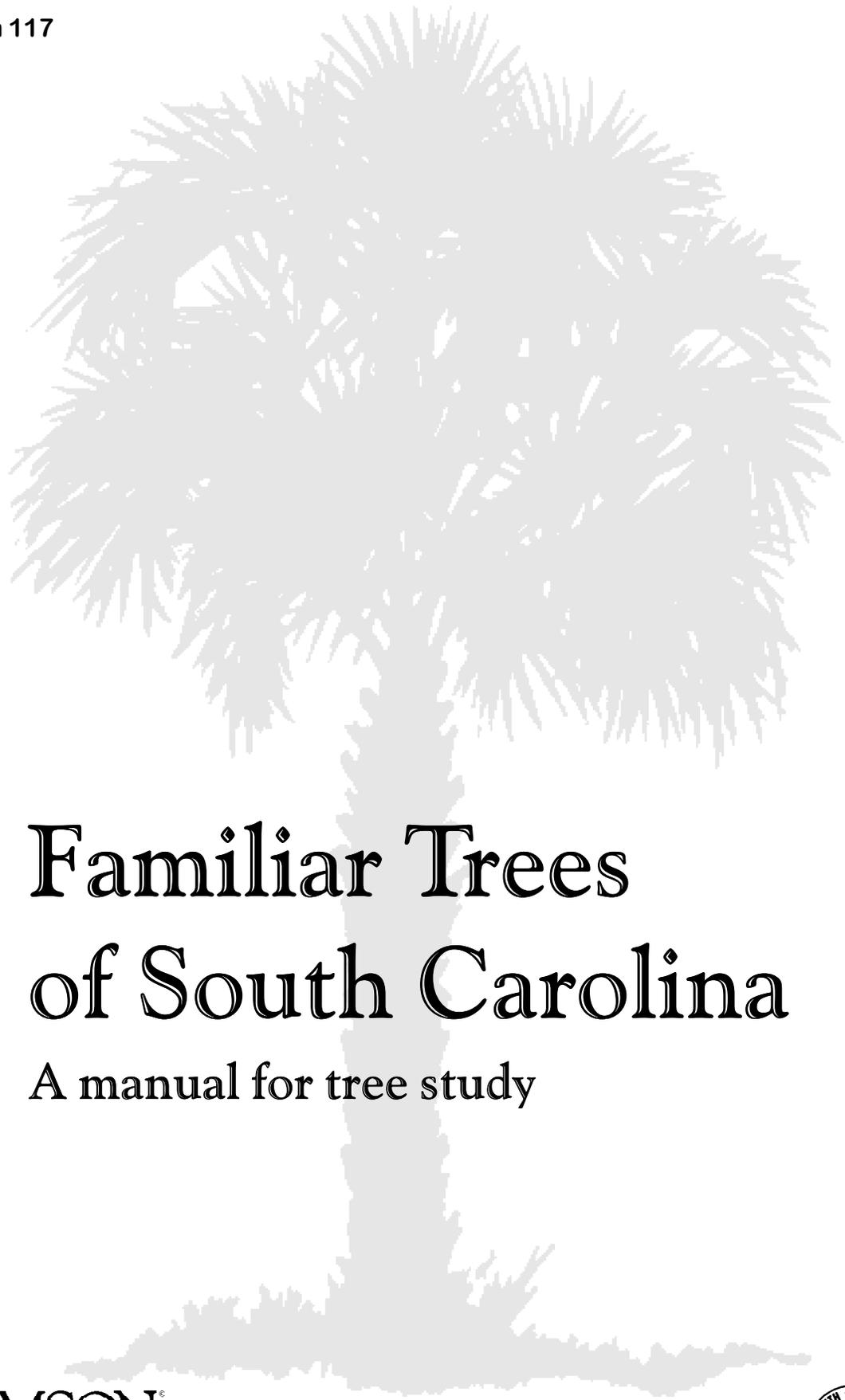


Bulletin 117



Familiar Trees of South Carolina

A manual for tree study

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Familiar Trees of South Carolina

Prepared by George D. Kessler, Extension Forester and Professor of Forestry, and
Roland E. Schoenike, Professor of Forestry

Trees, one of the most conspicuous features of the South Carolina landscape, have played an important role in the history and the economic development of the Palmetto State.

This tree study manual has been prepared to aid 4-H Club members, teachers, youth group leaders, and others who want to identify or to know more about the trees of our state. It is a major revision of a bulletin first issued in 1950. A total of 255,000 copies has been printed in the 17 editions issued to date.

Nature has endowed South Carolina with a wide variety and abundance of trees. Although this manual does not include all the trees found in the state, it is hoped that the 60 more important and common ones covered in this manual will help stimulate observation and arouse interest and appreciation of trees—one of South Carolina's most important renewable natural resources.

Anyone interested in additional information on trees may consult any of a number of books on tree identification. Some of these are listed below:

Brockman, C. F. and Merrilees, R., *Trees of North America, A Field Guide*. New York: Golden Press.

Elias, T. S., *The Complete Trees of North America*. New York: Van Nostrand Reinhold Co.

Grimm, William C., *The Book of Trees*. Stackpole Company, P.O. Box 1831, Harrisburg, PA 17105

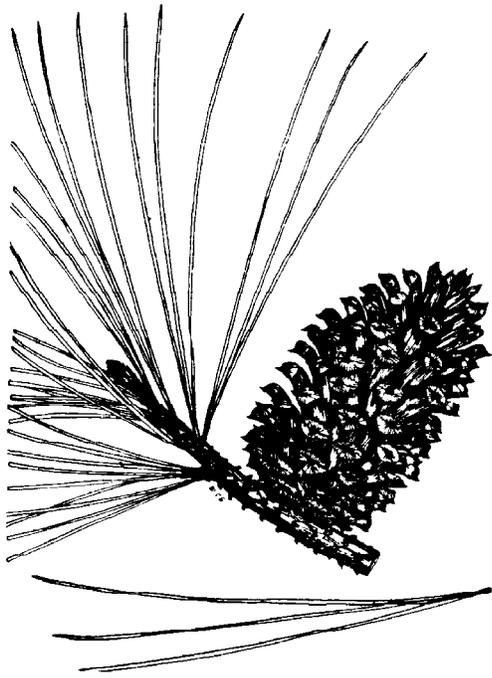
Little, Elbert, *The Audubon Society Field Guide for North American Trees*. New York: A. A. Knopf.

Petrides, G. A., *A Field Guide to Trees and Shrubs*. Boston, Mass.: Houghton, Mifflin Co.

Preston, R. J., *North American Trees*. Ames, Iowa: Iowa State University Press.

Loblolly Pine

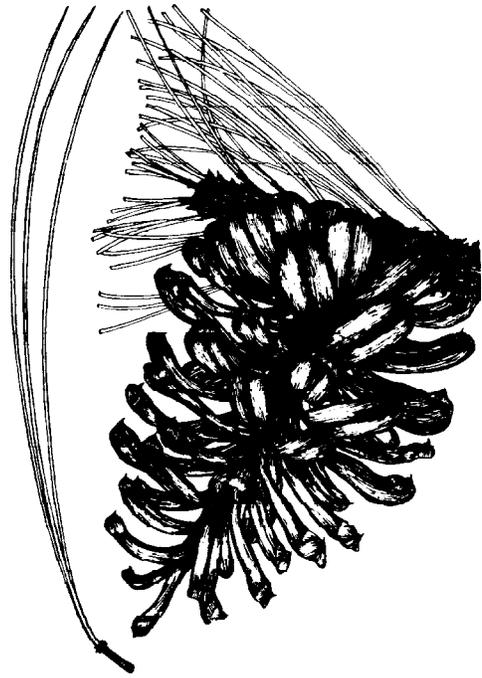
Pinus taeda



This fast-growing pine produces abundant seeds; reseeds abandoned fields. Because of its wide range, abundance, and versatility, loblolly pine is the principal commercial pine species in the Southeastern United States.

Longleaf Pine

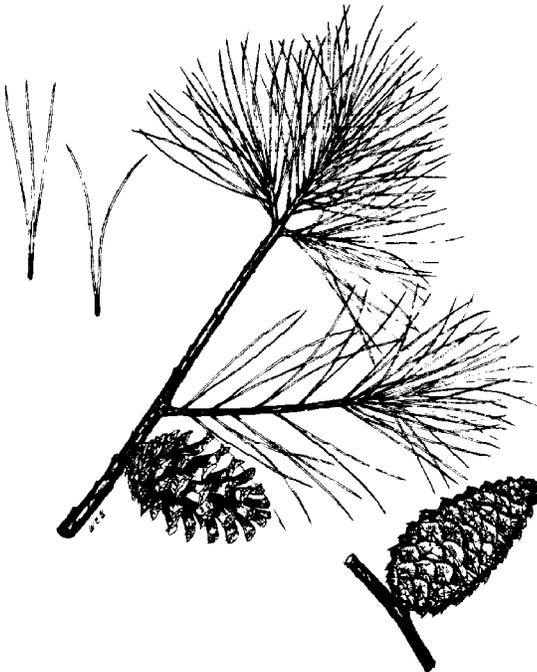
Pinus palustris



Since the early days of our colonies, longleaf pine has been a prime source of lumber and naval stores (turpentine, tar, pitch, rosin). Has the longest needles of any pine in South Carolina 8 to 20 inches long.

Shortleaf Pine

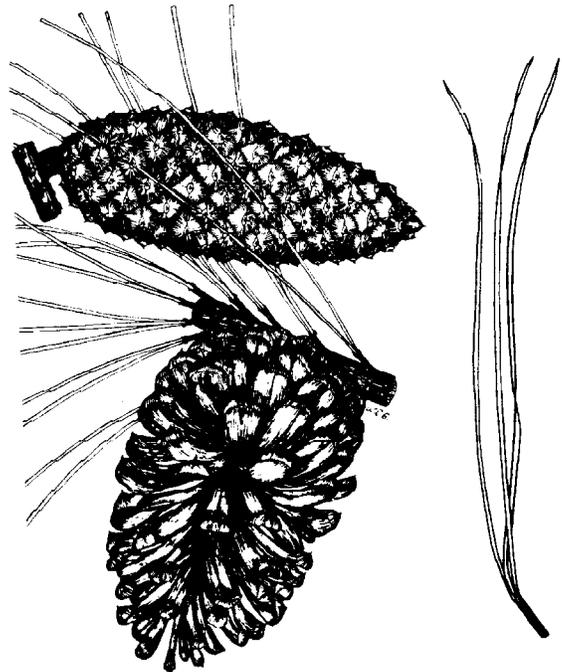
Pinus echinata



Needles in clusters of 2's, rarely 3's or 4's. The abundant cones are among the smallest of those of our southern pines 1½ to 2½ inches long, generally clustered, often remain on the twigs for 3 or 4 years.

