

Catawba River Greenway



Tree Identification Guide

Please return to mailbox at either end of trail

Glossary

Alternate - Leaves arranged singly along a twig or shoot. Not in whorls or opposite pairs.

Bract - A modified leaf which is part of a flower.

Bristle - A stiff hair.

Catkin - An elongated flower cluster.

Compound Leaves - Leaves made up of several lobes. Not simple.

Deciduous - Losing its leaves seasonally or at some stage of development. Not evergreen.

Drupe - A fleshy fruit whose seed is enclosed in a stony outer shell. A cherry is an example of a drupe.

Entire - Leaf margins which do not have teeth or lobes.

Fissure - A linear split or crack.

Furrowed - Deeply grooved.

Incurvate - Inwardly curved.

Leaf Margin - The outer edge of a leaf.

Lobe - A protruding segment of an organ; separated by a sinus.

Opposite - Leaves arranged two at a node. Not alternate or whorled.

Palmate - Radiating, fan-like, from a common point. Used to describe veins in a leaf, or the arrangement of leaflets in a compound leaf. Not Pinnate.

Panicle - A multi-branched flower cluster.

Pinnate - Having parts along each side of a common axis. Used to describe leaf veins, or leaflet arrangement in a compound leaf. Not palmate.

Polygamous - Bearing both unisexual and bisexual flowers on the same plant.

Serrate - Saw-toothed, the teeth pointing forward.

Simple Leaves - Leaves which consist of a single blade. Not compound.

Whorl - An arrangement of similar anatomical parts in a circle around a point or axis. Not alternate or opposite.

River Birch (*Betula nigra* L.)

1

River birch, or red birch as it is sometimes called, is the only native birch found at low elevations in the South. It is commonly found, as its name implies, along waterways, inhabiting deep, rich soils throughout the state, except in the higher mountains. It can grow to heights of 80 feet and diameters of 1 to 3 feet. The crown is irregular and picturesque and is divided where the arching limbs spread from the main trunk.

River birch leaves are roughly oval, pointed, $1\frac{1}{2}$ to 3 inches long, with double-toothed margins.

The fruit, a strobile (seed-bearing cone) is cylindrical, 1 to $1\frac{1}{2}$ inches long and $\frac{1}{2}$ inches thick. It grows erect. River birch is the only birch that produces mature fruit in the spring.

The bark provides a ready means of distinguishing this tree. It varies from reddish brown to cinnamon red in color and peels back in tough papery layers.

The wood is quite hard and is used in the manufacturing of furniture and other products, where its close-grained properties make it valuable.



Hackberry (*Celtis occidentalis* L.)

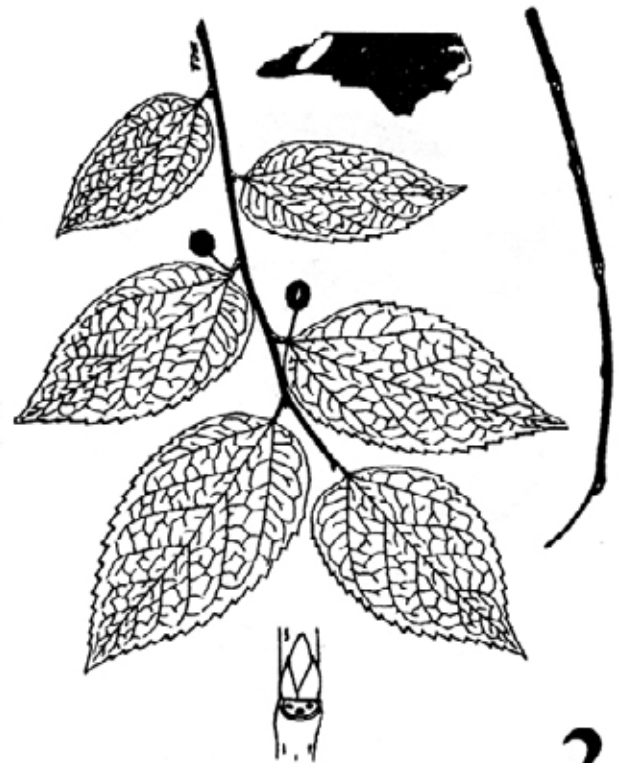
Hackberry can be sparsely found throughout the state, except in the high mountains. The tree commonly grows 30 to 40 feet high and 1 to 2 feet in diameter. On the best sites, it may reach 130 feet and a diameter of 4 feet or more.

Hackberry leaves are asymmetrically oval, $2\frac{1}{2}$ to $3\frac{1}{2}$ inches long with sharply toothed margins. (They are often entire, or smooth-margined, below the middle.) They have curved, pointed tips.

The globular fruit is borne singly on stems $\frac{1}{2}$ to $\frac{3}{4}$ inch long. It ripens in September but often remains on the tree over the winter. The fruit is dark purple and about $\frac{1}{3}$ inch in diameter.

Hackberry bark is grayish and generally smooth, with characteristic corky warts or ridges. In some instances, the bark is smooth enough on the limbs to resemble that of the beech.

The wood is heavy, rather soft, and weak. It decays quickly when exposed to moisture. Hackberry wood is used in furniture, for baskets and crates, and in some athletic equipment.



2

3

Sassafras (*Sassafras albidum*)



Sassafras is fairly common throughout the state.

Sassafras leaves are 4 to 6 inches long with three distinct leaf forms. They may be entire (not lobed), or two- to three-lobed on the same tree or branch. In autumn, leaves turn yellow, orange, or crimson.

