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E.C. 1703 (Rev.)

Tree Identification *Manual*



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

INTRODUCTION

This circular is intended to help interested persons to become better acquainted with some native and introduced trees of Nebraska. Included are descriptions and illustrations of the leaf, winter twig, and fruit of 38 species which may be found in Nebraska. Leaves, winter twigs, and fruit 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 once pinnate or once compound such as those of the black walnut and the black locust. The leaves of a Kentucky coffeetree are twice pinnate or twice 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, 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 zig-zag, 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 sometimes 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.

Many of the illustrations in this manual are taken from "Handbook of Nebraska Trees" by Raymond J. Pool. Art work was done by Neva England.

Numerals indicate size (X 1 is natural size; X 1/2 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

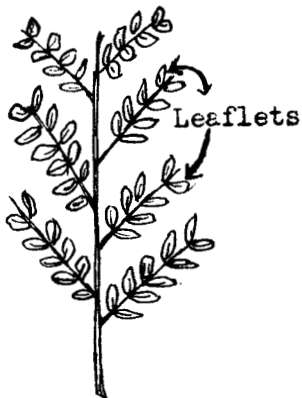


Scale-like

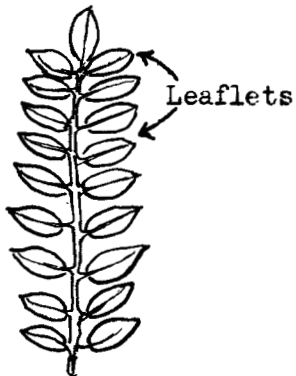


Broadleaf

Form



Twice-pinnate



Pinnate



Simple



Palmate or Digitate

Shape



Lanceolate



Oblanceolate



Oval



Ovate

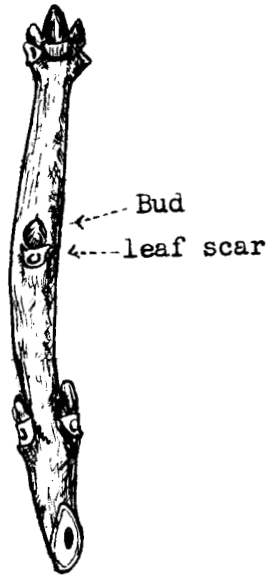


Heart-shaped



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.

Size



Stout



Slender

Pith



Solid



Chambered



Star

Bud Arrangement



Not Terminal



Clustered



Terminal

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.)

Fruits - 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.



Fruiting branchlet with scale-like leaves, X 1



Tip of branchlet, showing awl-shaped leaves, enlarged

Eastern Redcedar -
Juniperus virginiana

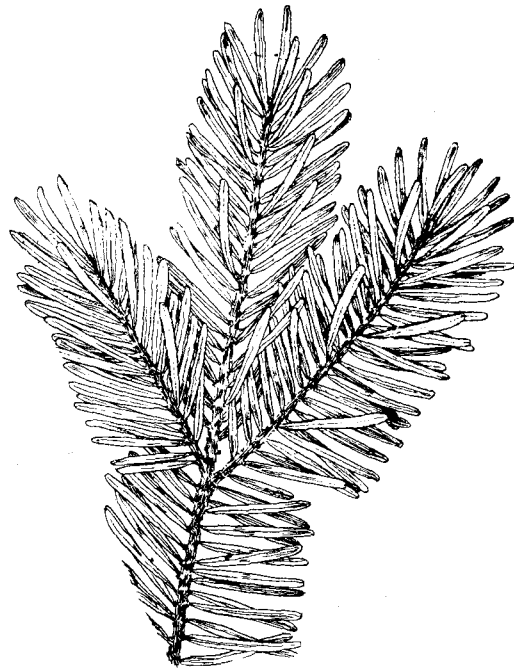
Douglas-fir

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

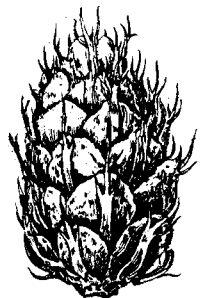
Leaves - Attached singly on slender twigs, flat, blunt, 3/4 to 1 1/2 inches long, often bluish-green but generally yellowish-green in color.

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 it is 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.



Twig with leaves, X 1



Mature cone
X 3/5

Douglas-fir - *Pseudotsuga taxifolia*

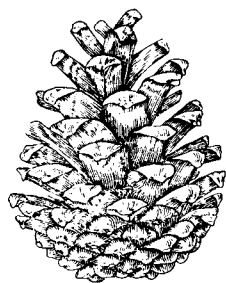
Austrian Pine or Black Pine

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

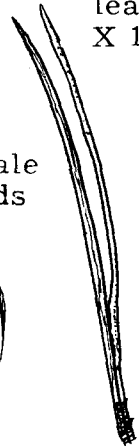
Buds - Sharp-pointed, reddish-brown during winter, becoming whitish as growth begins.

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



Partly opened cone, X 1/2

Cone-scale with seeds
X 1



Cluster of leaves,
X 1/2

Austrian Pine - *Pinus nigra*

Western Yellow Pine

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 the Austrian pine in heat and drouth resistance.

Leaves - 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 the Austrian pine and are usually somewhat twisted. Buds are light chestnut-brown in color.

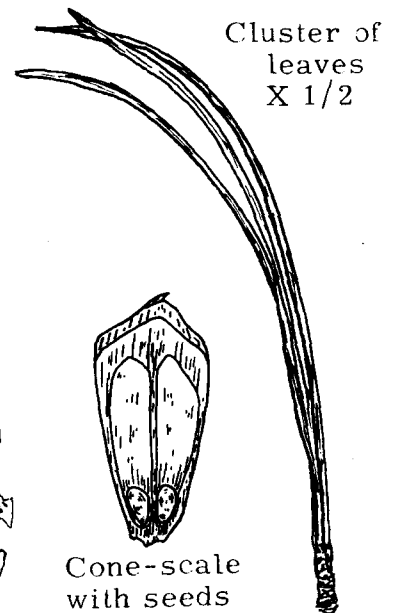
Fruit - Cones 3 to 6 inches long. Each cone scale is beset with a short, sharp spine. Cones mature in August of second season and shed most of the seeds during September.



Opened cone
X 1/2



Cone-scale with seeds
X 1



Cluster of leaves
X 1/2

Western Yellow Pine - *Pinus ponderosa*

Scotch Pine

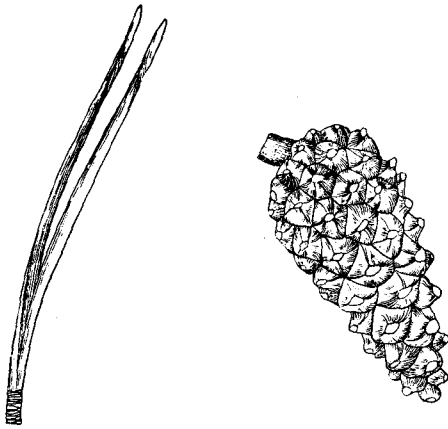
A large tree of the pine family, rather irregular in habit of growth. Often compact and symmetrical when young, becoming more open and less symmetrical with age. Not native to Nebraska.

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*

White Elm or American Elm

A large and graceful tree distributed throughout the state. Greatly admired as a lawn and street tree.

