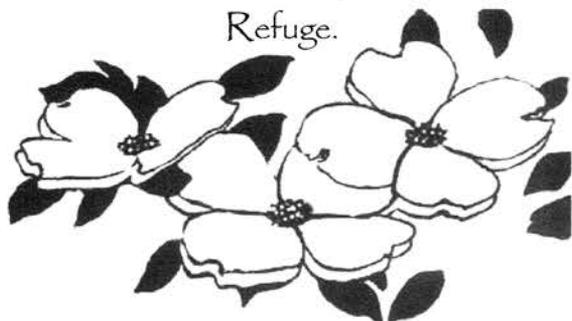


Friends of Great Swamp
National Wildlife Refuge
Is an independent, non profit organization
dedicated to

Promoting the conservation of the natural
resources of the Refuge
Fostering public understanding and
appreciation of the Refuge, and
Engaging in activities that will support the
mission of the Great Swamp National Wildlife
Refuge.

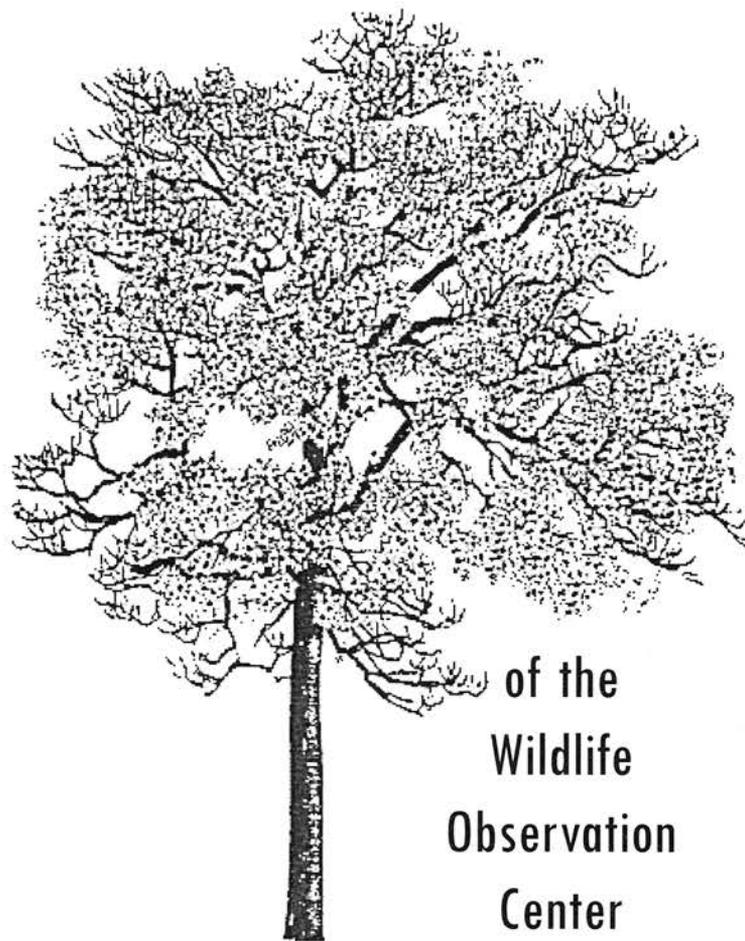


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Guide to Trees and Shrubs of Great Swamp National Wildlife Refuge

GUIDE TO TREES AND SHRUBS



of the
Wildlife
Observation
Center

Great Swamp
National Wildlife Refuge

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Welcome to Great Swamp National Wildlife Refuge, 7,800 acres of public lands managed by the U.S. Fish & Wildlife Service.

Use this guide to identify many of the trees and shrubs that grow along the boardwalk trail. Take your time as you walk along and get to know the trees and shrubs that surround you. The more you know, the more you notice... *enjoy your walk.*

HOW TO USE THIS GUIDE...

Locate the round yellow tag posted on a tree or shrub. Look up the corresponding number in this guide.

Note: The trees are not in the same order as the guide. Some trees prefer wood edges, so look for them around the parking lot or at the start of the boardwalk.

Read about the tree or shrub in order to get to know it a little better.

- What makes it special?
- What did early Americans use it for?
- What is it used for today?
- Can I plant this at home?
- What birds and animals use it for food or shelter?
- Key identification features.

Now practice what you've learned—use this guide to find other unmarked trees with the same features.

Trees

...have been friends through the ages – they provide shade, clean air and water; they give us beauty, and inspire poetry and prose.

...are a source for wood for our homes and the furniture inside them, materials for our daily living, medicines, food and fuel.

...provide shelter and food for our wildlife.

As our own New Jersey license plate proclaims—
Treasure our Trees.

1

Red maple

Acer rubrum

Also known as... swamp maple,
scarlet maple



Leaves: Opposite, simple, usually 3 lobes with toothed margins, 2 to 4 inches long.

Flowers: One of the first trees to bloom in early spring, the small red flowers, which appear before the leaves, give the tree a distinctive reddish hue. Fruit: Characteristic maple "samara", a seed with two slightly divergent wings, ripening quickly in May to June. Bark: On young trees, smooth and light gray; with age becomes darker with scaly ridges and shallow furrows forming concentric circles.

Red maple is the most frequently occurring species in New Jersey forests. It is a medium-sized native tree reaching heights of 40 to 75 feet with diameters of 1 to 2½ feet, preferring swamps and moist habitats. However, it is also found on the driest ridge-tops and in urban areas, demonstrating its broad adaptability. It is an early invader of old fields and cleared areas.

INTERESTING FACTS

The red maple's various names describe it perfectly. The Latin name *rubrum* means red and in all seasons of the year, this tree has something red about it – red blossoms in April, red seeds in May, crimson leaf stems in summer, scarlet foliage in autumn, and bright red twigs and buds in winter. The name *swamp maple* comes from its preferred habitat.

VALUE TO MAN — YESTERDAY AND TODAY

The wood is used for rough lumber, pallets, furniture, pulpwood, and firewood. The early settlers made inks and dyes from the bark of this tree. An excellent landscape tree, it is often planted in parks and along roadsides. It is relatively disease free, has good form, and displays a brilliant fall color. The sap can be made into syrup, but sugar maple is a better source.

VALUE TO WILDLIFE

In late winter and early spring, the buds and seeds provide a primary food source for gray squirrels; it is used for nesting and cover by many species of birds, while seeds and buds are eaten by cardinals, rose-breasted grosbeak, and turkey. Deer browse the foliage of young trees.

2

White oak

Quercus alba



Leaves: Alternate, simple, 5 to 9 inches long, with deep rounded lobes. Fall color is deep red to brown; leaves may persist on the tree through winter, a key identification feature. Fruit: Acorn, as much as an inch long; a light brown cap with raised bumpy scales covers 1/3 of the nut, which ripens to a deep brown. Bark: Light gray, scaly or deeply fissured into flat ridges.

White oak is one of our largest and most valuable trees reaching heights of 100 feet, slow growing, but very long-lived, as much as 600 years. This native tree can be found in upland forests with other oaks and hickories.

