

1971

EC71-1703 Tree Identification Manual

Ellsworth Benson

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TREE IDENTIFICATION MANUAL



EXTENSION SERVICE
UNIVERSITY OF NEBRASKA COLLEGE OF AGRICULTURE
COOPERATING WITH THE U.S. DEPARTMENT OF AGRICULTURE
AND THE COLLEGE OF HOME ECONOMICS
E. F. FROLIK, DEAN; J. L. ADAMS, DIRECTOR

Ellsworth H. Benson
Extension Forester

Tree Identification Manual

INTRODUCTION

This circular is intended to help interested persons become better acquainted with some native and introduced trees and shrubs of Nebraska. Included are description and illustrations of the leaf, winter twig and fruit of species which may be found in Nebraska. These are important identifying features of plants.

Leaves vary greatly in form, size, shape, texture, and color. They may be simple leaves as in the case of elms. They may be compound leaves. Black walnut and black locust have once pinnate leaves. Leaves of a Kentucky coffeetree are twice pinnately compound. Each blade of a compound leaf is called a leaflet. If the leaflets are attached directly to the petiole as in the case of horsechestnut, resembling the fingers on a hand, the leaf is said to be palmately compound.

Leaves may be attached opposite on the twigs as in the case of the maples, ashes, and horsechestnuts, or they may be attached alternately as are those of elms, oaks, poplars, and many others.

Winter twigs may be stout or slender, smooth or hairy, straight or zigzag, and with buds that are rounded or pointed, smooth or hairy, and with many other variations. The pith in the twigs of some species is strikingly characteristic as, for example, the chambered pith of the black walnut, and that of the Kentucky coffeetree which is large, soft and salmon color.

"By their fruits ye shall know them." This is particularly true in distinguishing between certain species as, for example, red and black oaks. Except for their fruits or acorns, which are quite different, their other characteristics are often similar.

Numerals under illustrations indicate size (X 1 is natural size; X ½ is one-half natural size, etc.).

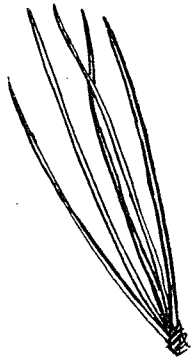
References: "Handbook of Nebraska Trees (Revised 1951)" by Raymond J. Pool, Nebraska Conservation Bulletin Number 32, published by the University of Nebraska, Conservation and Survey Division.

"The Book of Trees" by Alfred C. Hottes. The A. T. De La Mare Co., Inc., New York, N.Y.

"Trees in Winter" by Blakeslee and Jarvis. The Macmillan Co., New York, N.Y.

LEAF CHARACTERISTICS

Kind



Needle-like



Awl-like



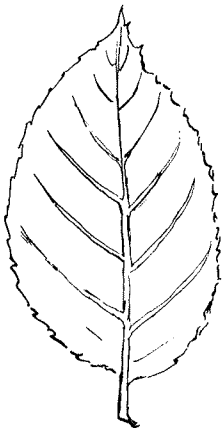
Scale-like



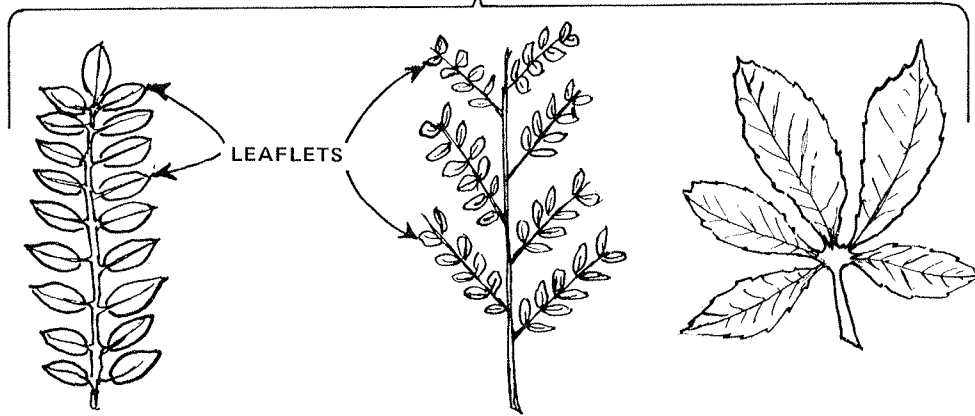
Broadleaf

Form

SIMPLE



COMPOUND



Pinnate

Twice-pinnate

Palmate or Digitate

Shape



Lanceolate



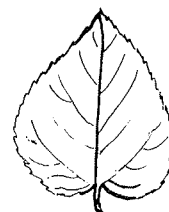
Oblanceolate



Oval



Ovate

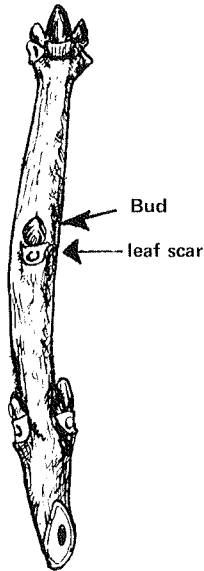


Cordate

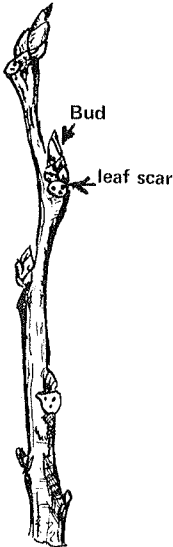


Elliptical

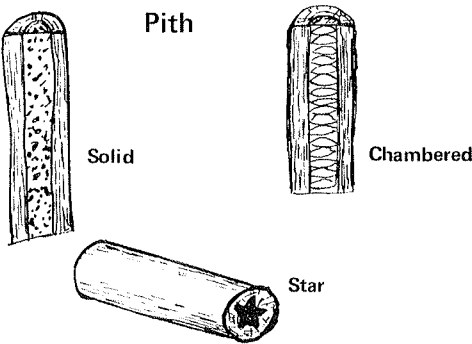
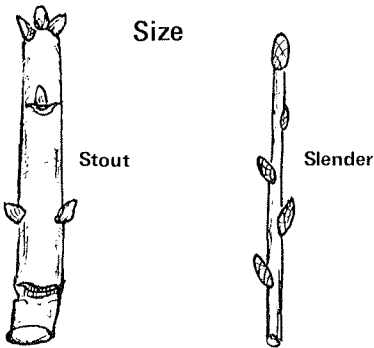
TWIG DESCRIPTIONS



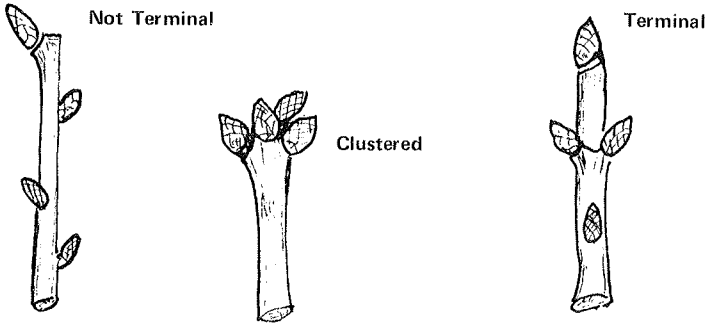
Twig shows opposite buds and leaf scars where leaves were attached.



Twig shows alternate buds and leaf scars where leaves were attached.



Bud Arrangement



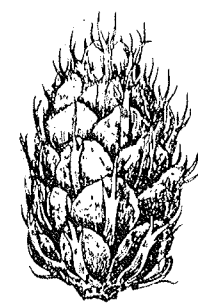
Douglas Fir

Large pyramidal evergreen native to Rocky Mountain region and Pacific Northwest.

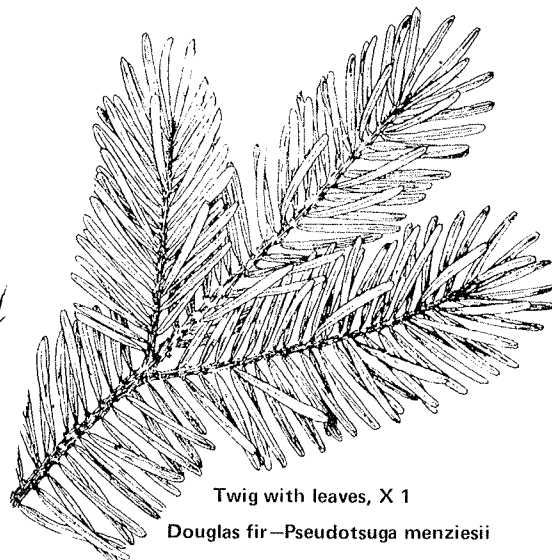
Leaves—Attached singly on slender twigs, flat, blunt, 3/4 to 1 1/2 inches long, often bluish-green but generally yellowish-green in color.

Fruit—Borne in 2 to 2 1/2 inch long pendulous cones, each scale of which has attached to it a 3-pointed woody bract, thus producing a bristly appearing cone when mature.

Twigs—Slender, flexible, and smooth when leaves are detached. The sharp-pointed winter buds are 1/4 to 1/2 inch long and covered with closely fitting brown scales.



Mature cone X 3/5



Twig with leaves, X 1

Douglas fir—*Pseudotsuga menziesii*

Eastern Redcedar

A medium to large, upright-growing evergreen native to Nebraska, hardy and long-lived.

Leaves—Either awl-shaped or scale-like, both kinds often borne on the same tree; bluish-green turning a russet color in winter. (Western redcedar retains a bluish-green color in winter.)

Fruit—Bluish or purplish, berry-like cone about 1/4 inch in diameter, each containing 2 or 3 hard seeds.

Twigs—Slender, greenish or reddish-brown in color. Bark on larger branches and trunk light brown and thin.

Cedar rust associated with redcedar affects certain varieties of apples only. Several good varieties of apples are resistant to the cedar rust fungus.



Tip of branchlet, showing awl-shaped leaves, enlarged

Eastern Redcedar—*Juniperus virginiana*



Fruiting branchlet with scale-like leaves, X 1

Ponderosa

An important lumber-producing pine native in north and western Nebraska. It often attains a diameter of two feet or more. Found growing on hillsides and in valleys, often on rough, rocky slopes where soil is very shallow. Similar to Austrian pine in heat and drought resistance. Other common names include western yellow pine, bull pine, blackjack pine and rock pine.