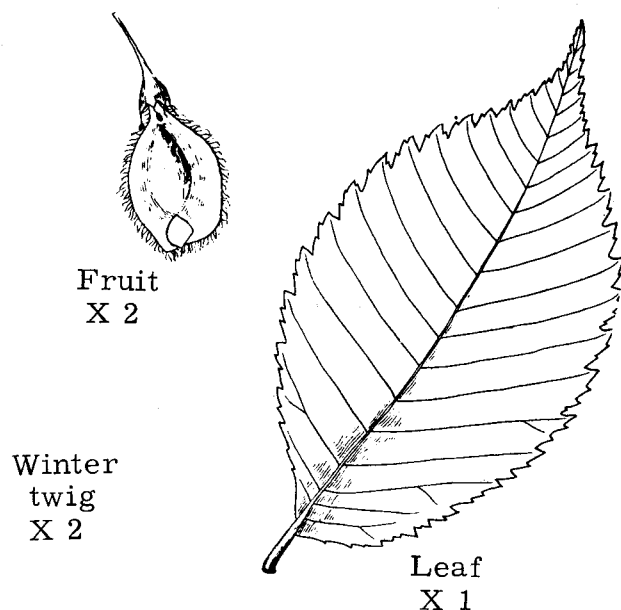
Leaves - 3 to 5 inches long and half as broad, dark green above, smooth to slightly roughened, pale and smooth or somewhat hairy beneath.

Buds - Light reddish-brown; flower buds stouter.

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

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

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



American Elm - *Ulmus americana*

Red Elm or Slippery Elm

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

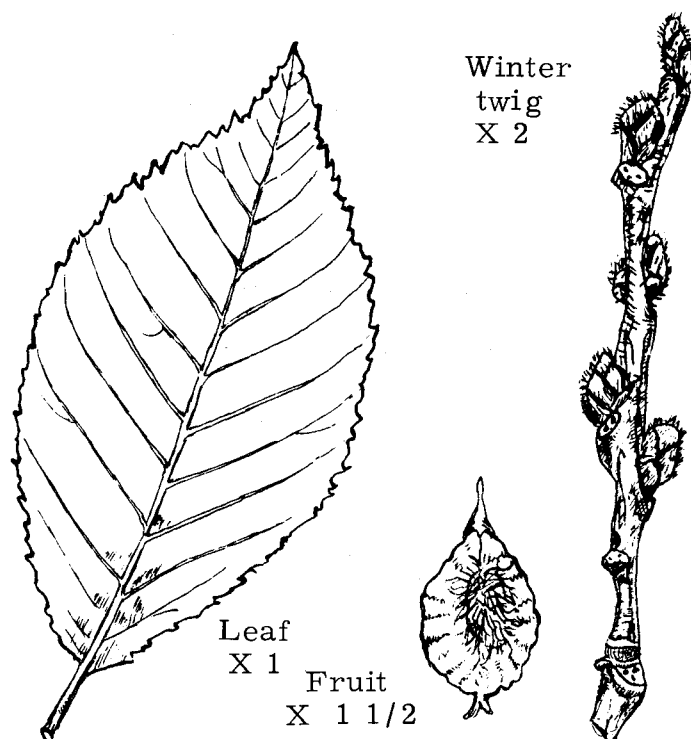
Leaves - Alternate, 3 to 6 inches long and half as broad, rough on upper and lower surfaces, dark green above, paler underneath.

Winter buds - Dark brown, hairy, and prominent in early spring.

Fruits - Similar to those of the white elm, except membraneous 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.



Red Elm - *Ulmus fulva*

Green Ash

A medium-sized tree with a compact, broad and rounded crown. Is considered by some authorities as a variety of the red ash (*Fraxinus pennsylvanica*).

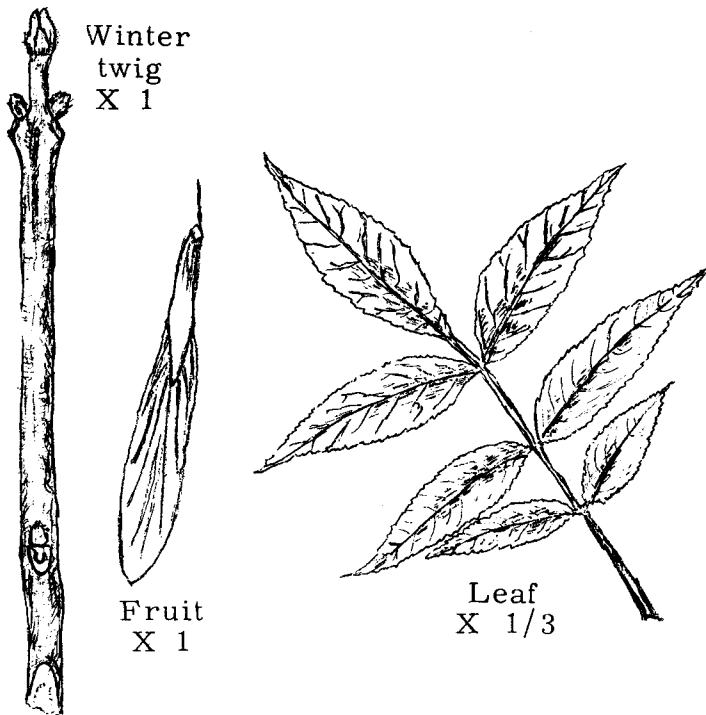
Leaves - Opposite, pinnately compound, 8 to 12 inches long; leaflets, 7-9, 2 to 4 inches long, 3/4 to 1 inch broad, bright green and smooth on both sides (Red ash leaflets are downy beneath).

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

Fruits - Paddle-shaped in dense clusters, often clinging to the 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).

Both green and red ash are found throughout the state, the former being more common.



Green Ash
Fraxinus pennsylvanica lanceolata

White Ash

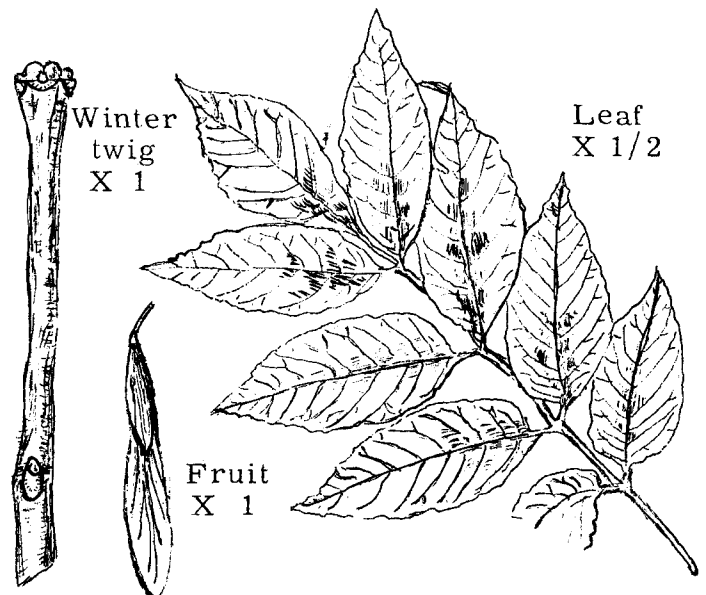
Medium to large tree occurring in southeast Nebraska, more plentiful farther east.

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.

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

Twigs - Stout, smooth and shiny, grayish or greenish-brown.