INTERESTING FACTS

The Latin name *alba* means white and refers to the light gray bark or the light colored wood. Some of New Jersey's oldest trees are white oaks. The Mercer Oak, which stood until March 3, 2000, commemorated the 1777 Battle of Princeton, when a mortally wounded General Hugh Mercer was carried to the shade of this white oak.

VALUE TO MAN — YESTERDAY AND TODAY

White oak ranks high in economic importance, a place it has held since the earliest settlements in this country. The wood is very strong, heavy, and durable and is good for nearly any purpose for which wood can be used. The colonists used it in shipbuilding (the gun deck and keel of the historic frigate *Old Ironsides* were of solid white oak) and also to build houses, bridges, barns, and mills. It is a wood having *tight cooperage*, a description of its abilities to hold liquids when fashioned into barrels and kegs. Today oak is a prized wood for furniture, flooring, interior trim, and it's a fireplace favorite.

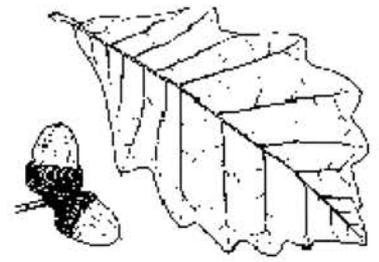
VALUE TO WILDLIFE

Oaks are high on the list of valuable wildlife foods, especially the sweet acorns of the white oak. Many different birds and animals rely on these acorns for food, including turkeys, blue jays, woodpeckers, raccoons, chipmunks, squirrels and deer.

3

Swamp white oak

Quercus bicolor



Leaves: Alternate, simple, 3 to 7 inches long with shallow rounded lobes, lower surface whitish. Fruit: Acorn about 1 inch long, frequently borne in pairs on a very long stalk, a key identification feature. A mossy-like fringed cap covers from one-third to one-half of the acorn. Bark: Light gray, very thick, deeply furrowed into long, flat ridges.

Swamp white oak, true to its common name, is most often found bordering swamps and wet areas. Of medium size, reaching heights of 50 to 90 feet and diameters of 2 to 4 feet, this native tree may live 300 to 350 years.

INTERESTING FACTS

The Latin name *bicolor* means two-colored, and refers to the contrast between the dark green upper surface of the leaves and the silvery undersides, especially noticeable in a breeze. This is the only oak tree acorn to have a long stalk. The tree must be at least 20 years old to start producing nuts, with good crops of acorns occurring every 3 to 5 years and light crops during intervening years. The winter silhouette is very striking and coarse, the result of many secondary branches and small spur branches along the trunk.

VALUE TO MAN — YESTERDAY AND TODAY

Swamp white oak is a heavy, hard wood that is commercially valuable and is frequently cut and sold as white oak. It has the same *tight cooperage* qualities as white oak and is used for barrels, kegs and other containers which hold liquids. The wood is also prized for furniture, crates, boats, and especially floors. The Iroquois used swamp white oak to treat cholera, broken bones, and tuberculosis.

VALUE TO WILDLIFE

The sweet acorns are an important food source for mallards and wood ducks and are also eaten by many other kinds of wildlife found in the swamp, including turkeys, woodpeckers, squirrels, deer and beaver.

4

Red oak

Quercus rubra

Leaves: Alternate, simple, 5 to 9 inches long with 7 to 11 bristle-tipped lobes. Fruit:

Brown acorn, 1 inch long with shallow saucer-shaped cup. Bark: Smooth, gray on young trees; on older trunks, darker, broken into flat-topped gray longitudinal ridges, described as "ski-trail bark".



Red oak is a large native tree reaching heights of 70 to 100 feet, with diameters of 2 to 3 feet. Found throughout New Jersey, it is the fastest growing of all oaks and lives 200 to 300 years.

INTERESTING FACTS

The wood has a reddish color, the source of its Latin name *rubra*, meaning red. The red oak is the state tree of New Jersey and appears on the *Treasure Our Trees* license plate.

VALUE TO MAN — YESTERDAY AND TODAY

Although initially shunned in favor of the more valuable white oak, red oak has become an important lumber species used for flooring, furniture and structural timbers. The presence of tannin makes the acorns taste bitter; native Americans boiled the acorns to leach out this soluble acid, leaving a tasty nut which they ground to make bread. Settlers used oak bark for tanning leather. Unlike white oak, red oak wood has large open pores and cannot be used for storing liquids.

Red oak is a good landscape tree growing rapidly, with bright fall color. It is used in parks, golf courses, and for street plantings. Recently, a serious disease called bacterial leaf scorch is spreading among red oaks and pin oaks, slowly killing the trees; symptoms include a brown discoloration on the leaves.

VALUE TO WILDLIFE

Acorns are an energy-rich food source for turkey, bear and deer. Unlike white oak acorns, which mature in 1 season, red oak acorns take 2 years to mature thus providing an important food resource in the winter when other foods are scarce. Red oaks get a boost from forgetful squirrels and blue jays who bury acorns for later eating.

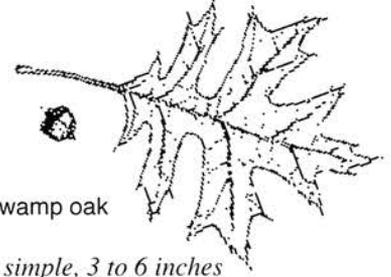
5

Pin oak

Quercus palustris

Also known as... swamp oak

Leaves: Alternate, simple, 3 to 6 inches long, bristle-tipped lobes, with deeply cut U shape on major lobes. Bright green above, pale green below, with small tufts of hair on the underside. Fruit: Small round acorns, only ½ inch, with a shallow cup. Bark: Smooth, light gray on young trees, becoming darker, finely grooved with shallow furrows on mature trees.



In Latin, *palustris* refers to marshes or swamps where the pin oak grows best. This is a medium sized tree reaching heights of 70 to 80 feet and diameters of 1 to 4 feet. It is fast growing, but relatively short-lived, reaching 150 years.

INTERESTING FACTS

The pin oak has a unique growth form. The uppermost branches point upward while the lower branches point toward the ground, giving the tree a distinctive pyramidal shape, a key identification feature in all seasons. The leaves turn a deep scarlet in fall and tend to remain on the tree through winter, another key identification feature. The common name *pin oak* refers to the numerous branches, resembling pins thrust into the wood, bristling outward at every angle. Unlike the sweet acorns of white oaks, acorns of the red and pin oaks are bitter due to the presence of tannic acid. This substance is also found in the leaves and is a major contributor to the dark color and acid water of bogs and swamps.

VALUE TO MAN — YESTERDAY AND TODAY

The wood is hard and heavy but has many small knots which reduce its quality and value. It has some use in construction for shingles and mine props, and is a good firewood. This is the most widely used oak for landscaping, especially in urban plantings. It is fast growing, tolerates wet soils and pollution, displays great fall color, has an attractive silhouette, and is relatively disease-free.