Leaves—Leaves are 3 to 10 inches long, yellowish-green, often appearing grayish in color and borne in clusters of two and three. Leaves are usually less sharp-pointed than those of Austrian pine and are usually somewhat twisted. Buds are light chestnut-brown in color.

Fruit—Cones are 3 to 6 inches long. Each cone scale has a short, sharp spine. Cones mature in August of second season and shed most seeds in September.



Opened cone, X 1/2



Cluster of leaves, X 1/2



Cone-scale with seeds X 1

Ponderosa Pine—*Pinus ponderosa*

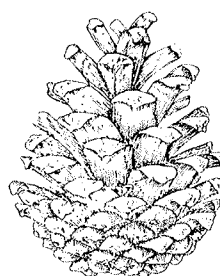
Austrian Pine

A large tree of the pine family. Similar in size and habit of growth to our native ponderosa or western yellow pine. It is a native of Europe but grows well under Nebraska conditions.

Leaves—Leaves are 3 to 6 inches long, slender, stiff, sharp-pointed, bluish-green and borne in clusters of two. A two-needle pine.

Buds—Sharp-pointed, reddish-brown during winter, becoming whitish as growth begins.

Fruit—Coarse, rather smooth, woody cone, 2 to 3 inches long. Matures autumn of second season and releases many seeds.



Partly opened cone, X ½

Cluster of leaves, X ½



Cone-scale with seeds X 1

Austrian Pine—*Pinus nigra*

Scotch Pine

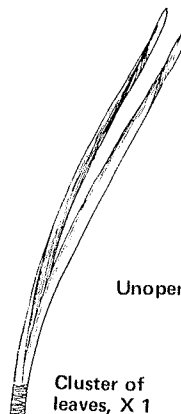
A large tree of the pine family, rather irregular in habit of growth. Often compact and symmetrical when young, becoming more open and less symmetrical with age. Not native to Nebraska. Preferred species for Christmas tree production.

Leaves—In clusters of 2, 1 1/2 to 3 inches long, bluish-green and often twisted.

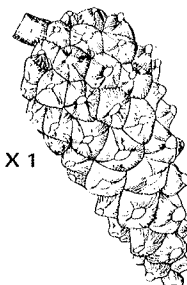
Fruit—A woody cone, 1 1/2 to 2 inches long. Seeds are reddish-brown, 1/8 to 1/4 inch long with narrow wings about 3/4 inch long.

Twigs—Medium-thick; dull grayish-yellow roughened by scales at base of leaf clusters.

Bark—Grayish-brown, scaly, upper part of trunk and branches becoming cinnamon-colored.



Cluster of leaves, X 1



Unopened cone X 1

Scotch Pine—*Pinus sylvestris*

Jack Pine

Usually a small tree, often rather scraggly. Dark brown bark with narrow, scaly ridges.

Leaves or needles—Two in a cluster, 3/4 to 1 1/2 inches long; yellowish-green, stout, stiff and generally curved and twisted.

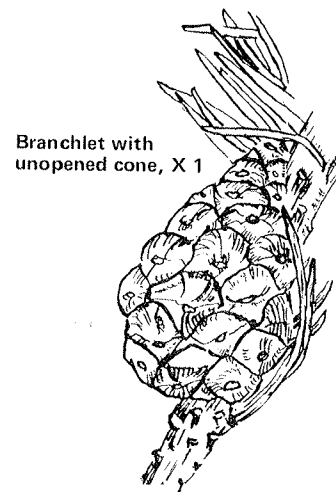
Buds—Ovate, short-pointed, coated with resin.

Fruit—Woody cones 1 to 2 inches long, without stalks, usually curved and pointed. Composed of thin, stiff, irregularly developed scales with minute prickles.

Twigs—Slender, reddish to purplish brown, roughened by scales.

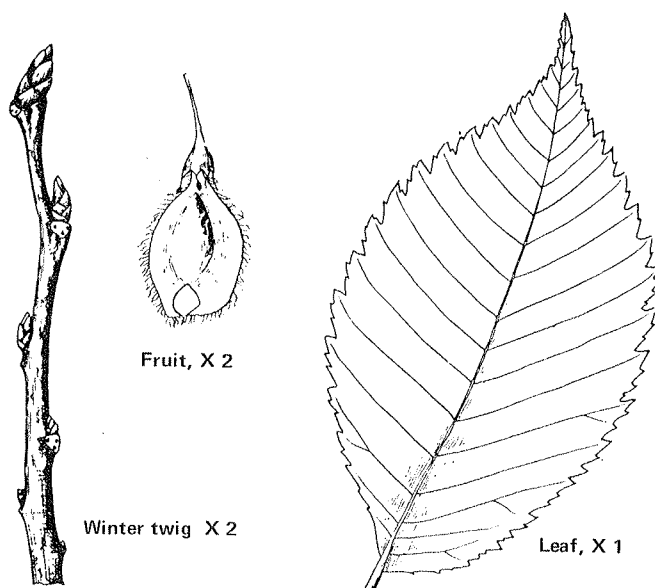


Cluster of leaves, X 1



Branchlet with unopened cone, X 1

Jack Pine—*Pinus banksiana*



American Elm—*Ulmus americana*

American Elm (White Elm)

A large, graceful tree distributed throughout the state. Greatly admired as a lawn and street tree. Nebraska's state tree. Subject to Dutch Elm Disease.

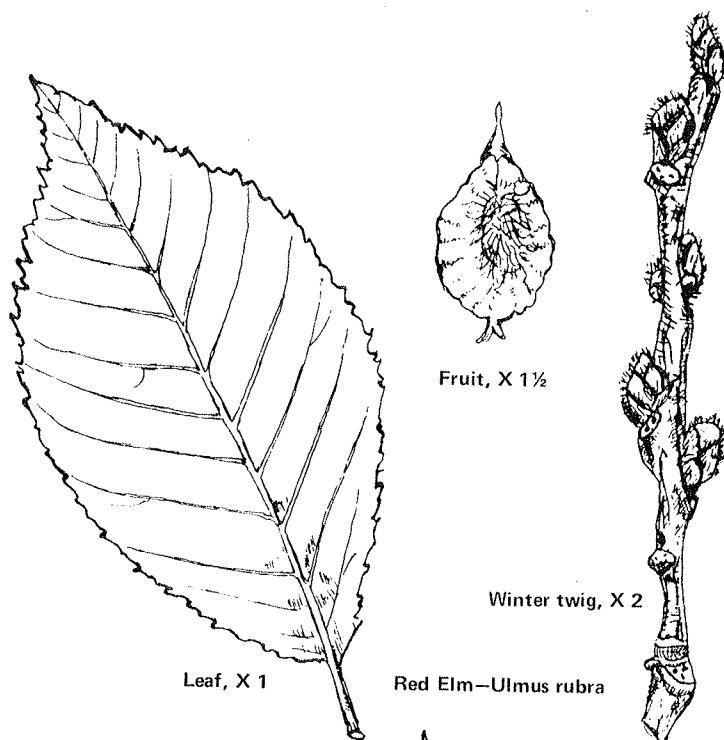
Leaves—Leaves are 3 to 5 inches long and half as broad, dark green above, smooth to slightly roughened, pale and smooth or somewhat hairy beneath.

Buds—Light reddish-brown; flower buds stouter.

Fruit—With a flat membranous wing about the seed; wing hairy-fringed and notched at tip. Seed ripens in spring.

Twigs—Slender, generally smooth, light reddish-brown.

Cross section of a flake of bark from trunk shows corky white layers.



Red Elm—*Ulmus rubra*

Red Elm (Slippery Elm)

A medium to large tree native to the eastern third of the state.

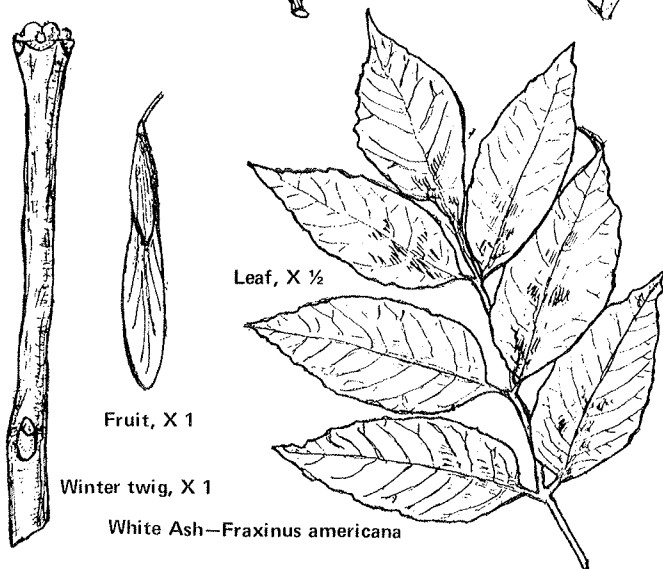
Leaves—Alternate, 3 to 6 inches long and half as broad, rough on upper and lower surfaces, dark green above, paler underneath.

Winter buds—Dark brown, hairy. Prominent in early spring.

Fruit—Similar to those of the white elm, except membranous wing does not have a hairy fringe surrounding it. The seed itself is hairy.

Twigs—Light, grayish, hairy; dark reddish-brown old branches and main trunk.

Cross section of a flake of bark from trunk is reddish-brown throughout.



White Ash—*Fraxinus americana*

White Ash

Medium to large tree occurring in southeast Nebraska. Not as common as green ash.

Leaves—Opposite, pinnately compound, 8 to 12 inches long; leaflets usually 7 to 9, 2 to 4 inches long, 1 to 1 1/2 inches wide, smooth, dark green above, pale beneath.

Buds—Stout, slightly downy. A pair of lateral buds generally present at end of twigs nearly level with the terminal bud.

Fruit—Paddle-shaped, hanging onto tree in clusters into the winter.

Twigs—Stout, smooth and hairy, grayish or greenish-brown. U-shaped leaf scars.