Slash Pine

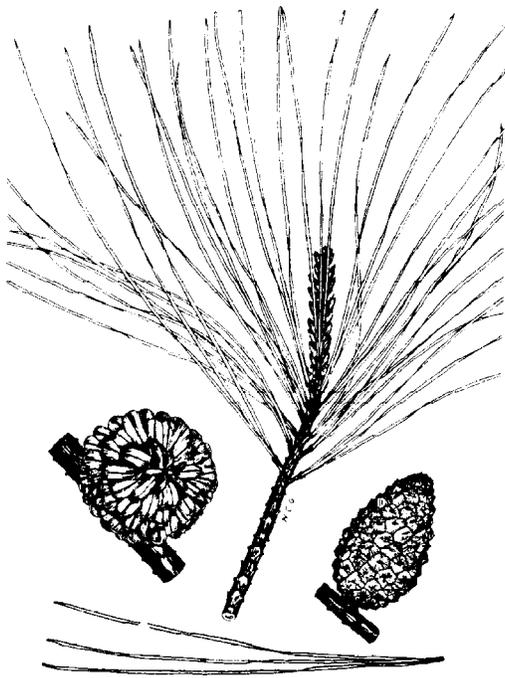
Pinus elliotii



Along with longleaf, slash pine yields naval stores. Widely planted throughout the Coastal Plain and Sandhills. The scientific name honors noted S. C. botanist Stephen Elliott, who in 1824 first described it as a variety of loblolly pine.

Pone Pine

Pinus serotina



Grows on low, wet flats, usually in lowlands of the Coastal Plain. The short, broad, top-shaped cones persist unopened on the branches for years.

Virginia Pine

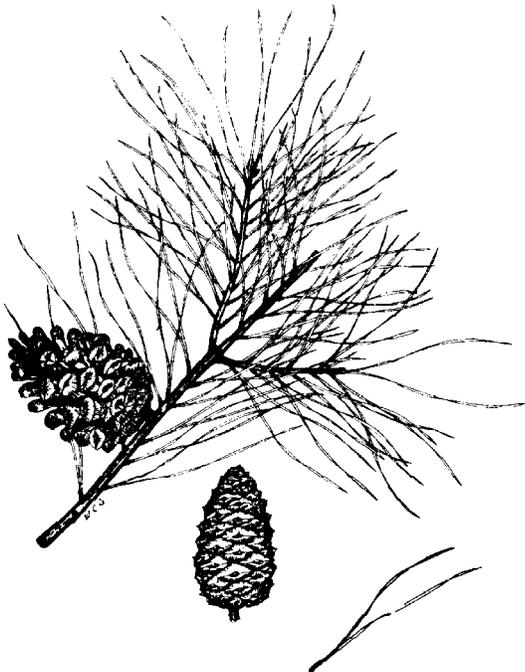
Pinus virginiana



Stiff, gray-green needles 1½ to 3 inches long in bundles of 2, often twisted. Cones with sharp prickles. Old, open cones remain on the branches for several years. Capable of growing on eroded and poorly drained sites.

Spruce Pine

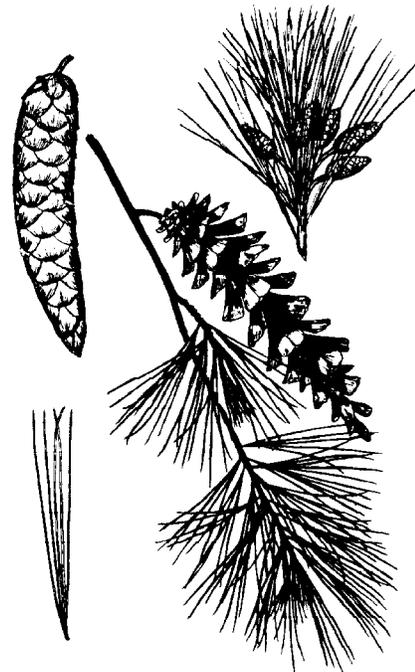
Pinus glabra



Found on damp coastal sites. Bark and foliage resemble white pine. Also known as Walter pine, honoring S. C. botanist Thomas Walter, who published the first description of the tree in 1788 in his *Flora Caroliniana*.

Eastern White Pine

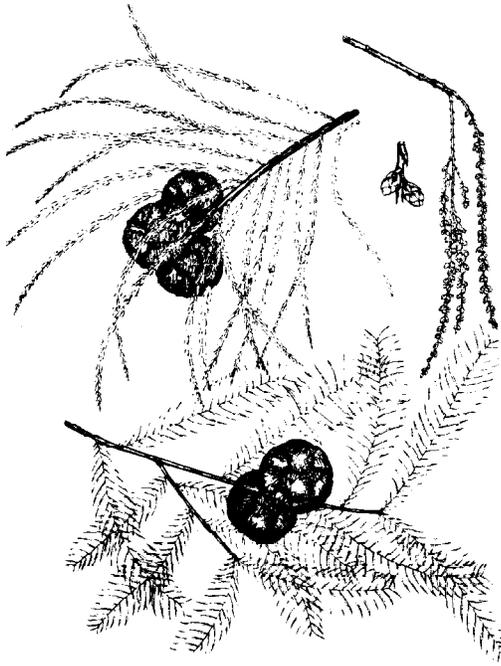
Pinus strobus



Soft, flexible, bluish-green needles, only native pine in the East with 5 needles. The King's Broad Arrow, used to mark white pine trees reserved as shipmasts for the Royal Navy, helped to stir New England colonists to rebellion.

Baldcypress

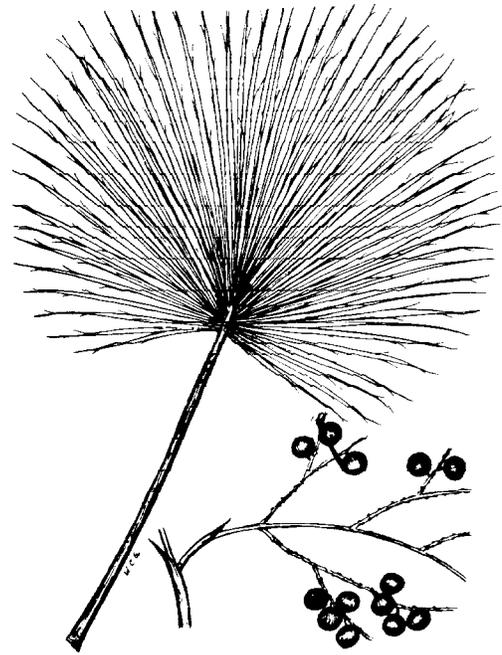
Taxodium distichum



Function of the cypress knees is not definitely known. Trees may live for over 1,000 years. Wood is durable. Only native southern conifer which sheds its leaves each winter.

Cabbage Palmetto

Sabal palmetto



South Carolina's official state tree, it appears on the state flag and the state seal and gives the state its nickname of the Palmetto State. Blossoms are excellent sources of nectar from which bees make honey.

Eastern Redcedar

Juniperus virginiana



The reddish, aromatic heartwood is used for making cedar chests and closet linings. Once the principal species used to make wooden casings for lead pencils. Heartwood durable, used for fenceposts. A favorite Christmas tree.

Eastern Hemlock

Tsuga canadensis



Evergreen thickets of young hemlock provide excellent cover for wildlife. Can be sheared easily and is sometimes used as a hedge plant. Tolerant of shade and slow in growth.

White Oak

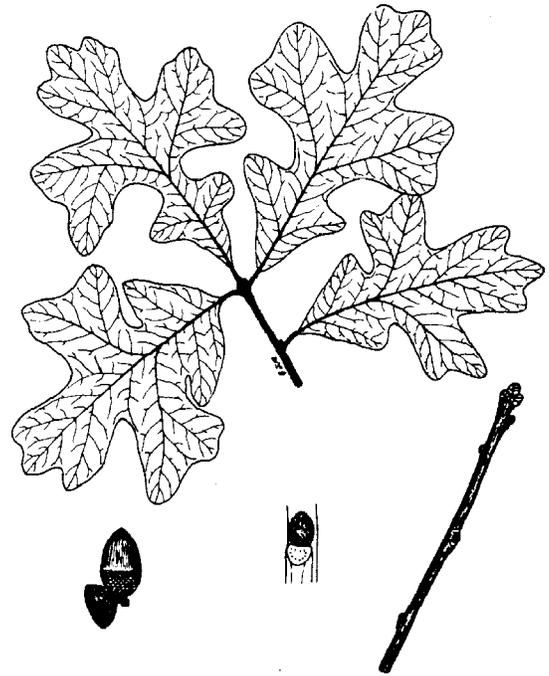
Quercus alba



One of our largest and most valuable trees. Sometimes attains an age of 600 years or more. High-grade all-purpose wood especially suitable for furniture, flooring, and tight cooerage.

Post Oak

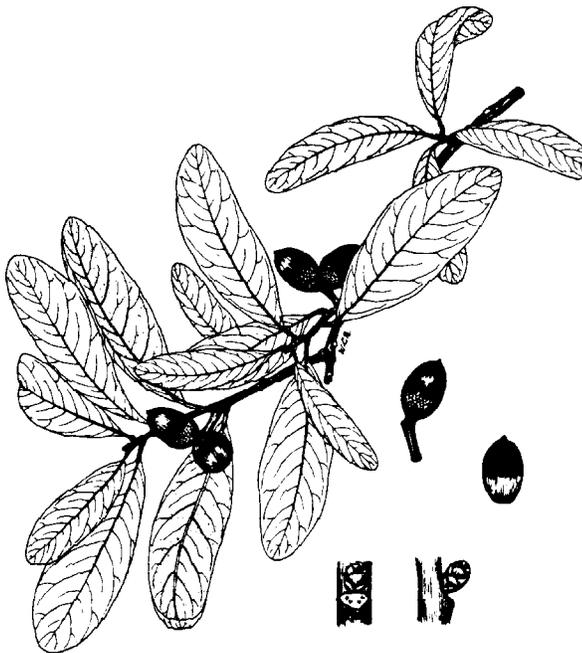
Quercus stellata



Variable leaves, cross-shaped in outline. Wood used for crossties and fence posts. Slow-growing, long-lived. Good acorn crop every 2 or 3 years. A preferred food of turkey and deer.

Live Oak

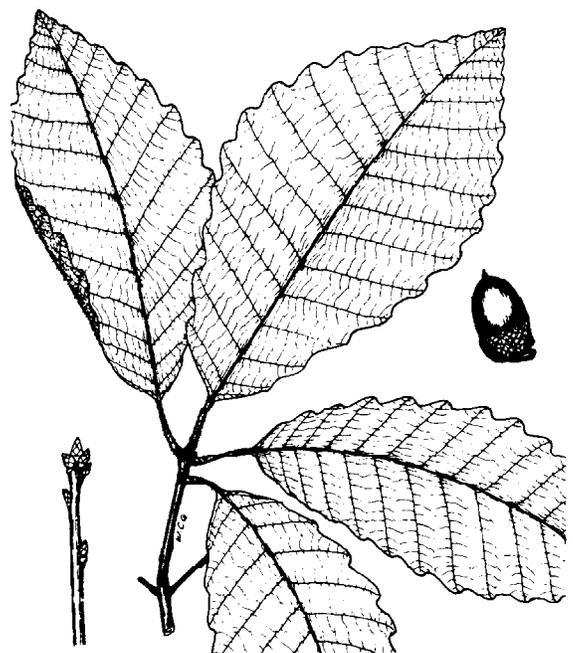
Quercus virginiana



Now prized as a shade or ornamental tree. In the days of sailing ships it provided timbers for their construction, and the U. S. set aside several land preserves of the tree for the exclusive use of the Navy.