VALUE TO WILDLIFE

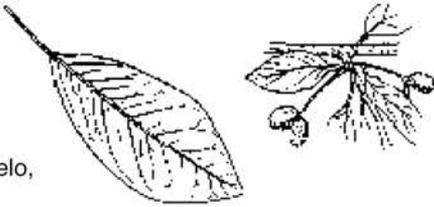
Although we would find them bitter, the small pin oak acorns are eaten by many species of wildlife such as deer, wild turkey, woodpeckers, blue jays, and squirrels. They are also an important food source for migratory waterfowl, such as wood ducks and mallards.

6

Black gum

Nyssa sylvatica

Also known as... tupelo, sourgum



Leaves: Alternate, simple, 2 to 6 inches long, margins generally smooth. Fruit: Berry-like, on a long drooping stalk, small, dark blue, bitter, one-seeded, ripening in fall. Bark: Dark gray, on older trees furrows and ridges can form blocks giving it the name "alligator bark".

Black gum is an understory tree occasionally forming part of the mixed forest canopy. It reaches average heights of 40 to 80 feet with diameters of 2 to 3 feet. This native tree is found in wooded swamps although it can also be found in upland forests.

INTERESTING FACTS

Nyssa is the name of a water nymph in classical mythology and *sylvatica* refers to the forest, a clear reference to its preferred habitat. Tupelo comes from the Creek language meaning tree and swamp. It is not clear where this tree gets the common name black gum – it does not produce any gum and is not related to the sweetgum tree (it belongs to the Dogwood family). This is one of the first trees to change color in the fall – that scarlet oval-shaped leaf you see on the ground in late summer probably fell from the black gum. The branches form distinctly right angles with the tall straight trunk, a key identification feature.

VALUE TO MAN – YESTERDAY AND TODAY

The Cherokee prepared bark tea for use in controlling diarrhea and intestinal worms. Early settlers left the wood alone because it was impossible to split as it is cross-grained, that is layers of wood grain alternately twist one way and then the other. However this characteristic makes it ideal as a wood for the handles of heavy-duty tools. This is an excellent specimen tree for the landscape, with brilliant fall colors. It is tolerant of wet conditions, grows in sun or shade and is relatively pest free.

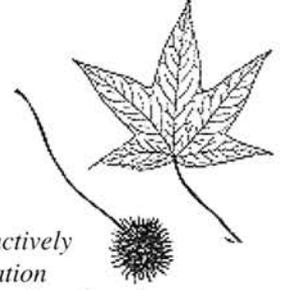
VALUE TO WILDLIFE

The fruit is relished by many songbirds, including robins, mockingbirds and flickers and is also a favorite of gray squirrel, opossum, fox, mallard, wild turkey and wood duck. Flowers are the source of nectar for the famed *tupelo honey*.

7

Sweetgum

Liquidambar styraciflua



Leaves: Alternate, simple, distinctively star-shaped leaf, a key identification feature. Fruit: Hundreds of tiny winged seeds are contained in a spiny ball which hangs from a long stalk, often persisting on the tree far into winter, a key identification feature. Bark: Grayish brown, deeply furrowed into narrow, rounded ridges; twigs often have corky, winged projections.

Sweetgum is a medium sized native tree reaching 60 to 90 feet in height, with diameters of 2 to 5 feet. It prefers moist woodlands and is an important commercial hardwood in the southeast. It is a pioneer species, reseeding naturally in open clearings where it often forms dense stands when young. However, it is shade-intolerant and will not survive in the shade of faster-growing forest trees.

INTERESTING FACTS

This tree is not related to the black gum; it is actually a member of the witchhazel family. Aptly named sweet gum, the tree exudes a sweet-smelling gummy sap from cuts in the bark.

VALUE TO MAN – YESTERDAY AND TODAY

Although bitter, native Americans used the hardened sap as chewing gum. Cherokees and other tribes used bark or root extracts for sedatives and for dressing wounds. The gum, called Storax, is used in perfumes, incense, soaps and medicines. When stained, the wood is a good substitute for the more expensive walnut and is used for furniture, cabinet making, and moldings. It has been sawed into short logs, peeled into veneer and made into baskets; many New Jersey peach baskets are made from sweetgum. This is a marvelous ornamental tree with stately form and brilliant fall colors ranging from yellow to dark purple. It grows well on a variety of soils, prefers full sun, and is relatively pest-free. One warning: the spiny *gumballs*, which fall in large numbers, can be a nuisance.

VALUE TO WILDLIFE

Of moderate value to wildlife. Squirrels, chipmunks and birds, including goldfinches and purple finches, eat the winged seeds picking them out of the spiny fruit.

8

Black cherry

Prunus serotina

Also known as... wild cherry

Leaves: Alternate, simple, 2 to 5
twice as long as wide, finely toothed
rusty hairs along midrib. Flowers:
long drooping clusters appearing in

Fruit: Long sprays of berry-like fruit
turning from red to black in late summer. Bark: Young trees have con-
spicuous narrow white horizontal lines, called lenticels,
on reddish-brown bark; on mature trees, the bark is dark,
rough and scaly, as if pasted with black cornflakes..



inches long,
with tufts of
White, in
early spring.

Black cherry is a medium sized native tree, reaching heights of 50 to 70 feet and diameters of 1 to 2 feet. It is a pioneer species growing quickly in abandoned fields and wood edges.

INTERESTING FACTS

Black cherry is one of the most widespread and common species in the eastern forest usually mixed with oaks, maples and ash. Broken twigs have a pronounced bitter almond smell, a key identification feature. Twigs, seeds, and leaves contain a poisonous substance; do not eat or chew them.

VALUE TO MAN — YESTERDAY AND TODAY

Black cherry has a beautiful smooth-grained wood which is quite malleable and strong. The rich red-brown color of the wood deepens with age and is used in making high-quality furniture, paneling, and interior trim as well as molded wood products and bowling pins. An extract from the bark was used by Indians as a remedy for coughs and colds. Cherry cough syrup was prepared from the bark, although modern cherry cough syrup usually contains only cherry flavoring. The fruit (without seeds) is used for making wine and jelly. The brilliant fall colors ranging from yellow to deep red make the black cherry an attractive ornamental tree.

VALUE TO WILDLIFE

The black cherry fruits are an important food source for mammals including squirrels, rabbits, raccoons, foxes, and opossums; birds devour the fruit before it is even ripe. The leaves are a primary larval food for caterpillars, including the red-spotted purple and eastern tiger swallowtail butterflies.

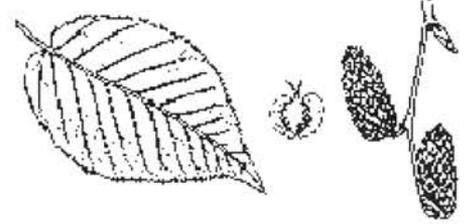
9

Black birch

Betula lenta

Also known as... sweet birch, cherry birch, mahogany birch

Leaves: Alternate, simple, 2 to 6 inches long, finely
toothed margins, somewhat heart-shaped at base; dark
green above, lighter below, turning deep yellow in fall.
Fruit: Erect small cone-like fruit, bearing tiny seeds in
the fall. Bark: Smooth, reddish-black on young trees,
similar to black cherry, with prominent horizontal lines,
called lenticels. Gray to black on mature trees, breaking
into smooth irregular plates, with dark lenticels promi-
nent. Unlike the paper birch and yellow birch, the bark
does not peel.