Green Ash

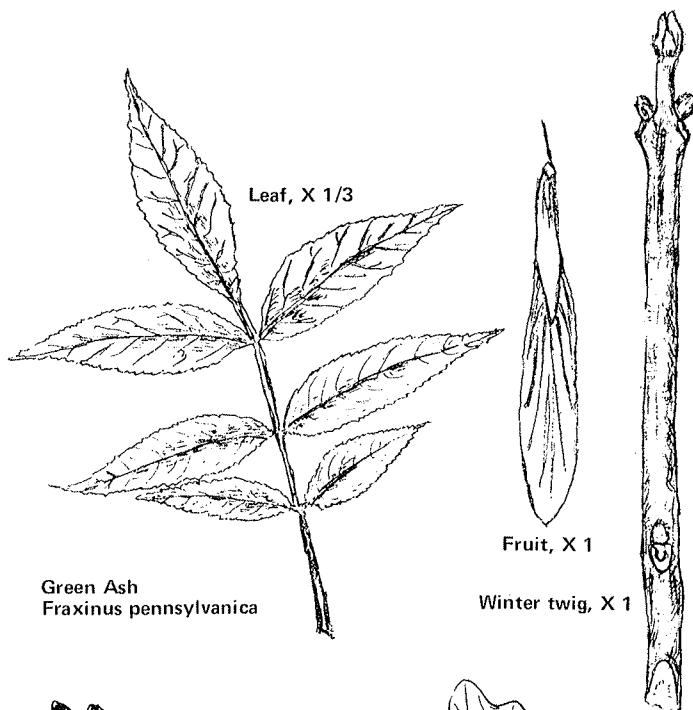
A medium-sized tree with a compact, broad and rounded crown.

Leaves—Opposite, pinnately compound, 8 to 12 inches long; leaflets, 5-7, 2-4 inches long, 3/4 to 1 inch broad, bright green and smooth on both sides (Red ash leaflets are downy beneath).

Winter buds—Rusty brown, smaller and narrower than those of white ash.

Fruit—Paddle-shaped in dense clusters, often clinging to twigs into or throughout winter.

Twigs—Medium-slender, light green and smooth at first, becoming ashy gray, brownish or gray on the older branches (twigs of Red ash are downy when young). Half-round leaf scars.



Green Ash
Fraxinus pennsylvanica

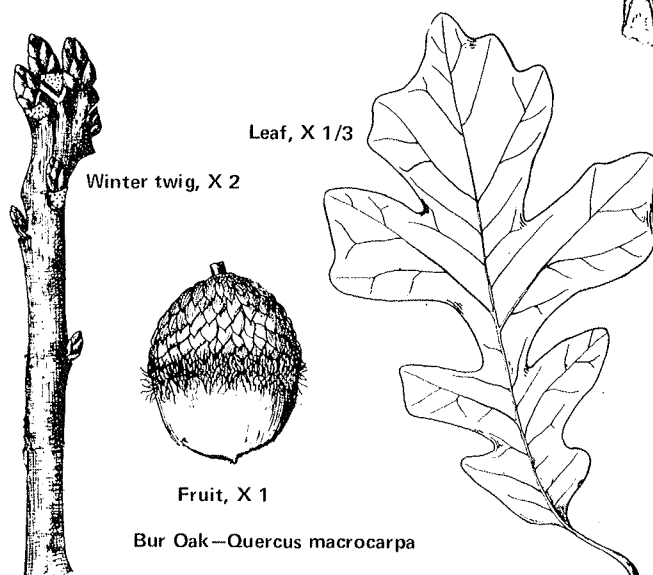
Bur Oak (Mossycup Oak)

An important tree species in Nebraska, as it is long-lived, ornamental, and a valuable lumber tree.

Leaves—Alternate, 6 to 10 inches long, 3 to 5 inches wide, wedge-shaped at base and with 5 to 7 rounded lobes. Buds reddish-brown, covered with pale wool.

Fruit—Acorns maturing in fall of first year. Commonly occurring in pairs, variable in size and shape; cup rather deep enclosing 1/3 to 2/3 of acorn, cup fringed with coarse, tortuous bristles.

Twigs—Stout, yellowish-brown, becoming ashen or brownish, often with corky ridges.



Bur Oak—*Quercus macrocarpa*

Chinkapin Oak

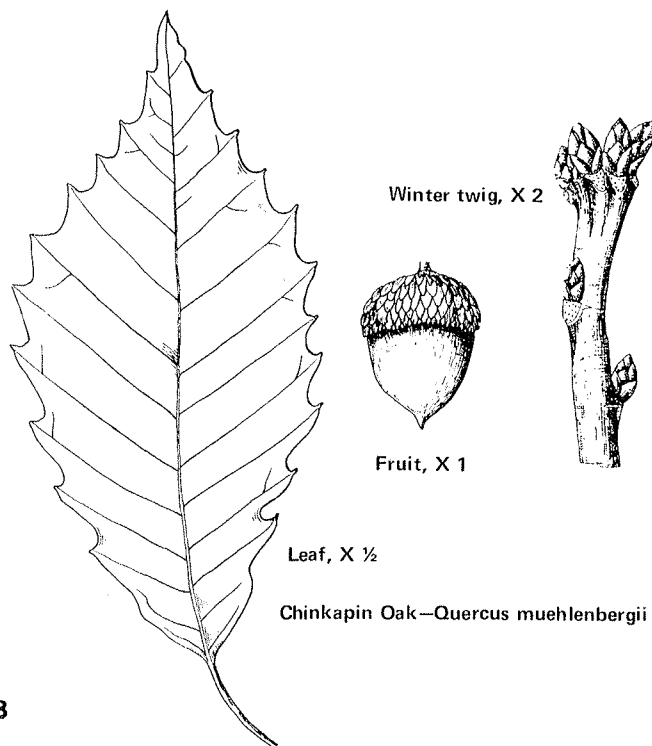
A medium-size oak occurring in Richardson and Nemaha Counties. Usually forming a broad, open head, sometimes broader than high. Also known as yellow or chestnut oak.

Leaves—Resemble those of the sweet chestnut, 4 to 7 inches long, 1 to 4 inches wide, wedge-shaped or rounded at the base, coarse-toothed, yellow-green and shiny above, pale, often silvery-white and downy beneath.

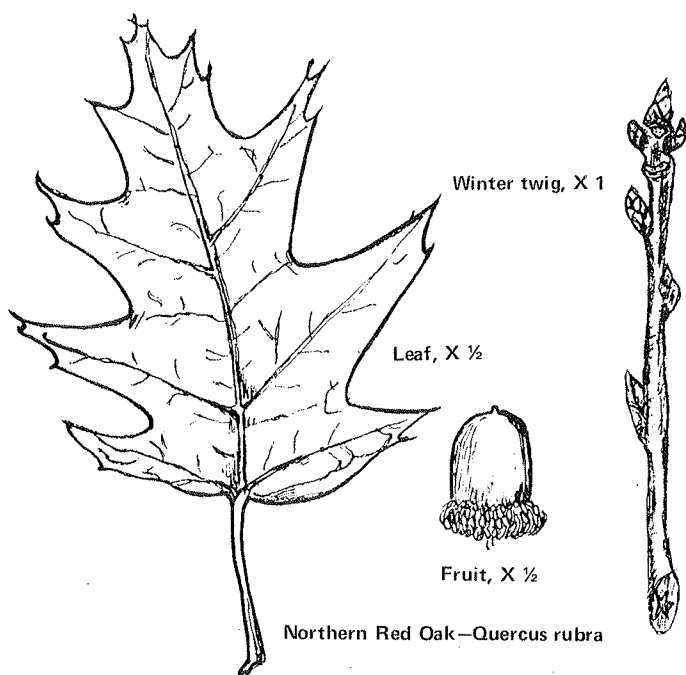
Fruit—Short-stalked acorns, maturing at end of first season, either singly or in pairs, about 3/4 inch long, cup enclosing about 1/2 the length of the nut.

Twigs—Stout, smooth, light orange to reddish-brown with ovate-conical, sharp-pointed buds.

Scrub or dwarf chestnut oak (*Q. prinoides*) also occurs in a few places in the extreme southeastern part of the state; plentiful in vicinity of Salem. This is a low, shrubby sort usually forming broad clumps by prolific stolons.



Chinkapin Oak—*Quercus muehlenbergii*



Northern Red Oak

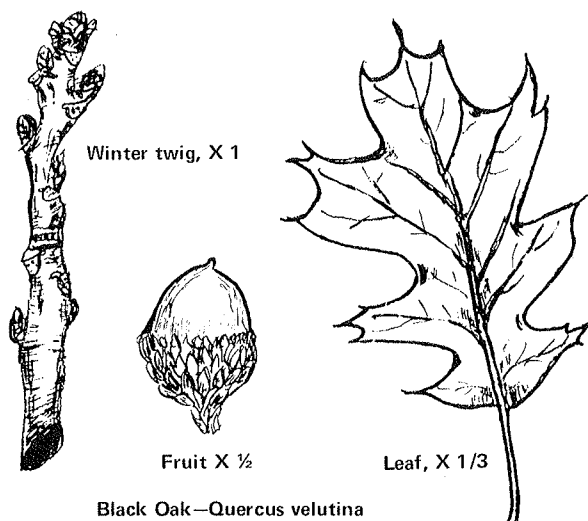
A large tree of the black oak group whose acorns mature in autumn of the second season.

Leaves—Alternate, 5 to 9 inches long, 4 to 9 inches wide, with coarse-toothed, bristle-tipped lobes, dark green and smooth above, paler beneath.

Buds—Smooth, light chestnut-brown, 1/8 to 1/4 inch long.

Fruit—Acorns singly or in pairs; nut oblong or nearly round, often about 1 inch long, reddish-brown, kernel white or purplish; cup shallow, saucer-shaped, usually covering only the base of the nut; scales thin, reddish-brown, shiny, closely overlapping.

Twigs—Medium-stout, reddish to greenish-brown.