White Ash - *Fraxinus americana*

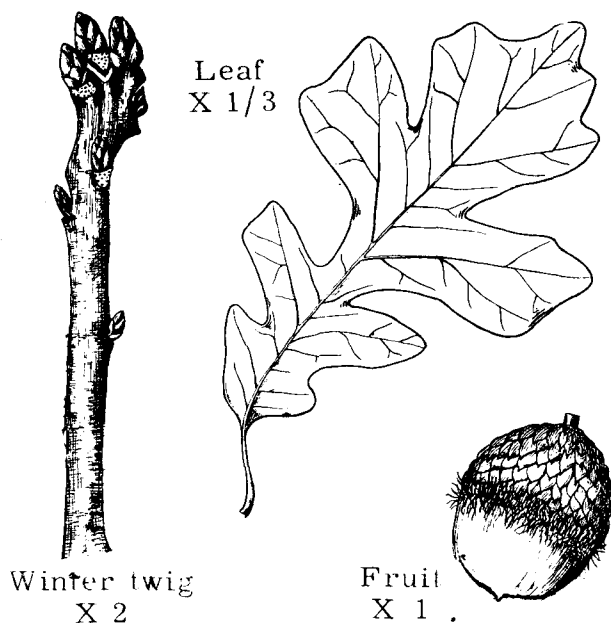
Bur Oak or Mossycup Oak

An important tree species in Nebraska, as it is long-lived, ornamental, and is a valuable lumber tree. Native to the western half of the state.

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

Fruits - Acorns maturing in the fall of the first year. Commonly occurring in pairs, variable in size and shape; cup rather deep, enclosing $\frac{1}{3}$ to $\frac{2}{3}$ of the acorn, cup fringed with coarse, tortuous bristles.

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



Winter twig
X 2

Fruit
X 1

Bur Oak - *Quercus macrocarpa*

Yellow Oak or Chestnut Oak

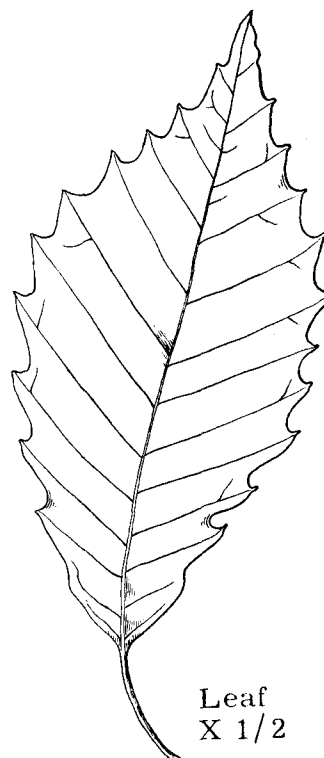
A medium-sized oak occurring in Richardson and Nemaha counties. Usually forming a broad, open head, sometimes broader than high.

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.

Fruits - Short-stalked acorns, maturing at end of the first season, either singly or in pairs, about $\frac{3}{4}$ inch long, the cup enclosing about $\frac{1}{2}$ 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.



Leaf
X 1/2



Winter twig
X 2



Fruit
X 1

Yellow Oak - *Quercus muehlenbergii*

Red Oak

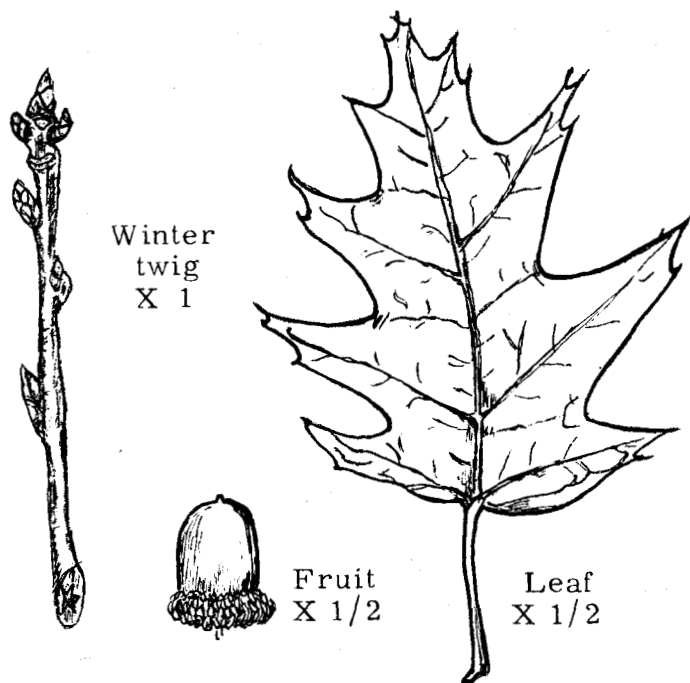
A large tree of the black oak group whose acorns mature in autumn of the second season.

Leaves - Alternate, 5 to 9 inches long, 4 to 6 inches wide, with coarse-toothed, bristle-tipped lobes, dark green and smooth above, paler beneath.

Buds - Smooth, light chestnut-brown, $\frac{1}{8}$ to $\frac{1}{4}$ inch long.

Fruits - 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.



Red Oak - *Quercus rubra*

Black Oak

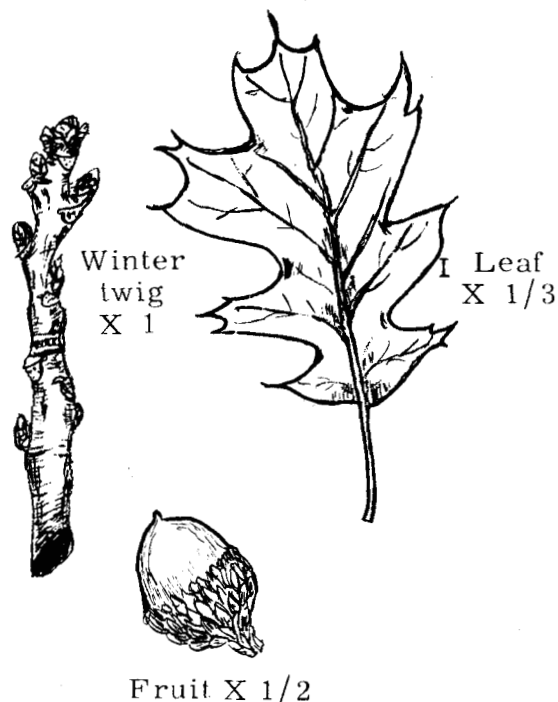
A large tree whose acorns mature in autumn of the second year, and resembling the red oak in habit of growth.

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, $\frac{1}{4}$ to $\frac{1}{2}$ inch long.

Acorns - $\frac{1}{2}$ to $\frac{3}{4}$ 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.



Black Oak - *Quercus velutina*

Hardy Catalpa

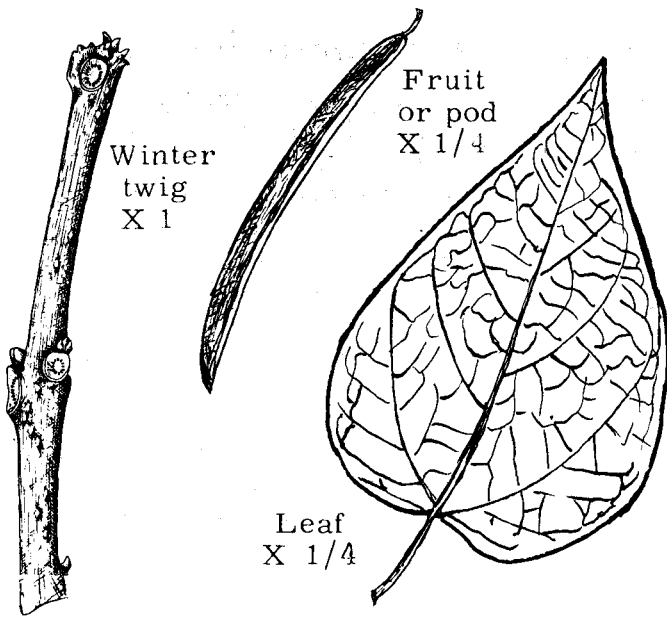
Not native to Nebraska but has been planted freely for growing fence posts. Usually with straighter trunk than the common catalpa (*C. bignonioides*).

