.
- **Habitat:** Cool, moist ravines, edges of rivers and streams.
- **Height:** Up to 10 feet tall.
- **Bark:** Light brown with wavy grooves.
- **Twigs:** Tough, stout, olive-brown to light purplish-brown. Coated with rusty brown hairs toward the tip.
- **Buds:** Large, long, in pairs, light-brown covered with velvety fuzz. Flower buds rounded and occur only at tips of twigs.
- **Leaves:** Very large, 4-8 inches long. Almost round, finely toothed, heart-shape at base. Hairy beneath, rusty, veins much branched. Brownish hairs on stalks.
- **Flower:** Large white clusters with 5 petals, appearing before leaves are fully grown.
- **Flowering Period:** May through June.
- **Fruit:** Red berries turning black. Stones with a groove on each edge.
- **Similar Species:** Likely to be confused with dogwoods. Viburnum leaves are nearly always toothed, or lobed, while dogwood leaves are smooth, untoothed, and veins are parallel.

HONEYSUCKLE
Lonicera spp.
(L. morrowii, L. tatarica, L. maackii)

- **Status:** **Non-Native/Exotic, Invasive. These species are prohibited in New Hampshire.**
- **Habitat:** Fields, roadsides, fence-rows, hedge-rows, edges of woods.
- **Height:** 10 to 15 feet tall.
- **Bark:** Tan to brown, shredded in appearance.
- **Twigs:** Generally glabrous, thornless.
- **Buds:** Blunt to acute.
- **Leaves:** Opposite, entire, oblong to egg-shaped, 1-5 inches long.
- **Flower:** 5-lobed, tubular, sometimes fragrant, growing in leaf axils, white to yellow.
- **Fruit:** Red, rarely yellow, juicy, few-seeded berry. July through September.
- **Flowering Period:** May through June.

- **Morrow's Honeysuckle**
  Lonicera morrowii

  Leaves and young twigs densely downy. Leafy bracts beneath flowers not glandular. Leaves broadest below the middle. Flowers white fading to yellow.

- **Tartarian Honeysuckle**
  Lonicera tartarica

  Undersides of leaves and young twigs are hairless. Flowers usually pink-red. Only species that has hollow pith.

- **Amur Honeysuckle**
  Lonicera maackii

  Upper surface of leaves are shiny. Bark is gray or tan and exfoliates somewhat in vertical strips. Flowers white fading to yellow.

JAPANESE KNOTWEED
Polygonum cuspidatum

- **Status:** **Non-Native/Exotic, Invasive. This species is prohibited in New Hampshire.**
- **Habitat:** Woodlands, open spaces, ditches, roadside ditches, edges of streams and rivers.
- **Height:** Up to 10 feet tall. Fast growing, aggressive, easily spreads and reproduces vegetatively.
- **Twigs:** Greenish, hollow, jointed, bamboo-like. Stems often persist into winter.
- **Leaves:** Alternate, large, untoothed, broadly ovate, 3-7 inches long with pointed tips and square bases.
- **Flower:** Many small, whitish flowers growing in slender, finger-like clusters in the leaf axils.
- **Flowering Period:** August to September.
- **Fruit:** White, papery, wind-dispersed, x-shaped in cross-section.

MALEBERRY
Lyonia ligustrina

- **Status:** Native
- **Habitat:** Shrub and forested wetlands, rich woods, gentle slopes, edges of streams and rivers.
- **Height:** Up to 10 feet tall, often forming thickets.
- **Bark:** Light gray, shreddy, shaggy. Younger bark appearing slightly hairy, older bark gray with white lenticels.
- **Twigs:** Yellow-brown to ash-gray mottled with black. Flowering twigs leafless.
- **Buds:** No terminal bud. Lateral buds flattened, red, oval, pointed with a single reddish scale.
- **Leaves:** Alternate, elliptic to oblong, stalked, up to 3 inches long, pointed at both ends, minutely toothed. Rough above, slightly-hairy beneath.
- **Flower:** Small, round, white flowers in clusters up to 6 inches long.
- **Flowering Period:** May through July.
- **Fruit:** Greenish-gray to brown, small, round capsules with 5 partitions. No larger than flower. Crowded in groups on the stem, persisting through winter. Dry, brown pods resembling blueberries.
- **Similar Species:** Highbush blueberry *(Vaccinium corymbosum).* Maleberry can be distinguished by its flattened red buds, lateral rather than terminal clusters, and by capsules of fruit instead of berries.

MEADOWSWEET
Spiraea latifolia

- **Status:** Native
- **Habitat:** Marshes, wet meadows, edges of lakes, ponds, streams, and rivers.
- **Height:** 2-3 feet tall, forming large, dense colonies.
- **Bark:** Thin, peeling in filmy layers.
- **Twigs:** Smooth, slender, light reddish-brown to purple; more or less angled. Unbranched (except occasionally toward the top where branching may occur).
- **Buds:** Many, small, smooth, oval, with several scales.
- **Leaves:** Alternate, oblong, narrow, toothed, short-stalked, tapering to the base with pointed to round tips. Up to 3 inches long and 1 ½ inches wide.
- **Flower:** Pyramid clusters of white to pinkish, 5-parted small flowers occurring at tip of stem.
- **Flowering Period:** July into September.
- **Fruit:** Small, hard, smooth cluster of 5-6 tiny pods, persisting over winter in the inflorescence, giving it a dark-brown color.

MULTIFLORA ROSE
Rosa multiflora

- **Status:** **Non-Native/Exotic, Invasive. This species is prohibited in New Hampshire.**
- **Habitat:** Generalist. Variety of soil, moisture and light conditions.
- **Height:** Up to 9 feet tall. Shrubby, arching.
- **Bark:** Green. Older stems turn woody.
- **Twigs:** Long, arching, with stiff re-curved thorns, tips root to form new plants.
- **Leaves:** Alternate, pinnately compound, 7-9 toothed leaflets, each leaflet about 1 inch long. Fringed stipule at the base of leaf stem.
- **Flower:** Dense clusters of fragrant, white or occasionally pink 5-petaled flowers up to 1 ½ inch wide. Persist into winter.
- **Flowering Period:** May through June.
- **Fruit:** Small, round, hard, red berry called a “hip”. Smallest hip of any rose in New England; persists into winter.
- **Similar Species:** Multiflora rose can be distinguished from other roses by the presence of a fringed stipule on the leaf petiole.

NORTHERN WILD RAISIN/ WITHEROD VIBURNUM
Viburnum cassinoides

- **Status:** Native
- **Habitat:** Shrub and forested wetlands, valleys, gentle slopes, edges of streams and rivers.
- **Height:** Up to 10 feet tall, usually up to 7.
- **Bark:** Smooth, grayish-brown.
- **Twigs:** Slender, long, flexible, dull, pale grayish to light-brown. Slightly hairy. Somewhat angled, with indistinct lenticels.
- **Buds:** Covered by a single pair of scales. Terminal buds long, yellow, or golden. 2 light-brown scales split curved. Flower buds large and flask-shaped.
- **Leaves:** Opposite, lanceolate to oval, loosely toothed, up to 4 inches long on short stalks, tapering to an abrupt point. Dark green above, dull green below, leathery.
- **Flower:** Many small white, 5-lobed flowers, in short-stalked, flat-topped clusters at the tips of the twigs.
- **Flowering Period:** May through July.
- **Fruit:** Fleshy, blue-black berry-like, approximately ¼ inch wide, containing a flat seed. Dull red as maturing.

SHADBUSH/SERVICEBERRY
Amelchier canadensis

- **Status:** Native
- **Habitat:** Forested wetlands, floodplains, rich woods, edges of streams and rivers.
- **Height:** Up to 25 feet tall, usually growing in thickets.
- **Bark:** Gray, smooth, thin, vertical fissures, separating smooth flat areas in older trees.
- **Twigs:** Rancid taste and smell (slight taste of bitter almonds). Slender, grayish, often covered by a gray skin, smooth. Lenticels are scattered minute dots.
- **Buds:** Terminal buds long, narrow, greenish-yellow or purple.
- **Leaves:** Alternate, oblong, finely-toothed, broadest above the middle. Veins curved. When half grown with white felt or wooly hairs beneath. Up to ¾ inch long, rounded at the tip and base.
- **Flower:** Many medium-sized, 5-petalled, white flowers, approximately ¾ inch wide, on stalks in clusters appearing when leaves are half grown.
- **Flowering Period:** April through June.
- **Fruit:** Dark-purple to black berries.

SHEEP LAUREL/LAMBKILL
Kalmia angustifolia

- **Status:** Native
- **Habitat:** Shrub and forested wetlands, edges of lakes, ponds, streams, and rivers.
- **Height:** Up to 3 feet tall, usually forming thickets.
- **Bark:** Reddish brown.
- **Twigs:** Pale brown, smooth.
- **Buds:** Naked, no scales, or only 2 showing.
- **Leaves:** Evergreen. Occasionally opposite but usually in whorls of 3. Elliptic to oblong, on very short stems, crowded on the branch opposite in threes. Bright green above, pale or whitened beneath. Both surfaces smooth.
- **Flower:** Small, deep pink to reddish-purple, 5-lobed, approximately 1 ½ inch wide, in clusters among the leaves.
- **Flowering Period:** May through July.
- **Fruit:** Small, brownish, round capsule with 5 partitions in clusters that persist over winter.

SILKY DOGWOOD
Cornus amomum

- **Status:** Native
- **Habitat:** Shrub and forested wetlands, edges of streams and rivers.
- **Height:** Up to 10 feet tall, forming dense thickets.
- **Twigs:** Much branching, lower portion of the stem light brown, upper portions becoming streaked with red. One- and two-year old branches completely red and velvety. Twigs moderate to slender, with spongy chocolate-brown piths.
- **Buds:** Smooth, hairy.
- **Leaves:** Opposite, ovate to elliptic, rounded at base, with pointed tips. Veins branching off midvein that follow up the smooth leaf without reaching edge. Up to 5 inches long and half as wide, rounded to somewhat wedge-shaped at the base and abruptly pointed at the tip, pubescent beneath, on short to moderate stalks, turning red in autumn.
- **Flower:** Many small, white, 4-petalled flowers, in broad, flat-topped clusters up to 3 inches wide at the tips of branches.
- **Flowering Period:** May through July.
- **Fruit:** Blue or blueish-white berries.
- **Similar Species:** Red Osier Dogwood (*Cornus stolonifera*)

SPECKLED ALDER
Alnus rugosa

- **Status:** Native
- **Habitat:** Shrub and forested wetlands, edges of lakes, ponds, streams, and rivers.
- **Height:** Up to 25 feet tall, often branching from the base.
- **Bark:** Brown, with whitish horizontal lenticels.
- **Twigs:** Olive-brown to reddish brown, smooth, downy with greenish triangular pith.
- **Buds:** Stalked, reddish, covered by 2-3 scales equal in length, coated with grayish or brownish down, no terminal bud.
- **Leaves:** Alternate, oval or rounded, broadest below the middle, 2-4 inches long. Doubly toothed or wavy. Green above, pale beneath. Leaf base rounded or heart-shaped. Up to 6 inches long and 3 inches wide.
- **Flower:** Develop long before the leaves. Male catkins long, finger-like, drooping. Female catkins upright in clusters, stalked, resembling a small pine cone, arching, appearing below male.
- **Flowering Period:** April through June, before leaves emerge.
- **Fruit:** Female catkins ripening into ½ inch cylindrical cones, persistent in winter.
- **Comments:** Distinguishing features are the conspicuous white lenticels on the trunk and on the twigs, the short, thick stalks of the "cones", and the conspicuous net venation of the leaves. In winter, the immature female spikes droop.

SPICEBUSH
Lindera benzoin

- **Status:** Native
- **Habitat:** Forested wetlands, floodplains, rich woods, edges of streams and rivers.
- **Height:** Up to 10 feet tall.
- **Bark:** Smooth, grayish-brown.
- **Twigs:** Younger growth is green with white lines and specks while older portions with smooth, gray-brown bark.
- **Buds:** Leaf buds small, pointed. Flower buds larger, stalked. Spherical, arranged on one side of a leaf bud above the scar.
- **Leaves:** Alternate, obovate to ovate, somewhat pointed, up to 4 inches long and 2 inches wide.
- **Flower:** Small, yellow. Male and female occur in clusters on separate plants.
- **Flowering Period:** April through May.
- **Fruit:** Fleshy, red and berry-like, up to ½ inch long, containing one large seed.