Black Oak

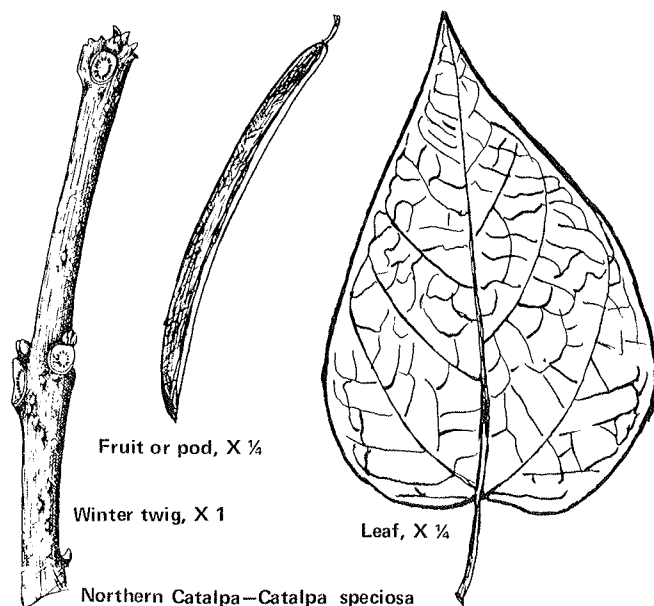
A large tree whose acorns mature in autumn of the second year. Resembling the red oak in habit of growth.

Leaves—Alternate, 5 to 10 inches long, 3 to 8 inches wide, often 7-lobed, bristle-tipped, dark and shiny above, pale and hairy beneath.

Buds—Ovate to conical strongly angled, 1/4 to 1/2 inch long.

Acorns—Acorns are 1/2 to 3/4 inch long, broad and rounded at base, full and rounded at the apex. Acorn cup is cup-shaped, enclosing about half the acorn. Cup-scales light reddish-brown, finely woolly, loosely overlapping.

Twigs—Stout, reddish or reddish-brown. When chewed, saliva is colored yellowish. Bark of trunk blackish, very rough, broken into thick ridges further divided by cross fissures. Inner bark orange-yellow.



Northern Catalpa

Has escaped cultivation and become naturalized in Nebraska. It was planted freely for growing fence posts. Usually with straighter trunk than the Southern catalpa (*C. bignonioides*).

Leaves—Opposite or whorled, 4 to 10 inches long and 3 to 8 inches broad; heart-shaped, smooth, dark green above, downy beneath.

Flowers—Occur in midsummer, borne in loosely flowered clusters 5 to 6 inches long; corolla white with prominent yellow spots, bell-shaped.

Fruit—A long, slender pod 6 to 15 inches long and 1/2 inch thick.

Twigs—Stout, greenish, often purplish, dark brown when older. Leaf scars are circular in shape.

American Linden (American Basswood)

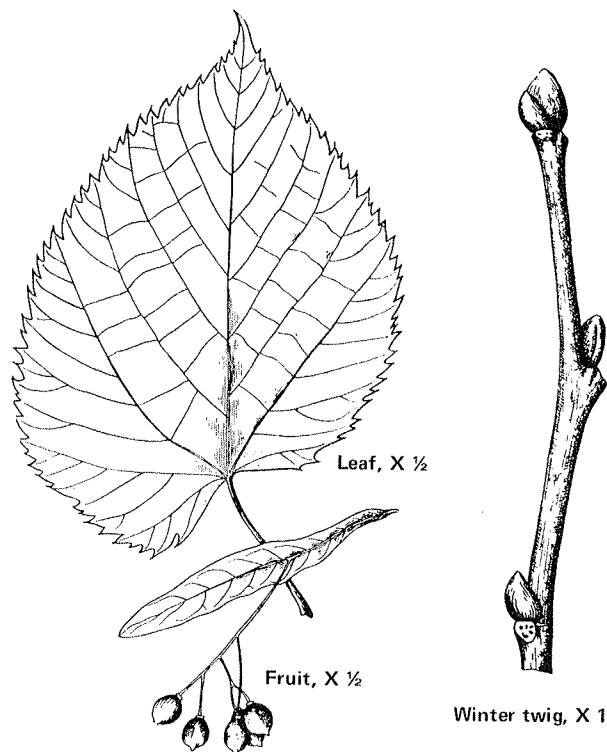
A large tree with rounded, spreading crown. A native in rich, moist woodlands and along river bottoms in the extreme eastern part of the state.

Leaves—Alternate, heart-shaped, 2 to 4 inches long and almost as wide.

Flowers—Yellowish-white, produced in profusion, fragrant, in several flowered drooping clusters which arise from narrow, oblong, yellowish bract.

Fruit—Nutlike, $\frac{3}{8}$ to $\frac{1}{2}$ inch in diameter.

Twigs—Usually zigzag with dark red or greenish buds $\frac{1}{4}$ inch long. Bark on twigs is smooth, reddish or gray, gray on young branches; and on old branches and trunk deep and thickly furrowed.



American Linden—*Tilia americana*

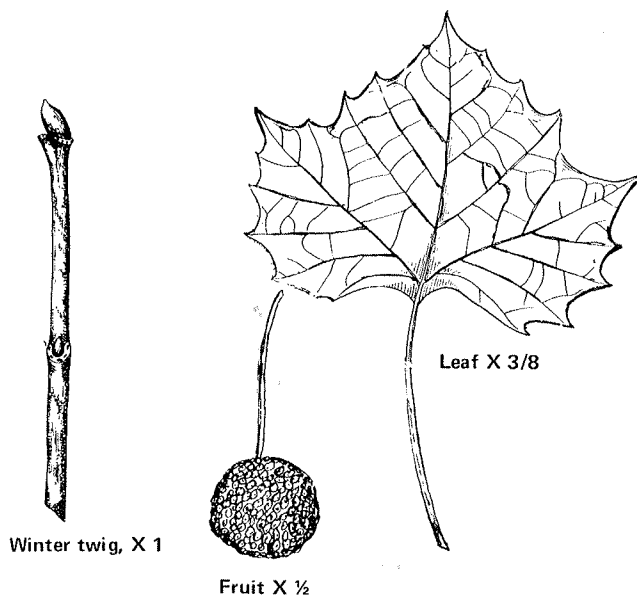
American Sycamore (Buttonball Tree)

A tall, spreading tree usually found along streams; native along Missouri River as far north as Omaha. Has been planted in all sections of the state.

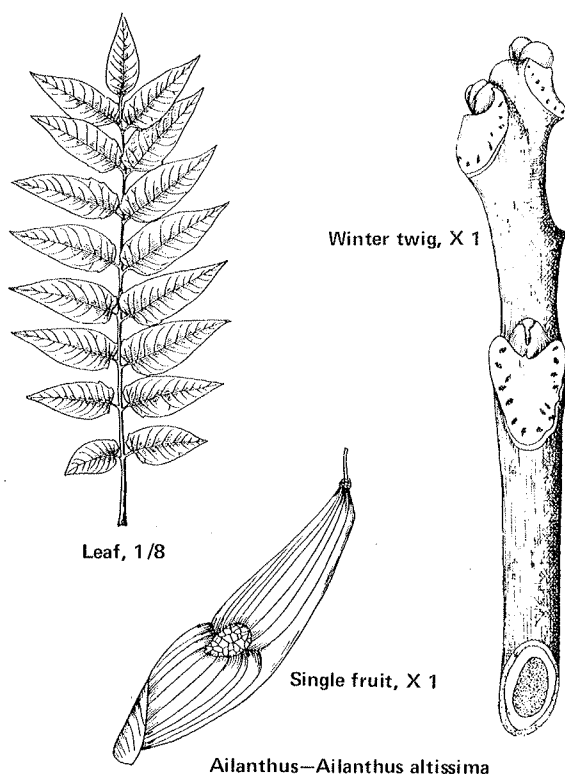
Leaves—Alternate, 3 to 8 inches broad, more or less deeply lobed, bright green above, pale beneath. Base of petiole fits closely over the conical bud.

Fruit—Round, yellowish-brown ball about 1 inch in diameter that hangs from slender stem. Often persists throughout winter and into following summer.

Twigs—Bark on twigs is pale green, hairy when young, becoming smooth and finally gray or almost white; thick reddish-brown and scaly on the trunk, broken into long plate-like scales that peel off, leaving the white, smooth bark exposed.



American Sycamore — *Platanus occidentalis*



Ailanthus (Tree of Heaven)

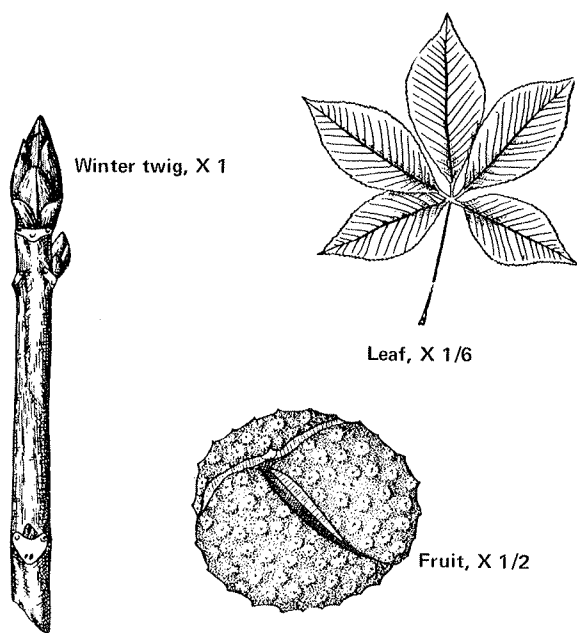
A tall, fast-growing tree, with spreading, open and loose crown. Thrives in either sunlight or where there is considerable shade. Starts readily from seed that is scattered by wind, and from root sprouts. Resistant to smoke and gases.

Leaves—Alternate, once compound, 1 to 3 feet long with 11 to 41 leaflets, but always an odd number, dark green above, pale beneath, ill smelling when crushed.

Flowers—Small, yellowish-green, borne in large upright open clusters 6 to 15 inches long.

Fruit—Oblong, spirally twisted wing in center of which is a single dry seed. Fruit yellow-green at first and taking on a light reddish-brown tinge at maturity.

Twigs—Coarse, more or less velvety or downy, and the pith is brown.



Ohio Buckeye

A medium-sized tree native to extreme southeast corner of state, nowhere abundant.

Leaves—Opposite, palmately compound, leaflets five, 3 to 6 inches long, smooth, yellowish-green above, paler beneath, turning to yellow in autumn.

Flowers—Pale yellow, bell-shaped in large terminal clusters.

Fruit—A thick leathery, prickly, brownish, globular pod, about 1 inch in diameter, containing a large, smooth, shiny, brown nut.