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.



Hardy Catalpa - *Catalpa speciosa*

American Linden or Basswood

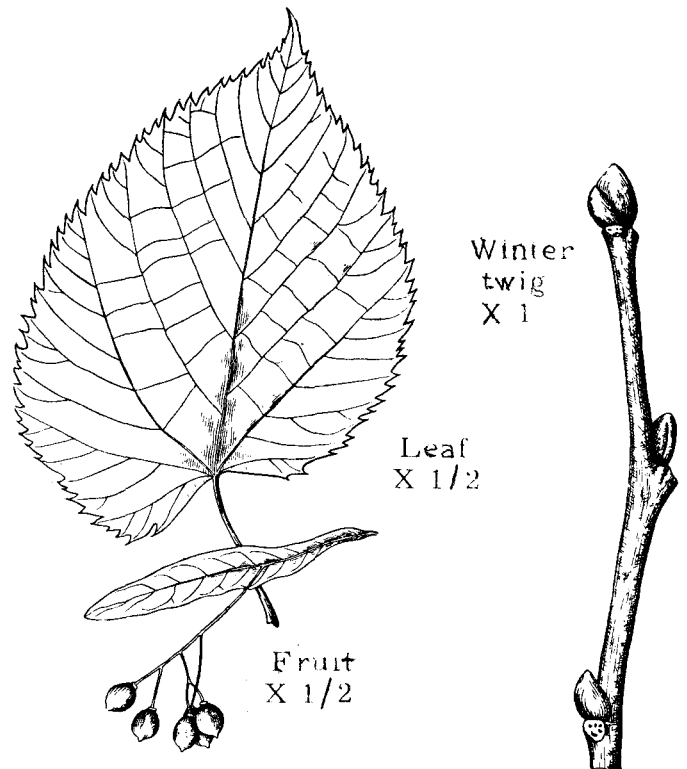
A large tree with rounded, spreading crown. A native in rich, moist woodlands and along river bottoms in the extreme eastern part of the state.

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.

Fruits - Nutlike, 3/8 to 1/2 inch in diameter.

Twigs - Usually zigzag with dark red or greenish buds 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*

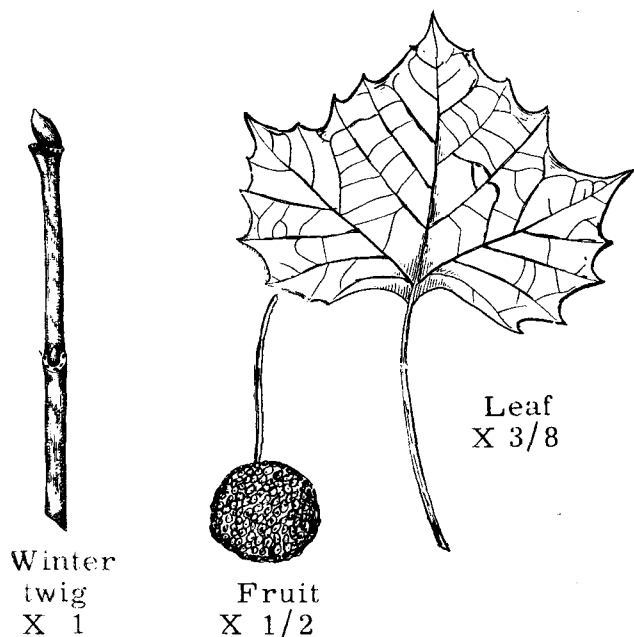
Sycamore or Buttonball Tree

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 the winter and into the following summer.

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.



Sycamore - *Platanus occidentalis*

Ailanthus or Tree of Heaven

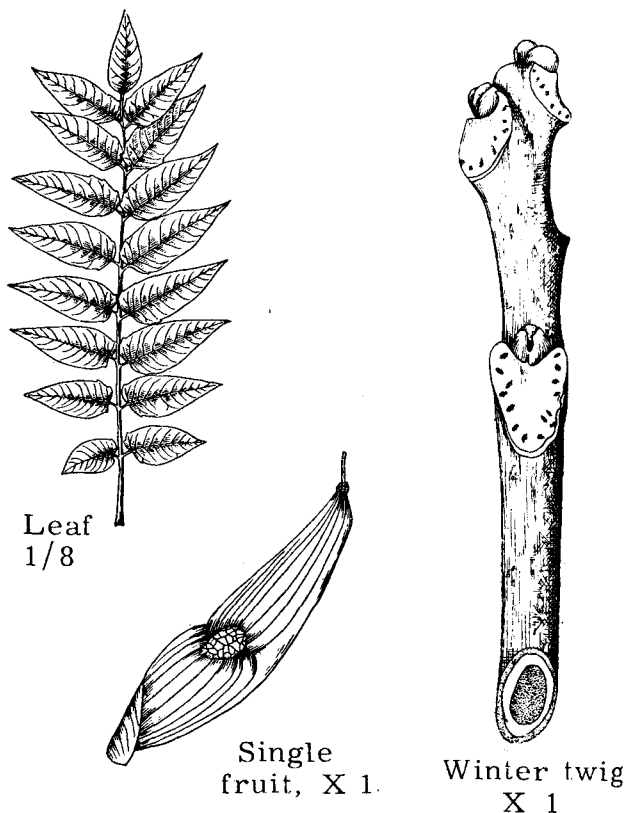
A tall, fast-growing tree, with spreading, open and loose crown. Thrives in either sunlight or where there is considerable shade. Starts readily from seed that is scattered by winds, and from root sprouts. Resistant to smoke and gases and many may be found growing in the poorer sections of large cities.

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.



Ailanthus - *Ailanthus altissima*

Ohio Buckeye

A medium-sized tree native to the extreme southeast corner of the 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.

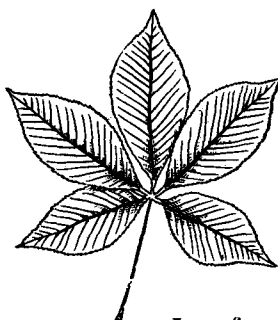
Flowers - Pale yellow, bell-shaped in large terminal clusters.

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

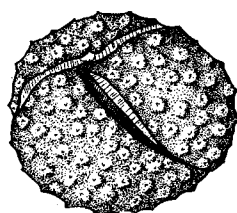
Twigs - Stout, smooth, orange to brown. Terminal buds large, brown, not waxy. Bark is smooth and red-brown, becoming ashy gray, densely furrowed on the trunks.



Winter twig
X 1



Leaf
X 1/6



Fruit
X 1/2

Ohio Buckeye - *Aesculus glabra*

Horsechestnut

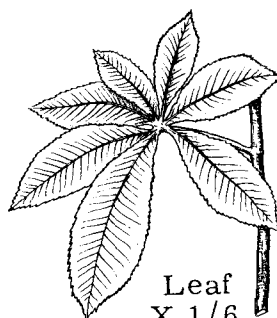
A medium-sized, symmetrical tree forming a broad, conical crown.

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.

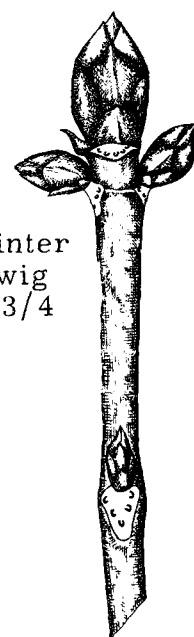
Flowers - Large, showy, upright, many-flowered clusters, 6 to 10 inches long, whitish or cream colored.