The black birch is a medium-sized native tree reaching heights of 50 to 70 feet and diameters of 2 to 3 feet, relatively slow-growing. Black birch is an early colonizer of abandoned fields, wood edges and roadside cuts.

INTERESTING FACTS

Black birch has a strong wintergreen aroma from bark, leaves, and freshly broken twigs, a key identification feature and the best way to distinguish it from black cherry at any time of year.

VALUE TO MAN — YESTERDAY AND TODAY

Native Americans collected spring sap for syrup and the black, or sweet birch can be tapped like a sugar maple, but not to the same extent. Birch beer was made from the sap. American Indians used the birch medicinally in controlling diarrhea and for treating colds and fever. Black birch bark was once the main source of oil of wintergreen for flavoring candy, medicine, and drugs; that oil is now produced synthetically. The hard, strong wood is used for veneer, furniture, and cabinets. It can be substituted for cherry or mahogany due to its dark color, and for that reason is known as cherry birch or mahogany birch. Not commonly used as an ornamental tree.

VALUE TO WILDLIFE

Not a significant food source for wildlife. Songbirds forage for insects in the flowers; deer and rabbits browse on the twigs.

10

Yellow birch

Betula alleghaniensis

Also known as... silver birch,
swamp birch



Leaves: Alternate, simple, 3 to 4 inches long, doubly-toothed margins, dull green above, yellow-green beneath. *Fruit:* Small cone often persisting on the tree over winter. *Bark:* Thin, smooth yellowish on younger trees, peeling horizontally in numerous small papery curls as the tree matures, a key identification feature. On older trunks, red-brown scaly plates may be apparent.

Yellow birch is a medium to large native tree reaching 60 to 70 feet. It is relatively shade tolerant, slow growing and long-lived. Preferring cool, moist soils, it is found on north-facing upland slopes in northern forests; here in New Jersey it finds the habitat it prefers in wooded swamps.

INTERESTING FACTS

The twigs have a wintergreen odor, fainter than that of black birch. The papery shreds of bark can be peeled off in emergencies and used as a fire starter even in wet conditions. The seeds can't germinate on the forest leaf litter, but can start to grow on rotting logs or in the cracks of boulders.

VALUE TO MAN — YESTERDAY AND TODAY

Yellow birch is the most valuable timber tree in the birch family and an important source of hardwood lumber today. The wood is strong, hard and closed-grained and used extensively for flooring, furniture, kitchen cabinets, paneling, toys and is a prized firewood. It was once used for ox yokes and for aircraft propellers in World War II. Both black birch and yellow birch were used to make birch beer. Native Americans burned the bark to keep mosquitoes away. Although not widely planted as an ornamental, it has a bright yellow fall color, relatively few pests and is resistant to birch leaf minor.

VALUE TO WILDLIFE

The seeds are an important food for wintering birds as well as wood duck, turkey, herons and goldfinches. Foliage, twigs and bark are eaten by porcupine, beaver, deer and rabbits. The tree provides resting and foraging sites for gray treefrogs and salamanders. The foliage is a larval food for butterflies like the mourning cloak.

11

Gray birch

Betula populifolia

Also known as... poverty
birch, old-field birch



Leaves: Alternate, simple, 2 to 3 inches long, triangular-shaped with doubly-toothed margins, fluttering at the slightest breeze. *Bark:* Grayish white, chalky, marked by prominent dark horizontal lines. Dark triangular chevrons appear at the base of each branch, a key identification feature.

Gray birch is a pioneer species, establishing itself quickly on old fields, wood edges, and roadside cuts. This native tree is small in size, reaching only 20 to 30 feet in height, grows rapidly and is short-lived. It also occurs in clusters of multiple stems, more like a shrub.

INTERESTING FACTS

The gray birch is sometimes called *poverty birch* because it will grow on such poor soils, or *old-field birch* because it is one of the first trees to spring up in an abandoned field. *Populifolia* refers to the poplar-like shape of the leaf, a key identification feature. It is so flexible that when weighted with snow, the upper branches may bend to the ground without breaking. Though often confused with the true paper birch, its bark does not peel.

VALUE TO MAN — YESTERDAY AND TODAY

The pleasing form, whitish bark with striking black chevrons, graceful slender branches, and delicate foliage make gray birch a highly desirable tree for ornamental purposes, equally attractive in all seasons. It may have a single trunk or multiple stems which form an interesting cluster. It will grow easily in full sun or part shade, tolerating the poorest, driest soils to wet, streamside conditions. With the exception of injury caused by birch leaf minor, it is disease resistant. Gray birch is not a valued timber species due to its small size and limited distribution. The wood is used for pulpwood, fuel and small woodenware such as toothpicks and spoons.

VALUE TO WILDLIFE

Gray birch is of moderate value to wildlife. It provides winter browse for deer; several species of songbirds feed on the seeds and buds; beaver and porcupine chew on the bark and wood.

12

Eastern redcedar

Juniperus virginiana

Also known as... Virginia juniper, pencil cedar

Leaves: Scale-like, evergreen, with a cedar-like odor when bruised. Fruit: Berry-like cone, green in spring, turning dark blue when ripe. Bark: Reddish-brown, peeling in long, stringy, vertical strips, a key identification feature.



Eastern redcedar is a small to medium-sized evergreen tree ranging from 20 to 80 feet in height. It is a slow-growing native species, widely distributed in the East. This is a pioneer species, one of the first to appear in abandoned fields and open areas; it is a common sight growing on highway medians.

INTERESTING FACTS

The Eastern redcedar is not actually a cedar, it's a juniper. The blue berry-like cones do not open and will remain on the tree through winter, a key identification feature. Do not eat the cones as they may cause diarrhea or worse. In the 1800's, this tree was a primary source of pencils as the wood is light and easily sharpened, hence the common name pencil cedar.

VALUE TO MAN — YESTERDAY AND TODAY

The wood is attractive, durable, finely grained, and easily worked. It is used for cedar chests because the odor repels moths. It is a source of cedarwood oil used in making soaps, insecticides and cosmetics. However, this extremely slow-growing tree is no longer considered an important commercial species as it takes so long to mature. It is a valuable tree in the home landscape, tolerant of most conditions. It is planted for watershed protection as it has a fibrous root system which helps prevent soil erosion. Warning: avoid planting near apple orchards, as it is an alternate host for cedar-apple rust, a disease harmful to apples.

VALUE TO WILDLIFE

The thick evergreen foliage provides important nesting and roosting cover for birds and wildlife; for example lone trees in open fields are common roosts for short-eared owls. The blue cones linger into winter sustaining over-wintering fruit-eating birds who, in turn, spread the seeds. The cedar waxwing gets its name from its fondness for the fruit.