Twigs—Stout, smooth, orange to brown. Terminal buds large, brown, not waxy. Bark is smooth and red-brown, becoming ashy gray, densely furrowed on the trunks.

Horsechestnut

A medium-sized, symmetrical tree forming a broad, conical crown.

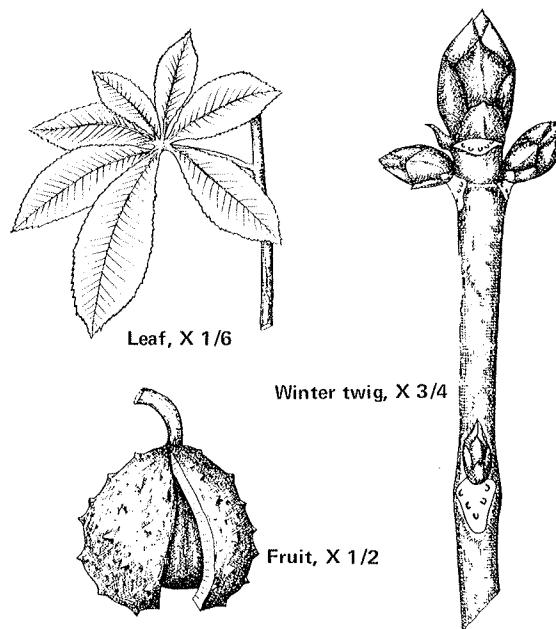
Leaves—Opposite, palmately compound, leaflets usually seven, 5 to 7 inches long, wedge-shaped at the base, dark green above, paler beneath, turning brown in autumn.

Flowers—Large, showy, upright, many-flowered clusters, 6 to 10 inches long, whitish or cream colored.

Fruit—A thick, leathery, prickly, yellowish-brown, roundish pod, 1 to 2 inches in diameter, containing 1 to 3 smooth, shining, brown nuts.

Twigs—Stout, smooth, reddish-brown. Terminal buds 1 to 1 1/2 inches long, brownish, covered with waxy gum.

Native to Southeastern Europe. Widely planted in U.S.



Horsechestnut—*Aesculus hippocastanum*

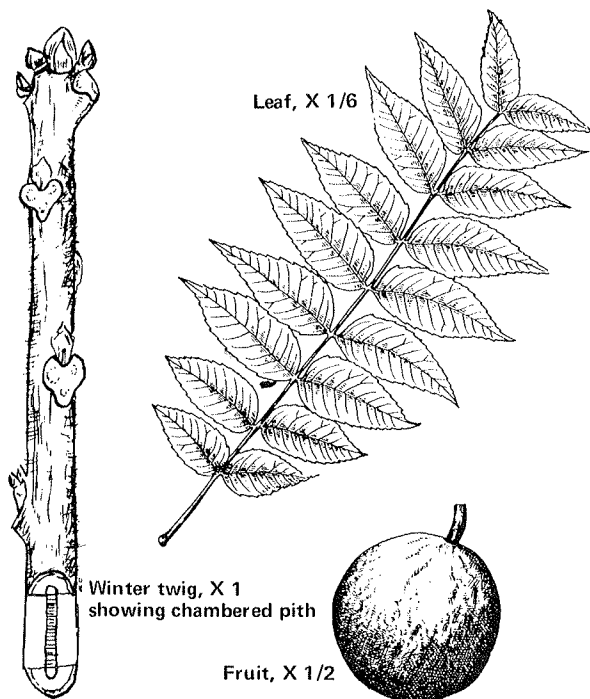
Black Walnut

A large-wide-spreading, open-crown tree with heavy branches and coarse twigs. It prefers rich bottom soil and under favorable conditions attains large size. It is native along the Missouri and halfway across the state along the Republican and Niobrara Rivers, and has been planted to some extent throughout the state. A very high-valued hardwood.

Leaves—Alternate, compound 1 to 2 feet long, with 15 to 23 leaflets of a yellowish-green color. Terminal leaflet often missing. Leaf scars are heart-shaped.

Fruit—Globular nut 1 1/2 to 2 inches in diameter, singly or in clusters of 2 or 3 covered by a smooth, yellowish-green husk, becoming brown, then black.

Bark—Thick, dark, brown in color, and divided by rather deep fissures with rounded ridges. Pith is chocolate-brown and chambered by horizontal plates.



Black Walnut—*Juglans nigra*

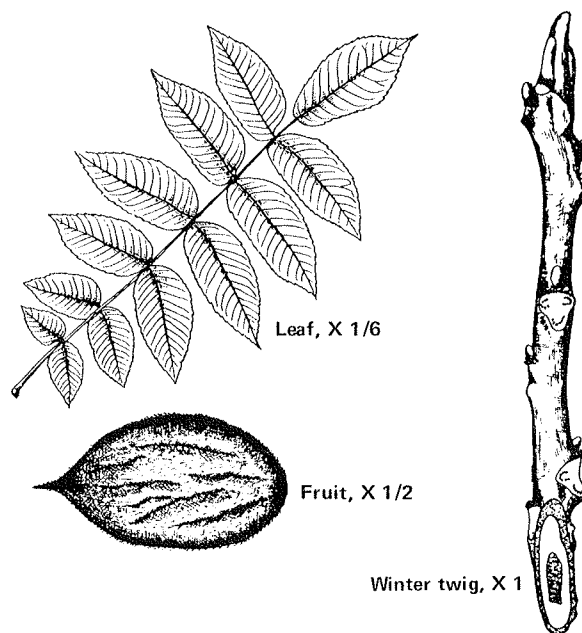
Butternut (White Walnut)

Small to medium-sized tree with broad spreading crown of large horizontal branches and stout, stiff branchlets. Only a few planted specimens occur in Nebraska.

Leaves—Alternate, pinnate, with 11 to 17 leaflets 2 to 4 inches long, yellowish-green and somewhat scurfy above, hairy beneath.

Fruit—Elongated, greenish, sticky-hairy nut becoming brown. Husk, thin; nut very rough; meats edible, sweet and very oily.

Twigs—Stout, reddish-buff to greenish-gray. Pith is chambered as in black walnut. Bark on trunk and branches of young trees light gray, becoming darker on older trees.



Butternut—*Juglans cinerea*

Hawthorn (Red Haw)

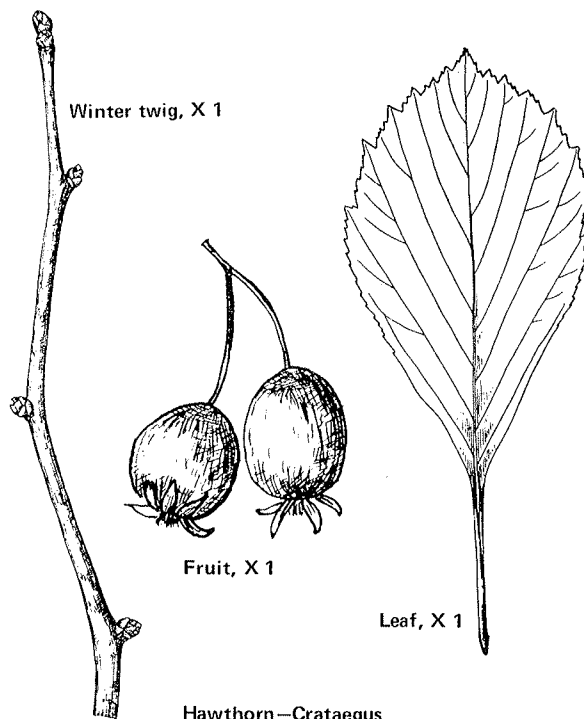
Usually low, small, wide-spreading, round-topped trees. There are over 100 species of *Crataegus* in the U.S.

Leaves—Alternate, smooth or hairy, shiny or dull, leathery and tough, thin. Leaves vary in shape, depending on species.

Flowers—White, often produced in great profusion in few to many-flowered clusters.

Fruit—Globular, usually scarlet and resembles tiny apples, with dry mealy flesh. Often edible.

Branches—Strong, tough, often tortuous, somewhat zigzag, armed with stiff, sharp-pointed thorns. Bark is usually scaly or shredded, varying from dark red to brown and gray.



Hawthorn—*Crataegus*

Redbud (Judas Tree)

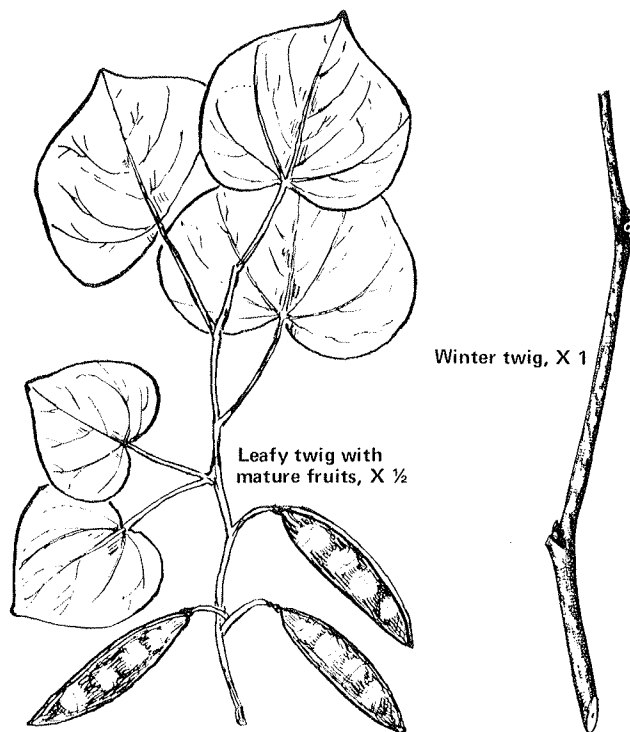
An attractive small, low tree, often with several stout, straggling branches forming a rounded crown.

Leaves—Alternate, 2 to 4 inches long, heart-shaped, dark green above, paler beneath.

Flowers—Rather dense clusters of pink-purple to dark red pea-like flowers. Nestling close to the twigs and even the trunk, are produced before the leaves in April.

Fruit—Short-stalked, flat, brownish pods 2 to 4 inches long, 1/2 inch wide, pointed on both ends. Seeds—8 to 12—olive brown in color, very hard.

Twigs—Usually zigzag, bearing very small, blunt and flattened buds. Bark on twigs shiny, brown or reddish brown.