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

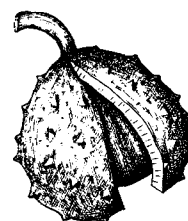
Twigs - Stout, smooth, reddish-brown. Terminal buds 1 to 1 1/2 inches long, brownish, covered with waxy gum.



Leaf
X 1/6



Winter
twig
X 3/4



Fruit
X 1/2

Not native to Nebraska.

Horsechestnut - *Aesculus hippocastanum*

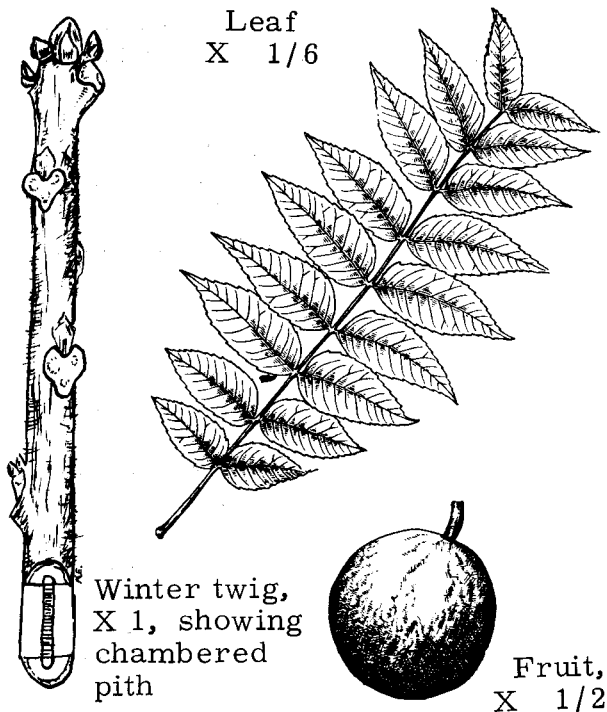
Black Walnut

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 half way across the state along the Republican and Niobrara rivers, and has been planted to some extent throughout the state.

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 and 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*

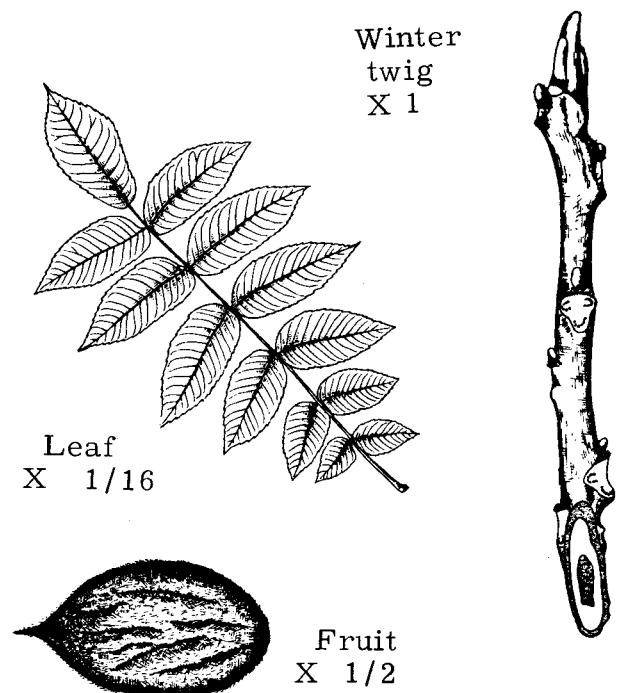
Butternut or White Walnut

Small to medium-sized tree with broad spreading crown of large horizontal branches and stout, stiff branchlets. Common farther east but so far as known 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.



White Walnut - *Juglans cinerea*

Hawthorn

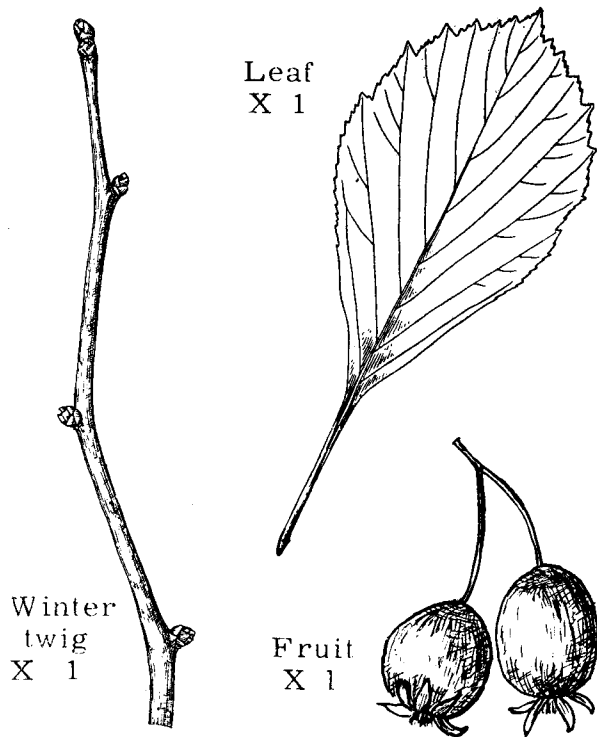
Usually low, small, wide-spreading, round-topped trees.

Leaves - Alternate, smooth or hairy, shiny or dull, leathery and tough, or thin, depending on the 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 or Judas Tree

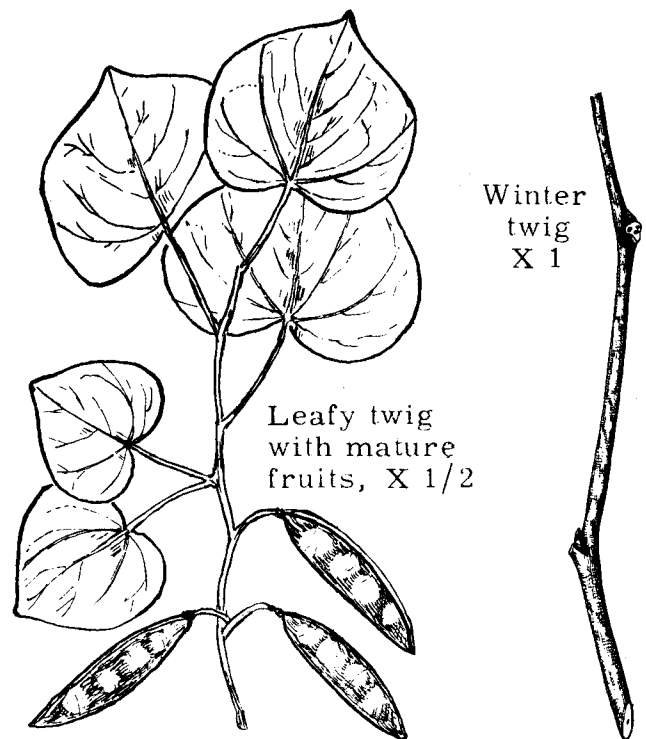
An attractive small, low tree, often with several stout, straggling branches forming a rounded crown.