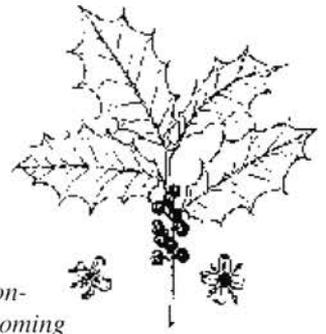
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13

American holly

Ilex opaca

Leaves: Alternate, simple, evergreen, 2 to 4 inches long, with short spiny teeth. Flowers: Inconspicuous, white or greenish, blooming in early spring. Fruit: Berry-like, bright red, ripening in the fall. Bark: Gray-brown, smooth until quite old.



Easily recognized by its broad evergreen leaves and bright red berries, this native tree grows very slowly as an understory tree in shady woods. It can reach heights of 30 to 50 feet with a distinctive pyramidal shape and branches hanging nearly to the ground.

INTERESTING FACTS

The male and female flowers grow on separate plants. The bright red berries appear only on the female plant, but male plants must be present to pollinate the female flowers and ensure fruiting. Berries, if eaten in large quantities, can cause nausea, vomiting and diarrhea. This is our only native holly species that attains tree height. *Note that there are two evergreen trees in this guide.* This is a broadleaf evergreen tree as compared to the Eastern redcedar, an evergreen conifer with needle-like leaves.

VALUE TO MAN — YESTERDAY AND TODAY

Native Americans made decorative buttons out of preserved holly berries which they bartered with other tribes. A leaf tea was used for colds and flu. The wood of American holly is tough and hard but not strong. It is one of the whitest woods known and is prized for cabinet inlays and ship models. It is dyed black to resemble ebony and made into piano keys. It has been a popular landscape plant since colonial times with persistent red berries and evergreen foliage. The tree maintains a nice shape with little pruning, grows slowly, tolerates air pollution, and is deer resistant. Clippings are widely used for holiday decorations although indiscriminate cutting can damage or even kill the plant.

VALUE TO WILDLIFE

Winter-migrating flocks of goldfinch and cedar waxwing eat the fruits, but they are not a choice food for birds explaining why they remain on the tree most of the winter. The nectar makes excellent honey; the evergreen foliage provides year-round cover for songbirds and mammals.

Guide to Trees and Shrubs of Great Swamp National Wildlife Refuge

14

American beech

Fagus grandifolia

Leaves: Alternate, simple, 2 to 5 inches long, parallel veins extend to evenly-spaced marginal teeth. Fall color is a golden bronze with leaves often persisting on the tree through winter, a key identification feature. Fruit: A prickly bur containing 2 to 3 edible nuts. Bark: Smooth and steel-gray at all ages, a key identification feature.



The American beech is a magnificent native tree often reaching 70 to 80 feet in height with diameters up to 4 feet. A tree of mature forests, it is long-lived and shade tolerant, often the most massive tree in the forest.

INTERESTING FACTS

In the earliest days of written language, the smooth pliable bark was used to carve messages. Our word *book* derives from the Anglo-Saxon *beece*. Daniel Boone recorded his killing of a bear in 1760 on a beech tree and that tradition continues; carved initials are often visible for years on the smooth bark (not recommended; it's unsightly and can introduce harmful disease and insects). The beech was neglected in early rounds of logging in favor of maple, birch and white pine, thus its present abundance is an artifact of settlement. There was so firm a belief among the Indians that a beech tree was proof against lightning that they took refuge under its branches during thunderstorms, a belief adopted by early farmers.

VALUE TO MAN — YESTERDAY AND TODAY

Native Americans used the inner bark to make soup or breads. The sweet nuts were eaten by settlers or boiled into soup or mush. The leaves were chosen over straw to stuff mattresses as they lasted longer without getting musty. Beech wood is very tight grained and is used for furniture, flooring, and veneer. It makes a good container for food and liquids as the wood has no odor or taste. It is an excellent firewood.

VALUE TO WILDLIFE

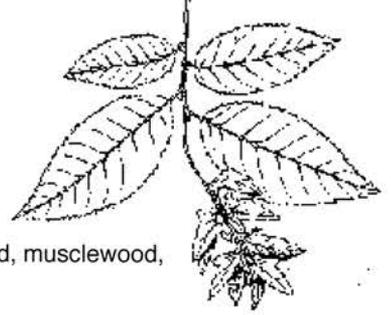
Beechnuts are a vital fall food for chipmunks and red, gray and flying squirrels. Birds feast on the nuts including blue jays, turkey, and wood ducks. Porcupines gnaw on the bark in winter. The tree often becomes hollow through decay, which provides dens for many species of animals.

15

American hornbeam

Carpinus caroliniana

Also known as... ironwood, musclewood, blue beech



Leaves: Alternate, simple, 2 to 4 inches long, doubly toothed margins, dull green on top, paler beneath. Fruit: Very noticeable clusters of loose, leafy 3-lobed bracts with a small nut-like seed at the base. When the nut falls, the bracts act like a parachute, carrying the seed away in the wind. Bark: Smooth, blue-gray bark, the trunk displays a distinctive muscular look, hence the common name "musclewood", a key identification feature.

The hornbeam is a small, slow growing native tree or large shrub reaching heights of 10 to 30 feet, with diameters of 10 to 24 inches. This understory tree is highly shade-tolerant and grows best in wooded swamps and along stream banks.

INTERESTING FACTS

The common name *ironwood* refers to the toughness of the wood. The name hornbeam is also descriptive of the wood, originating from the words *horn* for toughness and *beam* for wood. The smooth, blue-gray bark resembles that of beech trees, giving rise to the name blue beech.

VALUE TO MAN — YESTERDAY AND TODAY

Cherokees used American hornbeam medicinally for a number of ailments. The wood is extremely hard and heavy. It was used by the Chippewa for supports in wigwams and tents and in modern times it has been used for tool handles and wooden wedges. It is one of the densest woods, and won't even float on water when it's green. However, due to the small size of the tree, its wood does not have much commercial value. Although not common in landscaping, it is listed as one of the 100 excellent trees for the home garden by the Brooklyn Botanic Garden. This tree is small, slow-growing, and good for shady spots.

VALUE TO WILDLIFE

The nutlets are eaten by several kinds of birds including wood duck, ruffed grouse, pheasant, wild turkey, and by squirrels. The tree provides cover for breeding, nesting, and overwintering birds.

16

Shagbark hickory

Carya ovata

Leaves: Alternate, compound, 8 to 14 inches in length, with 5 to 7 finely toothed leaflets, the upper 3 of which are noticeably larger. Fruit: A whitish nut, surrounded by a large, round, thick husk which splits cleanly into 4 sections.

Bark: Smooth, finely striped on young trees. When mature, the loose, shaggy bark separates from the trunk in strips a foot or more long, giving this tree its characteristic shaggy appearance.

A medium to tall native tree, the shagbark hickory reaches heights of 60 to 90 feet. It can be found in upland forests in the company of oaks. It grows slowly and can live 200 to 300 years.

INTERESTING FACTS

Hickory comes from the Algonquin word *pohickery*, a food made from nuts and water. The bark loosens into shaggy strips about the time the tree starts bearing nuts, possibly a means of self-defense as the rough bark makes it awkward for animals to climb up and eat the nuts. Historically the tree has been synonymous with strength and toughness; General Andrew Jackson was nicknamed *Old Hickory* by his troops, a compliment to the strength of his character.