STEEPLEBUSH
Spiraea tomentosa

- **Status:** Native
- **Habitat:** Wet meadows, marshes, shrub wetlands, edges of lakes, ponds, streams, and rivers.
- **Height:** Up to 3 ½ feet tall.
- **Bark:** Thin, hairy, peeling, shredding into strips.
- **Buds:** Lateral buds covered with wool. No terminal bud.
- **Leaves:** Alternate, simple, toothed, up to 2 inches long, white or woolly beneath with brownish, rusty, or tawny hairs.
- **Flower:** Small, 5-petaled deep pink or rose colored flowers in dense, steeple-like terminal spike up to 6 inches long.
- **Flowering Period:** July into September.
- **Fruit:** One-celled capsules, persistent into winter.
- **Similar Species:** The pinker plants are often confused with purple loosestrife. Steeplebush has alternate leaves whereas purple loosestrife has opposite or whorled leaves. The stems of Steeplebush tend to be round in cross-section, whereas the stems of purple loosestrife are square in cross section. (Smagula and Connor, 2007)

SWEET PEPPERBUSH
Clethera alnifolia

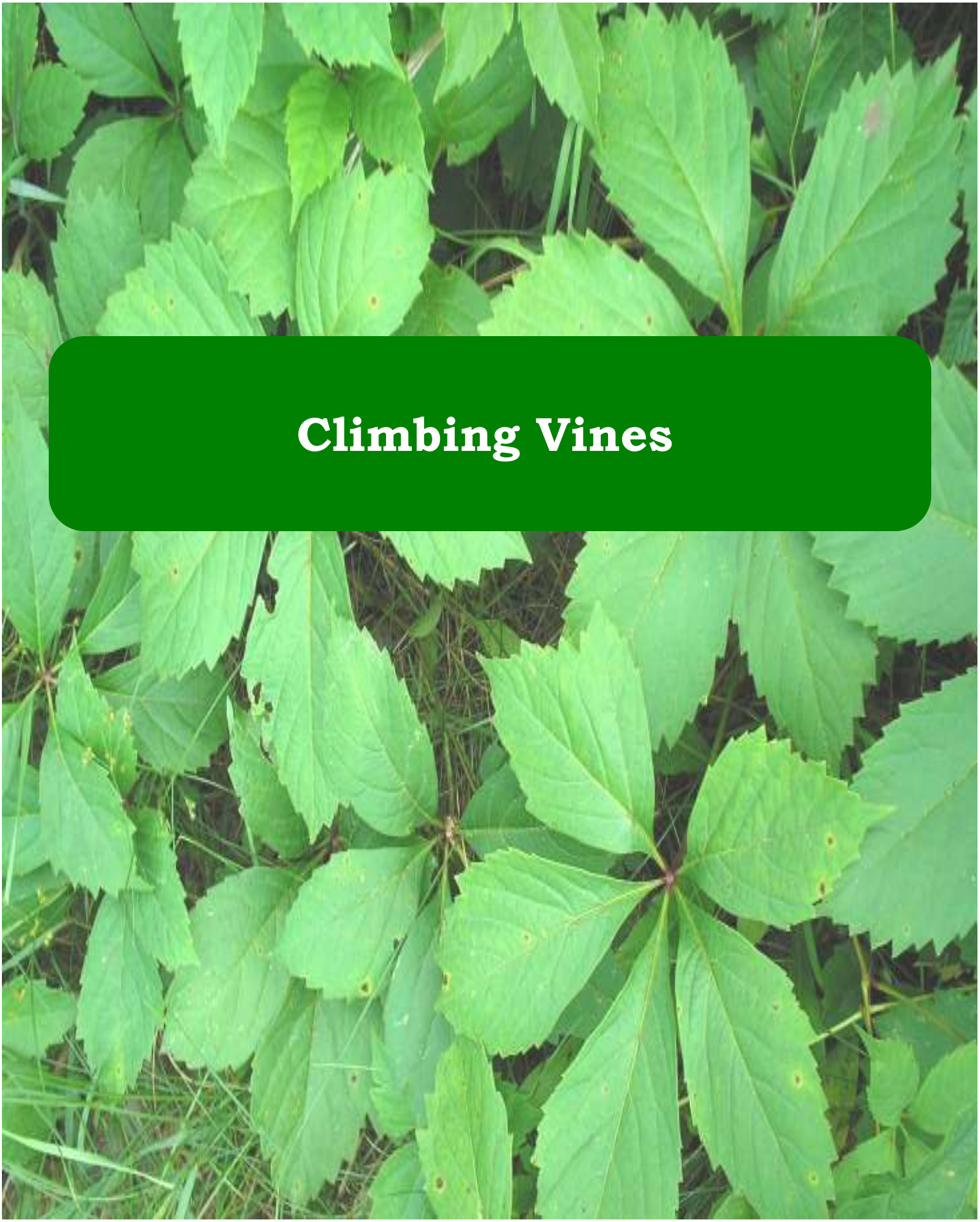
- **Status:** Native
- **Habitat:** Shrub and forested wetlands, edges of lakes, ponds, streams, and rivers.
- **Height:** Up to 10 feet tall.
- **Bark:** Dark grayish or blackish. Branches of previous year shreddy or flaky.
- **Twigs:** Slender, round and slightly downy on new twigs with large white pith.
- **Buds:** Lateral buds small and obscure. Terminal buds are downy, large, and pointed.
- **Leaves:** Alternate, egg-shaped to oblong, small, broadest above middle, sharply-toothed except at base. Straight-veined; both sides smooth and green, abruptly blunt-pointed. Up to 4 ½ inches long and 1 ½ inches wide.
- **Flower:** Many small, 5-petaled, fragrant, white flowers occurring on terminal spike.
- **Flowering Period:** July through September.
- **Fruit:** Small, tan, round capsule, each with 3 hairy partitions, resembling peppercorns, persisting into winter.

WINTERBERRY HOLLY/BLACK ALDER
Ilex verticillata

- **Status:** Native
- **Habitat:** Shrub and forested wetlands, edges of lakes, ponds, streams, and rivers.
- **Height:** Up to 10 feet tall.
- **Bark:** Gray, smooth.
- **Twigs:** Slender, dark purple-gray with many small lenticels.
- **Buds:** Tiny, blunt at tip, diverging from the twig. Crowded, upper buds larger. Terminal bud present.
- **Leaves:** Alternate, ovate, thick, dull-green above, downy beneath, coarse-toothed, prominent veins, Broadest at or above the middle, pointed at both ends.
- **Flower:** Very small**,** greenish or yellowish white. Male and female flower son separate plants, 6-8 petals, in clusters seated directly on stem, ¼ inch in diameter of very short stalks.
- **Flowering Period:** May through August.
- **Fruit:** Bright red, berry-like with 3-5 bony nuts borne singly or in clusters, approximately ¼ inch wide containing several seeds, persisting into winter.
- **Value:** Extremely showy in late fall and early winter when covered with their bright red fruit, these shrubs are either male or female. Attractive to birds.

WITCH HAZEL
Hamamelis virginiana

- **Status:** Native
- **Habitat:** Shrub and forested wetlands, edges of lakes, ponds, streams, and rivers.
- **Height:** Up to 30 feet tall.
- **Bark:** Mottled, light-brown to gray, smooth to scaly.
- **Twigs:** Zigzag, smooth to slightly hairy. Short shoots light orange brown, with rusty or gray hairs. Some brown warts, but lenticels indistinct.
- **Buds:** Lateral buds flattened, with rusty brown hairs. Terminal bud stalked, curved, or sickle-shaped.
- **Leaves:** Rounded to oval, wavy, lopsided, toothed in shallow rounded lobes. Main veins prominent, 5-7 nerves. One-sided at base.
- **Flower:** Bright yellow, crinkled, curving petals, persisting into winter, remaining attached to twig.
- **Flowering Period:** August into November.
- **Fruit:** Woody, hairy, light-brown, 2-seeded pod, with 4 well-spaced curved points, splitting open and ejecting black seeds forcibly, ripening a year after flowers. Open pods remain on stem.



Climbing Vines

CLIMBING/ORIENTAL BITTERSWEET
Celastrus orbiculatus

- **Status:** **Non-Native/Exotic, Invasive. This species is prohibited in New Hampshire.**
- **Habitat:** Disturbed areas, roadsides, fields, forests, and edges of streams and rivers.
- **Height:** 40-65 feet long deciduous woody vine. Very aggressive, climbs up and over trees and chokes them.
- **Stem:** Tanish, furrowed.
- **Leaves:** Alternate, ovate, bluntly toothed, 3-4 inches long, tapered at the base.
- **Flower:** Small, greenish clusters in the leaf axils.
- **Flowering Period:** April through May.
- **Fruit:** Bright-yellow splitting open to reveal showy, orange/red fruit.

POISON IVY
Toxicodendron radicans

Poison ivy showing fruit.

- **Status:** Native.
- **Habitat**: Generalist. Variety of soil, moisture and light conditions. Found in recent clear-cuts.
- **Height:** Upright deciduous shrub, trailing vine, or climbing plant. Shrub can grow up to 6 feet tall, but this plant is taller as a vine.
- **Leaves**: Long-stalked compound leaves divided into 3 leaflets, each leaflet having a longer stalk than the side leaflets.
- **Flowers:** Small yellowish flowers with 5 petals occurring on lateral clusters.
- **Flowering Period:** May through July.
- **Fruit:** Greenish to grayish-white berries, lacking hairs. Produced in late summer and can persist throughout winter.

CAUTION!

TOUCHING OR BURNING ANY PART OF THIS PLANT CAN CAUSE SEVERE SKIN IRRITATION.

Poison ivy as a tree-climbing vine.

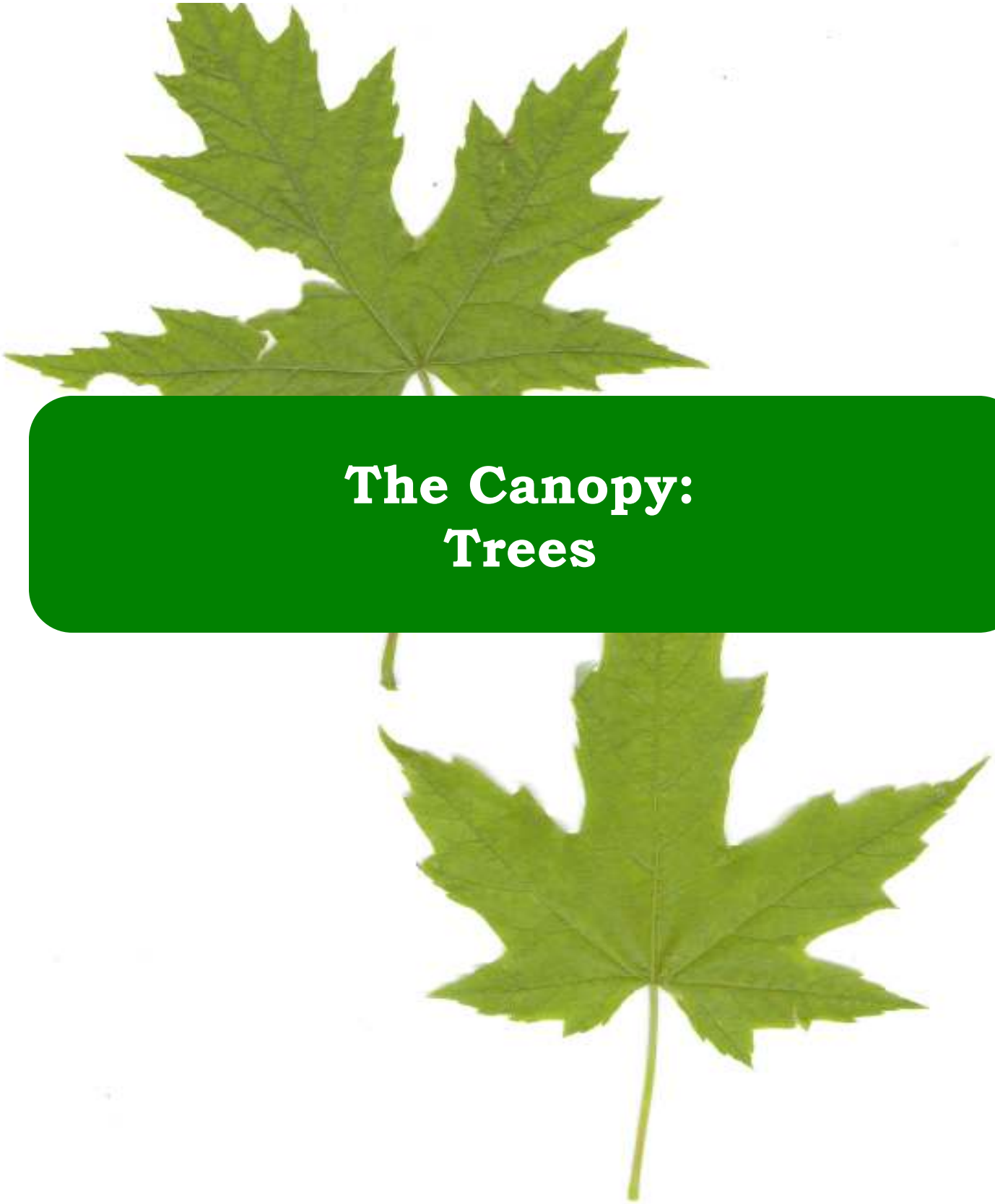
Poison ivy in autumn.