Swamp Chestnut Oak

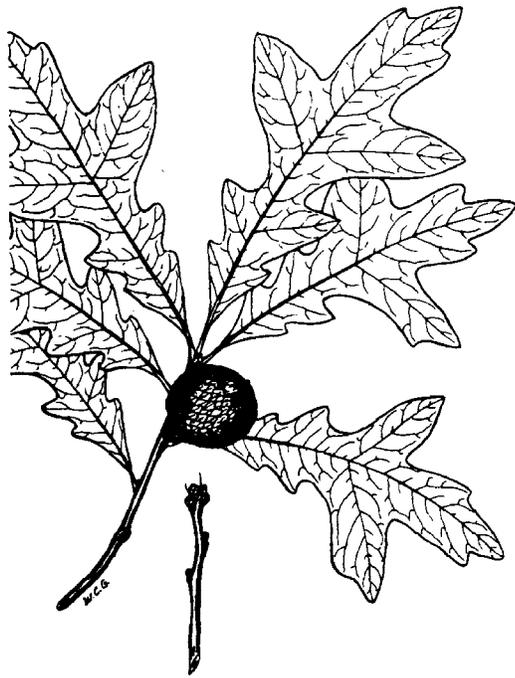
Quercus michauxii



The leaves turn a rich crimson color in the fall. Wood used for making baskets. Often known as basket oak or cow oak. Long-lived; wood durable.

Overcup Oak

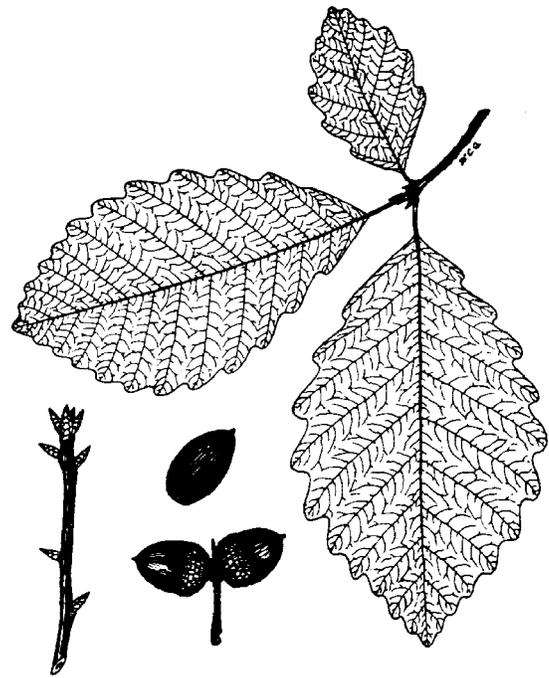
Quercus lyrata



The name of the tree comes from the acorn being almost entirely enclosed in the nearly spherical cup. Often called swamp white oak or swamp post oak. Nowhere abundant. Grows on poorly drained soils, slow growing, long lived.

Chestnut Oak

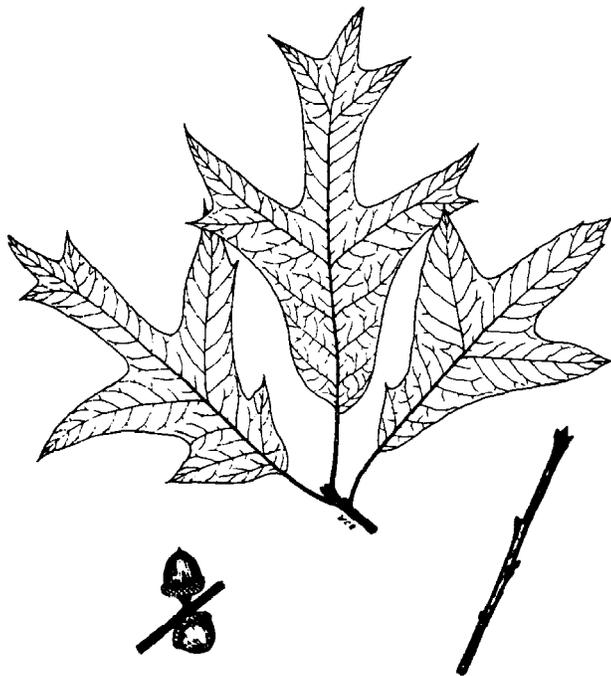
Quercus prinus



Heavy, hard, strong, tough, close-grained wood which is durable in the soil. Large, sweet acorn is a favorite food for squirrel, deer, and turkey. Acorns mostly too large for smaller birds.

Southern Red Oak

Quercus falcata



Leaves are two different types, either pear-shaped with 3 rounded lobes or with 3 to 5 irregular-shaped lobes, the central lobe usually strap-like and conspicuously long.

Northern Red Oak

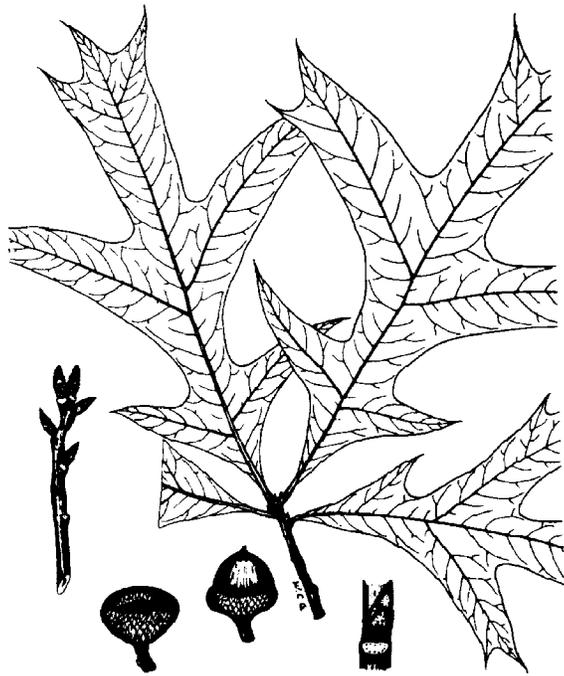
Quercus rubra



A good lumber tree, among the best of the red oaks in quality. Usually found in upper part of state only. Acorns are readily eaten by squirrels, deer, and turkey.

Turkey Oak

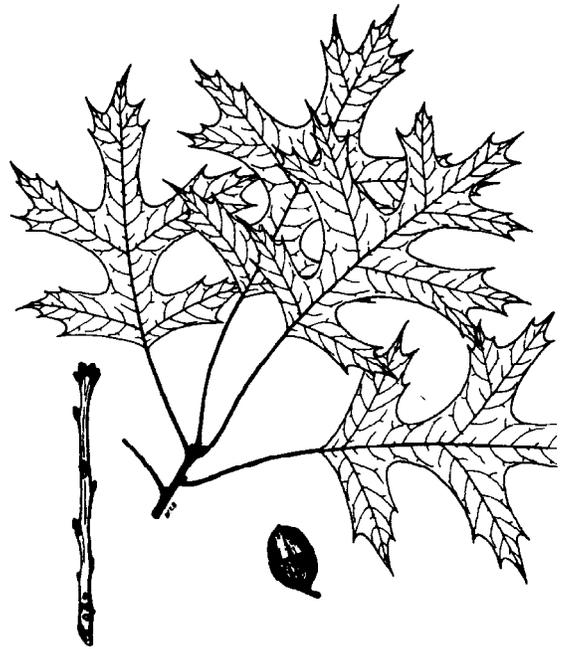
Quercus laevis



Leaves somewhat resemble a turkey's food in shape and are about 5 inches wide and 5 inches long. Tree is usually no taller than 20 to 30 feet. Most commonly found in sandy, dry soils.

Scarlet Oak

Quercus coccinea



Leaves turn brilliant scarlet in autumn, giving this tree its common name. Also called Spanish oak as some say its long, narrow, pointed leaves resemble a Spanish dagger. One of the fastest growing oaks on poor sites.

Black Oak

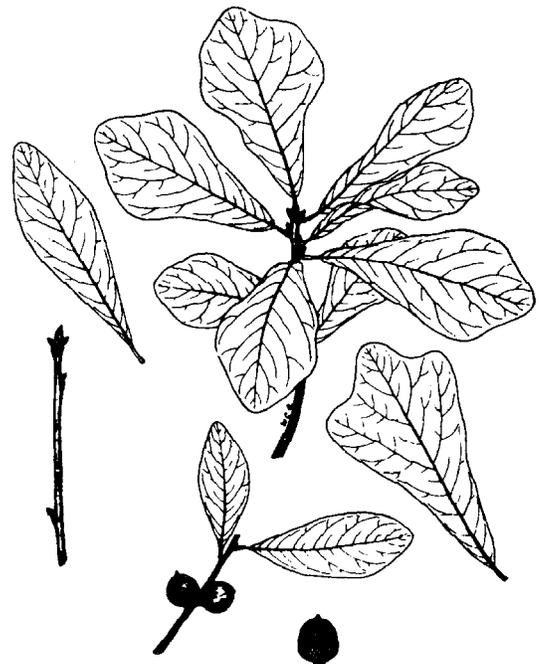
Quercus velutina



Leaves are many shapes, mostly fuzzy on underside with conspicuous brown hairs in the forks of the veins. Bitter acorns are a source of food for many animals. Crowded out of better sites because it can't stand competition.

Water Oak

Quercus nigra



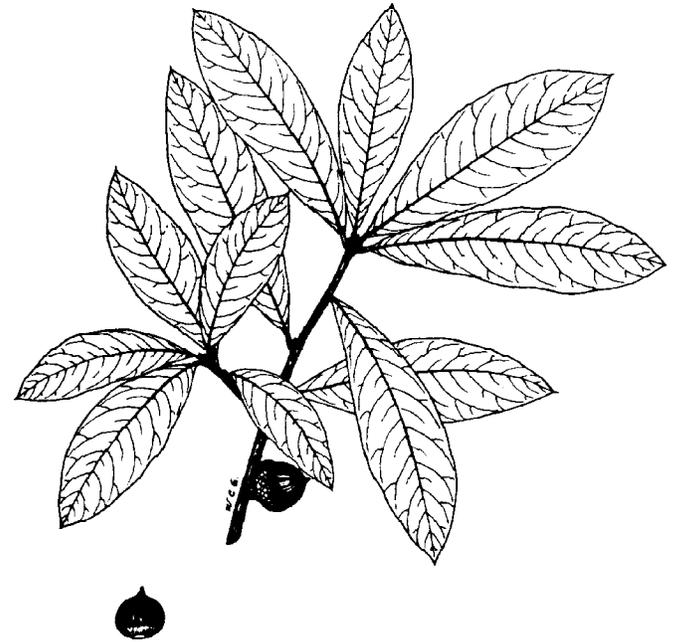
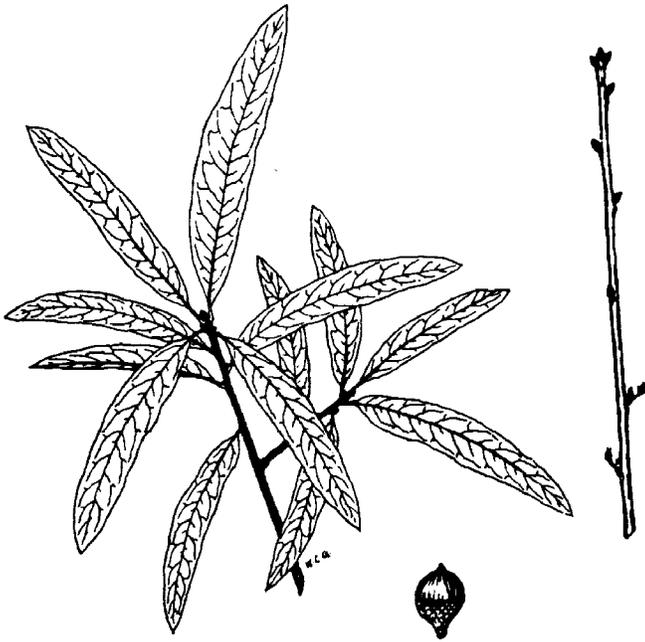
Leaves quite variable in shape, remain green for some time and gradually fall during late winter. Rapid grower, easily propagated. Its spready, symmetrical crown makes it a favorite street and lawn tree.