The fruit is a dark blue drupe with a thin, fleshy covering on the hard seed. Each fruit grows on a stalk $1\frac{1}{2}$ to 2 inches long, ripens in early fall, and is eaten by deer, turkey, bear, and many species of birds.

The bark of the trunk is thick, red-brown, and deeply furrowed. The bark of the twigs is bright green.

Sassafras is a small tree that grows 20 to 40 feet tall and 1 to 2 feet in diameter. It sprouts readily from stump and roots and can survive fire. The wood is soft, weak, and brittle. It has a limited use for fenceposts. Roots, twigs, and bark have a pleasant, spicy scent; they contain oil of sassafras, used as a flavoring. In early spring, tender roots can be peeled and brewed to make sassafras tea.

Slippery Elm (*Ulmus rubra* Muhl.)



This large elm grows throughout North Carolina, and is less susceptible to Dutch Elm disease than is American elm.

Its leaves are 4 to 6 inches long, with a slightly curved point. Leaf margins are sharply toothed. Leaves are broader, more rounded, and much rougher on the upper surface than those of the very similar American elm. One-year-old twigs are ashy gray and rough; the buds are nearly black. These characteristics also distinguish Slippery elm from American elm.

Slippery elm fruit is clustered on long stems, the seed encased in a flattened, papery covering that is oblong and not so deeply notched at the end as the American elm seed.

Slippery elms usually grow 60 to 70 feet tall and up to $2\frac{1}{2}$ feet in diameter. This elm takes its common name from its inner bark which is very slick or slippery. Its twigs may be chewed to reduce thirst, and its inner bark, when steeped in water, is a long-used remedy for sore throats and fevers.

4

Carolina Silverbell (*Halesia carolina* L.)

5

This tree grows best in the Great Smoky Mountains but it is commonly found along upper water courses as an understory tree, and is occasionally planted as an ornamental. It rarely reaches heights greater than 80 feet and diameters of 2 feet.

Leaves are simple, alternate, oval, pointed, thin, and finely toothed. They vary in length from 3 to 5 inches. The bark ranges in color from very light gray in young trees to a very dark reddish brown in old trees. It separates into scales and strips as the tree matures.

The flowers are white (sometimes tinged with pink) and an inch long. They appear in spring with the unfolding leaves. Also known as the snowdrop tree, the silverbell gets its name from its pendant, bell-like flowers.

The fruit is 1 to 2 inches long and nearly an inch wide, with a corky, four-winged covering. The single seed is a bony stone.

The heartwood is soft and light cherry colored. When large enough, it is cut for lumber and used as a substitute for cherry.



Virginia Pine (*Pinus virginiana* Mill.)

Virginia pine, also known as spruce pine or scrub pine, grows in the Piedmont and lower mountains. It is found frequently in pure stands and seeds readily on severely eroded and dry soils. It grows 50 to 80 feet tall, with a trunk that rarely reaches more than 8 to 14 inches in diameter.

The side branches remain on the tree for many years after dying, giving the tree a scrubby, untidy appearance. Needles are 1½ to 3 inches long, stout, yellow-green, and usually twisted. They grow in bundles of two.

Cones are dark reddish-brown, egg-shaped, lustrous, varying around 2 inches long, and armed with a sharp spine at the tip of each scale. They remain on the tree for several years after seed-fall. The bark is thin, reddish-brown, and broken into shallow plates. The wood is usually very knotty due to the persistent side branches. The lumber is used for rough construction but it warps easily. It has a very long fiber and is an excellent pulping species.



6

American Holly (*Ilex opaca* Ait.)

American Holly, sometimes called Christmas holly, occurs sparingly throughout the state. It grows best on a rich, moist soil but also is found in higher and drier conditions.

It has spiny, wavy-edged, glossy, dark green leaves, which, along with its bright red berries, makes it highly valued for Christmas decorations. The leaves are green through the winter; each leaf stays on the tree for 3 years. They are 2 to 4 inches long, with prominent midribs and veins.

The spherical **fruit** is produced only on female trees. Each bitter-tasting berry is born on a short stalk, ripens in late autumn, and remains on the tree over the winter. Berries are food for a wide variety of animals including songbirds, deer, and wild turkeys.

The **bark** is light gray and roughened by wart-like growths. American hollies grow between 15 and 40 feet in height and 1 to 2 feet in diameter. The **wood** is light and tough, close-grained and bone-colored, making it valuable for various kinds of interior finishing and for inlays in joiner-cabinet work.



Eastern Red Cedar (*Juniperus virginiana* L.)

Eastern red cedar, a very valuable tree, is scattered throughout the state but most commonly found in the Piedmont. It grows 40 to 50 feet tall with a diameter of 1 to 2 feet, but it may grow much larger. The short, slender branches form a compact, pyramidal crown, except on very old trees.

The mature leaves average 1/16 inch in length and are opposite. They are smooth, shiny, dark green, and glandular. On young foliage, leaves are needle-like, and occur in whorls of 3.

The fleshy **fruit** is round, 1/4 to 1/3 inch in diameter and, at maturity, a bluish color with a gray-white waxy covering.

The **bark** is light reddish-brown, thin, separating into long, peeling, fibrous strips. The **heartwood** is distinctly red and the sapwood is white. This combination creates striking effects when the wood is finished as cedar chests or interior woodwork. The wood is soft, strong, and evenly textured, making it ideal for pencils. Its decay-resistant heartwood is great for fence posts and rustic furniture; the wood's aroma repels insects, so it is used for closet linings and pet beddings.