Redbud—*Cercis canadensis*

Silver Maple (Soft Maple)

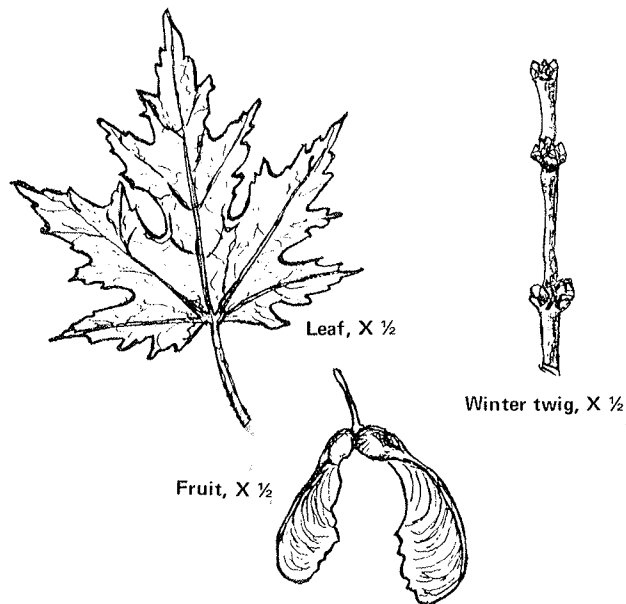
A large and beautiful tree of the maple family. Grows rapidly under favorable conditions. Wood is soft, even-textured, easily worked and decays quickly when exposed.

Leaves—Opposite on stem. They are pale green on upper surface and silvery-white beneath.

Flowers—Appear in dense greenish-yellow clusters in early spring before the leaves appear.

Fruit—Fruit consists of a pair of winged seeds or "keys," 1 to 2 inches long, ripens in late spring.

Bark—On old stems bark is dark gray; on young shoots it is smooth and red or reddish-gray.



Silver Maple—*Acer saccharinum*

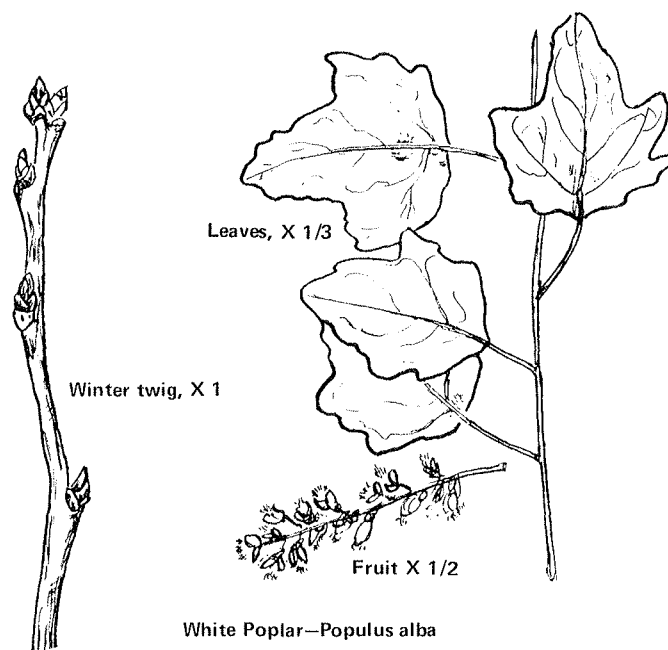
White Poplar

This is a member of the willow family and is often wrongly called silver maple. It is a large tree, grows rapidly in favorable locations, and also thrives under less favorable conditions. Many root suckers occur about the trees. Not native but widely planted.

Leaves—Alternate on twig, often resemble maple leaf in shape. They are dark green above, white and woolly beneath.

Flowers—Flowers appear before the leaves in catkins. Seed is surrounded with cottony material as in other poplars.

Bark—On small twigs, bark is greenish and covered with whitish down, becoming grayish-green on older branches.



White Poplar—*Populus alba*

Black Locust

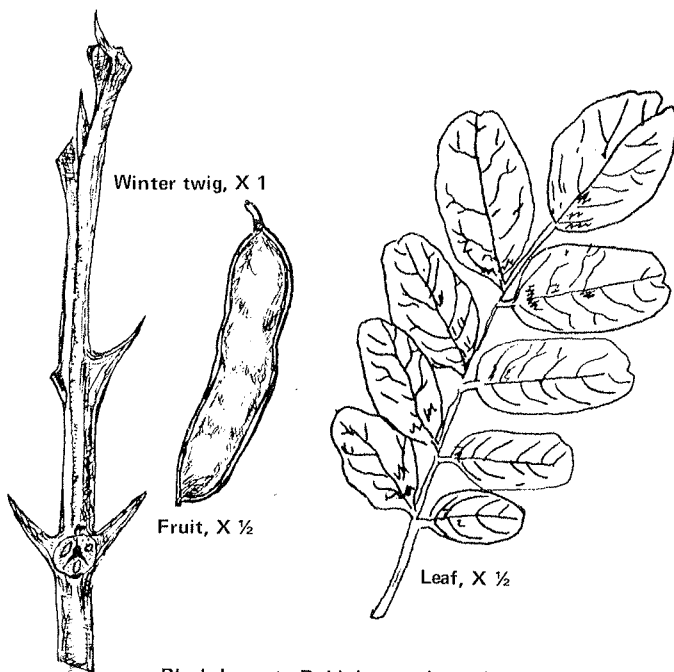
Generally a medium-sized tree belonging to the pea family. A rapid-growing tree; spreads by means of root suckers. Often severely damaged by locust borer.

Leaves—Once compound, from 6 to 12 inches long with 7 to 19 leaflets.

Flowers—Pea-shaped, borne in large clusters, white or creamy-white, very fragrant.

Fruit—A dark brown, flat pod, 3 to 5 inches long.

Twigs—Rather slender, brittle, often zigzag, generally having short, stiff spines, 1/4 to 1/2 inch long, in pairs at base of leaves.



Black Locust—*Robinia pseudoacacia*

Honeylocust

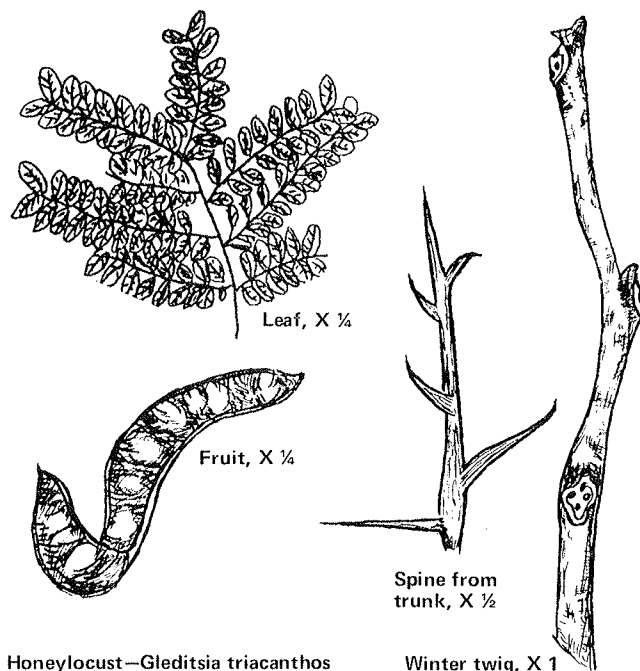
A medium-sized tree with somewhat drooping lateral branches forming a broad flat-topped head.

Leaves—Both once and twice compound, 6 to 8 inches long. Once compound leaves have 18 to 28 leaflets. Twice compound leaves have 4 to 7 pairs of secondary leaf stems.

Flowers—Yellowish-green, short, many-flowered clusters.

Fruit—A flat, reddish-brown, twisted pod 8 to 12 inches long.

Twigs—Stout, smooth, glossy, zigzag, often having stiff, branched thorns from 3 to 6 inches long. The *G. triacanthos* inermis variety is thornless.



Honeylocust—*Gleditsia triacanthos*

Winter twig, X 1

Hackberry

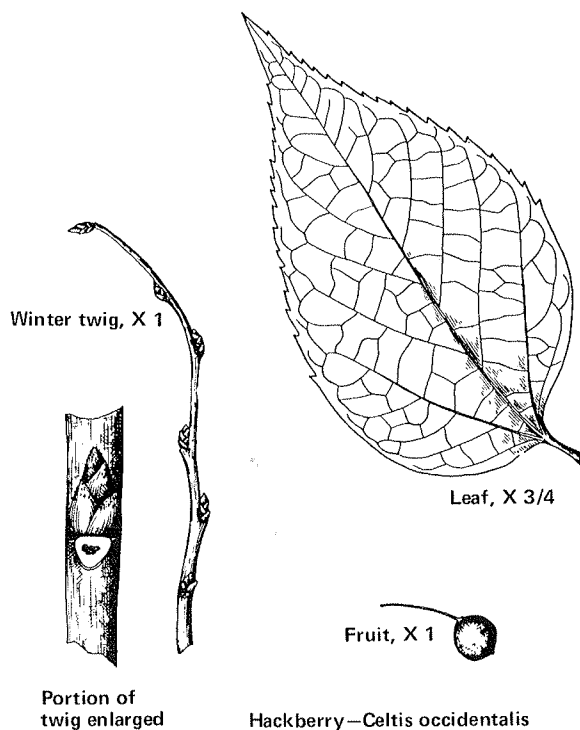
A medium to large tree, having a rounded, rather wide spreading crown.

Leaves—Alternate, 2 to 4 inches long, thin, light green above, paler beneath, frequently with a long tapering tip.

Fruit—Small, purplish, spherical stone, 1/4 inch in diameter, fruit borne on long slender stems. Flesh is edible.