RIVERBANK GRAPE
Vitis riparia

- **Status:** Native.
- **Habitat**: Forested wetlands, floodplains, edges of streams and rivers.
- **Height:** Up to 60 feet tall.
- **Bark:** Reddish-brown in loose strips. Pith with thin, firm tissue.
- **Leaves:** Alternate, coarse-toothed, up to 7 inches long with usually 3-5 lobes and narrow-pointed leaves.
- **Flowers:** Inconspicuous, in branched clusters.
- **Flowering Period:** May through July.
- **Fruit:** Purplish-black to black grapes, up to ½ inch wide with whitish, waxy covering.
- **Similar Species:** Forest grape *(Vitis vulpina)* occurs in similar habitats but its leaves have broad teeth and are not usually lobed and its grapes are black and lacking waxy coating.

VIRGINIA CREEPER
Parthenosisus quinquefolia

- **Status:** Native
- **Habitat:** Wide range of conditions; dry sandy soil to moist nutrient-rich soil, shade, sun.
- **Stem:** Woody stem persisting into winter.
- **Leaves:** Alternate, palmately compound, with 3-7 but usually 5 leaflets. Leaflets 6-12 centimeters long with toothed margins. Turn deep-red in the fall
- **Flower:** Inconspicuous green-white.
- **Fruit:** Small, blue-black berries, appearing in autumn.
- **Comments:** Climbs by tendrils that have oval adhesive disks at their tips.
- **Similar Species:** Poison ivy *(Toxicodendron radicans)* has compound leaves with 3 leaflets but the terminal leaflet is attached to a short-stalk. Poison ivy also climbs by aerial roots not by adhesive disks.



The Canopy: Trees

AMERICAN BASSWOOD/LINDEN
Tilia americana

- **Status:** Native
- **Habitat:** Rich woods, valleys, gentle slopes.
- **Height:** Up to 100 feet tall.
- **Bark:** Smooth, gray, ridged when old.
- **Twigs:** Alternate, stout, zigzag, greenish-gray, smooth or downy.
- **Buds:** Reddish-brown, ½ inch long, lopsided. No terminal bud.
- **Leaves:** Alternate, large, up to 8 inches long, sharply toothed. Unequally heart-shaped at base.
- **Flowers:** 5 cream-colored, fragrant yellow petals Approximately ½ inch across.
- **Flowering Period:** Early summer.
- **Fruit:** Stalked cluster of small, pale green nuts, attached to a leafy wing.

AMERICAN BEECH
Fagus grandifolia

- **Status:** Native
- **Habitat:** Rich woods, uplands, well-drained lowlands.
- **Height:** Up to 90 feet tall.
- **Bark:** Smooth and light blue-gray when young and old.
- **Twigs:** Alternate, slender, greenish-brown, hairy.
- **Buds:** Slender, sharp-pointed, approximately ¾ inch long, chestnut brown with overlapping scales.
- **Leaves:** Alternate, simple, egg-shaped, pointed, with parallel veins terminating in teeth. Shiny, papery-smooth, up to 5 inches long. Dry leaves remain on tree in winter. Yellow in autumn.
- **Flowers:** Inconspicuous, slender catkins in a rounded head, both sexes occur on the same tree.
- **Flowering Period:** April through May.
- **Fruit:** Prickly, 4-valved fruit capsule bearing 2 triangular nuts. Nut is sweet and edible.

AMERICAN HORNBEAM/ IRONWOOD/BLUE BEECH
Carpinus caroliniana

- **Status:** Native
- **Habitat:** Rich woods, forested wetlands, edges of streams and rivers.
- **Height:** Up to 40 feet tall.
- **Bark:** Smooth, gray-green, furrowed, fluted (muscular), wavy.
- **Twigs:** Slender, dark reddish-brown, shiny and smooth or slightly - hairy.
- **Buds:** Oval, reddish brown, angled, scaly.
- **Leaves:** Alternate, simple, oblong, sharply and finely doubly-toothed margins, up to 4 inches long and 2 inches wide, entirely smooth above, slightly downy beneath. Orange or scarlet in autumn.
- **Flowers:** Very small male and female flowers occur in separate spikes. Male catkins 1 inch; female small, appearing with leaves.
- **Flowering Period:** April through May; before leaf-out.
- **Fruit:** Nutlet in the axil of a 3-lobed, leaf-like bract, the bracts clustered in a loose, terminal spike up to 2 inches long.

BLACK BIRCH/SWEET BIRCH
Betula lenta

- **Status:** Native
- **Habitat:** Rich woods.
- **Height:** Up to 60 feet tall.
- **Bark:** Smooth, dark brown. Long horizontal lenticels resembling cherry. Older trees with very dark thick plates.
- **Twigs:** Smooth, slender, light reddish-brown with very fine horizontal lines. Smells and tastes of wintergreen.
- **Buds:** Sharp, reddish brown, long terminal bud absent on long shoots. Bud scales downy on margins.
- **Leaves:** Alternate, simple, heart-shaped, sharply double-or single-toothed, smooth above with tufts of white hair on the veins beneath, dull, dark green. Wintergreen odor and taste.
- **Flower:** Male and female flowers occur in separate catkins on the same tree; male catkins present during the winter.
- **Flowering Period:** April through May.
- **Fruit:** Catkins cylindrical, short, scales smooth.

BLACK CHERRY
Prunus serotina

- **Status:** Native
- **Habitat:** Rich woods, on many sites.
- **Height:** Up to 60 feet tall.
- **Bark:** Dark reddish-brown, smooth, with narrow, horizontal lenticels on young trees, becoming roughened and scaly on older trees. Resembles black birch.
- **Twigs:** Slender, reddish-brown, often gray and peeling. Rancid odor and taste. Often with black knot swellings on branches, with narrow, lenticels.
- **Buds:** Bright, light reddish-brown, 4 scales appear as none. Terminal bud larger than laterals.
- **Leaves:** Alternate, simple, elliptic. Smooth and shiny above, finely-toothed turning inward. Brown wool on 1/3 of midrib beneath. Yellow to brown in autumn.
- **Flower:** White, 5-petalled elongated clusters appearing when leaves are ½ grown, in clusters at the ends of twigs, up to 4 inches long.
- **Flowering Period:** April through May.
- **Fruit:** Edible cherries, dark reddish-purple, becoming black with small stone. Appearing June-October.

BOX ELDER/ASH-LEAVED MAPLE
Acer negundo

- **Status:** Native
- **Habitat:** Forested wetlands, lowlands, floodplains.
- **Height:** Up to 40 feet tall.
- **Bark:** Thin, grayish to light-brown, with furrowed narrow ridges similar to Norway maple.
- **Twigs:** Stout, green to purplish-green, brightly colored, often red. Covered with whitish bloom the first year, which readily rubs off.
- **Buds:** Short-stalked, reddish, usually wooly or downy, whitish, densely hairy.
- **Leaves:** Opposite, compound, palm-like with 3-5 veiny leaflets up to 5 inches long, on short stalks. Very variable in shape, sharp margins with coarse teeth. Light green above, pale green and hairy along veins beneath. Stalk swollen at base.
- **Flower:** Small, yellowish to greenish. Male and female flowers occur in drooping clusters on separate trees, appearing slightly before leaf-out.
- **Flowering Period:** April through May; at or before leaf-out.
- **Fruit:** A typical flattened, v-shaped, winged samara.

EASTERN COTTONWOOD
Populus deltoides

- **Status:** Native
- **Habitat:** Floodplains, streambanks, valleys.
- **Height:** Up to 100 feet tall.
- **Bark:** Greenish-yellow on young trees, gray and furrowed on older trees.
- **Twigs:** Smooth, yellow-brown, moderately stout.
- **Buds:** Brown, shiny, approximately ½ to 1 inch long, 6-7 scales, heavy, sticky, fragrant, yellow resin inside.
- **Leaves:** Alternate, simple, large, triangular, coarse rounded teeth, up to 6 inches long and often nearly as wide. Dark green and shiny above, lighter beneath with veins prominent on both surfaces. Stems flattened at base of leaves. Leaves from sprouts very large. Yellow in autumn.
- **Flower:** Drooping, loosely grouped catkins. Male and female flowers occur in drooping spikes on separate trees. Before the leaves unfold, the male crowded into rather thick, reddish spikes, the female crowded into narrower, greenish yellow spikes.
- **Flowering Period:** April through May.
- **Fruit:** Short-stalked capsule with 4 partitions, approximately ¼ inch long.

EASTERN HEMLOCK
Tsuga canadensis

- **Status:** Native
- **Habitat:** Rich woods, ravines, forested wetlands.
- **Height:** Up to 100 feet tall.
- **Bark:** Cinnamon-red to gray, tinged with purple, narrow ridges.
- **Twigs:** Alternate, yellow to grayish brown, very hairy, flattened.
- **Buds:** Approximately ½ to ¾ inch wide, oval, chestnut brown, hairy scales.
- **Needles:** Narrow, approximately ½ inch long. Short, shiny dark-green above, tapering, whitish-green with 2 white lines beneath, appearing as a broad stripe. Stalked at base, persistent comb-like arrangement on twig.
- **Fruit:** Small oval cones, ½ to ¾ inch long on slender stalks. Cone scales as wide as long. Male cones are small structures in clusters in leaf axils and do not persist. Female cones have brown scales, are at twig ends, and persist.

EASTERN WHITE PINE
Pinus strobus

- **Status:** Native
- **Habitat:** Forested wetlands, bogs, ravines, cool shady north slopes.
- **Height:** Up to 120 feet tall.
- **Bark:** Smooth, thin, greenish when young, becoming dark brown, deeply-furrowed, and blocky when older.
- **Twigs:** Smooth, slender, green or light yellowish-green, resinous.
- **Buds:** Sharp-pointed, yellowish-brown.
- **Leaves:** In clusters of 5 (the only five-needled pine in the East), soft, slender, bluish-green. Retained to end of the second growing season. 3 year needles yellow in October. 2-5 inches long.
- **Fruit:** Large, tapering, cylindrical cones, falling when ripe (August-September). Require two seasons to mature. 4 to 8 inches long.

GREEN ASH
Fraxinus pennsylvanica

- **Status:** Native
- **Habitat:** Forested wetlands, floodplains, streambanks.
- **Height:** Up to 80 feet tall.
- **Bark:** Young twigs gray, thin, hairless. Older stems gray with shallow grooves, ridges, and furrows.
- **Twigs:** Stout, gray, terminal bud present, conical; the first pair of lateral buds placed some distance below the terminal.
- **Leaves:** Opposite, pinnately-compound with 5-9 (usually 7) leaflets. Shiny green on top, occasionally hairy on bottom with saw-toothed margins. Bright yellow in autumn.
- **Flower:** Inconspicuous, small cluster of greenish, petal-free, stalked flowers with male and female flowers occur on separate trees.
- **Flowering Period:** April to June; as leaves emerge.
- **Fruit:** Samara with a broad wing and indistinct seed portion.

RED MAPLE
Acer rubrum

- **Status:** Native
- **Habitat:** Forested wetlands, rich woods, edges of lakes, ponds, streams, and rivers.
- **Height:** Up to 75 feet tall.
- **Bark:** Smooth, gray, often satiny on young trees becoming darker, scaly, rough, separating and forming long scales, often up-curling in older trees.
- **Twigs:** Current years growth red. Older twigs light gray, smooth.
- **Buds:** Sharp, dark red, with prominent overlapping scales.
- **Leaves:** Opposite, simple, usually 3-lobed (sometimes 5) with sharp angles between lobes, and with sharp irregular teeth. Dark green above, gray-green beneath, approximately 3-4 inches long. Yellow or scarlet in autumn.
- **Flower:** Red or yellow with petals appearing long before the leaves emerge. Male and female flowers occur on separate trees.
- **Flowering Period:** March through May, before leaf-buds open.
- **Fruit:** A double-winged, v-shaped red samara, up to 1 inch long. Matures in late spring, falls and germinates at once.