Willow Oak

Quercus phellos

Laurel Oak

Quercus laurifolia



Widely used as an ornamental tree. Slender, willowlike leaves, smooth bark except for ridges on old trees. Can tolerate more water than most oaks.

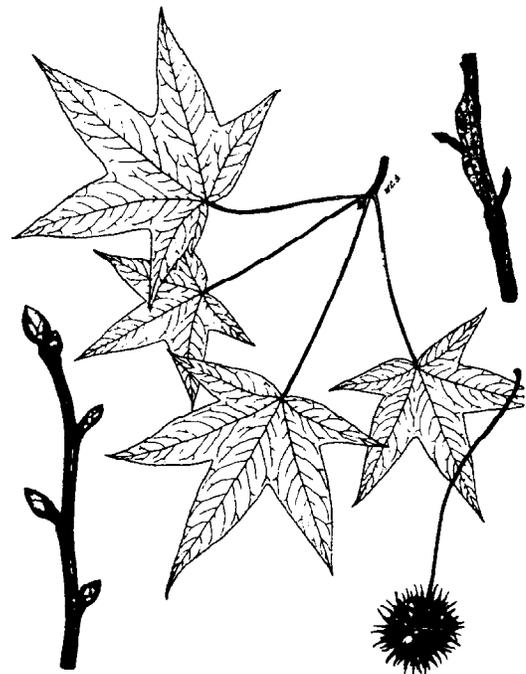
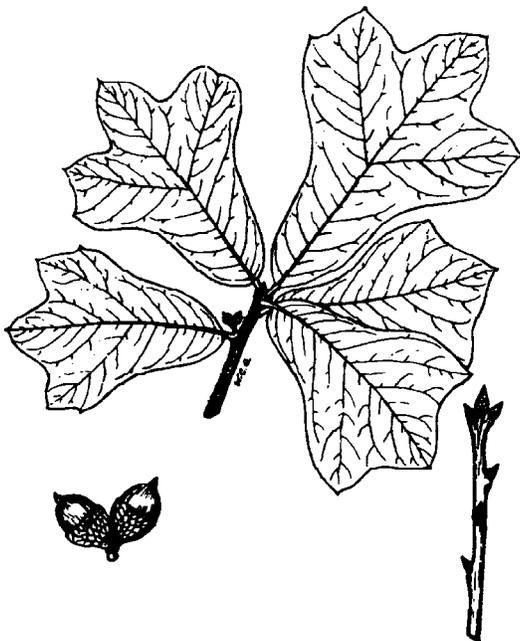
Often called Darlington oak. Used mainly as an ornamental, planted as a street tree. Leaves remain green on tree until spring.

Blackjack Oak

Quercus marilandica

Sweetgum

Liquidambar styraciflua



Rarely more than one foot in diameter or more than 40 feet high with short, stout, often contorted branches forming a dense crown. Acorns are food of wild turkey and white-tailed deer.

Commercially valuable tree. Wood takes a high polish in imitation of more expensive varieties. Widely used for furniture, cabinet wood, veneer, and pulp. Star-shaped leaves; corky ridges on twigs; ball-like fruit.

Southern Magnolia

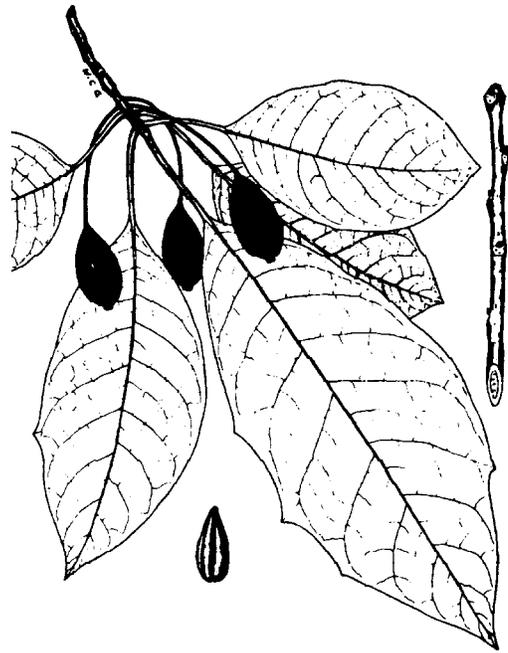
Magnolia grandiflora



Large, leathery evergreen leaves are glossy green on top and rusty-reddish suede on the underside. Large, showy, white fragrant flowers appear at intervals during the summer. One of the most striking and characteristic trees of the deep South.

Water Tupelo

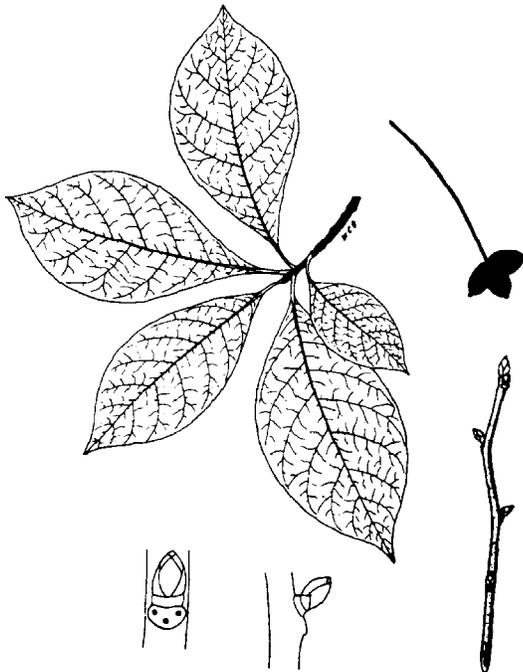
Nyssa aquatica



As the name implies, this tree is found in swampy areas. It has many of the same characteristics and uses as black tupelo. One characteristic of this tree is the conspicuously swollen base.

Black Tupelo

Nyssa sylvatica



On mature trees bark is deeply and narrowly fissured with oblong blocks resembling alligator leather. Wood is spirally grained and difficult to split.

Sweetbay

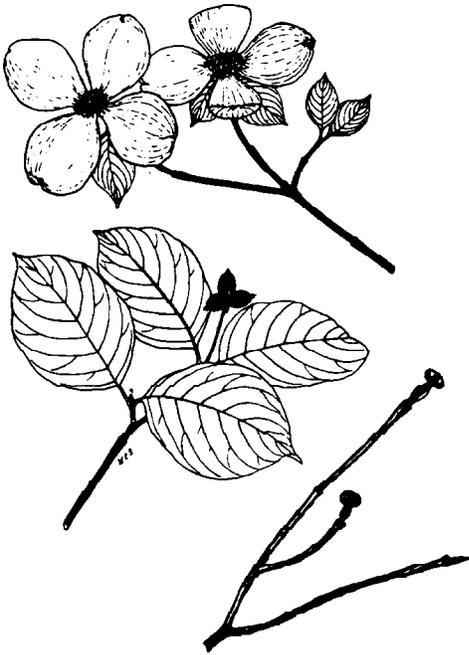
Magnolia virginiana



Leaves are bright, lustrous green above, nearly white beneath. Evergreen; member of the magnolia family with fragrant white flowers. Often planted as an ornamental.

Flowering Dogwood

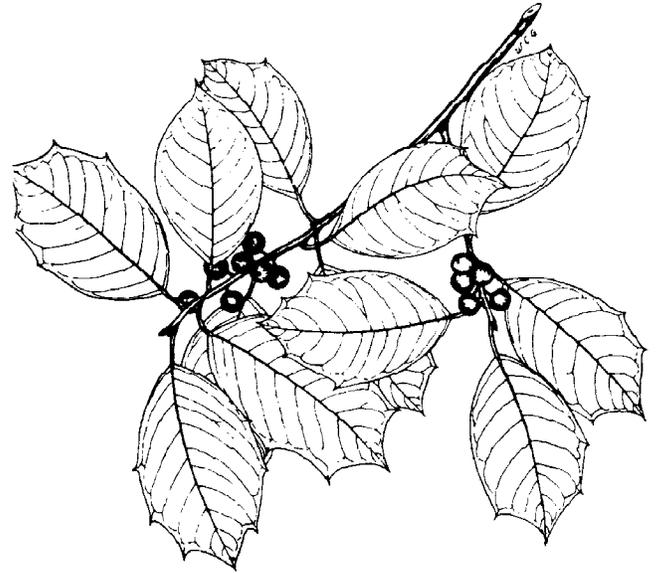
Cornus florida



Widely planted as an ornamental, early flowering, leaf veins curve and tend to follow the leaf margin. Heavy, hard, strong and tough wood used for making shuttles for textile industry.

American Holly

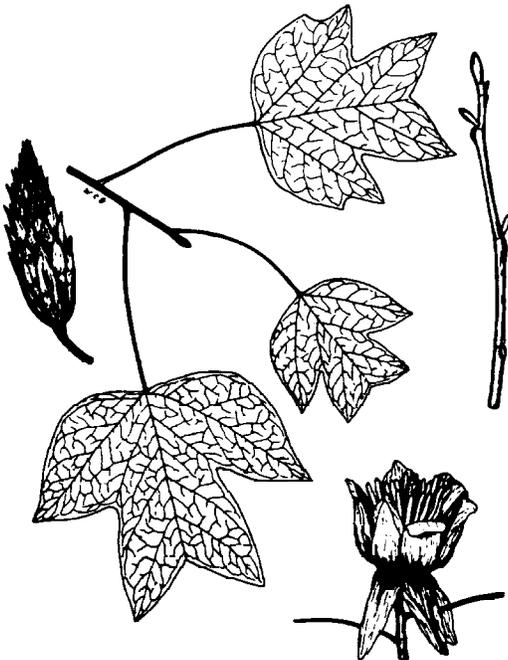
Ilex opaca



Widely planted as an ornamental. Male and female flowers on separate trees; only female trees bear the distinctive bright red berries that provide so much color at Christmastime. Berries provide food for birds and other wildlife.