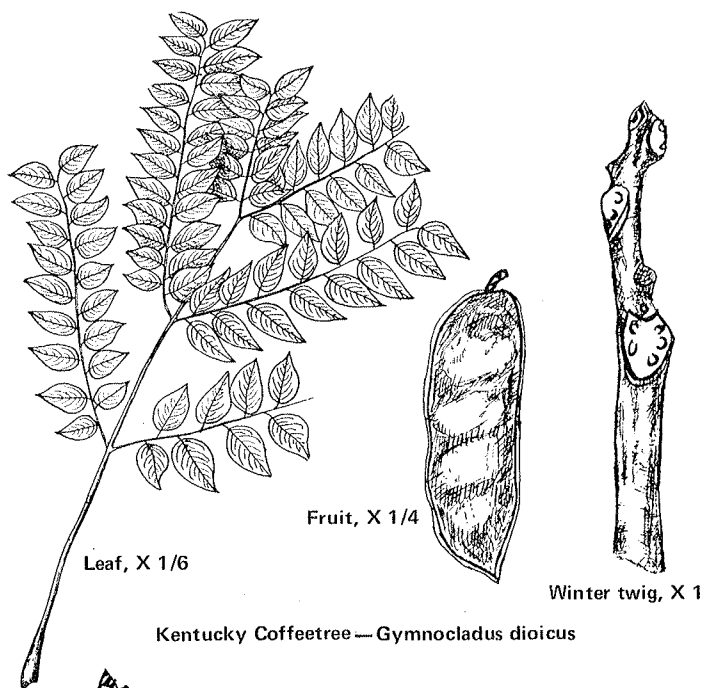
"Nipple galls"—Often occur on underside of leaves; buds sometimes enlarged and known as "bud galls;" a few to many dense clusters of dwarfed twigs may occur on branches, known as "witches' brooms."

Twigs—Slender, brownish, with a finely chambered white pith. The bark is one of the most striking features of Hackberry. Bark on the trunk and large limbs is usually light silvery-gray in color, warty in appearance and is broken into deep ridges which show distinct layers.

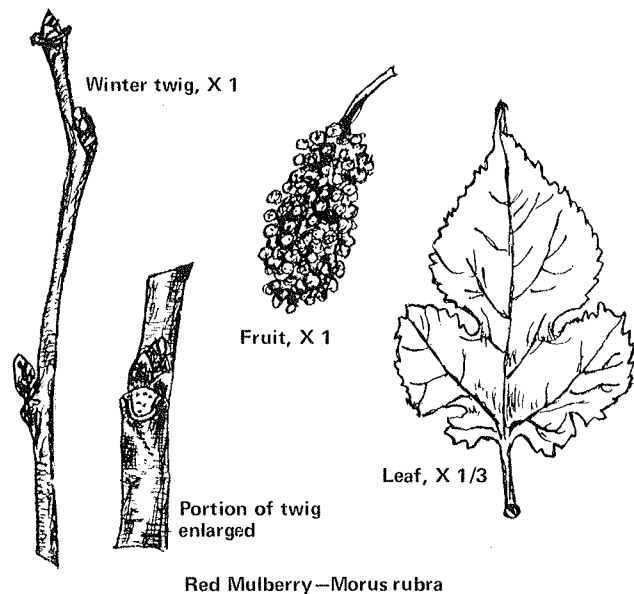


Portion of
twig enlarged

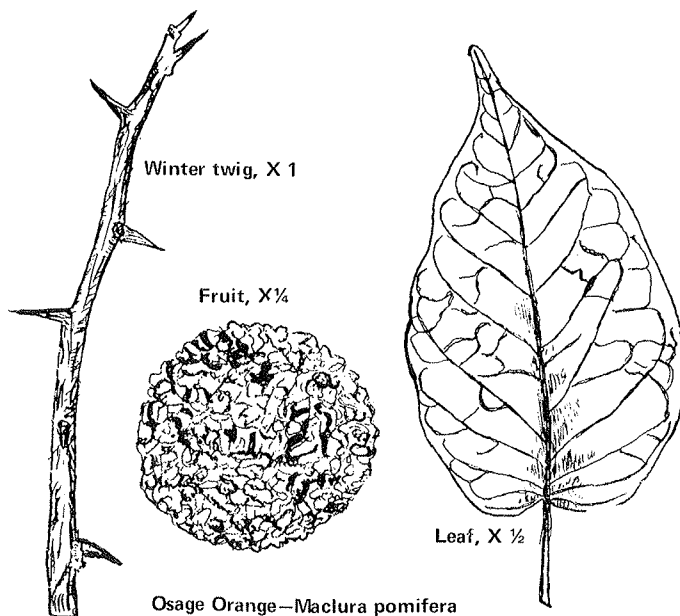
Hackberry—*Celtis occidentalis*



Kentucky Coffeetree—*Gymnocladus dioica*



Red Mulberry—*Morus rubra*



Osage Orange—*Maclura pomifera*

Kentucky Coffeetree (Coffee-bean—Coffee-nut)

A medium-sized tree with comparatively few large coarse branches.

Leaves—Alternate, twice pinnately compound, very large, 1 to 2 feet long; 20 to 40 leaflets 1 to 2 inches long, dark-green above, paler beneath.

Fruit—A reddish-brown, leathery, flat, abruptly pointed pod usually 4 to 6 inches long by 1 1/2 to 2 inches wide, remaining closed until winter. Pods contain 1 to 8 olive-brown, flat, flint-hard seeds imbedded in a sweetish pulp.

Twigs—Very stout, blunt, brown or slightly greenish and generally white-crusted. Pith is wide and salmon-pink or brown in color.

Red Mulberry

A small tree which develops a broad, rounded head with numerous small branches.

Leaves—Variable in shape, often 3 to 5 lobes, 2 to 5 inches long, yellow-green, thin, smooth or rough above, paler and hairy beneath.

Fruit—Dark purple or nearly black, 1/2 to 3/4 inch long, ripening in June or July.

Twigs—Slender, somewhat zigzag, reddish to greenish-brown, showing milky juice when cut.

Bark—Dark brown, divided into irregular longitudinal plates.

White mulberry (*Morus alba*), an introduced species, has been reported for Nebraska.

Russian mulberry (*Morus alba* var. *tartarica*), is a small tree with bushy head. Fruits are small, dark red, sometimes white. Widely used in windbreaks.

Osage Orange (Hedge Apple)

Originally this tree was confined to the rich bottom lands of Arkansas, Oklahoma, and Texas but was extensively planted as a hedge by early Nebraska settlers. Under most favorable conditions it may reach a height of 50 to 60 feet and a diameter of 2 feet. In Nebraska the usual height is 25 to 30 feet.

Leaves—Alternate, 3 to 6 inches long and 1 to 2 inches wide, thick and firm, dark green and glossy with milky juice.

Fruit—A pale green orange-like structure 2 to 4 inches in diameter. Seeds brown.

Twigs—Bright green, hairy, becoming yellowish and armed with stout, sharp-pointed thorns. Bark on roots is bright orange-red and arranged in very thin layers.

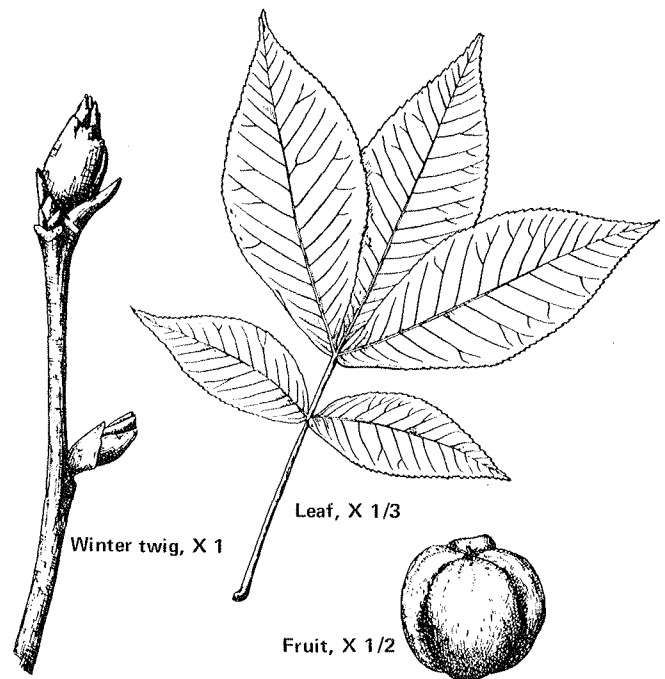
Shagbark Hickory

Medium-sized tree, slender, tall and straight, with narrow, rounded, open crown of stout branches and twigs. Occurs in southeastern Nebraska.

Leaves—Alternate, once compound, 6 to 12 inches long. Leaflets usually five, the upper 5 to 7 inches long and 2 to 3 inches wide. Thick, firm, dark green above, paler beneath, sometimes downy. Buds large, rather blunt-pointed. When leaves drop, slightly elevated, roughly heart-shaped leaf scars are left on twig.

Fruit—Nearly spherical, 4 rigid nuts variable in size, surrounded by thick, 4-valved, light brown husks. Nut sweet.

Twigs—Stout, smooth and shining, or somewhat downy, light gray or reddish-brown. Bark on young trunks and limbs light gray, smooth, becoming seamy; on old trunks shagging characteristically into long, flat plates that are free at the base or both ends.



Shagbark Hickory—*Carya ovata*

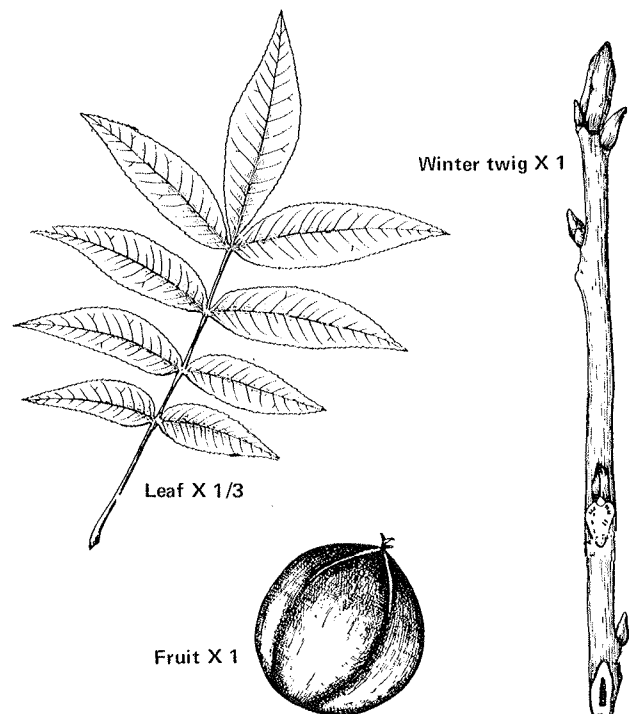
Bitternut Hickory

A tall, rather slender tree with stiff upright branches forming a broad crown which is often widest near the top. Occurring in southeastern Nebraska.