Water Oak (*Quercus nigra* L.)

Water oak grows naturally along the borders of swamps and streams, and on rich bottomlands from the Coastal Plain into the mountain foothills. It is often planted along streets and in parks as a shade tree. On good sites, the tree has a slender, straight trunk reaching 50 to 80 feet in height with a diameter of 2 to 3 feet. It is easily damaged or killed by fire.

Leaves are small, 2 to 4 inches long, and are considerably broader at the tip than at the base. Leaves vary in shape but usually show three indistinct lobes. They are deciduous, but they remain on the tree into early winter.

The acorn is small, $\frac{1}{2}$ inch or less long, and almost black.

The bark is smooth and brown but becomes gray-black with rough scaly ridges with age.

The water oak's wood is not considered good for finished lumber because it cracks and splits excessively when drying. However, it is used for rough construction lumber and support beams, where strength is most important.



Shortleaf Pine (*Pinus echinata* Mill.)

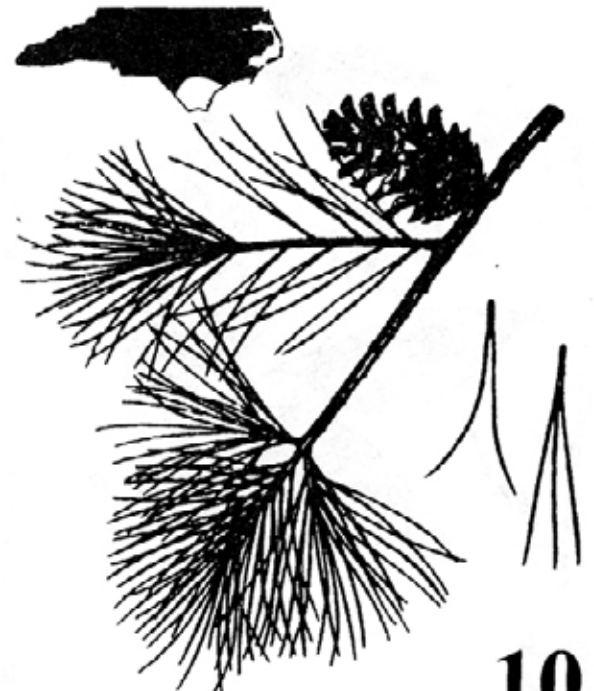
Shortleaf pine, also known as rosemary pine, yellow pine, and old-field pine, is widely distributed throughout the South. It can grow 80 to 100 feet high, with diameters of 2 to 3 feet. The slender branches form a loose pyramidal crown.

Needles are 3 to 5 inches long, slender, flexible, dark green, and grow in clusters of 2 or 3. They begin dropping at the end of the second season, with some remaining until the fifth year.

The symmetrical cones are ovoid, short stalked, about 2 inches in length, each scale being tipped with a short spine. Seed-fall begins in early autumn and continues into winter; the empty cone remains on the tree for several years. Seeds are eaten by rodents, turkeys, squirrels, and some songbirds.

Mature bark is broken into irregularly shaped plates that are covered with thin, reddish scales. Small surface pits or holes in the outer bark scales are a unique feature of this tree.

The wood of older trees is rather heavy and hard, of yellow-brown or orange color and fine-grained. It is used for general construction, finishing, veneers, paper pulp, and poles.



Flowering Dogwood (*Cornus florida* L.)

Flowering dogwood has the distinction of being the state flower. It grows throughout North Carolina, usually under the larger forest trees. It is a small tree, growing 10 to 20 feet tall and 4 to 6 inches in diameter.

What most people think of as the "flowers" are actually four large white (sometimes pink) petal-like bracts that are notched at the end. The true flower is an inconspicuous greenish-white or yellowish compact head in the center of the showy bracts. The bright red, oval fruit (a drupe) is borne in tight clusters. It ripens in October.

The leaves are opposite and 3 to 5 inches long. The veins curve like a bow and tend to parallel the margin of the leaves.

The bark is dark red-brown, dividing into small scaly blocks on older trees.

The brown to red wood is hard, heavy, strong, and very close-grained. It is used for textile shuttles and spools, and for handles and mallets.



Ironwood (*Carpinus caroliniana* Walt.)

Ironwood is also called hornbeam, blue or water beech, or muscle wood. It is a small, slow-growing, bushy tree with a spreading top of slender, crooked or drooping branches. It is found along streams and in low ground throughout the state. It is usually 20 to 30 feet tall and 8 to 12 inches in diameter, although it can grow larger. The trunk is fluted, with irregular ridges extending up and down the tree; hence, the name "muscle" wood.

The leaves are simple, alternate, oval, long-pointed, doubly toothed along the margin and 2 to 3 inches in length.

The flowers are attached separately on the same tree in scaly, bracted spikes called catkins. The fruit is a nutlet about 1/3 inch long, and is a very good food source for a variety of animals. Ironwood bark is light brownish-gray to dark bluish-gray, and sometimes marked with dark bands extending horizontally on the trunk.

Hornbeam wood is tough, closed-grained, heavy, and strong. It is used for tool handles, cogs, mallets, and wedges.



Boxelder (*Acer negundo* L.)

Boxelder is a maple. Its range is the greatest of all maples. It is found from Alberta, Canada, to the southern Rocky Mountains, from New York to Florida. In our state, boxelder grows from the upper Coastal Plain and westward.