VALUE TO MAN — YESTERDAY AND TODAY

For both utility and food, few trees rival the hickory. The wood is exceptionally hard, strong and elastic. It is used in making ladders, gunstocks, furniture, sporting equipment and is an excellent firewood. The sweet nuts were a staple food of native Americans who used them to make cakes; early settlers also harvested the nuts by the bushel. Most hickory nuts sold today come from the shagbark hickory. The wood is used for smoking fires to flavor meats. This is an attractive specimen tree for the large landscape with its interesting shaggy bark, yellow fall color and tall straight trunk.

VALUE TO WILDLIFE

In the fall, sections of thick husks litter the ground under a hickory, but you'll have to search hard to find a nut as they are an important food source for red, gray, and flying squirrels, chipmunks, opossums, turkeys, mallards and wood ducks. Many hickories are planted by forgetful squirrels.

17

Green ash

Fraxinus pennsylvanica

Also known as... red ash, river ash

Leaves: Opposite, compound, up to 12 inches long, 5 to 9 leaflets; fall color is yellow. Fruit: Single-winged seeds, called samaras, hang in large clusters, maturing in fall and dispersing over winter. The samara shape propels the seed with the same helicopter-type flight of the two-winged maple seed. Bark: Furrowed in characteristic diamond-like pattern.

Green ash is a medium-sized native tree, reaching heights of 60 to 70 feet. This rugged, fast-growing tree is found in wooded swamps, floodplains and along streams.

INTERESTING FACTS

Green ash, as well as other varieties of ashes, are characterized by compound leaves, opposite branching and a single-winged seed, all key identification features. One of the most widely distributed ashes in the state, green ash is very similar to white ash and not easy to tell apart — look for the short-stalked leaflets on the white ash; the green ash leaflets are *sessile*, attached directly to the leaf without a stalk.

VALUE TO MAN — YESTERDAY AND TODAY

The wood is used for interior finishes, flooring, and furniture although it is often marketed as white ash. Native Americans used green ash to craft their bows. Green ash, along with oak, was the principle wood used for basket making in the east. This tree is able to adapt to many conditions and is extensively planted on streets, parks, and golf courses. It is more forgiving of adverse conditions than white ash, tolerating high pH, salt, dry conditions and poor soil.

VALUE TO WILDLIFE

Of moderate importance to wildlife. The bark and seeds are used as food by porcupine, beaver, black bear, mice and deer. Seeds are a favored food of cardinals, wood ducks, purple finch, and red-winged blackbird. The leaves are an important larval food for the eastern tiger swallowtail butterfly.

18

Shadbush

Amelanchier canadensis

Common names: Juneberry, downy serviceberry, shadblow, churchyard tree



Leaves: Alternate, simple, 1 to 3 inches long with finely toothed margins. Early in the season, the leaves are covered with soft gray fuzz, giving the plant its common name, downy serviceberry. In fall, the leaves put on a show of yellow, red, and orange. *Flowers:* The white flower clusters are showy and emerge in early spring before the leaves. *Fruit:* Small, purplish apple-like fruits appear in early summer. *Bark:* Grayish, smooth, streaked with longitudinal fissures; looks striped.

Shadbush is a small native tree reaching heights of 6 to 25 feet found growing in wooded swamps. It is easily spotted in the spring when it sends forth clouds of white blossoms long before the leaves of other trees start to unfold, a key identification feature.

INTERESTING FACTS

The name shadbush refers to the time it blooms in early spring, about the same time that the shad fish run up tidal rivers to spawn in New England and New Jersey. Shadbush flowering also marked the time when the ground had thawed sufficiently to hold burial services for colonists who had died during the winter, hence *serviceberry* or *churchyard tree*.

VALUE TO MAN — YESTERDAY AND TODAY

Native Americans prized the wood for making arrows. The juicy berries were food for the Indians who ate them fresh or dried them for winter. Early settlers used the fruit for puddings and pies. The wood has no commercial value. In the landscape, shadbush is ideal for planting in wet areas or a shaded woodland garden with its showy white flowers in early spring and great fall color. It's ideal for small properties, grows in part shade or full sun, and has no significant pests or diseases.

VALUE TO WILDLIFE

Birds and other wildlife find the fruits irresistible and consume them before they are even ripe. The juicy sweet fruits are an important wildlife food during the early summer period for squirrels and chipmunks; even black bear relish the shadbush fruit.

Guide to Trees and Shrubs of Great Swamp National Wildlife Refuge

19

Flowering dogwood

Cornus florida



Leaves: Opposite, simple, 3 to 5 inches long, with parallel veins creating a distinctive pattern. Deep red in fall. *Flowers:* Small, green, arranged in dense flat heads. *Fruit:* Scarlet, berry-like, arranged in small, shiny clusters. *Bark:* On older trees, ash gray, deeply checkered like alligator hide.

The flowering dogwood is a small understory tree of open woodlands reaching heights of 20 to 40 feet. Its short trunk, full rounded crown, and wide-spreading horizontal branches create a distinctive layered form. It is a slow growing, short-lived native tree.

INTERESTING FACTS

Florida means flowering, but the showy white petals are actually 4 bracts, or modified leaves, that surround the tiny inconspicuous flowers. In early spring, before the leaves appear, the blooms of the dogwood are highly noticeable scattered throughout the New Jersey woods. This is the New Jersey State Memorial Tree and appears on the *Treasure our Trees* license plate.

VALUE TO MAN — YESTERDAY AND TODAY

Native Americans used the bark and roots as a remedy for malaria and made a scarlet dye from the roots. In Colonial times, a tea brewed from the bark was said to reduce fever. The wood is extremely hard and although the tree is too small for commercial importance, the wood was prized for shuttles in the textile industry, tool handles and golf-club heads. In the landscape, this tree is attractive in all seasons and is widely planted as an ornamental. Its dense crown provides good shade, its small stature makes it appropriate for small yards, and it is among the earliest and most spectacular of the spring flowering trees. In recent times a fungus called dogwood blight has decimated the flowering dogwood. The disease most seriously impacts trees in the forest understory; those in undisturbed, airy and open places survive better.

VALUE TO WILDLIFE

An important fall and winter food source for songbirds, turkey, deer and small mammals. The birds wait until the fruit is fully ripe, so the scarlet berries are visible well into the fall season.

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Sweet pepperbush

Clethra alnifolia

Also known as... summersweet, poor man's soap, clethra



Leaves: Alternate, simple, 2 to 4 inches long, smooth at the base with toothed margins toward the tip. Flowers: Fragrant, long white spikes, looking like a bottlebrush, blooming from late July to September. Fruit: Gray peppercorn-shaped seed capsule.

Sweet pepperbush is a native shrub maturing at heights of 4 to 8 feet, highly branched, forming dense erect thickets. It is a shade-tolerant understory plant in the wooded swamp growing best in medium wet to continuously wet sites.