Yellow-Poplar

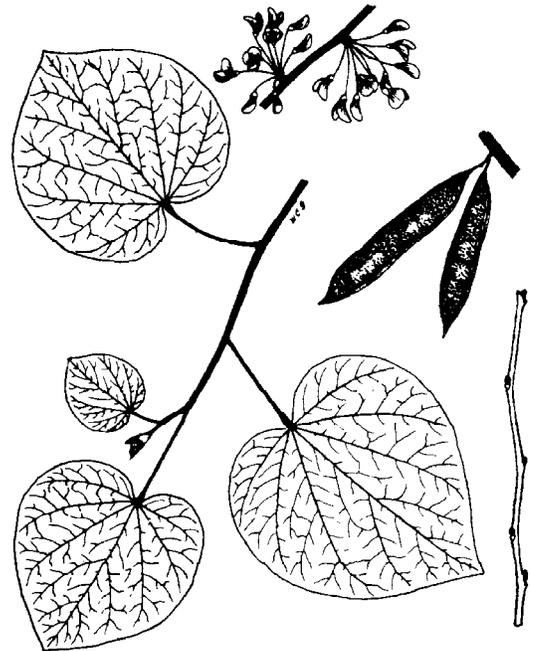
Liriodendron tulipifera



Tulip-shaped leaves and large, greenish, tulip-shaped flowers give the tree its common name of tulip tree. One of the most important southern hardwoods. Very versatile wood, excellent for furniture.

Eastern Redbud

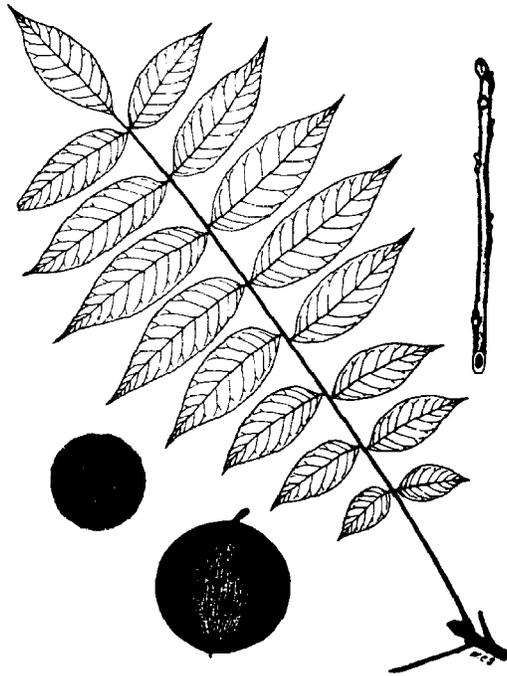
Cercis canadensis



One of our most beautiful native ornamental small trees. The pealike pink flowers appear before the leaves or just as they are unfolding. One of the first trees to flower in early spring. Also known as Judas-tree.

Black Walnut

Juglans nigra



Hard, heavy, strong wood, easily worked; one of our most valuable trees. The cradles that rocked our pioneering forefathers were almost always made of black walnut. Principal wood used in gun stocks. Used in fine furniture.

Shagbark Hickory

Carya ovata



Young trees have smooth bark becoming furrowed and shaggy as the tree grows larger. Frequently the shaggy strips of gray bark, a foot or more long and 6 to 8 inches wide, are loose and curling at both ends.

Mockernut Hickory

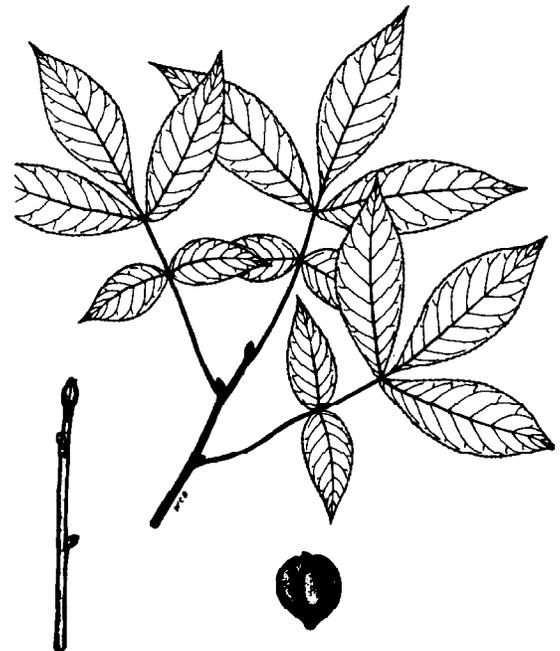
Carya tomentosa



Wood noted for its hardness, toughness, resilience and ability to stand sudden shocks. Excellent for axe and hammer handles. Fragrant leaflets densely hairy along the midrib. Favorite wood in the smokehouse.

Pignut Hickory

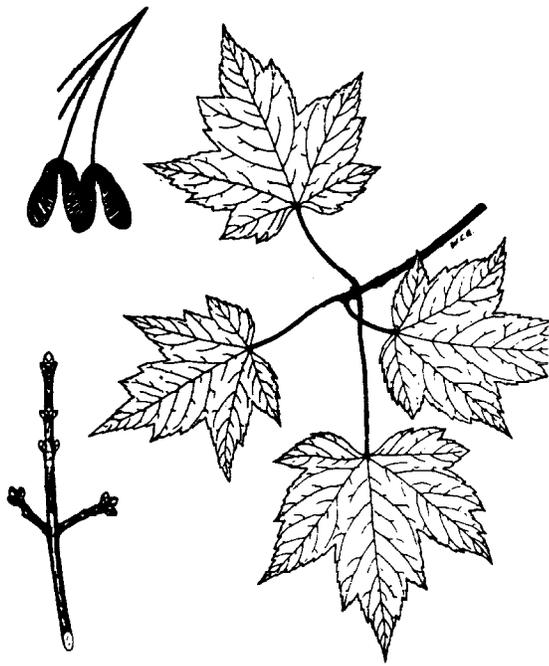
Carya glabra



Dark gray, shallow-fissured, narrow-ridged bark having a diamond-shaped pattern. The kernel of the nut is small and usually bitter.

Red Maple

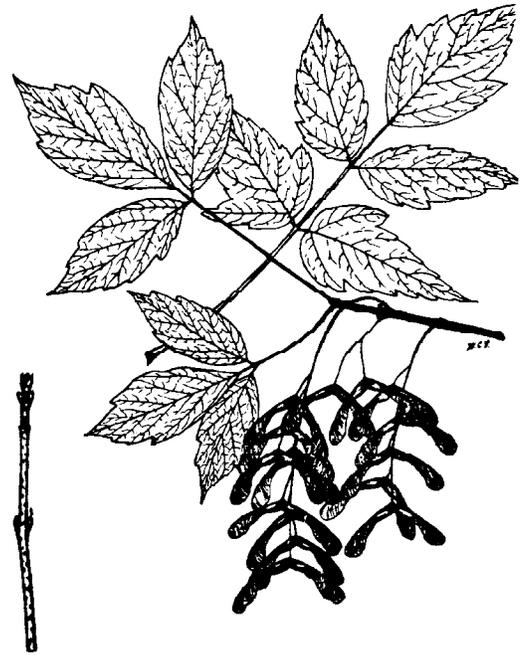
Acer rubrum



At all seasons of the year red maple has something red about it. In winter the red buds and twigs; in spring the red flowers, in summer the red leafstalks and red twigs; and in the fall the leaves turn crimson or winy red.

Boxelder

Acer negundo



The olive-green twigs are covered with a powdery coating that can be easily rubbed off. The maple keys hang on the tree after the leaves have fallen.

American Elm

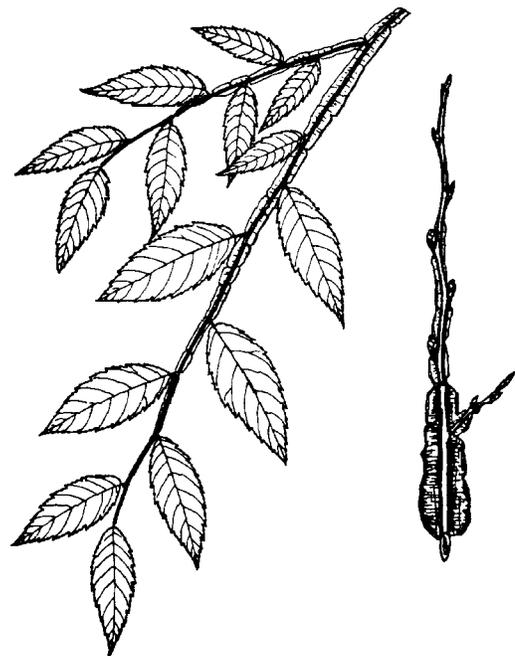
Ulmus americana



Leaves are unsymmetrical or lopsided at the base. Trunk usually divides into several stems which form a broad, round-topped crown of long, graceful branches. Very distinctive appearance.

Winged Elm

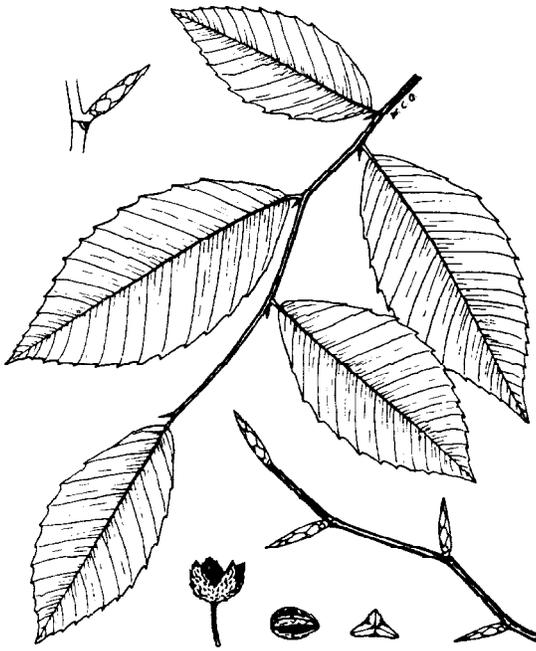
Ulmus alata



Names for its thin corky growth or wings usually found on the smaller branches. Grows rapidly, a favorite ornamental and street tree.

American Beech

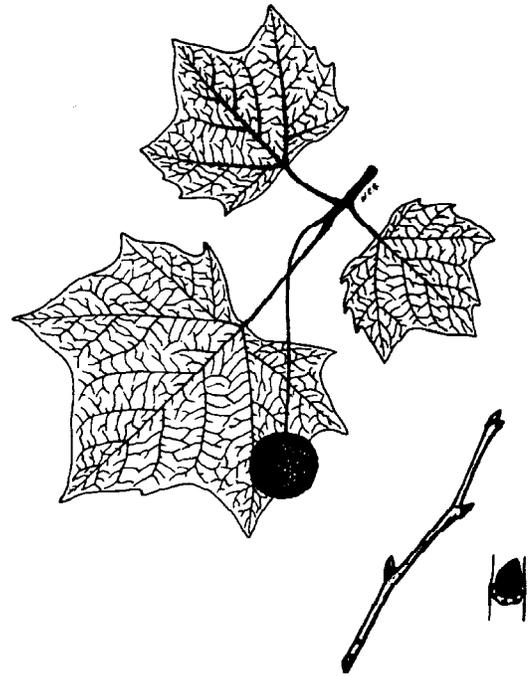
Fagus grandifolia



Readily identified by its smooth, light gray bark; frequently carved with dates and initials. The sweet-meated nuts are eaten by many birds and mammals.