The boxelder's opposite leaves, unlike other maples, are pinnately compound with three to seven (sometimes nine) leaflets which vary greatly in size and shape. They are coarsely serrate and may have one or two lobes. Current twigs are lustrous green. Terminal buds are almost white and are quite hairy. While its three leaflets can resemble those of poison ivy, boxelder bark is similar to that of an ash tree, composed of marrow-brown, rounded, interlocking ridges.

The fruit is similar to that of red maple, but the wings are nearly twice as long. It grows quickly but is short-lived. The branches are brittle and break easily, and the tree usually has a poor form. Boxelder has little value, except as high quality pulp for paper-making.



Black Walnut (*Juglans nigra* L.)

This extremely valuable forest tree only grows well on rich bottomlands, in moist fertile coves and on lower slopes across the state. The tree grows 50 to 90 feet, and 3 feet in diameter.

Black walnut leaves are alternate, pinnately compound, 12 to 24 inches long, with 15 to 23 sharply oval, finely toothed, long pointed leaflets 3 to 3½ inches long. Leaves turn a bright, clear yellow in autumn.

The fruit, attached singly or in pairs, is globular, pointed at the apex, about 1 ¾ inches in diameter, and has a thick, yellow-green fibrous husk. The hard, woody, oval or oblong nut is dark brown and deeply divided on the outer surface into irregular ridges. The nutmeat is sweet and edible and is a favorite food for squirrels. The bark is thick, dark brown to black, and is divided by deep fissures into rounded ridges.

The heartwood is of superior quality. Heavy, hard, and strong, a rich brown color, dimensionally stable, and receptive to a high polish, black walnut is highly prized for a great many uses, including furniture, cabinetwork, and gun stocks.



Yellow Poplar (*Liriodendron tulipifera* L.)



The yellow, or tulip, poplar is one of the largest and most valuable hardwood trees in the United States. It reaches a height of 90 to 110 feet with a trunk diameter of 2 to 5 feet. It has been known to grow over 200 feet tall, free of branches for as high as 100 feet from the ground.

The leaves are composed of four large lobes. They are 5 to 6 inches long, as broad as they are long, the two outer lobes often flattened into a squarish end. Leaves turn bright yellow in autumn. Terminal buds are flattened and valvate, opening like a duck's bill. Sprouts and buds are a main food of deer, and squirrels enjoy the seeds in both early fall and mid-winter.

The flowers are tulip-like, 1½ to 2 inches across. The petals are yellowish-green with reddish-orange bands near the base. The fruit is a cone-like aggregate 2½ to 3 inches long that breaks up as it matures in the fall.

Tulip poplar bark is light gray and becomes thick and deeply furrowed on older trees. The wood is light, soft, and easily cut into trim, veneers, and chip board, as well as high-grade uses.

Eastern White Pine (*Pinus strobus* L.)



The white pine is the largest conifer of eastern North America. Common height reaches 100 feet, and 4 feet in diameter. It has a tall straight stem, pyramidal crown, and it branches in a definite annual whorl, sweeping upward in graceful curves.

Eastern white pine needles are soft bluish-green, flexible, and 3 to 5 inches long. They grow in bundles of five and have three to five white lines (stomata) on two surfaces of each needle. Needles remain on the tree for two years.

Cones are fully grown in the summer of the second season, opening to discharge seeds during July and August. They are 4 to 8 inches long, curved and stalked, with non-spiny scales.

The bark on young trunks and branches is thin, smooth, greenish, and shiny. On old trunks, the bark is dark gray and shallow-fissured, with broad and flat-topped longitudinal ridges.

Because its wood is light, straight-grained, and easily worked, it is used in furniture, interiors, matches, and lumber.

Black Locust (*Robinia pseudoacacia* L.)

Black locust, often called yellow locust, is native only to the mountains, but has been widely planted across the state with good results. It is usually 30 to 70 feet tall and 1 to 2 feet in diameter.

The leaves are pinnately compound and 8 to 14 inches long. Each leaf is made up of seven to nineteen oval alternate leaflets on the long, slender rachis or central system. Margins of leaflets are smooth. The whitish flowers are very fragrant and hang in clusters on long stems.

Black locust fruit is in the form of brown flat pods, each bearing four to eight kidney-shaped dark orange-brown seeds. Most pods persist on the tree through the winter. Twigs bear paired spines up to 1 inch long that arise adjacent to each leaf scar. Bark is deeply furrowed, dark brown, and scaly. Sprouts and seedlings are important food for animals, and many birds eat black locust seeds.

Since the wood is very heavy, hard, strong, and decay-resistant, it is used for such purposes as posts and decking.



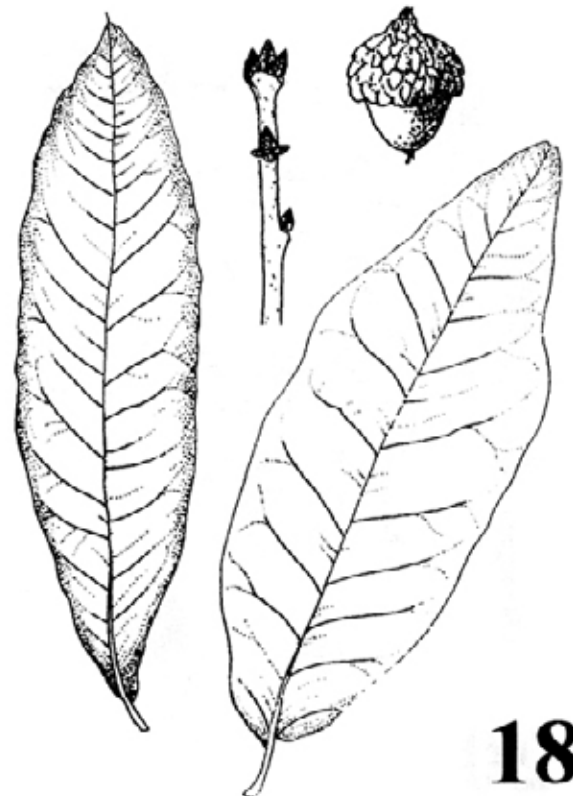
Shingle Oak (*Quercus imbricaria*)