INTERESTING FACTS

Sweet pepperbush is an important honey plant and is cultivated for this purpose. The flowers bloom from the bottom up. The newest flowers highest on the spike are male while the lower blossoms become female. The design is ingenious as it fits the behavior of the bees which pollinate the flower. Bees start at the bottom and crawl upward along the flowers, flying off covered with pollen from the male flowers at the top of the spike. When they reach a new flower spike, they pollinate the female flowers at the base of the cluster.

Sweet pepperbush gets its name from its fragrant flowers and from its gray peppercorn-shaped capsules. These gray seed capsules persist on the branches through winter, a key identification feature.

VALUE TO MAN — YESTERDAY AND TODAY

Early settlers prepared extracts of the blossoms to treat coughs and muscle cramps. Poor man's soap is made by crushing leaves in your hand and rubbing hard to create a lather. Sweet pepperbush is an excellent landscape plant with fragrant summer-blooming flowers, golden-yellow fall color, and an ability to prosper in wet, shady areas. As if that were not enough, it is nearly pest free.

VALUE TO WILDLIFE

Although this is not a significant food source for wildlife, the flowers act like a magnet for butterflies and bees. The roots stabilize wetland shorelines, and its dense branches provide valuable cover for wildlife even after the leaves fall.

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Highbush blueberry

Vaccinium corymbosum



Leaves: Alternate, simple, 1 to 3 inches long; yellow to scarlet fall colors. Flowers: White to pinkish, bell-shaped, blooming May to June. Fruit: Dark blue berry, ripening in July and August. Bark: Red in winter, warty texture; older wood bears no flowers.

Highbush blueberry is a native shrub reaching heights of 6 to 12 feet with an equal spread if given adequate space. It is shade-intolerant and grows best in open swamps, wood edges, and along streams.

INTERESTING FACTS

The wild highbush blueberry was domesticated in the early 1900's at Whitesbog in Burlington County, NJ, launching a new industry. Today cultivated blueberries are a major economic crop in New Jersey, which ranks second only to Michigan in blueberry production. July is National Blueberry Month, coinciding with peak harvest time.

VALUE TO MAN — YESTERDAY AND TODAY

Blueberries were a primary food plant of native Americans who made great use of the berries eating them raw or smoke-dried, in soups, stews and to flavor meats. Explorers Lewis and Clark shared a blueberry venison meal with the Indians. The juice was used to dye baskets and cloth. Early settlers learned to dry blueberries in the sun and store them for winter use. Blueberries are a healthy food, packed with Vitamin C, fiber, and iron. They are reported to reduce heart disease, improve night vision, and serve as a laxative. This shrub is a great choice for the home landscape. It grows in full sun to light shade in moist, well-drained soils, produces attractive white flowers in spring and delicious (and healthy) fruits in the summer — if you can get them before the birds!

VALUE TO WILDLIFE

Blueberries are enjoyed by many birds, including robins, bluebirds, scarlet tanagers, thrushes, gray catbirds, as well as by mice, chipmunks, and skunks; germination of the seeds is improved with passage through animal digestive tracts. Blueberries are a favorite of black bear who don't stop to pick the berries but consume mouthfuls of berries, twigs and leaves.

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22

Common witchhazel

Hamamelis virginiana



Leaves: Alternate, simple, 2 to 6 inches long, nearly circular, with a wavy edge; the distinctive shape is a key identification feature. Flowers: Blooms from late October to December with yellow strap-like petals which hug the branches. Fruit: Woody capsule which ripens the following fall. Bark: Smooth thin bark is light brown, developing rough patches and becoming scaly as the tree ages.

Common witchhazel is an understory shrub or small tree with a short trunk bearing numerous spreading, crooked branches, reaching 15 to 25 feet tall at maturity. It is found along stream margins or in moist woods.

INTERESTING FACTS

The witchhazel is the last woody plant of the season to bloom; in late autumn, after the leaves have fallen, conspicuous small bright-yellow flowers appear. The fruit takes a year to ripen, so the witchhazel bears its flowers and its fruits at the same time, a unique characteristic. When ripe, the seedpods burst open and the seeds are expelled like bullets with such force they may land 25 to 30 feet away. No one admits to knowing exactly how the witchhazel got its name. One explanation relates to the dowsers, or *water witches* who used forked witchhazel sticks to locate underground water supplies.

VALUE TO MAN — YESTERDAY AND TODAY

Native Americans considered witchhazel an important medicinal plant and passed their knowledge on to the early settlers. Witchhazel bark was used to treat skin ulcers and sores, and boiled twigs were employed to soothe sore muscles. Today, witchhazel is best known as the source of the astringent oil that bears its name, an alcohol extract of the bark. In the landscape, witchhazel is a beautiful ornamental shrub for shady, moist sites; just give it plenty of room to spread out. Gardeners welcome it as a way to extend the fall flowering season.

VALUE TO WILDLIFE

Not a significant food source for wildlife.

23

Sassafras

Sassafras albidum



Leaves: Alternate, simple, 3 to 7 inches long; 2 to 3 lobes, or none. Fall colors range from yellow to deep purple.

Fruit: Small blue berry-like fruit on bright red stalks, ripening in late summer.

Bark: Thin, reddish brown divided by shallow fissures on young trees; when mature, deeply furrowed into blocky ridges with frequent horizontal cracks.

Sassafras is a medium-sized native tree reaching heights of 40 to 50 feet. It grows quickly in abandoned fields, wood edges and roadside clearings, the seeds dispersed widely by birds.

INTERESTING FACTS

This tree is unusual in having 3 distinct leaf shapes usually occurring on the same tree, a key identification feature. Look for leaves with a single oval shape; or a mitten-shaped leaf with 2 lobes, one smaller like the thumb of a mitten; or a leaf with 3 rounded lobes. The leaves, bark and twigs have a pungent smell and spicy flavor.

VALUE TO MAN — YESTERDAY AND TODAY

Believed to possess miraculous healing powers, sassafras roots and bark were shipped back to England from the New World in the early 1600's. Sassafras oil was an important industry in the early 1900's in the making of medicines, perfumes and soaps. Sassafras tea was brewed from the roots, which were also a primary ingredient of root beer. The wood is light and long-lasting and was one of the preferred woods used in making canoes; it has little commercial value today. It is a poor firewood as it pops and sparks. In the landscape however, this medium sized tree with spectacular fall color is a recommended ornamental, growing in full sun to part shade with no pest or disease problems.

VALUE TO WILDLIFE

The fruits are not produced in sufficient quantity to make this a major food source for wildlife, but the dark blue fruits are enjoyed by birds. The bark, twigs, and leaves are an important browse for deer and rabbits. The spicebush swallowtail butterfly is a common caterpillar feeder on its leaves.

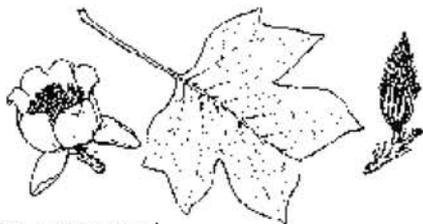
24

Tuliptree

Liriodendron tulipifera

Also known as...

tulip poplar, yellow poplar, canoewood



Leaves: Alternate, simple, 3 to 8 inches long, blunt tipped as if snipped with scissors, a key identification feature.