RED OAK
Quercus rubra

- **Status:** Native
- **Habitat:** Bottomlands, moist slopes.
- **Height:** Up to 90 feet tall.
- **Bark:** Smooth, greenish-brown on young stems, becoming broken into ridges, reddish-brown, hard, with deep furrows when older. Inner bark reddish.
- **Twigs:** Alternate, strongly ridged or fluted. Reddish brown or black, smooth.
- **Buds:** Smooth, brown, blunt-pointed, in clusters at ends of twigs. Larger than other oaks except black. ¼ inch long, rounded on the sides. Terminal buds have slight rusty hairs.
- **Leaves:** Spikes on tips of lobes. Mostly 3 pairs, V-shaped space between lobes (typically 7-11), triangular in outline, smooth on both sides.
- **Flower:** Long spreading strings.
- **Fruit:** Acorn maturing in second year. Cup embracing 1/3 to ½ the acorn. Oval to cylindrical, short, shallow. Acorns, large, bitter, inedible, insides pale yellow.

SHAGBARK HICKORY
Carya ovata

- **Status:** Native
- **Habitat:** Rich woods, valleys, upland slopes.
- **Height:** Up to 100 feet tall.
- **Bark:** Smooth when young, splitting into long plates that curve outward, free at both, ends when older.
- **Twigs:** Reddish-brown, very stout, tough and hard to break. Solid pith.
- **Buds:** Dark brown, long-pointed, approximately ½ inch or more wide. Scales remaining over winter.
- **Leaves:** Alternate, compound, 4-6 inches long, 5 (rarely 7) leaflets, with the 3 upper leaflets much larger and longer than the lower terminal leaflet. Slightly toothed, with a tuft of hair on each tooth.
- **Flower:** Male and female flowers occur on same tree. Male flowers are 3-branched catkins, female flowers are in short spikes.
- **Flowering Period:** Early spring; before leaf-out.
- **Fruit:** Thick globe-like husks split away when ripe. Nut with 4 angles, whitish brown shell, thick, sweet kernel.

SILVER MAPLE
Acer saccharinium

- **Status:** Native
- **Habitat:** Forested wetlands, floodplains, edges of streams and rivers.
- **Height:** Up to 80 feet tall.
- **Bark:** Smooth, gray (like beech) in young trees breaking into long thin scaly plates, curving away at ends when older.
- **Twigs:** V-shaped, point upward at tip, drooping. Orange-brown to red. Bad odor when bruised.
- **Buds:** Terminal bud small, blunt, red.
- **Leaves:** Opposite, simple, approximately 5 inches wide. Deeply cleft, 5-lobed, sharply toothed. Green above, silver-white beneath. Very silvery under water. Downy beneath when young. Pale yellow in autumn.
- **Flower:** Small, red or greenish yellow. No petals, occurring long before the leaves. Some trees have only male flowers.
- **Flowering Period:** February through May; before leaf-out.
- **Fruit:** Occurring in late spring. The seed germinates at once; flattened, winged fruit, the largest of the native maples, up to 2 inches long.

SWAMP WHITE OAK
Quercus bicolor

- **Status:** Native
- **Habitat:** Forested wetlands, floodplains, edges of streams and rivers.
- **Height:** Up to 70 feet tall.
- **Bark:** Flaky, light grayish-brown peeling in ragged papery scales. Furrowed at base of tree in long, flat, scaly ridges.
- **Twigs:** Slender to stout, straw-brown to yellow-green. Bark peels from twig (only oak where this occurs).
- **Buds:** Small, round, terminal buds orange-brown, blunt-pointed, smooth. Lateral buds small and crowded.
- **Leaves:** Alternate, simple, oval, light-green above with hairs beneath, widest above the middle, strongly tapered toward the wedge-shaped base. Margin shallowly lobed. Yellow or brown in autumn.
- **Flower:** Male and female flowers occur separately on the same tree, the male in catkins the female in short spikes.
- **Fruit:** Oval, light-brown nut approximately 1 inch long, enclosed for about ½ its length by a cap. Occurring singly or often in pairs at the end of a short stalk. Some of the cups usually persist in winter.

SYCAMORE/PLANETREE/BUTTONBALL
Platanus occidentalis

- **Status:** Native
- **Habitat:** Floodplains, edges of streams and rivers.
- **Height:** Up to 100 feet tall.
- **Bark:** Creamy white on young branches, turning red-brown-gray, then breaking in large thin plates exposing whitish inner bark, giving a white-washed appearance.
- **Twigs:** Slender, smooth, yellow-brown, slightly zigzag, swollen at joints.
- **Buds:** No terminal bud. Lateral buds long, conical, resinous, shiny, dark, red-brown, covered by a single cap-like scale. Pointing outward, enclosed by bases of leaf stalks until the leaves fall.
- **Leaves:** Alternate, simple, large, with 3-5 pointed lobes, maple-like, pubescent beneath when young, with long pointed teeth.
- **Flower:** Small, inconspicuous. Male and female flowers occur separately in round heads on the same tree.
- **Flowering Period:** April through June.
- **Fruit:** Large round balls approximately ¼ inch long and 1 inch wide, with bristly hairs at base, containing many seeds. Occurring singly on long stalks. Remains on tree until spring.

TAMARACH/LARCH
Larix laricina

- **Status:** Native
- **Habitat:** Bogs, forested wetlands, wet peaty soils.
- **Height:** Up to 80 feet tall.
- **Bark:** Thin, reddish brown, scaly. Young branches grayish or pale orange-brown.
- **Twigs:** Smooth, brownish, many leaf scars.
- **Buds:** Dark reddish-brown, round, resinous.
- **Leaves:** Deciduous needles, pale blueish-green, approximately 1 inch long, flexible, triangular. Yellow in autumn before dropping off.
- **Flower:** Occur separately as small cones on the same tree. Male flowers are yellow. Female flowers are rose red; both appearing in March through April.
- **Fruit:** Small oval cones ½ to ¾ inch wide with 20 scales. Cone scales concave, smooth, often shining, longer than broad, chestnut brown, smooth on the outside.

WHITE ASH
Fraxinus americana

- **Status:** Native
- **Habitat:** Rich woods, valleys, slopes, forested wetlands, floodplains, edges of streams and rivers.
- **Height:** Up to 100 feet tall.
- **Bark:** Light or dark gray. Smooth when young, grooved when older. Longitudinal ridges forming diamond-shaped patterns, separated by narrow interlacing ridges.
- **Twigs:** Opposite, light greenish-brown with small white lenticles and a slight bloom. Solid pith.
- **Buds:** Rounded, rusty to dark-brown, rough, hairy. First pair of lateral buds at the same level, directly below the terminal.
- **Leaves:** Opposite, pinnately compound, stalked, oval to lanceolate, 8 to 12 inches long with 5 to 9 leaflets (mostly 7). Smooth or slightly wavy-toothed. Yellowish to maroon in the autumn.
- **Flowers:** Small**,** inconspicuous, male and female flowers occur on separate trees, appearing with the leaves. Purplish, in crowded clusters.
- **Flowering Period:** April through May; before leaf-out.
- **Fruit:** Cylindrical, light-brown, enclosing a seed and a flattened, elongated wing, 2-3 times long as the body. 1-2 inches wide, in drooping clusters.

WHITE OAK
Quercus alba

- **Status:** Native
- **Habitat:** Rich woods, adjacent slopes, edges of streams and rivers.
- **Height:** Up to 90 feet tall.
- **Bark:** Gray, thin on young trees and flaky, irregularly-plated or grooved when older.
- **Twigs:** Purplish-gray to greenish-red, moderately stout, smooth.
- **Buds:** Blunt, smooth, brownish at tips of twigs in clusters.
- **Leaves:** Alternate, simple, 4-10 prominent rounded lobes variable in depth. Reddish to violet in autumn. Brown dead leaves remain on tree in winter.
- **Flowers:** Both sexes occur on the same tree. Male flowers in clusters of hanging beads. Female flowers are few, in angles of new leaves. Greenish, yellowish, or reddish.
- **Fruit:** Maturing in one season. Acorn cup with wart-like scales. Cup shorter than nut. Sweet and edible.

WHITE SPRUCE
Picea glauca

- **Status:** Native
- **Habitat:** Rich woods, adjacent slopes, edges of streams and rivers.
- **Height:** Up to 70 feet tall.
- **Bark:** Thin, scaly, grayish-brown, silvery on freshly exposed areas.
- **Twigs:** Pale gray to yellow-brown, no hairs or fuzz.
- **Buds:** Oval, ragged, brown, smooth.
- **Leaves:** ½ to 1 inch, blueish-green, slight-bloom, pungent odor when crushed, sharp line of white dots in each groove. Tendency to mass toward the upper side of the twig.
- **Flowers:** Occur separately as small cones on the same tree. Male flowers are yellowish red. Female flowers are greenish red/purplish.
- **Cone:** Cylindrical, 2 inches long. Immature cones have thin scales, and are soft and flexible. Mature cones are light chestnut brown.

YELLOW BIRCH
Betula lenta

- **Status:** Native
- **Habitat:** Forested wetlands, floodplains, ravines, cool, rich woods of higher elevations.
- **Height:** Up to 100 feet tall.
- **Bark:** Peeling in thin ribbon-like strips when young that roll back in curls. Shiny yellow or silvery gray, rough and platy when older.
- **Twigs:** Stout, bronze or bright-brown, shiny. Smooth or sparsely hairy. Wintergreen odor and taste.
- **Buds:** Sharp, reddish-brown, oppressed, terminal bud absent, oval, with chestnut-brown scales.
- **Leaves:** Alternate, simple, long, oval, sharply double-toothed. Dull and dark-green above, lighter beneath with slight hairs in veins, base rounded to near heart-shaped, up to 5 inches long.
- **Flower:** Male and female flowers in separate catkins on the same tree. Male catkins present in winter. Male flowers are yellow, small, narrow in a drooping catkin at branch tips. Female flowers are green and in broader upright catkins placed back from the tip that matures into a brown cone.
- **Flowering Period:** April through May.
- **Fruit:** Catkins rounded, round, scales somewhat hairy, erect on twig, ¾ inch long, persist into winter.

Appendix A: Other Helpful Field Guides

- **The Book of Swamp and Bog: Trees, Shrubs, and Wildflowers of Eastern Freshwater Wetlands**
  by John Eastman
  1995 Stackpole Books
  ISBN 0-8117-2518-9

- **A Field Guide to Coastal Wetland Plants of the Northeastern United States**
  by Ralph W. Tiner, Jr.
  1987 University of Massachusetts Press
  ISBN 0-870-23538-9

- **Freshwater Wetlands - A Guide to Common Indicator Plants of the Northeast**
  by Dennis W. Magee
  1981 University of Massachusetts Press
  ISBN 0-87023-317-3

- **Northeastern Wetland Flora: Field Office Guide to Plant Species**
  by USDA – NRCS/Northeastern National Technical Center, Chester Pennsylvania

- **Plants in Wetlands: A Redington Field Guide to Biological Interactions**
  by Charles B. Redington
  1994 Kendall/Hunt Publishing Company
  ISBN 0-84038-983-3

- **Pond and Brook**
  by Michael J. Caduto
  1990
  ISBN 0-87451-509-1

- **Pond Life: A Golden Guide**
  by George K. Reid
  1987 Golden Books
  ISBN 0-30724-017-7

- **Through The Looking Glass**
  by Susan Borman, Robert Korth, Jo Temte
  1997/1999 Wisconsin Lakes Partnership
  ISBN 0-93231-032-X

- **Wetland Planting Guide for Northeast United States**
  by Gwendolyn A. Thunhorst
  1993 Environmental Concern, Inc.
  ISBN 1-88322-602-3