Although the shingle oak's native habitat is from Pennsylvania to Georgia and west to Arkansas and Nebraska, its occurrence in North Carolina is actually rare. It grows 50 to 60 feet in height with a comparable or slightly greater canopy of foliage. Upright-oval as a young tree, it assumes a broad rounded outline in maturity.

The leaves are alternate, simple, oblong or lanceolate, 2½ to 6 inches long, with bristle-like tips and revolute margins. They are reddish in color when first unfolding, changing to a lustrous dark green in summer, then yellow-brown and russet-red in fall. Old leaves often persist through winter.

The bark of the shingle oak is gray-brown and close, eventually with broad low ridges separated by shallow furrows. The acorn is about 5/8 inch long with a cap of tiny red-brown scales.

The wood of the shingle oak was used to make shingles; hence, the name. The tree performs quite well in the midwest where it is used in open landscaping for parks, golf courses, and other large areas.



Sycamore (*Platanus occidentalis* L.)

Sycamore, also called buttonwood or American Plane Tree, is one of the largest hardwood trees in North America—especially in diameter. It is found throughout the state, and can grow to 150 feet with a 10-foot diameter. The average height is from 80 to 110 feet, with diameters from 3 to 8 feet.

The **leaves** are usually three- to four-lobed and are divided by broad, shallow sinuses. Leaves are 4 to 7 inches long and broad, with palmate veining and toothed edges. Twigs grow in a zigzag pattern. The **fruit** is a ball about 1 inch in diameter. It breaks up when ripe to disperse small, elongated seeds, carried on the wind by many fine hairs.

The multi-colored, mottled **bark** is very distinctive on the sycamore. On young branches, it is brownish, but as it grows, this bark peels away in irregular patches to expose smooth inner bark which may be green or olive but most often white. In mature trees, bark on the lower trunk is entirely brown and consists of small scales. The **wood** is hard and moderately strong but decays rapidly in the ground. It is used for chopping blocks, furniture, interior finish, and chip board products.



Sweetgum (*Liquidambar styraciflua* L.)

Sweetgum, also called red gum, is a large, valuable forest tree. On most sites, the tree averages 60 to 80 feet tall and 2 to 3 feet in diameter, although it can reach heights of 120 feet with diameters of 4 feet or more.

Sweetgum is easily recognized by its star-shaped **leaves**, which are composed of five (sometimes seven) deeply separated and pointed lobes. The leaves have long stems and toothed margins, are palmately veined and are 5 to 7 inches long. They turn deep red in autumn.

The **fruit** is a globose head and is composed of many beak-shaped capsules which contain two tiny seeds. It is about 1½ inches in diameter and persists throughout the winter.

The **bark** is light gray and roughened by corky scales; it becomes deeply furrowed with maturity.

The **wood** is heavy, moderately hard, close-grained, and is not durable upon exposure. This wood is used in furniture, pulp, veneers, and baskets. Red gum gets its name from the reddish color of heartwood in larger logs, which once was used in furniture, but now more widely in flake and strand boards.



White Ash (*Fraxinus americana* L.)

White ash is found throughout the state except in the lower coastal areas. The tree may grow to 120 feet but commonly is 70 to 80 feet tall, with trunk diameters 2 to 3 feet. The white ash is sometimes confused with the green ash.

The **leaves** are 8 to 12 inches long, opposite, with five to nine (usually seven) oblong leaflets, 3 to 5 inches long, that have smooth or finely toothed margins. Upper surfaces are dark green and smooth; undersides are pale green to whitish.

The **flowers** grow in compact panicles and open before the leaves in late spring.

The **fruit** is 1 to 2 inches long and grows in crowded clusters 6 to 8 inches long.

White ash **bark** is ashy gray to brown and is deeply divided by narrow ridges into net-like patterns.

The **wood** of the white ash is extremely valuable because of its toughness, elasticity, and aesthetically pleasing grain. It is preferred to all other native woods for small tool handles, agricultural tools, and athletic equipment such as baseball bats and oars. It is also used for furniture and interior finish.



White Oak (*Quercus alba* L.)

Within the eastern half of the United States, the white oak is one of the most important timber trees. The tree reaches 80 to 100 feet in height and 3 to 4 feet in diameter. They have wide, spreading crowns in open areas, but tall, clear stems and smaller crowns in forests.

The **leaves** are 5 to 9 inches long with seven to nine rounded lobes. The depth of the sinuses separating the lobes varies, in some cases almost reaching the midrib. The leaf base narrows to wedge-shaped at the stem. The **acorn** is about 3/4 inch long and is chestnut brown, 1/4 covered with a bowl-shaped cap of rough scales that join at their bases to form small knobs.

The **thin bark** is light gray in color and is covered with loose scales or broad plates. These scales, found on the upper stem and branches, are useful in identifying the white oak.

The light brown **wood** is useful and valuable. It is heavy, strong, hard, close-grained, and durable. It has many uses, including construction, shipbuilding, cooperage, furniture, tools, interior finish, flooring, and fuel. Even though it grows slowly white oak is valuable for highway and ornamental planting.