Leaves—Alternate, once compound, 6 to 10 inches long. Leaflets 7 to 11, the upper ones 3 to 6 inches long and about one-fourth as wide, thin and firm, smooth, bright green above, paler and somewhat downy or smooth below.

Fruit—Nearly spherical, thin-shelled nuts covered with a thin, yellow, scurfy husk. Kernel bitter, not edible.

Twigs—Slender, greenish and downy, becoming brownish and finally gray. Bark on old branches and trunk smooth, gray, often broken up into closely connected shallow ridges, rarely broken into scales or plates.



Bitternut Hickory—*Carya cordiformis*

Western Chokecherry

This is a native shrub of the plum family which at times may become tree-like and attain a height of 10 to 25 feet and a diameter of several inches.

Leaves—Similar to those of tame cherry, alternate, 2 to 4 inches long, 1 3/4 to 3 inches wide, dark green above, paler beneath. Margin finely toothed with teeth pointed out.

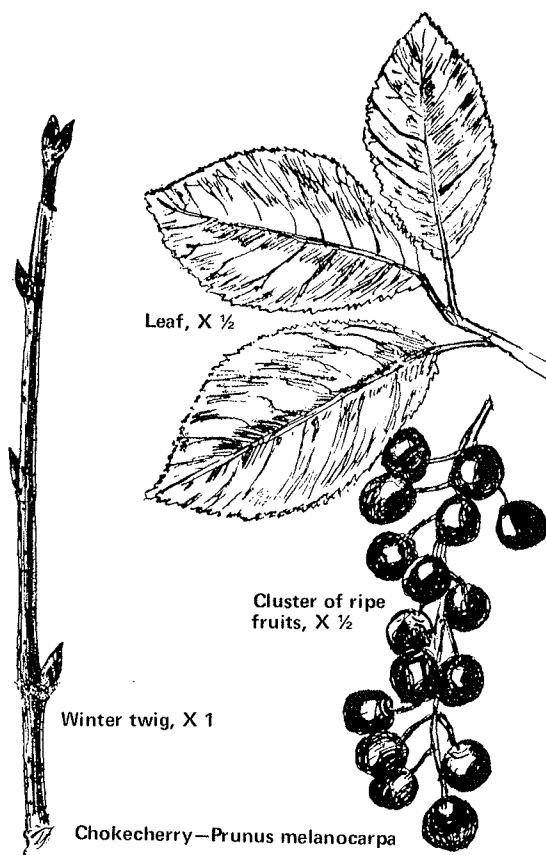
Buds—Rather large, narrow, conical, smooth, pale brown and sharply pointed.

Flowers—Borne in several white, compact, drooping clusters, 2 to 3 inches long, occurring in May or June.

Fruit—Round, dark purple or black cherries 1/4 to 1/2 inch in diameter. Excellent for jelly and are relished by many species of birds.

Twigs—Slender to rather stout, smooth, grayish-brown.

Bark, leaves and seed are bitter owing to the presence of prussic acid.



Black Cherry

A medium-sized tree attaining a height of 50 feet or more and a diameter of 1 to 2 feet. Native to southeast Nebraska; grows along fence rows, in open places and on the edge of timbered areas of that region.

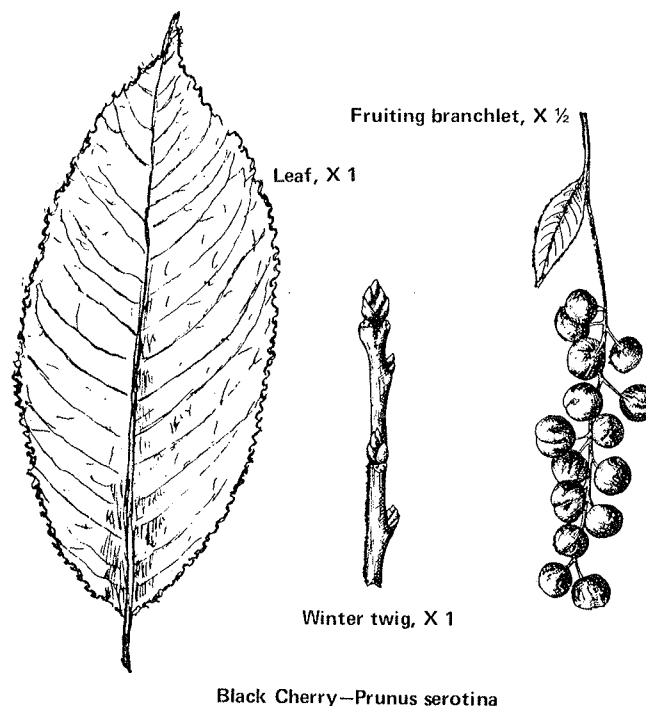
Leaves—About 3 inches long and half as broad, dark green and shiny above, paler beneath and smooth on both sides. Leaf margin finely toothed with incurved teeth.

Buds—Medium-sized, blunt to sharp-pointed, about 1/4 inch long.

Flowers—Occur in May or June, in many white-flowered, loose, drooping clusters.

Fruit—Similar to that of choke-cherry in size and arrangement, dark purple or black. Edible and highly relished by birds.

Twigs—Rather slender, smooth, reddish-brown, covered with grayish skin that is easily rubbed off. Pith pale, salmon-colored.



Wahoo (Burning Bush)

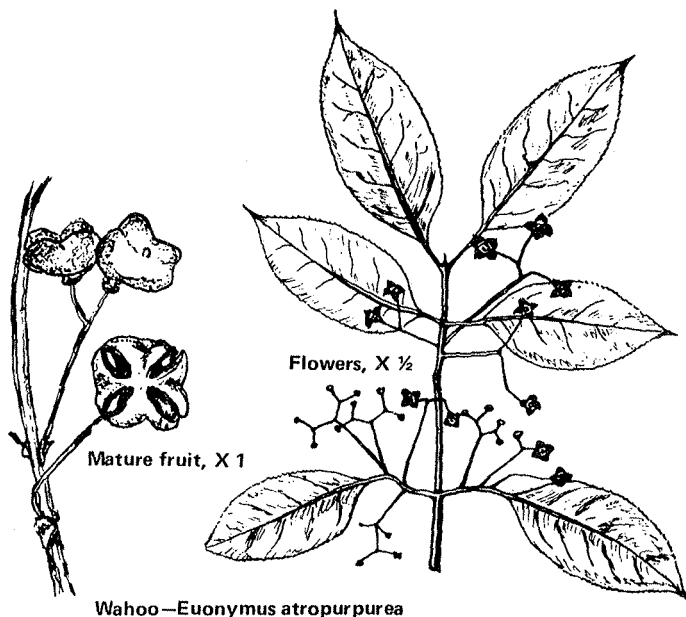
Tall shrub, rather common in woodlands and along streams, particularly in southeast Nebraska.

Leaves—Opposite, 1 1/2 to 5 inches long, 1 to 2 1/2 inches broad, smooth above and covered with short, fine hairs beneath.

Flowers—Borne on very slender stems grouped in a widely spreading cluster, petals dark purple. Individual mahogany-red flowers are small and inconspicuous but en masse they produce a blaze of color, especially in bright sunlight, suggestive of the name Burning Bush.

Fruit—A depressed four-angled capsule, crimson to purplish in color. When capsule splits open, it exposes the scarlet pulp—covered seed.

Twigs—Slender, greenish or purplish brown in color.



Wahoo—*Euonymus atropurpurea*

Pawpaw

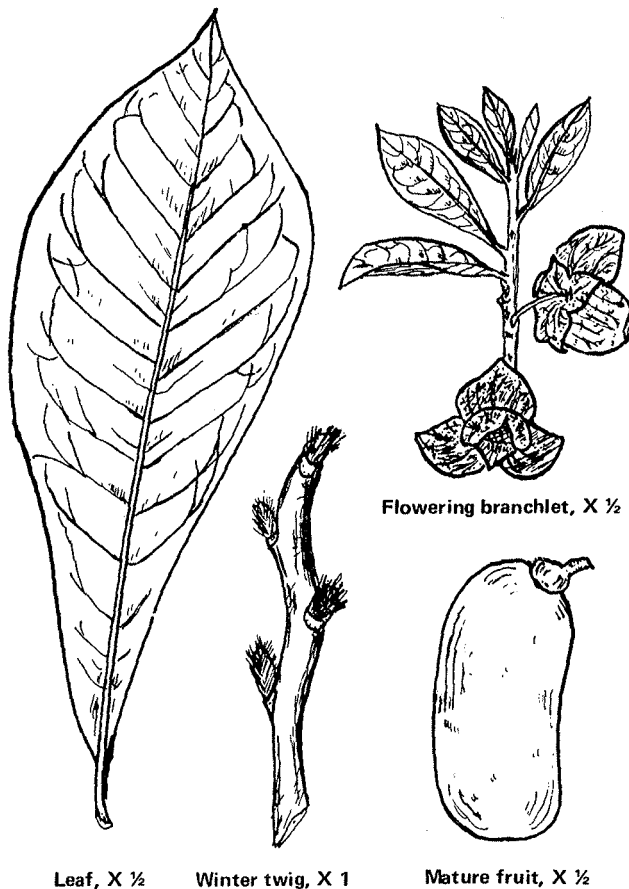
A low, slender tree or tall-growing shrub occurring in southeast Nebraska. Commonly growing in thickets in river or creek bottoms.

Leaves—Alternate, 6 to 12 inches long, smooth, light green above, paler beneath, turning yellow in autumn.

Flowers—Appear in March or April at the time the leaves begin to develop, 1 1/2 to 2 inches across, 6 petals in two series, green at first, becoming brown and finally deep reddish-purple.

Fruit—Fruit is 2 to 5 inches long, 1 to 1 1/2 inches in diameter, often slightly curved, greenish-yellow, and brownish or black when fully ripe; edible.

Twigs—Bark or twigs light brown, tinged with red; limbs and trunk ashy-gray.



Leaf, X 1/2

Winter twig, X 1

Mature fruit, X 1/2

Pawpaw—*Asimina triloba*