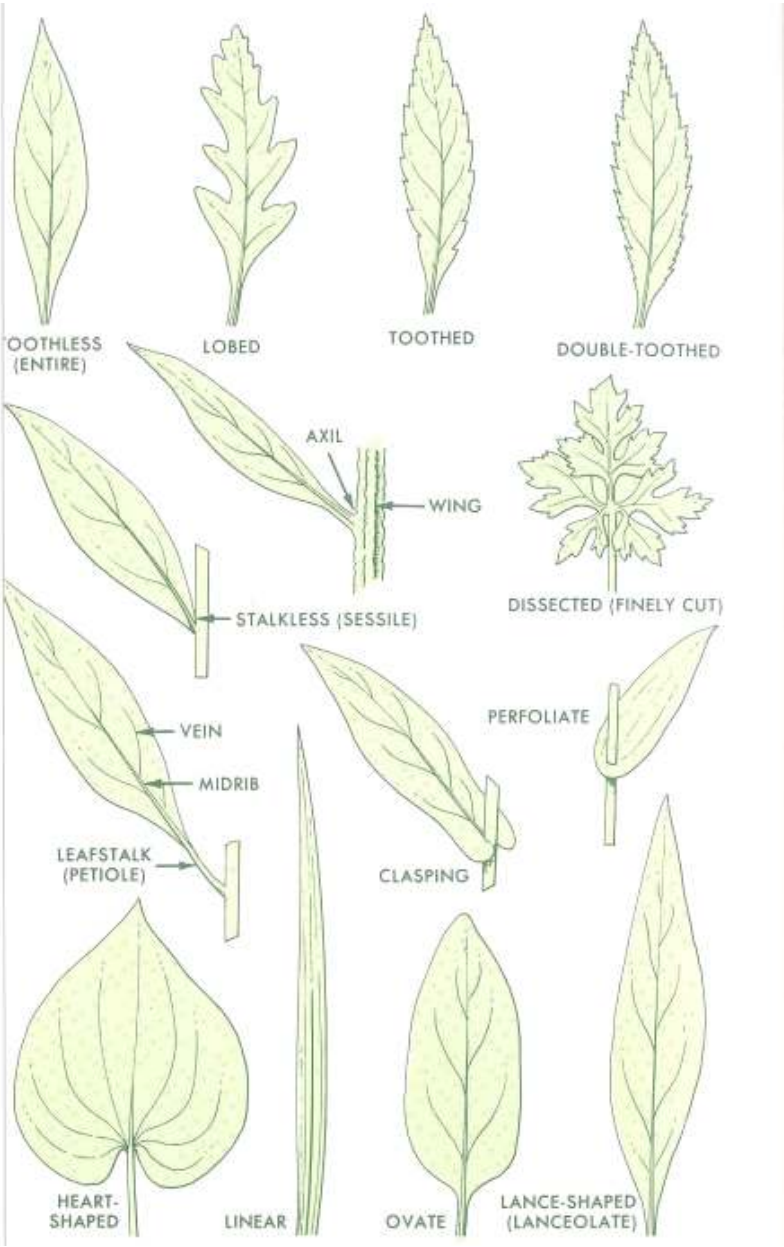
- **Wetlands - National Audubon Society Nature Guides**
  by William A. Niering
  1985 Alfred A. Knopf, New York
  ISBN 0-39473-147-6

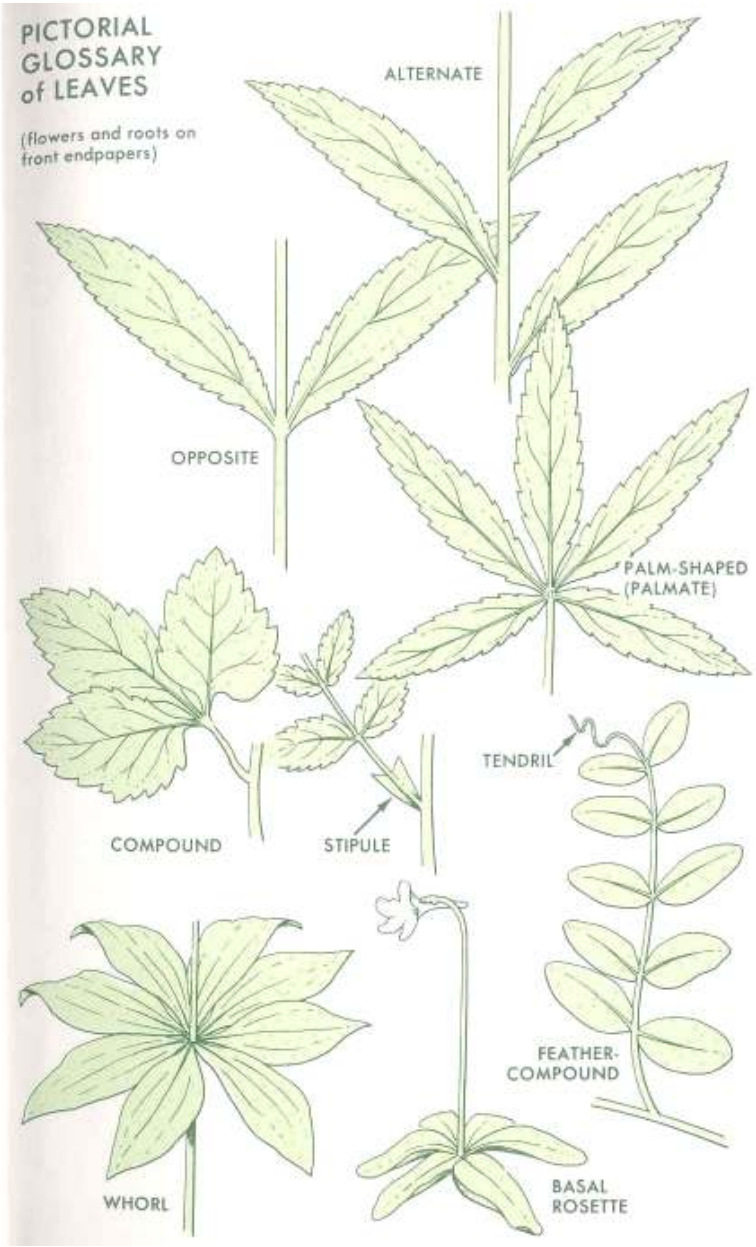
Appendix B: Glossary of Terms

- **Alternate:** Leaves arising singly along the stem, not in pairs or whorls.
- **Annual:** Living or growing for only one year or season.
- **Axil:** The angle where two structures join; for example, where a leaf joins the stem.
- **Axillary:** Occurring in or growing from an axil.
- **Basal:** Located at or arising from the base of a plant or a plant part.
- **Berry:** A small, juicy, fleshy fruit containing one to many seeds.
- **Capsule:** A dry fruit containing two to many seeds and opening by valves, slits, or pores.
- **Catkin:** Scaly spike of inconspicuous flowers lacking petals.
- **Ciliate:** Bearing margined hairs.
- **Clasping:** Leaves that partially encircle the stem at the base.
- **Compound (Leaf):** Divided into two or more distinct, separate parts (leaflets).
- **Cone:** A hard, woody, globose to cylindric arrangement of bracts or scales in the axils of which the reproductive structures are found.
- **Deciduous:** Falling from the plant after maturity each year.
- **Elliptic:** Broadest at the middle, gradually tapering to both ends.
- **Emergent:** Rooted in shallow water with most of the plant growing above the surface.
- **Emersed:** Raised out of the water, as in the flowers or fruits of some floating plants.
- **Entire (Leaf):** Having a continuous/smooth margin, unbroken by toothing or divisions.
- **Evergreen:** Remaining green throughout the winter.
- **Fibrous:** Referring to a cluster of slender roots, all with the same diameter.
- **Frond:** The leaf of a fern.
- **Furrowed:** Grooved
- **Glabrous:** Without hairs or scales.
- **Globose:** Shaped like a globe; round.
- **Head:** A group of flowers tightly crowned together in a more or less rounded structure.
- **Herbaceous:** A plant that dies back to the ground at the end of the growing season, or a plant part that is leaf-like in color and texture.
- **Inflorescence:** The entire flower cluster.
- **Lanceolate:** Lance-shaped; broadest near the base, gradually tapering to the narrower apex.
- **Leaflet:** One of the segments of a compound leaf.
- **Lenticels:** The small, corky pores or narrow lines on the surface of stems of woody plants that allow the interchange of gases between the interior tissue and surrounding air. A small opening in a stem.
- **Lip:** The upper and lower parts of certain tubular flowers.
- **Lobe:** The indented part of a leaf or flower, not divided into distinct and separate parts but still interconnected to similar parts of the leaf or flower.
- **Midrib/Midvein:** The central or main vein of a leaf.
- **Native:** A species that originated in a certain place or region; indigenous.
- **Node:** The place on the stem where leaves or branches are attached.

- **Non-Native:** Not originating in a certain geographic location than where they are found.
- **Nut:** A hard, dry, one-seeded fruit not opening at maturity.
- **Nutlet:** A small nut.
- **Oblong:** Broadest at the middle, and tapering to both ends, but broader than elliptic.
- **Opposite:** Leaves arising in pairs on either side of a stem.
- **Oval:** Broadly elliptic.
- **Ovate:** Broadly rounded at the base, becoming narrowed above.
- **Palmate:** Having three or more veins, lobes, or leaflets arising from one point.
- **Panicle:** A compound, loosely branched flower cluster.
- **Parallel Veined:** Having veins all parallel as opposed to in a network.
- **Perennial:** Living for two or more years.
- **Petal:** One segment of the series of floral leaves lying just inside the sepals, often the most conspicuous.
- **Petiole:** The stalk-like part of the leaf, attaching it to the stem.
- **Pinnate:** Divided once along an elongated axis into distinct segments.
- **Pith:** The soft tissue at the center of a plant's stem; it may be solid or hollow at maturity.
- **Pod:** A fruiting structure containing the mature seeds.
- **Pubescent:** Covered in fine, short hairs.
- **Recurved:** Curving downward.
- **Rhizome:** A horizontal, usually underground stem that often sends out roots and shoots from its nodes.
- **Ribbed:** Bearing ridges.
- **Root:** The descending axis of the plant, usually growing in an opposite direction from the stem.
- **Samara:** A winged fruit.
- **Scale:** A modified leaf or thin, flattened structure.
- **Sepal:** One segment of the outer series of floral leaves, often green in color, but occasionally of a different color and petal-like.
- **Serrate:** With sharp, forward-pointing teeth on the margin.
- **Sessile:** Without a stalk.
- **Sheath:** The base of a leaf that encircles the stem.
- **Simple (Leaf):** A leaf composed of a single blade.
- **Smooth:** Not rough to the touch.
- **Spike:** An elongated cluster of sessile flowers.
- **Shrub:** A woody plant, smaller than a tree, with several stems or trunks arising from a single base; a bush.
- **Simple Leaf:** A leaf with a single blade.
- **Succulent:** Juicy and fleshy.
- **Tendril:** A device, usually coiled, that enables some vines to climb.
- **Toothed:** With teeth along the margin.
- **Tuber:** A thickened part of an underground root or rhizome, serving for food storage and often for propagation.
- **Whorled (Leaf):** Arranged in a group of three or more leaves, branches, or pedicles at the node on the stem.

Appendix C: Leaf Shapes & Arrangements*





* Peterson, Lee Allen. *"A Field Guide to Edible Wild Plants of Eastern and Central North America"*, Houghton Mifflin Company, 1977.

Appendix D: Native Shoreland/Riparian Buffer Plantings for New Hampshire

Native Shoreland*/Riparian Buffer Plantings for New Hampshire

* The protected shoreland is the area of land that exists between the reference line of a waterbody and 250 feet from the reference line.