Black Cherry (*Prunus serotina* Ehrh.)

Black cherry, often called wild cherry, is the largest of the native cherries of the United States, and the only one of commercial value. The tree reaches 60 to over 100 feet in height and 1 to 5 feet in diameter. Forest-grown trees have long, limb-free trunks with little taper.

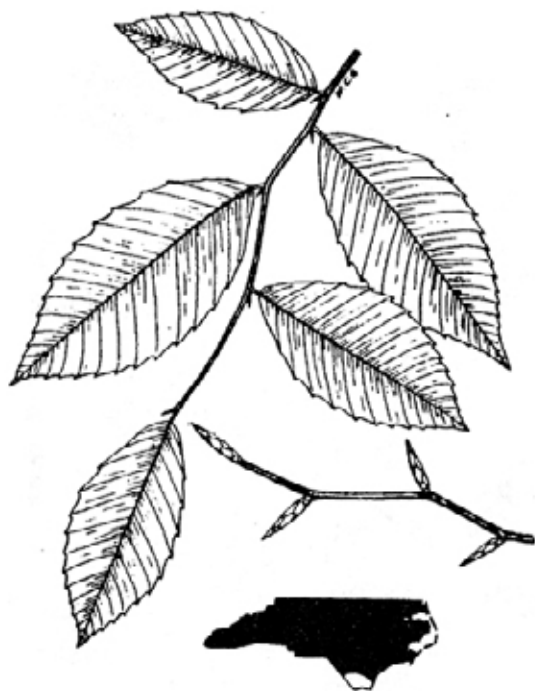
The leaves are 2 to 6 inches long and about 1 inch wide. They are narrowly oval or oblong and are pointed. Leaf edges have fine teeth that curve inward. Both leaves and twigs have a very strong odor of bitter almonds.

The white flowers bloom when the leaves are half-grown, on stems 4 to 6 inches long. As the fruit develops, the racemes gradually droop as the cherries reach full size, about 1/3 inch in diameter. The dark reddish-purple flesh is a favorite for birds and wild animals.

The bark of young trees is thin, satiny, and reddish brown, with horizontal markings. Bark on older trees consists of small scaly plates with upraised edges.

Because of its lustre and color, this lumber is second in value only to black walnut for furniture and interior finish.

American Beech (*Fagus grandifolia* Ehrh.)



The American beech is found throughout the state, but it grows best in moist mountain coves. It is usually 60 to 80 feet tall, and 2 to 3 feet in diameter.

Its leaves are oblong-ovate, pointed, 2 to 6 inches long, and mostly grouped toward the ends of the branches on short branchlets. Leaf margins have small teeth that curve inward. Leaves turn bright yellow in autumn, and later turn light tan. They often remain on the tree until spring.

The distinctive buds are about 1 inch long, slender and sharp-pointed. Twigs are zigzagged. The edible nuts are triangular in shape and about 3/4 inch long. They are attached in twos and threes in prickly husks that often remain on the tree after the nuts have fallen (after the first frost). The nuts are an excellent food source for birds and wild animals, but good seed crops occur erratically.

The wood of the beech is very hard, strong, and tough, but it decays quickly when exposed. It is used to some extent for furniture, flooring, and tools, but it has a high fuel value.

Blackgum (*Nyssa sylvatica* Marsh.)

Blackgum or black tupelo is found throughout the state in a broad range of conditions. The slender limbs grow at right angles to the trunk. Overall height reaches 30 to 40 feet, with diameters 1 to 2 feet. In open stands, the crown is often flat, but in dense stands, it is narrow and conical.

The leaves are alternate, roughly oval, with short, blunt points. They are smooth-margined, 2 to 5 inches long and $\frac{1}{2}$ to 3 inches wide. They are often the first display of autumn with their showy bright scarlet color.

The fruit is round, dark blue, about $\frac{1}{2}$ inch in diameter, and is clustered on stalks up to $1\frac{1}{2}$ inches long. Thin, bitter-smelling flesh surrounds the small, ribbed seed. Bark on younger trees is furrowed between flat ridges and gradually develops into quadrangular blocks that are dense, hard, and nearly black.

The wood is very tough, cross-grained, hard to work, and warps easily. It is used for crate and basket veneers, crosssties, rough floors, and pulpwood.



Bitternut Hickory (*Carya cordiformis*)

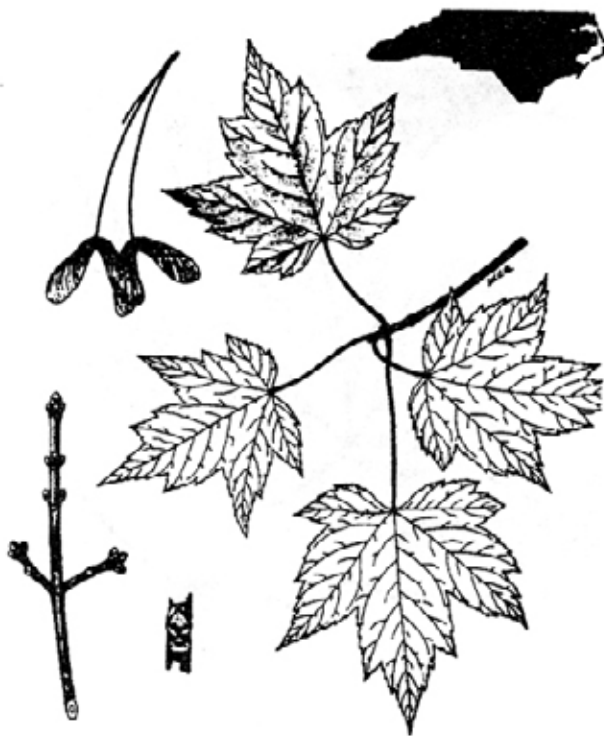
Bitternut hickory is a tall, slender tree with a broad pyramidal-shaped crown. It is found throughout the state, and is a tree of 50 to 70 feet or more, with a straight trunk 1 to $2\frac{1}{2}$ feet in diameter.