Fall color is a brilliant golden-yellow. *Flowers:* Large and showy with six yellow-green petals and an orange center. *Fruit:* Cluster of single-winged seeds form a long cone which remains erect on bare twigs through winter, a key identification feature. *Bark:* Light gray and smooth when young, developing flat-topped ridges and furrows in diamond shaped patterns.

The tallest tree in the eastern forest, the tuliptree can reach heights of 120 feet with a massive trunk as much as 4 to 5 feet in diameter. It grows perfectly straight, clear of branches for a considerable height. This native tree is a pioneer species, quickly invading old fields where it grows exceptionally fast, its way of competing with other species to reach above the forest canopy, as it is shade-intolerant.

INTERESTING FACTS

One of the few forest trees to have showy flowers, the tulip-shaped blossoms give this tree its common name. They bloom high in the tree, so look for branches that fall to the ground for a close-up view. Yellow-poplar was the name used by lumbermen referring to the color of the wood. However, this tree is neither a poplar nor a tulip, it's a member of the Magnolia family.

VALUE TO MAN — YESTERDAY AND TODAY

The tuliptree is an important commercial species. The wood is light, soft, easily worked and free of knots. It is used for plywood, pulpwood, moldings, furniture stock and veneer as well as the long rails in fencing and barn siding. Native Americans and early pioneers used the long, straight trunk of the tuliptree to make large dugout canoes; it was easy to work with, buoyant, and one of the lightest woods in the forest.

VALUE TO WILDLIFE

The seeds are consumed by squirrels, mice, purple finch and cardinals. During harsh winters squirrels will strip the bark of branches for food. The large flowers are a prime nectar source for honeybees and the honey is considered a delicacy.

Guide to Trees and Shrubs of Great Swamp National Wildlife Refuge

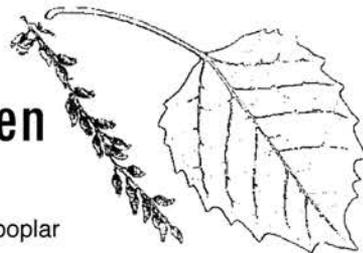
25

Bigtooth aspen

Populus grandidentata

Also known as...

largetooth aspen, popple, poplar



Leaves: Alternate, simple, 3 to 4 inches long, oval, with large coarse teeth, green above and paler below. *Flowers:* fuzzy catkins, 2 to 3 inches long, appearing before the leaves, male and female flowers on separate trees. *Fruit:* capsules borne on long dangling tassels. *Bark:* thin, smooth, light gray, green-tinged, with scattered dark horizontal lines or bumps; older bark becoming furrowed and dark brown at base.

Bigtooth aspen is a medium sized tree reaching heights of up to 60 feet. It is closely related to the quaking aspen, also found on the Refuge. In fact, the winter features of these species are so similar that distinguishing them with certainty usually involves finding leaves on the ground and checking the teeth along the leaf edges; quaking aspen leaves have evenly spaced fine teeth. Bigtooth aspen is a pioneer species, quick to colonize open, disturbed sites and wood edges. It is a fast growing, short-lived tree. It is intolerant of shade and is one of the first trees to leaf out in spring.

INTERESTING FACTS

The common names, as well as the Latin name, *grandidentata*, which means large teeth, describe the outstanding characteristic of this tree—the large teeth along the leaf margins. Like the quaking aspen, the leaf has a long flattened stalk which trembles in the slightest breeze. Aspen trees produce millions of tiny, lightweight seeds each tufted with cottony parachutes which can be carried up to a mile by the wind. They also send up shoots from the roots and can form large clones of genetically identical trees.

VALUE TO MAN — YESTERDAY AND TODAY

The soft wood is used to make paper. The bark is said to have medicinal qualities similar to modern aspirin and native Americans used it for treating colds, fevers and coughs.

VALUE TO WILDLIFE

The tree is heavily browsed by wildlife. The buds and catkins are eaten by grouse, purple finch, and towhee. Bear, deer, beaver, muskrat and small mammals eat the buds, bark, twigs and leaves.

Guide to Trees and Shrubs of Great Swamp National Wildlife Refuge

26 Arrowwood

Viburnum dentatum



Leaves: Opposite, simple, 2 to 4 inches long, coarse-toothed margins and distinctive veins. Flowers: Flat-topped creamy-white clusters appear in May to June. Fruit: Blue-black berry in dense cluster, ripening in the fall.

Arrowwood is widespread in the northeast preferring wet soils and swampy sites, reaching heights of 6 to 8 feet. Indians used the straight, strong shoots to make shafts for their arrows, hence the name arrowwood. This member of the honeysuckle family will grow in a wide variety of habitats making it an excellent choice for the home landscape. Not only is it very adaptable, it provides showy spring blooms and attractive yellow to burgundy fall colors. It is disease and pest-free, deer resistant, and needs little care – but give it plenty of room.

Spring flowers are an early source of nectar for bees and birds. The bushy shrub also provides good nesting sites and shelter for birds and wildlife. Ripening fruit is relished by migrating birds, who in turn help spread the seeds as they travel.

27 Swamp azalea

Rhododendron viscosum

Also known as... swamp honeysuckle, clammy azalea



Leaves: 1 to 2 ½ inches long, elliptical, bright green above, whitish below, with stiff brownish hairs along the midrib. Flowers: White to pale pink tubes, 1 to 2 inches long, growing in clusters, fragrant, sticky, blooming June to August after the leaves appear.

True to its common name, this shrub enjoys a soggy spot and grows best in swamps, bogs, and along streams reaching heights of 2 to 8 feet with numerous spreading branches. The fragrant white flowers give it the common name swamp honeysuckle, although it is not related to the honeysuckles. The Latin name *viscosum* means gluey referring to the sticky flowers. A wonderful native plant for landscaping, rewarding the gardener with fragrant and showy summer blossoms. It prefers wet areas with sun to light shade. Although limited in wildlife value, the sweet flowers attract hummingbirds.

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- You – the visitor to Great Swamp National Wildlife Refuge. This Guide is for you and we hope you learn as much in using this Guide as we did in preparing it.

Enjoy your walk!

Neil Borman
Lisa Molinari

Charlie Gould
Marcia Rymer

Laurel Gould
Judy Schmidt

*Friends of Great Swamp National Wildlife Refuge
Tree and Shrub Committee*

References

The following books, as well as many Internet sites, were used in compiling this guide. If you are interested in learning more, check out the many field guides and reference books which are available from your library or bookstore.

- Dirr, Michael A. *Manual of Woody Landscape Plants*. Stipes Publishing, 1998.
- Eastman, John. *The Book of Forest and Thicket*. Stackpole Books, 1992.
- Gibson, Henry H. *American Forest Trees*. Hardwood Record, 1913.
- Grimm, William Carey. *The Illustrated Book for Wildflowers and Shrubs*. Stackpole Books, 1993.
- Martine, Christopher T. *Trees of New Jersey and the Mid-Atlantic States*. New Jersey Forest Service, 2000.
- Peattie, Donald Culross. *A Natural History of Trees of Eastern and Central North America*. Bonanza Books, 1966.