American Sycamore

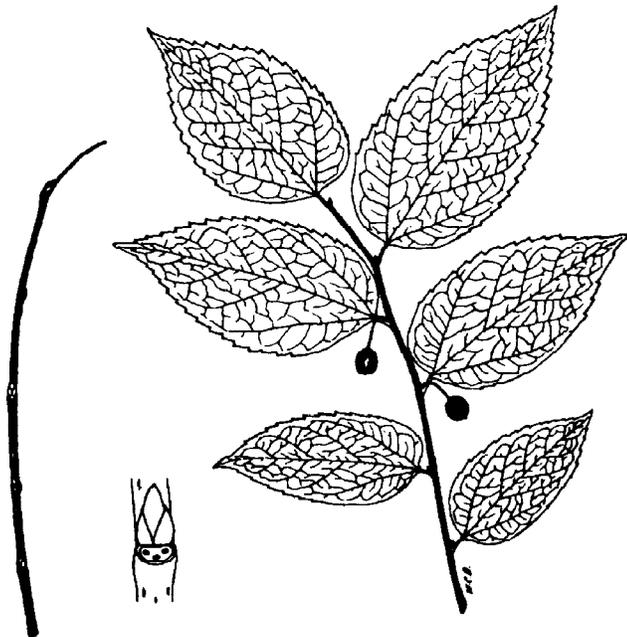
Platanus occidentalis



Bark generally smooth, greenish gray in color. Outer bark flakes off in large patches exposing the nearly white younger bark. Wood difficult to split. Pioneers made the solid wheels of their ox carts from it.

Sugarberry

Celtis laevigata



Found along streams and in bottomland areas. Bark is silvery and develops corky warts and ridge on the trunk. Fruit is a drupe that is orange to dark red when ripe.

Black Willow

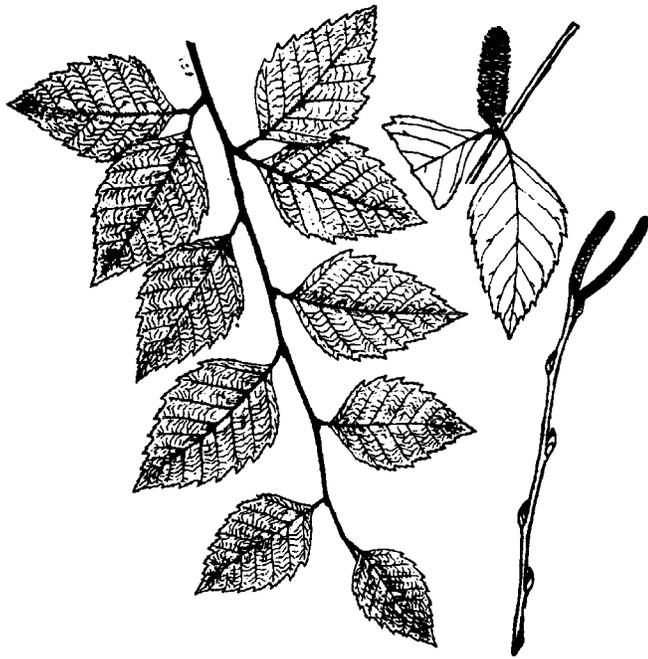
Salix nigra



Usually found growing along lakes and streams. The twigs of this tree, put into the ground, grow into new, full-sized willows. The lightweight and flexible wood is used for artificial limbs, wicker baskets, and furniture.

River Birch

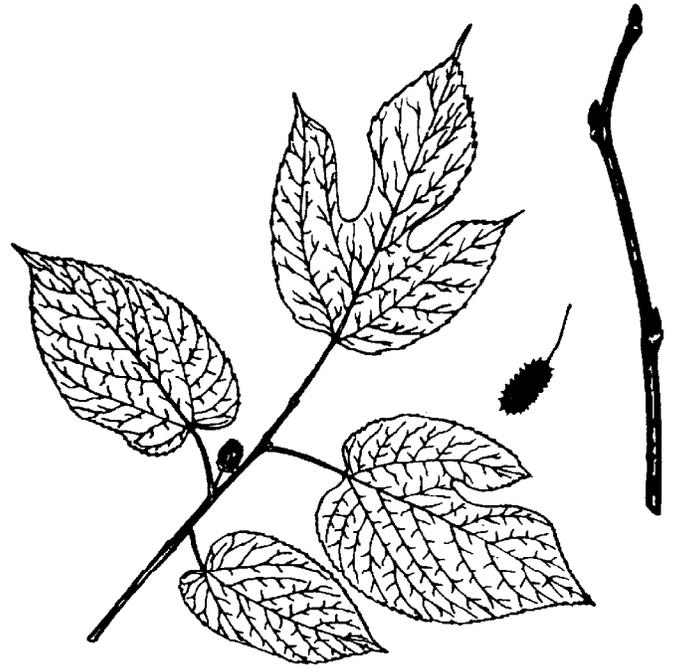
Betula nigra



Reddish brown or cinnamon-red bark peels off in thin, curling, tough, papery layers, presenting a ragged and quite distinctive appearance. Usually found near rivers, lakes, and swamps.

Red Mulberry

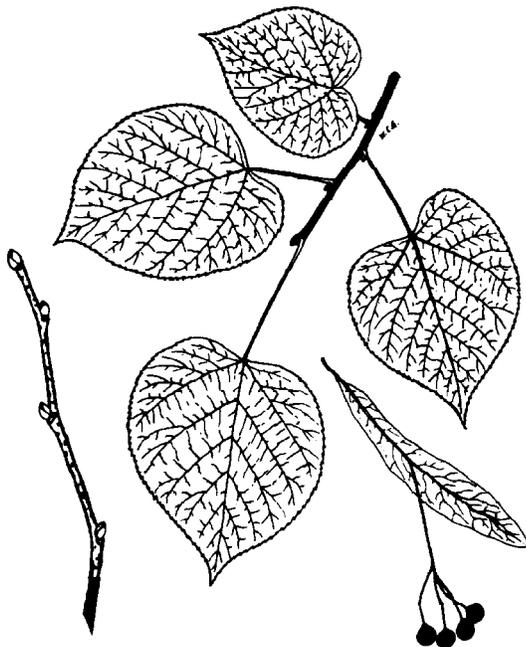
Morus rubra



Soft, tough, durable wood. Sometimes planted as an ornamental and for bird food. Distinguishing characteristics are its varied-shaped leaves, berrylike fruit, and milky sap.

White Basswood

Tilia heterophylla



Old basswoods are frequently hollow. They make excellent nesting and den sites for many kinds of wild birds and mammals. Often planted as a shade or street tree. Often called "bee tree."

Black Cherry

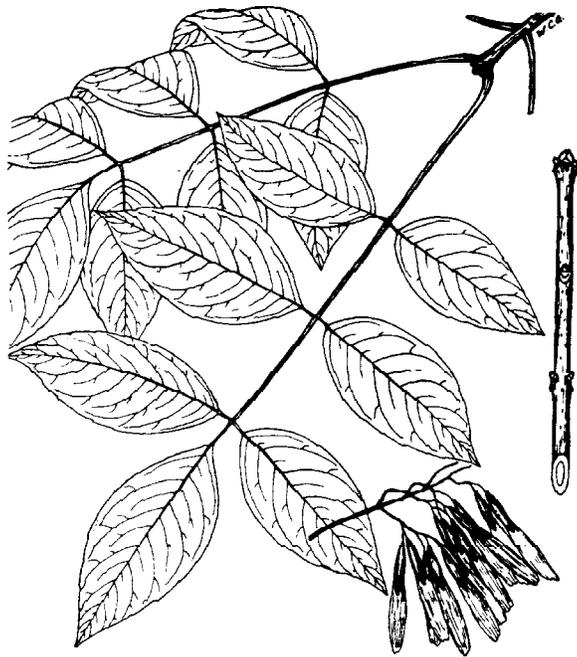
Prunus serotina



Excellent wood for furniture, cabinet work, and paneling. Fruit is a favorite of wildlife. Birds are largely responsible for spreading the seed. Brown hairs on underside of leaf along lower one-third of midrib.

White Ash

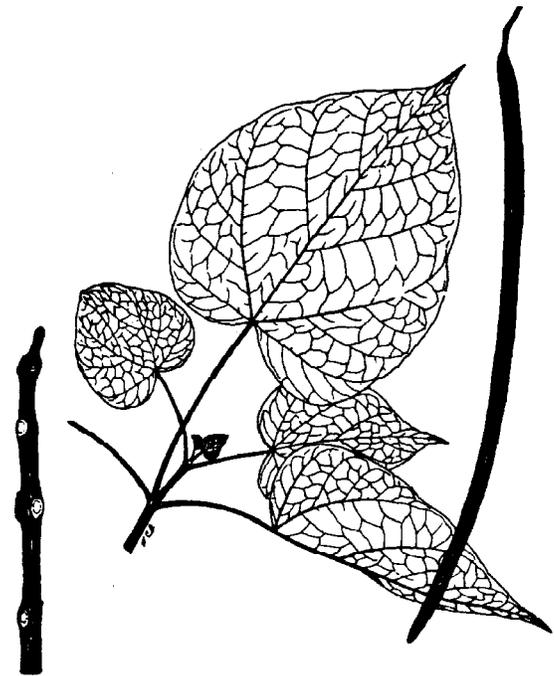
Fraxinus americana



Strong, hard, stiff, resilient, and very shock-resistant wood that seasons well and takes a good polish. Excellent for handles, bats, snowshoes, skis, and bows.

Southern Catalpa

Catalpa bignonioides



Heart-shaped leaves, showy clusters of white flowers, and cigar-like fruit from 6 to 20 inches long are characteristic features. Wood very durable. Caterpillars that attack leaves are favorite fish bait.

Honeylocust

Gleditsia triacanthos



Trunks and larger branches usually bristle with stout-branched thorns. Long, curving seed pods contain sweet pulp and remain on the tree most of the winter. Fast grower, resistant to drought, and intolerant to shade.