The leaves are 6 to 10 inches long with seven to nine long, oval, toothed leaflets that are dark yellow-green above and lighter below. The four-ribbed nut is about an inch long, roughly spherical, with a thin shell. The meat of the nut is very bitter. The husk is four-winged from the tip to about the middle and is covered with yellowish-green, scruffy hairs.

Bitternut hickory bark on the trunk is granite-gray and faintly tinged with yellow. It is less rough than most hickories, yet it is broken into narrow, plate-like scales. At all seasons, this tree can be identified from all other native trees by its bright, scaly, yellow, long buds.

The wood is hard, strong, and heavy; it is considered to be inferior to other hickories, but is used for the same purposes: tool handles, furniture, paneling, and sporting goods.





Red Maple (*Acer rubrum* L.)

Red maple is widely distributed throughout the state. Under ideal conditions, the tree may reach 115 feet in height and 6 feet in diameter, but it commonly grows 40 to 70 feet tall with diameters of 1½ to 2½ feet.

The leaves are three- to five-lobed with coarsely toothed margins. They are 2 to 6 inches long and can be broader than long. In autumn they turn brilliant scarlet to yellow.

Polygamous flowers grow in short-stemmed clusters in spring before the leaves appear. The paired, winged fruit is reddish and V-shaped. It ripens in late spring on drooping stems that are 3 to 4 inches long. Both buds and fruit are a primary food source for deer and squirrels. Young trees have smooth, light gray bark; mature trees have bark that is thick, dark gray, and separated by vertical ridges into large, plate-like scales.

The light cream-colored wood known commercially as soft maple is close-grained but rather weak. It is used in furniture, turnery, woodenware, and as pulpwood.

Sourwood (*Oxydendrum arboreum* L.)



Sourwood is found scattered across the state; it is a small tree, 8 to 12 inches in diameter and 30 to 40 feet tall.

The leaves are 3 to 6 inches long, simple, alternate, very acidic to the taste (oxalic acid). They are often rough, with solitary, stiff hairs. The leaves are a shiny green on the upper surface and usually turn a deep crimson in the fall.

Sourwood flowers appear in early summer and are small, white or cream-colored, and borne in panicles of 5 to 10 inches long on the ends of twigs. Bees use the flower's nectar to make honey that is prized throughout the state. The fruit is a ½ inch conical seed capsule that hangs in drooping clusters sometimes a foot long, and often persists into late fall.

The bark is thin, light gray, and divided into narrow shallow ridges. It is often bright red on strong first-year shoots. The twigs lack terminal buds.

The wood is heavy, hard, very close-grained, and compact. It is brown, sometimes tinged with red. Sourwood is seldom considered a commercial wood. It is sometimes used for turnery, handles, pulp, and other items.

Common Persimmon (*Diospyros virginiana* L.)

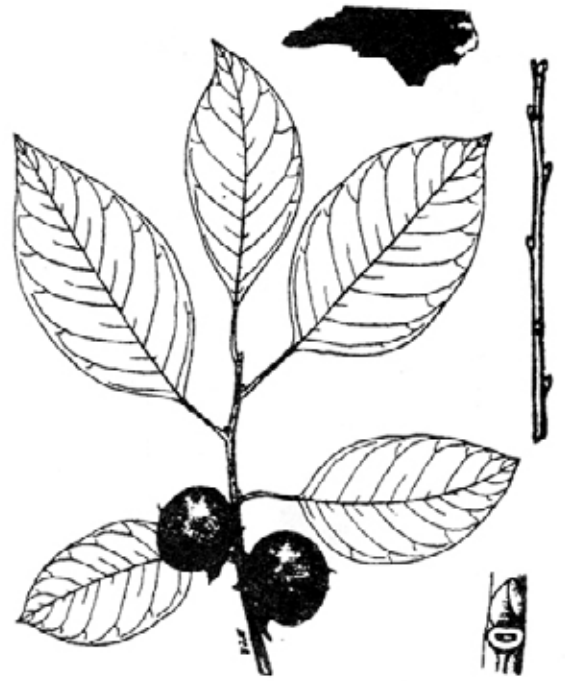
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Common persimmon grows from 30 to 50 feet tall with a spread of up to 35 feet, and is found across the state except in the higher mountains. It is easily distinguished from Japanese persimmon by its smaller leaves, buds, and fruit.

The broadly oblong, pointed leaves are 4 to 6 inches long and 2 to 3 inches wide. The leaf has a smooth margin and a broad, flat midrib with obvious dark veins on the underside.

Male and female flowers grow on separate trees. Male flowers are in two- to three-flowered clusters, while the female flower is solitary. The fruit is a berry 1 to 2 inches in diameter. It is a reddish-purple color and has several flattened seeds about $\frac{1}{2}$ inch long. The fruit is eaten by humans as well as small mammals and many birds.