Common Name(s)	Latin Name	Height	Growth Rate	Rooting	Light Preference	Soil Preference	Habitat	Associated Birds & Mammals (Cover, Nesting or Food) & Food Value
Trees								
American Basswood (American Linden)	*Tilia americana*	Medium-Large 60-100'	Moderate	Deep	Full/Part Shade or Full Sun	Moist	Rich woods, valleys, gentle slopes	**Wildlife:** Pileated woodpecker, wood duck, other birds; deer, rabbit, squirrel **Food:** Seeds, twigs
American Beech	*Fagus grandifolia*	Medium-Large 60-90'	Slow	Shallow	Full/Part Shade or Full Sun	Dry or Moist	Rich woods, well-drained lowlands	**Wildlife:** Blue jay, chickadees, nuthatches, quail, ruffed grouse, tufted titmouse, wild turkey, wood duck, woodpeckers; bear, chipmunk, deer, fox, porcupine, snowshoe hare, squirrel **Food:** Nuts, buds, sap
American Hophornbeam (Ironwood)	*Ostrya virginiana*	Small 20-40'	Slow	Shallow	Full/Part Shade or Full Sun	Dry or Moist	Rich woods	**Wildlife:** Downy woodpecker, mockingbird, purple finch, ring-necked pheasant, rose-breasted grosbeak, ruffed grouse, wild turkey, wood quail; deer, rabbit, squirrel **Food:** Nuts, buds, seeds
American Hornbeam (Blue Beech/Musclewood)	*Carpinus caroliniana*	Small/Shrubby 20-40'	Slow	Moderate	Full/Part Shade or Full Sun	Dry, Moist, Flood Tolerant	Rich woods, forested wetlands, ravines, streambanks	**Wildlife:** Quail, ruffed grouse, wood duck; beaver, deer, squirrel **Food:** Seeds, buds
American Mountain Ash	*Sorbus americana*	Small Up to 25'	Fast	Shallow	Full/Part Shade or Full-Sun	Dry, Moist	Forested wetlands, rich woods	**Wildlife:** Bluebird, brown thrasher, catbird, cedar waxwing, grosbeak, mockingbird, robin, thrushes, wild turkey; bear **Food:** Fruit, twigs
Balsam Fir	*Abies balsamea*	Small-Medium 40-60'	Fast	Shallow	Full Sun	Moist, Flood Tolerant	Forested wetlands, streambanks, rich woods	**Wildlife:** Ruffed grouse, songbirds; small mammals, moose **Food:** Seeds
Balsam Poplar	*Populus balsamea*	Medium 60-80'	Fast	Shallow	Full Sun	Moist	Floodplains, riverbanks, streambanks, valleys	**Wildlife:** Beaver, deer, mouse, snowshoe hare **Food:** Buds, catkins, twigs, foliage
Big-Toothed Aspen	*Populus grandidentata*	Small-Medium 30-60'	Fast	Shallow	Full Sun	Dry or Moist	Sandy upland soils, floodplain streams; with quaking aspen	**Wildlife:** Black-capped chickadee, evening grosbeak, purple finch, ruffed grouse, yellow-bellied sapsucker; deer **Food:** Buds, catkins, bark, twigs, and foliage
Black Ash	*Fraxinus nigra*	Medium 60-80'	Moderate	Shallow	Full/Part Shade	Moist, Flood Tolerant	Forested wetlands, streambanks	**Wildlife:** Songbirds, wood duck; deer, moose, small mammals **Food:** Fruit, twigs, young leaves
Black Birch (Sweet Birch)	*Betula lenta*	Medium 40-60'	Moderate	Shallow	Full/Part Shade	Moist	Cool, moist uplands, rich woods	**Wildlife:** Grouse; deer, rabbit **Food:** Buds, catkins, seeds

Common Name(s)	Latin Name	Height	Growth Rate	Rooting	Light Preference	Soil Preference	Habitat	Associated Birds & Mammals (Cover, Nesting or Food) & Food Value
Trees (Continued)								
Black Cherry	*Prunus serotina*	Medium 40-60'	Moderate	Deep Taproot	Full/Part Shade	Dry or Moist	Rich woods, on many sites except very dry soils	**Wildlife:** Bluebird, blue jay, brown thrasher, cardinal, catbird, cedar waxwing, common crow, eastern kingbird, evening grosbeak, mockingbird, northern flicker, northern oriole, robin, ruffed grouse, sparrows, thrushes, veery, vireo, yellow-bellied sapsucker; bear, chipmunk, deer, fox, raccoon, squirrel **Food:** Berries, buds, sap
Black Gum (Tupelo)	*Nyssa sylvatica*	Medium 50-60	Slow	No Information Available	Full/Part Shade	Dry or Moist	Forested wetlands, floodplains	**Wildlife:** Bluebird, cardinal, catbird, chickadee, crow, finches, mallards, robin, ruby-throated hummingbird, ruffed grouse, vireo, wild turkey, woodpeckers, wood duck; honeybees, bear, chipmunk, deer, opossum, squirrel **Food:** Seeds, sap, nectar.
Black Spruce	*Picea mariana*	Small Up to 25'	Slow	Shallow	Full/Part Shade	Moist, Flood Tolerant	Bogs, forested wetlands, lake and pond shores	**Wildlife:** Songbirds, ruffed grouse, spruce grouse; chipmunk, cottontail, deer, porcupine, squirrel **Food:** Seeds, twigs, nectar, bark
Black Willow	*Salix nigra*	Small-Medium Up to 50'	Very Fast	Very Shallow	Full Sun	Moist, Flood Tolerant	Forested wetlands, lowlands, floodplains	**Wildlife:** Songbirds and mammals **Food:** Buds, catkins
Box Elder	*Acer negundo*	Medium 40-70'	Very Fast	Deep, Lateral	Full Sun	Dry, Moist, Flood Tolerant	Forested wetlands, lowlands, floodplains	**Wildlife:** Songbirds and mammals **Food:** Seeds
Eastern Cottonwood	*Populus deltoides*	Medium-Large 80-100'	Fast	Shallow	Full Sun	Dry or Moist	Floodplains, streambanks, valleys	**Wildlife:** Ruffed grouse **Food:** Catkins
Eastern Hemlock	*Tsuga canadensis*	Medium-Large 80-100'	Moderate	Shallow Lateral	Full/Part Shade	Dry or Moist, Acidic	Cool, moist uplands, ravines, rock outcrops, streambanks	**Wildlife:** Black-capped chickadee, blue and green warblers, crossbill, hawks, juncos, pine siskin, ruffed grouse, veery, wild turkey; deer, chipmunk, cottontail, porcupine, squirrel, white-footed mouse **Food:** Twigs, foliage, seeds
Eastern White Pine	*Pinus strobus*	Large 70-120'	Moderate	Shallow	Full Sun	Dry or Moist, Well-Drained	Forested wetlands, bogs, ravines, cool shady north slopes	**Wildlife:** Brown creeper, chickadee, crossbill, grosbeak, junco, nuthatch, pine warbler, sparrows, spruce grouse, wild turkey, woodpeckers; beaver, chipmunk, deer, snowshoe hare, squirrel **Food:** Seeds, foliage, twigs; excellent winter food
Gray Birch (Wire Birch)	*Betula populifolia*	Small 20-35'	Fast	Shallow	Full/Part Shade or Full Sun	Dry or Moist	Pioneer Species; poorest of sterile soils, sandy or gravelly slopes	**Wildlife:** American goldfinch, blue jay, chickadee, northern junco, pine siskin, red-tailed hawk, ruffed grouse, sparrows, vireo, yellow-bellied sapsucker, woodpeckers; snowshoe hare **Food:** Seeds, buds

Common Name(s)	Latin Name	Height	Growth Rate	Rooting	Light Preference	Soil Preference	Habitat	Associated Birds & Mammals (Cover, Nesting or Food) & Food Value
Trees (Continued)								
Green Ash	*Fraxinus pennsylvanica*	Medium-Large 60-80'	Fast	Shallow	Full/Part Shade or Full Sun	Moist, Flood Tolerant	Forested wetlands, floodplains, streambanks; never on dry soils	**Wildlife:** Cardinal, finches, evening grosbeak, mourning dove, red-winged blackbird, wood duck; beaver, chipmunk, deer, porcupine, squirrel **Food:** Seeds, foliage
Northern White Cedar (Arborvitae)	*Thuja occidentalis*	Medium 30-60'	Slow to Moderate	Shallow	Full Sun	Moist, Flood Tolerant	Bogs, wetlands, rich woods	**Wildlife:** Songbirds; small mammals, deer **Food:** Seeds, needles
Quaking/Trembling Aspen (Poplar)	*Populus tremuloides*	Small-Medium 30-60'	Fast	Shallow	Full Sun	Dry or Moist	Pioneer Species; dry open woods, sandy or gravelly slopes	**Wildlife:** Ruffed grouse; beaver, deer, porcupine, snowshoe hare **Food:** Buds, catkins, bark, twigs, and foliage
Red Maple	*Acer rubrum*	Medium 40-75'	Moderate to Fast	Very Shallow	Full Sun	Dry, Moist, Flood Tolerant	Forested wetlands, streambanks, lakeshores, rich woods,	**Wildlife:** Cardinal, chickadee, evening and pine grosbeaks, finches, robin, yellow-bellied sapsucker; beaver, chipmunk, deer; opossum, squirrel, snowshoe hare **Food:** Seeds, buds, bark, twigs, sap
Red Oak	*Quercus rubra*	Medium 60-90'	Moderate	Deep Lateral	Full/Part Shade or Full Sun	Dry or Moist	Bottomlands, moist slopes,	**Wildlife:** Blue jay, brown thrasher, ducks, hawks, quail, nuthatch, ruffed grouse, towhee, wild turkey, woodpecker; bear, chipmunk, deer, gopher, opossum, raccoon, squirrel **Food:** Acorns
Shagbark Hickory	*Carya ovata*	Large 70-100'	Fast	Deep Taproot	Full/Part Shade	Dry or Moist	Rich woods, valleys, upland slopes	**Wildlife:** Cardinal, field sparrows, pine warbler, rose-breasted grosbeak, rufous-sided towhee, white-breasted nuthatch, wild turkey, wood duck, yellow-rumped warbler; chipmunks, squirrels **Food:** Nuts
Silver Maple	*Acer sacharinium*	Medium 60-80'	Moderate	Shallow	Full/Part Shade or Full Sun	Moist, Flood Tolerant	Forested wetlands, riverbanks, floodplains, streambanks	**Wildlife:** Cardinal, goldfinch, evening and pine grosbeaks, northern oriole **Food:** Seeds, buds
Striped Maple (Moosewood/ Moose Maple)	*Acerpensylvanicum*	Small/Shrubby 20-30'	Moderate	Shallow	Full/Part-Shade	Moist	Rich woods, cool moist sites	**Wildlife:** Ruffed grouse; beaver, deer, moose, porcupine, rabbit **Food:** Buds, bark, samaras
Sugar Maple	*Acer saccharum*	Medium-Large 60-100'	Slow	Shallow	Full/Part Shade or Full Sun	Moist	Valleys and uplands; tolerates almost all soil types	**Wildlife:** Cardinal, goldfinch, grosbeak, ring-necked pheasant, robin, ruffed grouse, vireo; beaver, chipmunk, porcupine; Browse for deer, rabbit, snowshoe hare **Food:** Seeds, twigs, bark

Common Name(s)	Latin Name	Height	Growth Rate	Rooting	Light Preference	Soil Preference	Habitat	Associated Birds & Mammals (Cover, Nesting or Food) & Food Value
Trees (Continued)								
Swamp White Oak	*Quercus bicolor*	Medium 60-70'	Fast	No Information Available	Full/Part Shade	Moist	Forested wetlands, floodplains, streambanks	**Wildlife:** Barred owl, blue jay, cardinal, brown thrasher, grouse, mallards, nuthatch, quail, red-bellied woodpecker, red-tailed hawk, ruffed grouse, starling, towhee, wild turkey, yellow-throated wabler, wren; beaver, chipmunk, cottontail, deer, gopher, opossum, raccoon, squirrel, white-footed mouse, wild turkey **Food:** Acorns
Sweet Gum	*Liquidambar styraciflua*	Medium-Large 60-100'	Moderate	No Information Available	Full Sun	Moist	Valleys, Lower slopes, mixed woodlands	**Wildlife:** Mourning dove, finches, junco, wren; beaver, chipmunk, squirrel **Food:** Seeds
Sycamore (Planetree/Buttonwood)	*Platanus occidentalis*	Large 80-100'	Slow	No Information Available	Full/Part Shade or Full-Sun	Dry or Moist	Floodplains, lakeshores, streambanks	**Wildlife:** Finches; chipmunk, squirrel **Food:** Seeds
Tamarack (American/Eastern Larch)	*Larix laricina*	Small-Medium 40-80'	Variable	Moderate	Full Sun	Moist, Flood Tolerant	Bogs, swamps, wet peaty soils, drier upland loamy soils	**Wildlife:** Blue jay, kinglets, pheasant, red crossbill, robin, ruffed grouse, spruce grouse, yellow-bellied sapsucker; chipmunk, deer, porcupine, red squirrel, snowshoe hare **Food:** Needles, twigs, inner bark, seeds
White Ash	*Fraxinus americana*	Medium-Large 70-100'	Moderate	Shallow	Full/Part Shade or Full Sun	Moist, Flood Tolerant	Rich woods, valleys, slopes, forested wetlands, floodplains, streambanks	**Wildlife:** Finches, grosbeaks, red-winged blackbird, wood duck; deer, squirrel **Food:** Seeds, foliage
White Birch (Paper Birch)	*Betula papyrifera*	Medium 50-75'	Fast	Shallow	Full Sun	Dry or Moist	Forested wetlands, rich woods	**Wildlife:** Grouse, siskins **Food:** Seeds, buds
White Oak	*Quercus alba*	Medium-Large 50-90'	Moderate	Deep	Full/Part Shade or Full Sun	Deep, rich, well-drained	Streambanks, lakeshores, gentle slopes; adapts to almost any condition	**Wildlife:** Blue jay, brown thrasher, nuthatch, quail, ruffed grouse, towhee, wild turkey, wood duck, woodpecker; chipmunk, bear, deer, gopher, opossum, raccoon, squirrel **Food:** Acorns
White Spruce	*Picea glauca*	Medium 40-70'	Moderate	Shallow	Full/Part Shade or Full Sun	Dry or Moist	Streambanks, lakeshores, rich woods, adjacent slopes	**Wildlife:** Fishers, martens, snowshoe hare, voles **Food:** Seeds
Yellow Birch (Sweet Birch)	*Betula alleghaniensis*	Medium-Large 70-100'	Slow	Shallow/ Moderate	Full/Part Shade	Dry or Moist	Forested wetlands, floodplains, ravines, cool, rich woods of high elevations	**Wildlife:** Black-capped chickadee, common redpoll, goldfinch, pine siskins, red-shouldered hawk, ring-necked pheasant, ruffed grouse, wild turkey, wood duck, yellow-bellied sapsucker; beaver, chipmunk, deer, porcupine, squirrel, snowshow hare **Food:** Catkins, buds, bark, twigs, foliage, seeds