Black Locust

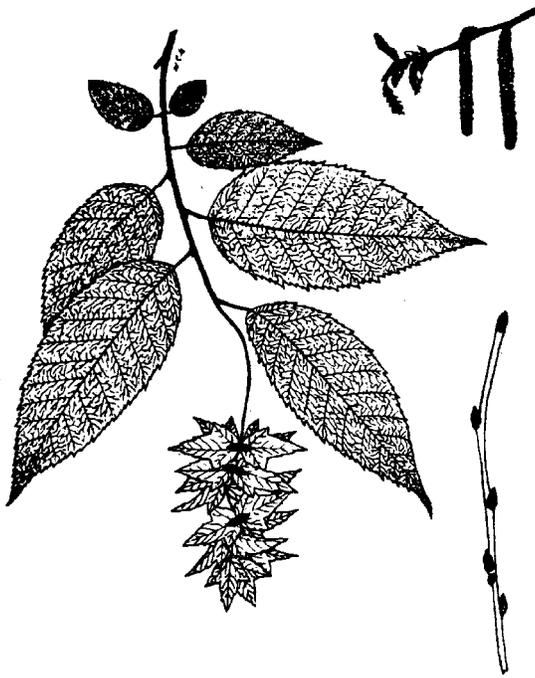
Robinia pseudoacacia



One of the toughest and most durable hardwoods growing in this country. Sharp spines in pairs on the branches. Sweet, fragrant white flowers attract bees. Very tolerant to shade.

American Hornbeam

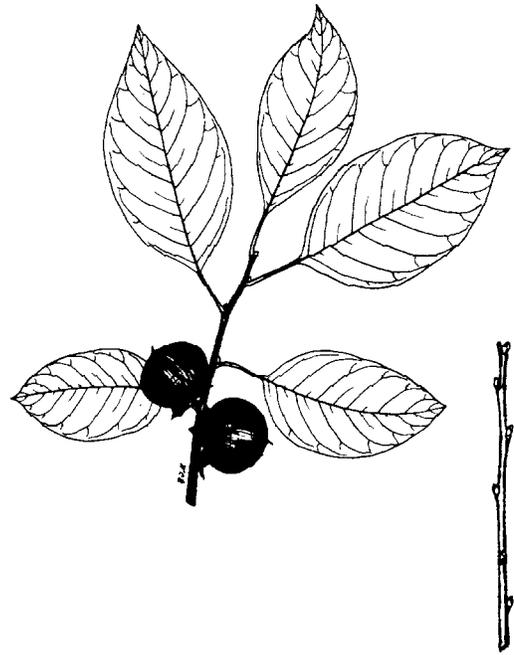
Carpinus caroliniana



Often called blue beech for the color of its smooth, bluish bark or ironwood for the qualities of its wood. Usually a small tree with a cluster of leafy bracts to which a small nutlet is attached.

Common Persimmon

Diospyros virginiana



Wood is heavy, hard, dense and strong. Used for golf club heads, shuttles, and in wood turnery. On older trees the bark is almost black, breaking into thick, nearly square blocks, looking like alligator hide.

Sourwood

Oxydendrum arboreum



In summer the long, drooping clusters of fragrant white flowers, resembling lily-of-the-valley, are the source of the famous sourwood honey. Bright scarlet, orange, or crimson leaves are showy in the fall. Leaves are sour to taste.

Sassafras

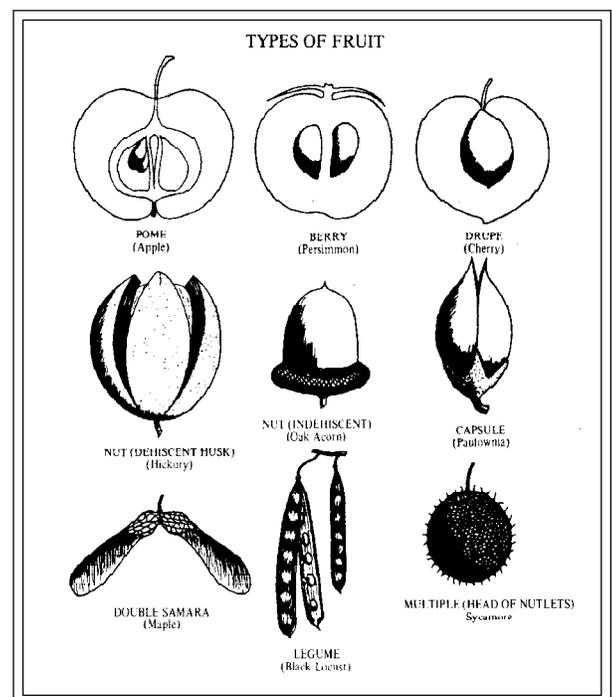
Sassafras albidum



Sassafras has been famous since pioneer days for the tea made by boiling its roots. Mitten-shaped, 3-lobed, and elliptical-shaped leaves may be found on the same tree. Leaves, twigs, and buds aromatic when crushed or chewed.

Description of Terms

| | |
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| alternate | leaves arranged singly at intervals along the stems |
| aromatic | with a pleasant spicy odor |
| apex | the tip or distal end of a leaf |
| blade (lamina) | the flat or expanded part of a leaf |
| bract | a small leaf or leaflike structure beneath a flower or flower cluster |
| bristle | stiff, strong hair |
| bud scale | a small modified leaf on the outside of a bud |
| bud scale scar | the scar left on a twig when a bud scale falls |
| bundle scar | dotlike scars within a leaf scar, representing the broken ends of ducts which led into the leafstalk |
| chambered | a pith divided into empty compartments by cross partitions |
| compound | a type of leaf that has three or more leaflets attached to a common stalk |
| deciduous | trees on which all leaves fall at the end of every season of growth |
| dehiscent | the opening by slits or valves of an outer fruit covering |
| fascicle | a bundle or dense cluster of leaves |
| falcate | sickle- or scythe-shaped |
| fruit | the seed-bearing portion of a plant |
| berry | a simple fleshy fruit, with seeds embedded in a pulpy mass (persimmon) |
| capsule | a dry fruit which splits open into two or more parts at maturity (sourwood) |
| drupe | a one-seeded fleshy fruit With the seed enclosed in a stony wall (cherry, sugarberry, holly) |
| follicle | a dry fruit with one seam in the outer wall |
| legume | a dry fruit with two seams in the outer wall (black locust) |
| multiple | a fruit formed from several flowers into a single structure having a common axis |
| | multiple of follicles - magnolia |
| | multiple of samaras - yellow-poplar, ash |
| | multiple of capsules - sweetgum |
| | multiple of nutlets - sycamore, birch |
| nut | a hard-shelled dry fruit, sometimes with a husk (hickory, oak acorn, black walnut) |
| nutlet | a small nut |
| pome | a fleshy fruit, with seeds encased by a papery wall (apple) |
| samara | a winged, one-cell, one-seeded, dry fruit (elm, double samara-maple) |
| globose | spherical |
| husk | outer covering of a nut |
| indehiscent | an outer fruit covering that does not open by slits or valves |
| internode | the part of a twig between two nodes |
| lateral bud | a bud that is situated along the sides of a branch and not at the tip |
| leaf | a lateral outgrowth from the stem whose primary function is the manufacturing of food |
| leaf margin | the border or edge of a leaf |
| crenate | a leaf margin that has rounded teeth |



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| dentate | a leaf margin that has pointed teeth that are directed outward |
| entire | a leaf margin that is smooth without teeth or lobes |
| lobed | a segmented leaf having pointed or rounded extensions separated by sinuses that do not extend more than halfway to the midrib |
| parted | a leaf margin where the sinuses extend almost to the midrib |
| serrate | a leaf margin that has pointed teeth that are directed upward |
| serrate, doubly | a serrate leaf margin where the primary teeth support another set of teeth |
| undulate | a leaf margin that is wavy |
| leaf scar | the scar left on a twig when a leaf falls |
| leaflet | an individual blade of a compound leaf |
| lenticel | a corky spot on the bark which originally permitted air to enter the twig |
| midrib | the central or main vein of a leaf |
| node | the place on a twig where a leaf is attached |
| opposite | leaves occurring in pairs at the nodes |
| palmate | veins or lobes of a leaf radiating from a central point |
| pendant | hanging or drooping |
| persistent | remaining attached for long periods of time |
| petiole | stalk of a leaf |
| pinnate | arrangement of leaflets attached laterally along the rachis of a compound leaf |
| pith | central, usually soft portion of a twig |
| rachis | the midrib of a compound leaf |
| sessile | without a stalk, sitting on the stem |
| sinus | the space or indentation between the lobes of a leaf blade |
| spine | a sharp-pointed, rigid, thornlike structure |
| terminal bud | a bud that is at the tip of a stem or branch |
| truncate | abruptly cut off |
| whorled | leaves occurring three or more at a single node |

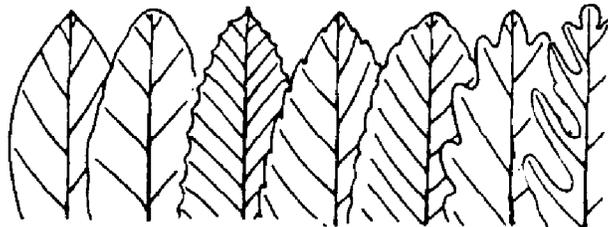
Leaf Key to the Common Trees of South Carolina Illustrated in this Bulletin

- | | |
|---|--------------------|
| 1. Trees with needlelike or scalelike leaves (conifers) | 2 |
| 1. Trees with broad flat leaves of many shapes and patterns (broadleaves) | 11 |
| 2. Leaves needlelike | 3 |
| 2. Leaves scalelike, sometimes prickly on young trees | Eastern redcedar |
| 3. Leaves in bundles or clusters (fascicles) of 5 or fewer (pines) | 4 |
| 3. Leaves not in bundles or clusters | 10 |
| 4. Leaves in bundles of 5 | Eastern white pine |
| 4. Leaves in bundles of 2 or 3 | 5 |
| 5. Leaves in bundles of 2 | 6 |
| 5. Leaves in bundles of 3 or of 2 and 3 | 7 |
| 6. Leaves twisted, mostly 2 inches long or shorter | Virginia pine |
| 6. Leaves not twisted, mostly more than 2 inches long | Spruce pine |
| 7. Leaves in bundles of 2 and 3 | 8 |
| 7. Leaves in bundles of 3 | 9 |
| 8. Leaves short (2-4 inches), cone small (2-3 inches) | Shortleaf pine |
| 8. Leaves long (6-10 inches), cone large (4-6 inches) | Slash pine |
| 9. Leaves very long (10-14 inches), cone very large (8-10 inches) | Longleaf pine |
| 9. Leaves 5-9 inches long, cones 4-6 inches | Loblolly pine |