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

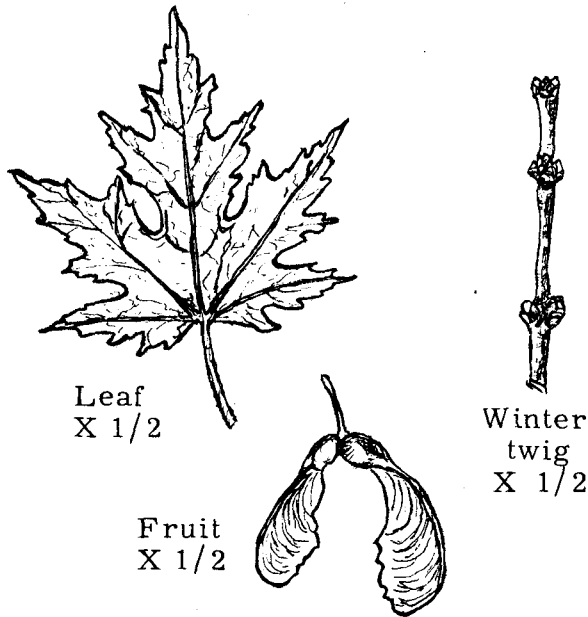
Flowers - Rather dense clusters of pink-purple to dark red pea-like flowers nestling close to the twigs and even the trunk are produced before the leaves in April.

Fruits - 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

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

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

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

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

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

Silver Maple - *Acer saccharinum*

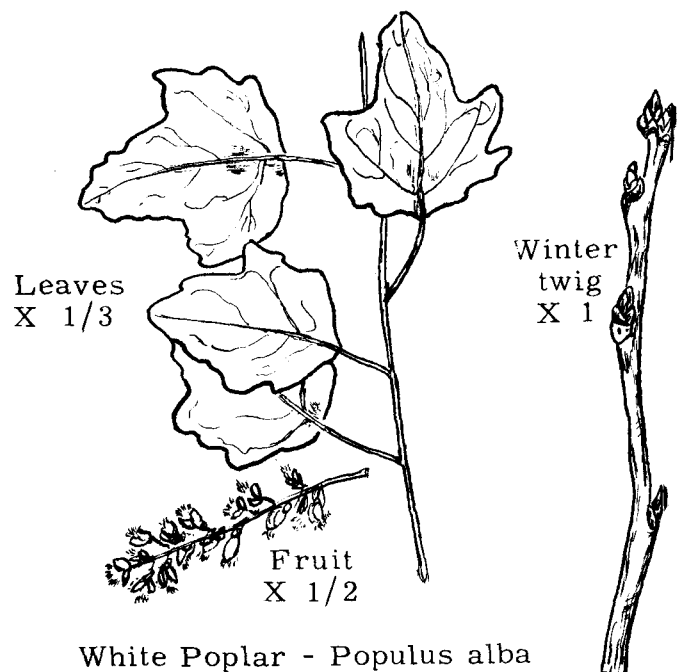
White Poplar

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.

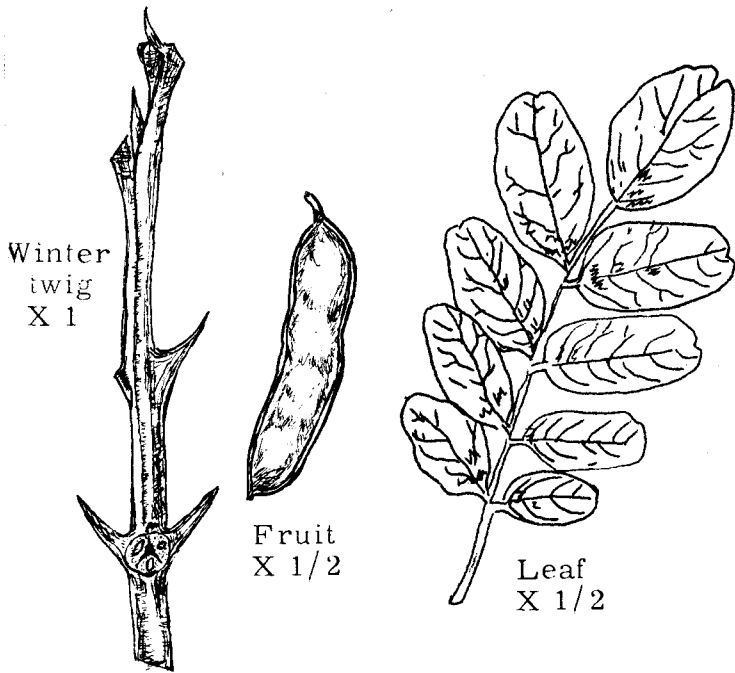
Leaves - Alternate on the twig and often resemble the maple leaf in shape. They are dark green above, white and woolly beneath.

Flowers - Appear before the leaves in catkins and the seed is surrounded with cottony material as in other poplars.

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



White Poplar - *Populus alba*



Black Locust - *Robinia pseudo-acacia*

Honeylocust

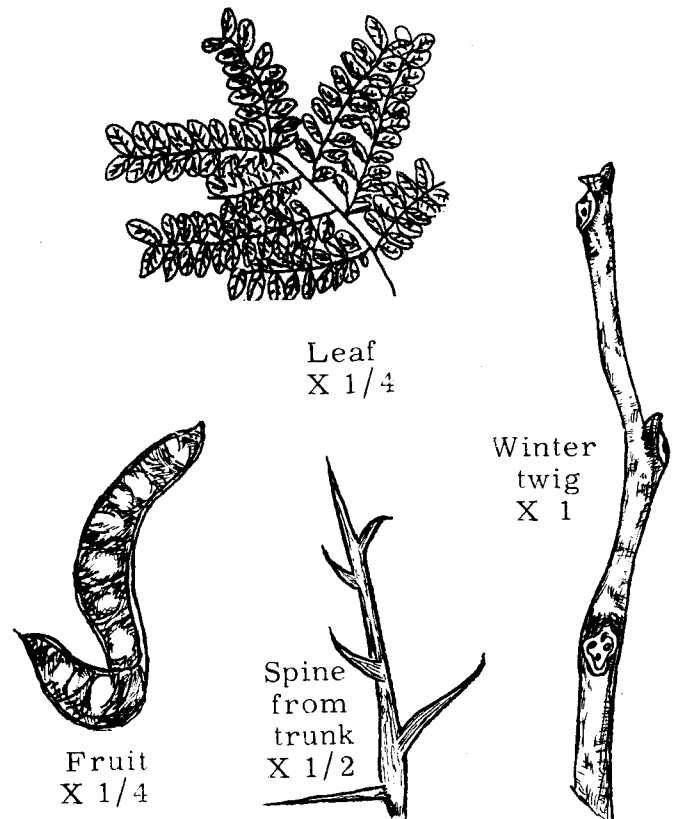
A medium-sized tree with somewhat drooping lateral branches forming a broad flat-topped head.

Leaves - Both once and twice compound, 6 to 8 inches long. Once compound leaves with 18 to 28 leaflets. Twice compound leaves with 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*

Black Locust

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

Hackberry

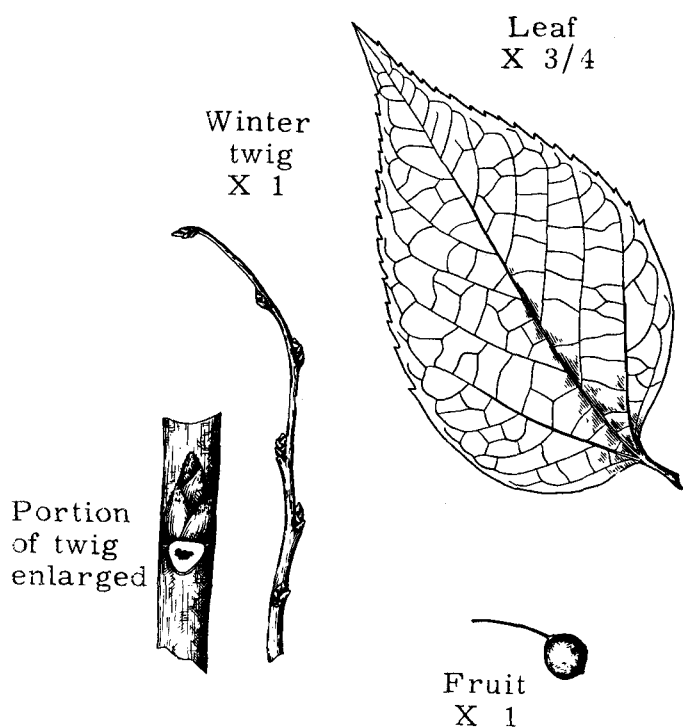
A medium to large tree, having a rounded, rather wide spreading crown.