Common Name(s)	Latin Name	Height	Growth Rate	Light Preference	Soil Preference	Habitat	Associated Birds & Mammals (Cover, Nesting or Food) & Food Value
Shrubs							
American Hazelnut	*Corylus americana*	Medium 5-10'	Moderate	Full/Part Shade or Full Sun	Moist	Borders of woods, hillsides, thickets	**Wildlife:** Blue jay, brown thrasher, cedar waxwing, hairy woodpecker, ring-necked pheasant, ruffed grouse; chipmunk, deer, rabbit, squirrel **Food:** Nuts, berries, foliage
Beaked Hazelnut	*Corylus cornuta*	Small 6-10'	Moderate	Full/Part Shade or Full Sun	Dry	Dry places	**Wildlife:** Birds, mammals **Food:** Beaked nuts
Black Chokeberry	*Aronia meloncarpa*	Medium Up to 10'	Moderate	Full/Part Shade or Full Sun	Moist, Flood Tolerant	Shrub and forested wetlands	**Wildlife:** Cedar waxwing, chickadees, ruffed grouse, sharp-tailed grouse; deer, rabbit, squirrel **Food:** Berries, buds
Buttonbush	*Cephalanthus occidentalis*	Medium 6-12'	Moderate	Full/Part Shade or Full Sun	Moist, Flood Tolerant	Streambanks, lakeshores, ponds, shrub and forested wetlands	**Wildlife:** Ducks, rails, ruby-throated hummingbird; beaver, deer, muskrat, butterflies, honeybees and other insects **Food:** Fruit, twigs, leaves, seeds, nectar
Chokecherry	*Prunus virginiana*	Small 3-6'	Moderate	Full/Part Shade or Full Sun	Dry or Moist	With Aspen; dry soils	**Wildlife:** Bluebird, brown thrasher, catbird, crow, eastern kingbird, evening grosbeak, orioles, pileated woodpecker, ring-necked pheasant, robin, rose grosbeak, ruffed grouse, thrushes, yellow-bellied sapsucker; rabbit, squirrel **Food:** Berries, buds, foliage
Elderberry	*Sambucus canadensis*	Small-Medium 3-12'	Moderate	Full/Part Shade or Full Sun	Moist, Flood Tolerant	Rich woods, shrub and forested wetlands, marshes	**Wildlife:** Bluebirds, blue jay, brown thrasher, cardinal, catbird, grosbeak, indigo bunting, pileated woodpecker, ringed-neck pheasant, robin, rose-breasted grosbeak, ruffed grouse, thrushes, wild turkey, woodpecker; chipmunk, deer, rabbit, squirrel **Food:** Berries, nectar, twigs, bugs
Gray Dogwood (Red-Panicle Dogwood)	*Cornus racemosa*	Medium 10-15'	Moderate	Full/Part Shade or Full Sun	Dry or Moist	Roadsides, thickets, wetlands	**Wildlife:** Blue jay, cardinal, catbird, cedar waxwing, eastern kingbird, finch, flycatcher, grosbeak, hairy woodpecker, northern flicker, phoebe, pileated woodpecker, pine grosbeak, pine warbler, red-bellied woodpecker, ring-necked pheasant, robin, ruffed grouse, starling, swamp sparrow, tufted titmouse, veery, vireo, wild turkey, wood duck, wood thrush, woodcock, yellow-bellied sapsucker; chipmunk, deer, red fox, rabbit, squirrel **Food:** Berries, twigs
Highbush Blueberry	*Vaccinium corymbosum*	Medium 5-15'	Slow	Full/Part Shade or Full Sun	Dry, Moist, Flood Tolerant	Shrub and forested wetlands, rich woods	**Wildlife:** Baltimore oriole, bluebird, blue jay, cardinal, chickadee, gray catbird, kingbird, orioles, phoebe, red-bellied woodpecker, ring-necked pheasant, robin, ruffed grouse, rufos-sided towhee, scarlet tanager, tufted titmouse, veery, wild turkey, woodpeckers, wood thrush; black beer, chipmunk, deer, muskrat, rabbit, squirrel, white-footed mouse **Food:** Berries, foliage, twigs, buds
Hobblebush	*Viburnum alnifolium*	Medium Up to 10'	Moderate	Full/Part Shade	Moist, Flood Tolerant	Cool, moist ravines, shady lakeshores	**Wildlife:** Brown thrasher, cardinal, cedar waxwing, evening grosbeak, robin **Food:** Fruit

Common Name(s)	Latin Name	Height	Growth Rate	Light Preference	Soil Preference	Habitat	Associated Birds & Mammals (Cover, Nesting or Food) & Food Value
Shrubs (Continued)							
Juniper	*Juniperus communis*	Small 1-4'	Slow	Full Sun	Dry	Dry open land	**Wildlife:** Cedar waxwing, finches, grosbeaks, grouse, pheasant, robin; deer, rabbit, moose **Food:** Twigs, foliage, fruit
Lowbush Blueberry	*Vaccinium angustifolium*	1-2'	Slow	Full/Part Shade or Full Sun	Dry or Moist	Bogs, dry sandy flats, rocky slopes	**Wildlife:** Blue jay, grouse, kingbird, oriole, robin, tanagers, woodpeckers; squirrel **Food:** Berries, foliage, twigs
Maleberry	*Lyonia ligustris*	Up to 10'	Moderate	Full/Part Shade or Full Sun	Moist	Shrub and forested wetlands, rich woods, gentle slopes	**Wildlife:** Songbirds and mammals **Food:** Fruit
Mapleleaf Viburnum	*Viburnum acerifolium*	Small 3-6'	Moderate	Full/Part Shade or Full Sun	Moist	Rich woods	**Wildlife:** Songbirds and mammals **Food:** Fruit
Mountain Laurel	*Kalmia latifolia*	Up to 20'	Moderate	Full/Part Shade or Full Sun	Dry or Moist	Mixed uplands, acid soils	**Wildlife:** Ruffed grouse; deer **Food:** Foliage, buds, twigs, nectar
Nannyberry	*Viburnum lentago*	Medium-Large 10-25'	Moderate	Fall/Part Shade or Full Sun	Dry or Moist	Rich woods	**Wildlife:** Songbirds, mammals **Food:** Berries
Northern Arrowwood	*Viburnum recognitum*	Medium 10-15'	Moderate	Fall/Part Shade or Full Sun	Moist, Flood Tolerant	Shrub and forested wetlands, lakeshores, streambanks	**Wildlife:** Ruffed grouse, songbirds; bear, chipmunks, raccoon, squirrel, skunk, white-footed mouse **Food:** Berries
Northern Wild Raisin (Witherod Viburnum)	*Viburnum nudum var.cassinoides*	Medium 6-10	Moderate	Full/Part Shade	Moist, Flood Tolerant	Shrub and forested wetlands, valleys, slopes, streambanks	**Wildlife:** Brown thrasher, cedar waxwing, flycatcher, ruffed grouse, veery, woodcock, yellow-warbler; chipmunk, deer, muskrat, squirrel, snowshoe hare **Food:** Bark, twigs, buds
Pussy Willow	*Salix discolor*	Medium-Large Up to 15'	Fast	Full Sun	Moist, Flood Tolerant	Shrub and forested wetlands, streambanks, lakeshores	**Wildlife:** American goldfinch, ruffed grouse; beaver, hare, rabbits, squirrel **Food:** Buds, catkins, twigs, bark
Raspberry	*Rubus idaeus*	Small Up to 6'	Fast	Full/Part Shade or Full Sun	Dry or Moist	Thickets, edges of woods	**Wildlife:** Songbirds and mammals **Food:** Fruits
Red Osier Dogwood	*Cornus stolonifera*	Small-Medium 4-8'	Fast	Full/Part Shade or Full Sun	Moist, Flood Tolerant	Rich woods, streambanks, lakeshores	**Wildlife:** Bluebird, brown thrasher, cardinal, catbird, cedar waxwing, downy woodpecker, eastern kingbird, finches, northern flicker, pine warbler, purple finch, ringed-neck pheasant, ruffed grouse, vireo, wild turkey, woodpeckers, wood duck; chipmunk, deer, rabbit, squirrel **Food:** Berries, twigs
Rhodora	*Rhododendron canadense*	Small 3-4'	Slow	Full Sun	Moist, Flood Tolerant	Bogs, slopes, rocky summits	**Wildlife:** Songbirds and mammals **Food:** Leaves

Common Name(s)	Latin Name	Height	Growth Rate	Light Preference	Soil Preference	Habitat	Associated Birds & Mammals (Cover, Nesting or Food) & Food Value
Shrubs (Continued)							
Shadbush (Serviceberry/Juneberry)	*Amelanchier spp.*	Large 15-25'	Slow	Full/Part Shade or Full Sun	Dry, Moist, Flood Tolerant	Shrub and forested wetlands, floodplains, streambanks, rich woods	**Wildlife:** Bluebird, brown thrasher, cardinal, catbird, cedar waxwing, gray catbird, junco, orioles, red squirrel, robin, ruffed grouse, scarlet tanager, thrushes, veery, woodpeckers; beaver, deer, red squirrel, skunk **Food:** Berries, twigs
Silky Dogwood	*Cornus amomum*	Medium 6-10'	Fast	Full/Part Shade or Full Sun	Dry, Moist, Flood Tolerant	Shrub and forested wetlands, streambanks	**Wildlife:** Baltimore oriole, black-capped chickadee, blue jay, brown thrasher, cardinal, catbird, cedar waxwing, downy woodpecker, eastern kingbird, flycatcher, mockingbird, northern flicker, pine warbler, purple finch, red-bellied woodpecker, ringed-necl pheasant, robin, rose-breasted grosbeak, ruffed grouse, song sparrow, starlings, tufted-titmouse, wild turkey, wood duck, wood thrush, veery; chipmunk, deer, rabbit, raccoon, skunk, squirrel, white-footed mouse **Food:** Berries, buds, twigs
Speckled Alder	*Alnus rugosa*	Large 15-25'	Fast	Full Sun	Moist, Flood Tolerant	Shrub and forested wetlands, streambanks, lakeshores	**Wildlife:** Alder flycatcher, catbird, goldfinch, mallards, pheasant, pine siskin, red-winged blackbird, ruffed grouse, swamp sparrow, yellow-bellied flycatcher, woodcock; bear, beaver, deer, cottontail, moose, muskrat, snowshoe hare **Food:** Buds, twigs, bark, leaves
Spicebush	*Lindera benzoin*	Small-Large 6-17'	Moderate	Full Sun	Moist, Flood Tolerant	Shrub and forested wetlands, rich woods	**Wildlife:** Catbird, kingbird, pheasant, quail, robin, ruffed grouse, veery, vireo, wood thrush; swallowtail butterflies; deer, muskrat **Food:** Fruit, buds, twigs, leaves
Swamp Azalea	*Rhododendron viscosum*	Up to 5'	Moderate	Full/Part Shade or Full Sun	Moist, Flood Tolerant	Shrub and forested wetlands, rich woods	**Wildlife:** Hummingbird; butterflies and other insects; deer **Food:** Leaves, nectar
Swamp Blackberry	*Rubus hispidus*	Small Up to 6'	Slow	Full/Part Shade	Dry or Moist	Shrub and forested wetlands, rich woods	**Wildlife:** Blue jay, brown thrasher, cardinal, cedar waxwing, grackle, gray catbird, grosbeak, mockingbird, oriole tanager, ring-necked pheasant, robin, ruffed grouse, rufus-sided thrushes, towhee, veery, wild turkey, woodcock, woodpeckers, wood thrush; chipmunk, cottontail, deer, raccoon, skunk, squirrel **Food:** Fruit, canes
Sweet Gale	*Myrica gale*	Small 1-4'	Slow	Full Sun	Moist, Flood Tolerant	Shrub and forested wetlands, lakeshores, streambanks	**Wildlife:** Black-capped chickadee, catbird, common yellowthroat, phoebe, pied-billed grebe, ruffed grouse, tree swallow, tufted titmouse, wild turkey; deer, muskrat **Food:** Buds, leaves
Sweet Pepperbush	*Clethra alnifolia*	Medium 3-10'	Moderate	Full/Part Shade or Full Sun	Moist, Flood Tolerant	Shrub and forested wetlands, lakeshores, streambanks	**Wildlife:** Butterflies and other insects **Food:** Fruit, seeds, nectar
Winterberry Holly (Black Alder)	*Ilex verticillata*	Medium 6-10'	Slow	Full/Part Shade or Full Sun	Moist, Flood Tolerant	Shrub and forested wetlands, lakeshores, streamabanks	**Wildlife:** Cardinal, catbird, cedar waxwing, chickadees, finches, flickers, ruffed grouse, thrushes, vireo, woodpeckers; bear, cottontail, deer, moose, skunk, white-footed mouse **Food:** Berries, twigs, leaves