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| 10. Leaves flattened, evergreen, white on underside | Eastern hemlock |
| 10. Leaves fernlike, deciduous, green on both sides | Baldcypress |
| 11. Leaves fan-shaped, 2 or more feet across | Cabbage palmetto |
| 11. Leaves otherwise | 12 |
| 12. Leaves opposite or whorled | 13 |
| 12. Leaves alternate | 17 |
| 13. Leaves in whorls of 3 | Southern catalpa |
| 13. Leaves opposite in pairs | 14 |
| 14. Leaves compound | 15 |
| 14. Leaves simple | 16 |
| 15. Leaflets 3-5, margins with coarse large teeth or shallowly lobed | Boxelder |
| 15. Leaflets 5-9, margins smooth or with fine serrate teeth | White ash |
| 16. Leaves 3-5 lobed, margins doubly serrate | Red maple |
| 16. Leaves unlobed, margins smooth | Flowering dogwood |
| 17. Leaves compound | 18 |
| 17. Leaves simple | 23 |
| 18. Twigs with thorns, spines, or prickles | 19 |
| 18. Twigs without thorns, spines, or prickles | 20 |
| 19. Twigs with long thorns, leaves twice compound | Honeylocust |
| 19. Twigs with short spines, leaves once compound | Black locust |
| 20. Leaves with terminal leaflets larger than lateral leaflets, twigs with solid pith | 21 |
| 20. Leaves with terminal leaflets same size as lateral leaflets, twigs with chambered pith | Black walnut |
| 21. Leaflets 5-9, leaflets, petiole, and rachis densely hairy | Mockernut hickory |
| 21. Leaflets 3-7, leaflets, petiole, and rachis smooth or nearly so | 22 |
| 22. Bark shaggy, peeling in long strips | Shagbark hickory |
| 22. Bark tightly furrowed, not peeling | Pignut hickory |
| 23. Leaves evergreen, thick and leathery | 24 |
| 23. Leaves deciduous, thin and papery | 27 |
| 24. Leaves with spine-toothed margins | American holly |
| 24. Leaves with smooth margins | 25 |
| 25. Leaves large, over 6 inches long, with rusty hairs beneath | Southern magnolia |
| 25. Leaves small, 2-5 inches long, without hairs | 26 |
| 26. Leaves densely white beneath, without lobes | Sweetbay |
| 26. Leaves greenish or slightly white beneath, occasionally with lobes | Live oak |
| 27. Leaves lobed | 28 |
| 27. Leaves unlobed or with occasional small shallow lobes | 41 |
| 28. Leaves with 3 shapes (unlobed, lobed, 3-lobed) | 29 |
| 28. Leaves with one basic shape | 30 |
| 29. Leaves with smooth margins | Sassafras |
| 29. Leaves with serrate margins | Red mulberry |
| 30. Leaves star-shaped, with 5 to 7 lobes | Sweetgum |
| 30. Leaves not star-shaped | 31 |
| 31. Tip and base of leaves truncate, shallowly 4-lobed | Yellow-poplar |
| 31. Leaves not truncated | 32 |
| 32. Leaves with 3 or more main veins, margins with large coarse teeth | American sycamore |
| 32. Leaves with 1 vein, margins deeply lobed (oaks) | 33 |
| 33. Leaves with smooth, rounded lobes (white oaks) | 34 |
| 33. Leaves with bristly tipped lobes (red oaks) | 36 |
| 34. Lobes similar with sinuses halfway to midrib | White oak |
| 34. Lobes uneven with varying depths of sinus | 35 |

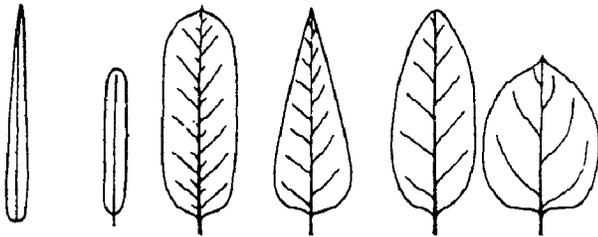
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| 35. Three upper lobes square, forming a cross, deep central sinus | Post oak |
| 35. Three upper lobes pointed, shallow, central sinus | Overcup oak |
| 36. Base of leaves bell-shaped, 3-5 leaflets with terminal lobe long and narrow | Southern red oak |
| 36. Base of leaves tapering or rounded with terminal lobe and lateral lobes of same size | 37 |
| 37. Base of leaves strongly tapering | Turkey oak |
| 37. Base of leaves rounded or shallowly tapering | 38 |
| 38. Base of leaves rounded, shallowly 3-lobed, with minute bristles at tip of lobes | Blackjack oak |
| 38. Base of leaves shallowly tapering with 5 to 7 lobes | 39 |
| 39. Leaves leathery, hairy beneath | Black oak |
| 39. Leaves papery, without hairs beneath | 40 |
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| 41. Leaves with smooth margins (or occasionally with shallow teeth) | 41 |
| 41. Leaves with toothed margins | 48 |
| 42. Leaves heart-shaped | Eastern redbud |
| 42. Leaves not heart-shaped | 43 |
| 43. Leaves deciduous, but stay on the tree through the winter, less than 4 inches long | 44 |
| 43. Leaves deciduous and fall off the tree before winter, 4-10 inches long | 45 |
| 44. Leaves with occasional lobes and teeth, having a long tapering base | Water oak |
| 44. Leaves with wavy margins, occasionally with teeth, having a rounded base | Laurel oak |
| 45. Leaves 3 or more times as long as wide | Willow oak |
| 45. Leaves less than 3 times as long as wide | 46 |
| 46. Leaves 6-10 inches long, with occasional large shallow teeth | Water tupelo |
| 46. Leaves 4-6 inches long, without teeth | 47 |
| 47. Leaves widest in upper half | Black tupelo |
| 47. Leaves widest at middle or in lower half | Common persimmon |
| 48. Leaves with small teeth above the middle, smooth margins below | Sourwood |
| 48. Leaf margins toothed throughout | 49 |
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| 49. Leaves with net veins, not ending in a tooth | 56 |
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| 50. Leaf margins with doubly serrate teeth | 53 |
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| 53. Leaves that have bases with unequal sides (elms) | 54 |
| 53. Leaves with symmetrical bases | 55 |
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| 55. Leaf bases broadly wedge-shaped | River birch |
| 55. Leaf bases rounded or tapered | American hornbeam |
| 56. Leaves 4 or more times as long as wide | Black willow |
| 56. Leaves not more than twice as long as wide | 57 |
| 57. Leaves heart-shaped, white beneath | White basswood |
| 57. Leaves not heart-shaped, green beneath | 58 |
| 58. Midvein paralleled by two prominent lateral veins from leaf base | Sugarberry |
| 58. Midvein distinct, often with rusty hairs beneath | Black cherry |

LEAF MARGINS

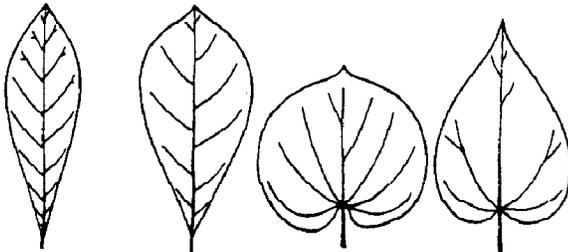


ENTIRE UNDULATE DENTATE SERRATE CRENATE LOBED PARTED

LEAF FORMS



ACICULAR LINEAR OBLONG LANCEOLATE ELLIPTICAL OVAL



OBLANCEOLATE OBOVATE RENIFORM CORDATE

LEAF TIPS



ACUTE ACUMINATE OBTUSE TRUNCATE EMARGINATE CUSPIDATE

LEAF BASES



OBTUSE ACUTE CUNEATE OBLIQUE CORDATE

LEAF ARRANGEMENT

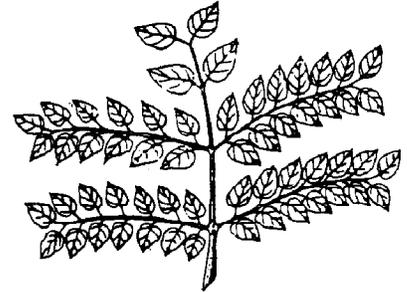


ALTERNATE OPPOSITE WHORLED

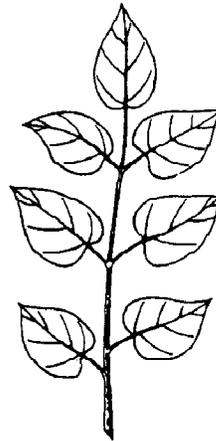
LEAF COMPOSITION



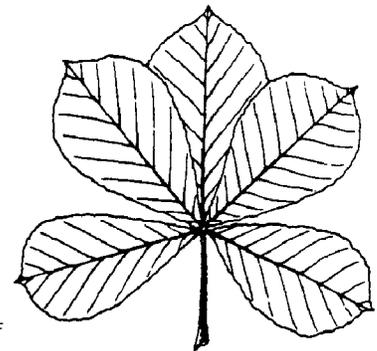
SIMPLE LEAF



BI-PINNATELY COMPOUND LEAF



PINNATELY COMPOUND LEAF

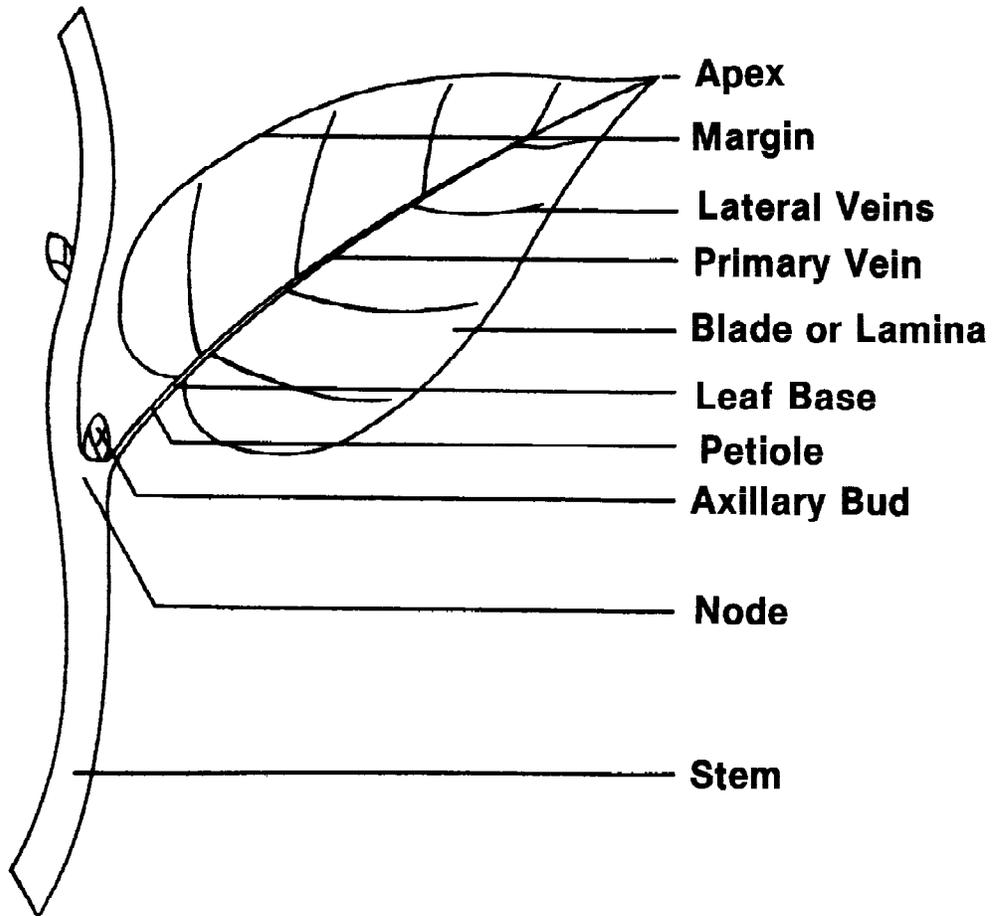


PALMATELY COMPOUND LEAF

Acknowledgments

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LEAF CHARACTERISTICS



TWIG CHARACTERISTICS