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 undersides 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 larger limbs is usually light silvery-gray in color, warty in appearance and is broken into deep ridges which show distinct layers.



Hackberry - *Celtis occidentalis*

Kentucky Coffeetree

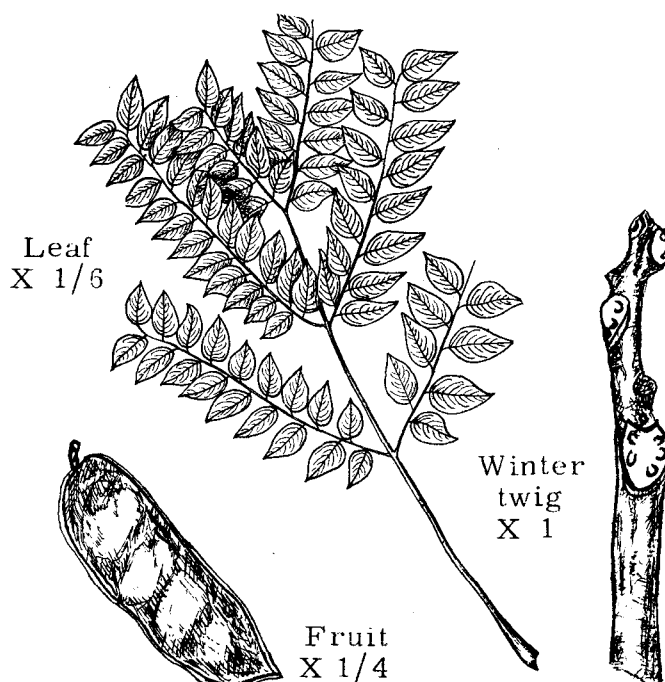
(Coffee-bean - Coffee-nut)

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.



Kentucky Coffeetree
Gymnocladus dioica

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.

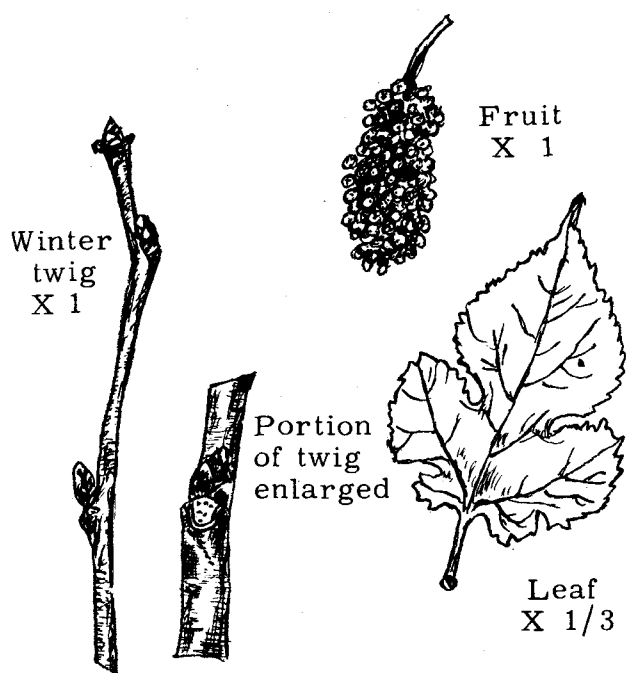
Fruits - Dark purple or nearly black, $\frac{1}{2}$ to $\frac{3}{4}$ inch long, ripening in June or July.

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*), a small tree with bushy head. Fruits are small, dark red, sometimes white.



Red Mulberry - *Morus rubra*

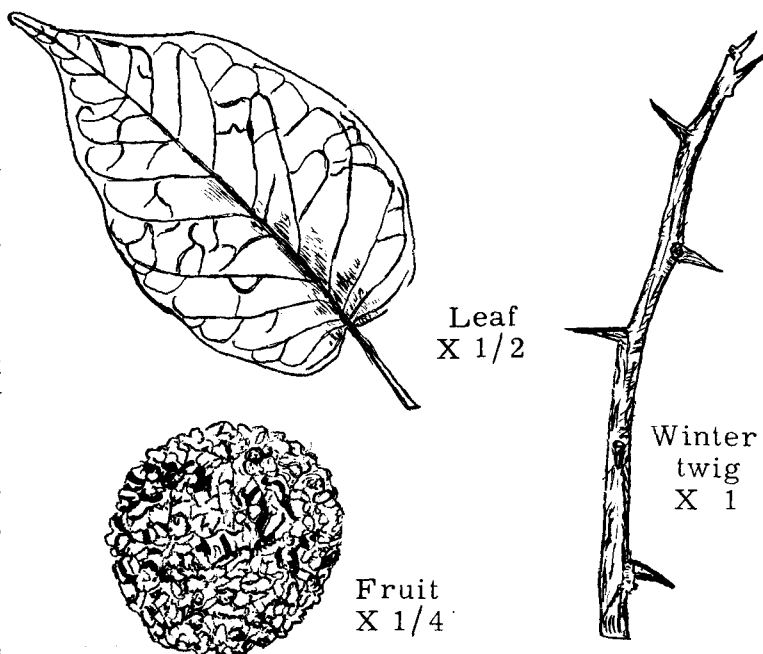
Osage Orange

Originally this tree was confined to the rich bottom lands of Arkansas, Oklahoma, and Texas, but was extensively planted as a hedge by the early settlers of Nebraska. Under most favorable conditions it may reach a height of 50 or 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.

Fruits - 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.



Osage Orange - *Maclura pomifera*

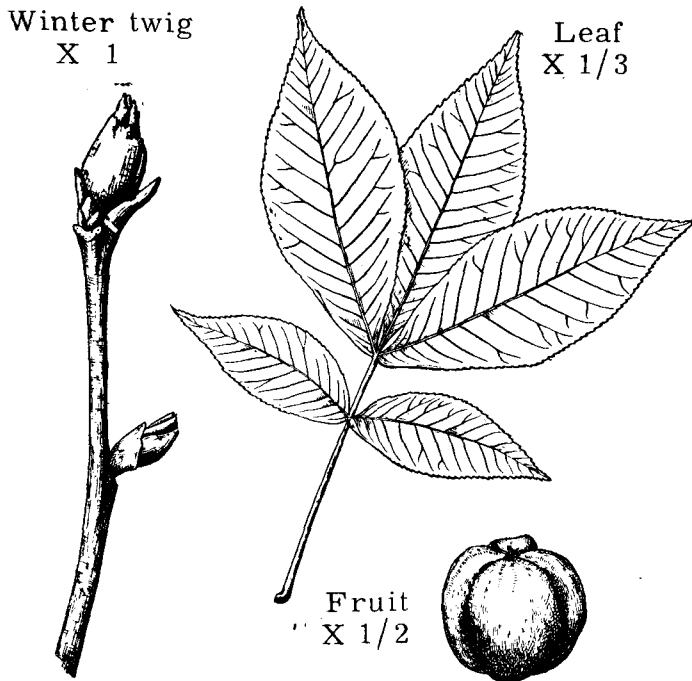
Shellbark Hickory or Shagbark

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.