Common Name(s)	Latin Name	Height	Growth Rate	Light Preference	Soil Preference	Habitat	Associated Birds & Mammals (Cover, Nesting or Food) & Food Value
Shrubs (Continued)							
Witch Hazel	*Hammamelis virginiana*	Large 20-30'	Slow	Full/Part Shade or Full Sun	Moist	Dry or rich woods	**Wildlife:** Cardinal, ring-necked pheasant, ruffed grouse, wild turkey; deer, squirrels **Food:** Seeds, buds, twigs, bark

Common Name(s)	Latin Name	Height	Light Preference	Soil Preference	Habitat	Associated Birds & Mammals (Cover, Nesting or Food) & Food Value
Groundcover/Herbaceous Perennials						
Boneset	*Eupatorium perfoliatum*	4-6'	Full Sun	Dry or Moist	Wet meadows, marshes, pond edges	**Wildlife:** Mallards, ruffed grouse, swamp sparrow, wild turkey; butterflies and other insects **Food:** Nectar
Blue Flag Iris	*Iris versicolor*	2-3'	Full Sun	Moist, Flood Tolerant	Marshes, lakeshores, streambanks	**Wildlife:** Blue-winged teal, ruby-throated hummingbird, wood duck; butterflies and other insects; muskrat **Food:** Nectar, shoots
Bunchberry	*Cornus canadensis*	3-8"	Full/Part Shade	Moist	Cool, moist woods	**Wildlife:** Sharp-tailed grouse, spruce-grouse; moose **Food:** Fruit, buds
Cardinal Flower	*Lobelia cardinalis*	2-4'	Full Sun	Moist, Flood Tolerant	Damp sites, streambanks	**Wildlife:** Ruby-throated hummingbirds; butterflies and other insects; bear, deer **Food:** Nectar
Cattail (Broad-Leaf)	*Typha latifolia*	Up to 10'	Full Sun	Moist, Flood Tolerant	Marshes, lakeshores, streambanks	**Wildlife:** Blue-winged teal, black-crowned night heron, red-winged blackbird, king rail, least and American bittern, mallards, marsh wren, swamp sparrow, Virginia rail; chipmunk, deer, muskrat **Food:** Seed heads
Christmas Fern	*Polystichium acrostichoides*	Up to 1'	Full/Part Shade	Moist	Rich woods	**Wildlife:** Ruffed grouse; box turtle, chipmunk, rabbit **Food:** Fronds, filldeheads
Cinnamon Fern	*Osmunda cinnamomea*	Up to 3'	Full/Part Shade	Moist, Flood Tolerant	Shrub and forested wetlands	**Wildlife:** Brown thrasher, ruby-throated hummingbird, ruffed grouse, yellow throat; chipmunk, deer, white-footed mouse, vole **Food:** Fronds, filldeheads
Foamflower	*Tiarella cordifolia*	Up to 1'	Full/Part Shade	Moist	Rich woods	**Wildlife:** Songbirds and mammals **Food:** Leaves
Goldenrod (Rough or Grass-Leaved)	*Solidago spp.*	1-5'	Full Sun	Dry or Moist	Wet meadows, marshes, damp swales	**Wildlife:** Goldfinch, junco, ruffed grouse, swamp sparrow; butterflies and other insects; cottontail, meadow mice **Food:** Seeds, nectar

Common Name(s)	Latin Name	Height	Light Preference	Soil Preference	Habitat	Associated Birds & Mammals (Cover, Nesting or Food) & Food Value
Groundcover/Herbaceous Perennials (Continued)						
Hay-Scented Fern	*Dennstaedtia punctiloula*	Up to 2'	Full/Part Shade or Full Sun	Moist	Woodlands, hillside pastures	**Wildlife:** Mammals **Food:** Fronds, filldeheads
Interrupted Fern	*Osmunda punctiloula*	3-4'	Full/Part Shade	Moist	Woodland edges, stony dry soil	**Wildlife:** Mammals **Food:** Fronds, filldeheads
Jewelweed (Spotted-Touch-Me-Not)	*Impatiens capensis*	2-5'	Full/Part Shade or Full Sun	Moist, Flood Tolerant	Shrub and forested wetlands, streambanks	**Wildlife:** Ring-necked pheasant, ruffed grouse, ruby-throated hummingbird, veery; butterflies and other insects; white-footed mouse **Food:** Nectar, seeds
Joe Pye Weed	*Eupatorium purpureum*	2-6'	Full Sun	Moist, Flood Tolerant	Wet meadows, marshes, shores	**Wildlife:** Ruby-throated hummingbird, swamp sparrow; butterflies and other insects; cottontail, muskrat, raccoon **Food:** Nectar
New England Aster	*Aster novae-angliae*	Up to 5'	Full Sun	Dry or Moist	Wet meadows, wetlands	**Wildlife:** Songbirds; butterflies and other insects **Food:** Nectar, seeds
Ostrich Fern	*Pteretis pensylvanica*	Up to 6'	Full/Part Shade		Shrub and forested wetlands	**Wildlife:** Mammals **Food:** Fronds, fiddleheads
Partridgeberry	*Mitchella repens*	Up to 1'	Full/Part Shade	Dry or Moist	Rich woods	**Wildlife:** Grouse, mammals **Food:** Berries
Rattlesnake Manna Grass	*Glyceria canadensis*	Up to 3'	Full Sun	Moist	Marshes, bogs, forested wetlands, lakeshores	**Wildlife:** Songbirds and mammals **Food:** Seeds
Rice Cutgrass	*Leersia oryzoides*	Up to 5'	Full Sun	Moist, Flood Tolerant	Primarily fresh marshes	**Wildlife:** Deer, muskrat, moose **Food:** Seeds, foliage
Riverbank Grape (Vine)	*Vistis riparia*	Up to 25'	Full/Part Shade or Full Sun	Moist	Streambanks	**Wildlife:** Pileated woodpecker, ruffed grouse, wild turkey, wood duck; various mammals **Food:** Fruit
Royal Fern	*Osmunda regalis*	Up to 5'	Full/Part Shade or Full Sun	Moist, Flood Tolerant	Shrub and forested wetlands	**Wildlife:** Mammals **Food:** Fronds, fiddleheads
Sensitive Fern	*Onoclea sensibilis*	Up to 3'	Full/Part Shade	Moist, Flood Tolerant	Shrub and forested wetlands	**Wildlife:** Black-capped chickadee, ruffed grouse; bear, deer **Food:** Buds, foliage
Sheep Laurel	*Kalmia angustifolia*	Up to 4'	Fall/Part Shade or Full Sun	Dry, Moist, Flood Tolerant	Shrub and forest wetlands, fields/pastures	Poisonous to livestock.
Swamp Milkweed	*Asclepias incarnata*	Up to 2'	Fall/Part Shade	Moist	Wet meadows, wetlands, thickets, shores	**Wildlife:** Black duck, mallards, red-winged blackbird, ruby-throated hummingbird; Monarch butterfly, other butterflies and insects; muskrat **Food:** Nectar, seeds

Common Name(s)	Latin Name	Height	Light Preference	Soil Preference	Habitat	Associated Birds & Mammals (Cover, Nesting or Food) & Food Value
Groundcover/Herbaceous Perennials (Continued)						
Sweet Fern	*Componia perigrina*	1-3'	Full/Part Shade or Full Sun	Dry	Open, dry sandy soils and pastures	**Wildlife:** Flickers, sharp-tailed grouse; deer, moose **Food:** Fruit
Tall Meadow Rue	*Thalictrum polyganum*	2-8'	Full/Part Shade	Moist	Wetlands, wet meadows, streamsides	**Wildlife:** Bees, butterflies **Food:** Nectar
Tussock Sedge	*Carex stricta*	Up to 4"	Full Sun	Moist, Flood Tolerant	Marshes, rich woods	**Wildlife:** Finches, ruffed grouse, snipe, sparrows; deer **Food:** Seeds, foliage
Twinflower	*Linnaea borealis*	Up to 6"	Full/Part Shade	Moist	Rich woods	**Wildlife:** Mammals **Food:** Foliage
Virginia Creeper (Vine)	*Parthenocissus quinquefolia*	Up to 25'	Full/Part Shade or Full Sun	Dry or Moist	Woods, rocky banks	**Wildlife:** Bluebird, great-crested flycatcher, red-eyes vireo, pileated woodpecker **Food:** Berries
Whorled Loosestrife	*Lysimachia quadrifolia*	Up to 4'	Full/Part Shade or Full Sun	Dry or Moist	Dry or moist open woods, thickets	**Wildlife:** Mammals **Food:** Foliage
Wild Sarsaparilla	*Aralia nudicanlis*	8-15"	Full/Part Shade	Dry or Moist	Upland woods	**Wildlife:** Mammals **Food:** Foliage, seeds, berries
Wintergreen (Teaberry/Checkerberry)	*Gaultheria procumbens*	Up to 4"	Full Sun	Dry	Oak woods, sandy soils	**Wildlife:** Partridge, ruffed grouse, songbirds; chipmunk, deer, moose **Food:** Fruit, foliage

References

Baldwin, Henry Ives. "*Forest Leaves: How to Identify Trees and Shrubs of Northern New England*", Peter E. Randall Publisher, 1993

Connecticut River Joint Commission, "*Riparian Buffers for the Connecticut River Watershed*", 2000 http://www.crjc.org/pdffiles/Plant%20lists.pdf

Harlow, William M., "*Trees of the Eastern and Central United States and Canada*", Dover Publications, 1942

New Hampshire Department of Environmental Services, *The Critical Edge*, Appendix D, 1998

New Hampshire Department of Resources and Economic Development, Division of Forests and Lands, State Forest Nursury, "*Wildlife Conservation Species Descriptions*" , 2001

Niering, William A. *"National Audubon Society Nature Guides: Wetlands"* Chanticleer Press, Inc., 1997

Redington, Charles B. *"Plants in Wetland: Field Guide to Biological Interactionss"*, Kendall/Hunt Publishing Company, 1994

Sutton, Ann and Myron. *"National Audubon Society Nature Guides: Eastern Forests"* Alfred A Knopf, Inc., 1997

University of New Hampshire Cooperative Extension, "*Trees and Shrubs in New Hampshire: A Guidebook for Natural Beauty Projects*", Bulletin 163

University of New Hampshire Cooperative Extension, "*New Hampshire's Native Trees, Shrubs, and Vines with Wildlife Value*"

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