The characteristic bark pattern of persimmon is easily recognized, being dark colored and deeply divided into thick, small, square plates. The heartwood is dark brown to black; the sapwood is cream or light brown. Persimmon wood is very hard and shock-resistant and is used for spindles, shuttles, golf club heads, and some furniture.



Southern Red Oak (*Quercus falcata* Michx.)

Southern red oak is also known as Spanish oak. It usually grows to a height of 60 to 80 feet and a diameter of 2 to 3 feet, although it can be found much larger in ideal conditions. Its large spreading branches form a broad, round, open top.

The leaves are dark lustrous green above and tan and downy beneath, a contrast that is strikingly visible in wind. They are 5 to 9 inches long and 4 to 5 inches wide, and are of two types: irregularly-shaped lobes that are mostly narrow and bristle-tipped, the central lobe being longest; or pear-shaped with three rounded lobes at the outer end.

Flowers appear in April as leaves are unfolding; the fruit ripens the second year. The small rounded acorn is set in a thin, saucer-shaped cup that tapers to a short stem.

The bark is rough and varies from light gray on younger trees to almost black on older ones.

The wood is heavy, hard, strong, and coarse-grained, and is less subject to defects than most other red oaks in the Piedmont. It is used for rough lumber and for furniture such as chairs and tables.



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Northern Red Oak (*Quercus rubra* L.)



Northern red oak is found throughout the Piedmont and mountain areas of the state. It averages 70 to 90 feet tall and 2 to 3 feet in diameter. The crown is rounded and narrow.

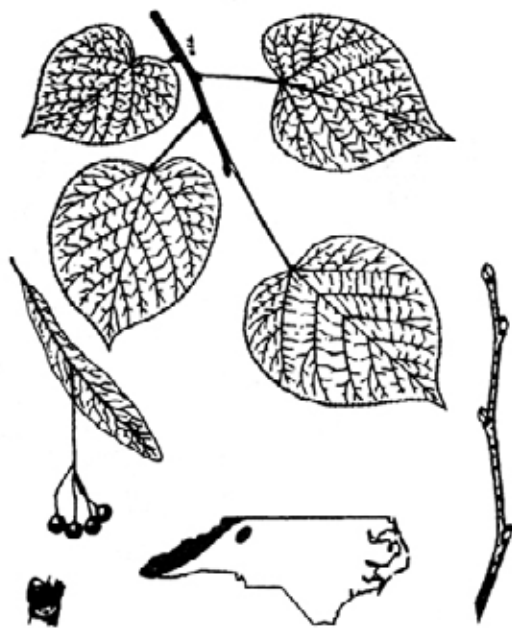
Its leaves are 5 to 8 inches long and have seven to eleven lobes. Each lobe usually is three-toothed, sharply pointed, and has bristles on the points. Northern red oak leaves are deciduous, turning red before they drop in autumn.

The acorn is $\frac{1}{2}$ to 1 inch long with a flat, shallow cup at the base.

Northern red oak bark on young stems is smooth and gray; on older trees, it is thick and broken by shallow fissures into regular, flat, smooth-surfaced plates or flat ridges.

The wood is hard, strong, and coarse-grained, with light reddish-brown heartwood and thin light-colored sapwood. Northern red oak is one of our most valuable hardwood trees. Its wood is used for interior finish, construction, furniture, flooring, and cross-ties.

Basswood (*Tilia americana* L.)



Basswood is also known as American linden or beech. It reaches heights of 70 to 80 feet or more and diameters of 2 to 3 feet.

The leaves are heart-shaped, uneven at the base, 3 to 6 inches long, thin, and saw-toothed. The surfaces range from smooth on top and bottom to densely hairy on the underside.

The flowers are yellowish-white and open in early summer. They produce fruit that is hard and rounded, about the size of a pea. They hang in clusters from a stalk that is attached to a paper-thin, strap-shaped bract. Each fruit is covered with a thick, reddish-brown fuzz and contains two seeds. It stays attached in clusters to the leafy bract, which later acts as wing when it is carried away by the wind.

Basswood bark is grayish green on young trees, later breaking up into narrow ridges. The twigs are green to red and grow in a zigzag fashion.

The cream-colored wood is lightweight, soft, and tough, but not durable. It is used in pulpmaking, woodenware, furniture, and many other products.

Mulberry

(*Morus alba* L. or *Morus rubra* L.)

Red mulberry grows sparsely throughout the state. It is a small tree, usually 20 to 30 feet tall with trunk diameters rarely larger than 2 feet. It has a short trunk and a dense, spreading crown. The white mulberry is similar and also common.

The leaves are alternate, thin, rounded or somewhat heart-shaped, toothed, pointed, 3 to 5 inches long, rough-hairy above and soft-hairy beneath. Leaves from young tissue are mitten-shaped or lobed.

The fruit resembles that of blackberry; red when immature but turning deep purple (white for the white mulberry) when ripe in late June. Berries are 1 to 1½ inches long and are sweet, juicy, and edible. They are a favorite food for squirrels, turkeys, and many songbirds.

Mulberry bark is dark brown with a reddish tinge. It is scaly, with the tips of the scales curling and peeling off.

The dark brown wood is light and soft and, although it is not strong, it is quite durable. Red mulberry is used for fencing and barrels. Because the tree is small and rather scarce, it is not considered important commercially.



Greenway Code

We, the trees and animals of the Catawba River Greenway, invite you into our home. Our only request is that you help us keep our home clean by not littering. Leave only your footprints and we will welcome you as our guest and invite you to stay as long as you want.

This booklet can be recycled by placing it in the green mail box located at either end of the Greenway.

Thank you.



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