Fruits - Nearly spherical, 4 rigid nuts variable in size, surrounded by thick, 4-valved, light brown husks. Nuts 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.



Shellbark Hickory - *Carya ovata*

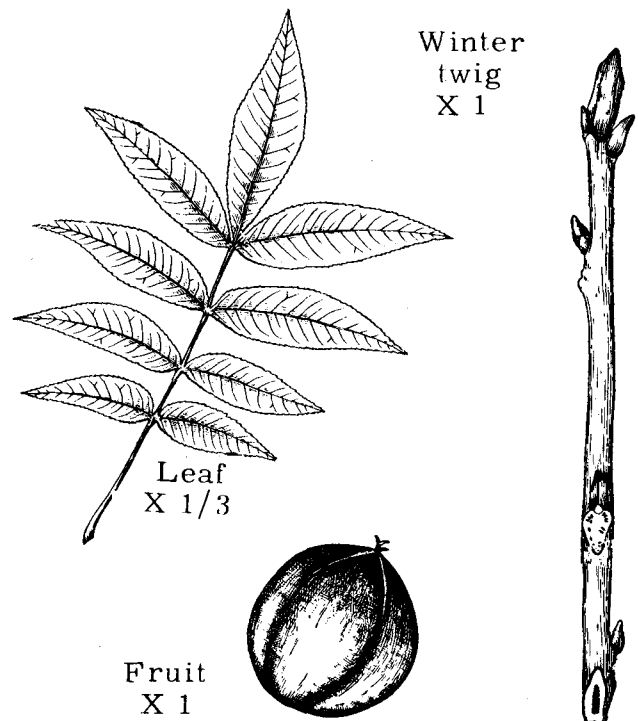
Bitternut Hickory

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.

Fruits - 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.

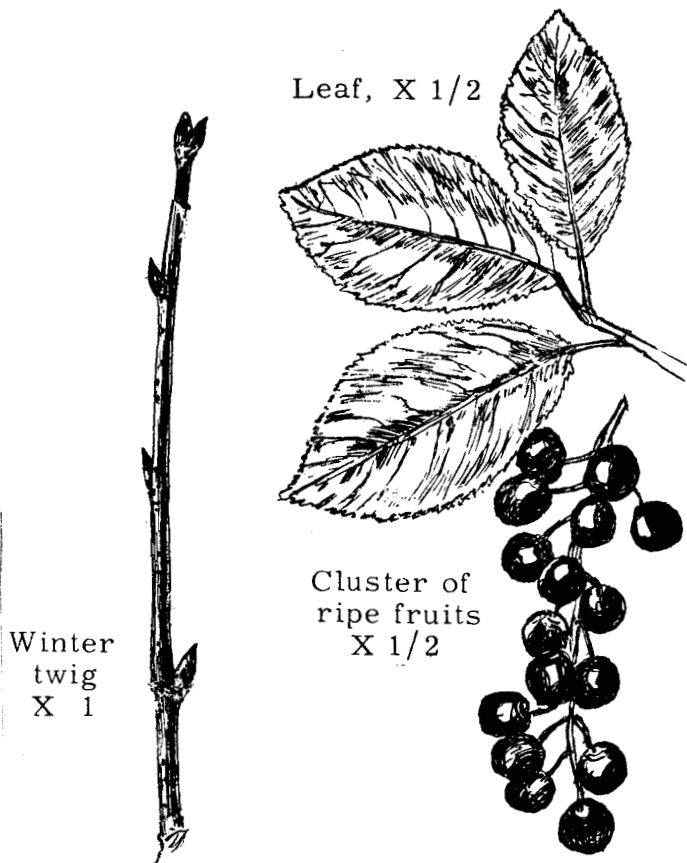
Buds - Rather large, narrow, conical, smooth, pale brown and sharply pointed.

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

Fruits - 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.



Chokecherry - *Prunus melanocarpa*

Wild Black Cherry

This is a member of the plum family, but is 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.

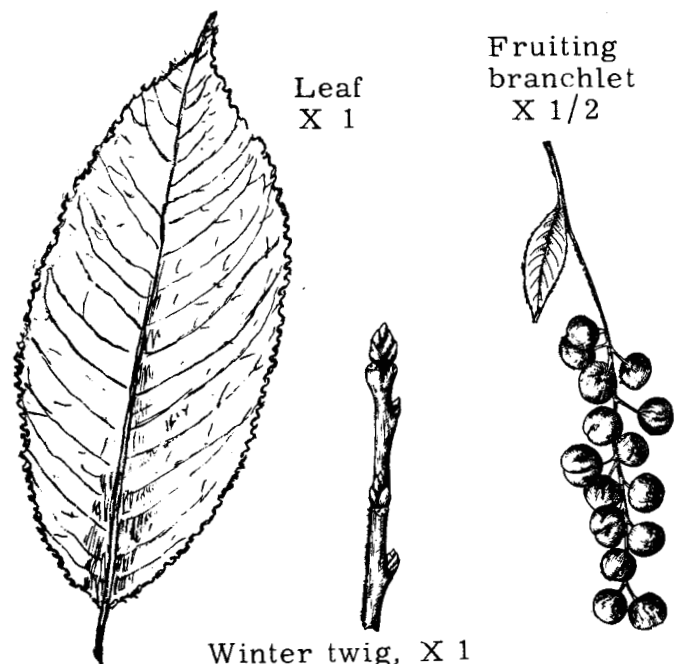
Leaves - About 3 inches long and half as broad, dark green and shiny above, paler beneath, and smooth on both sides.

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 chokecherry 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.



Wild Black Cherry - *Prunus serotina*

Wahoo or Burning Bush

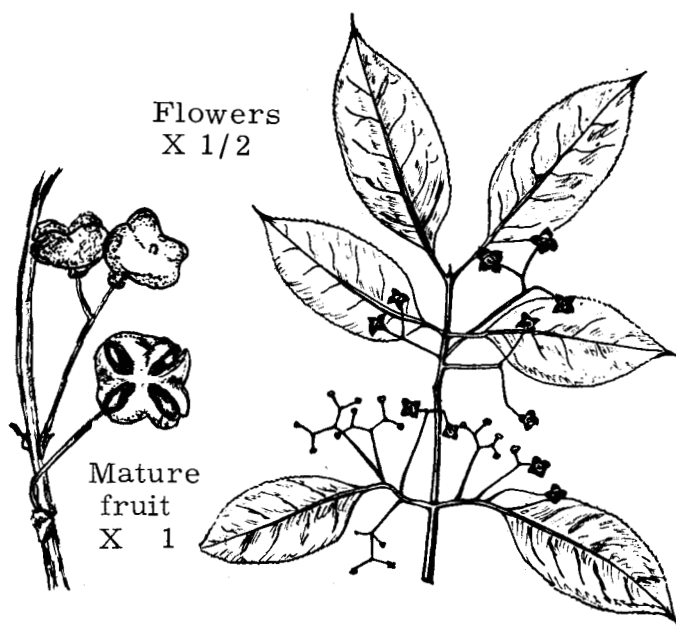
Low tree or tall shrub, rather common in woodlands and along streams particularly in southeastern Nebraska.

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 the 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

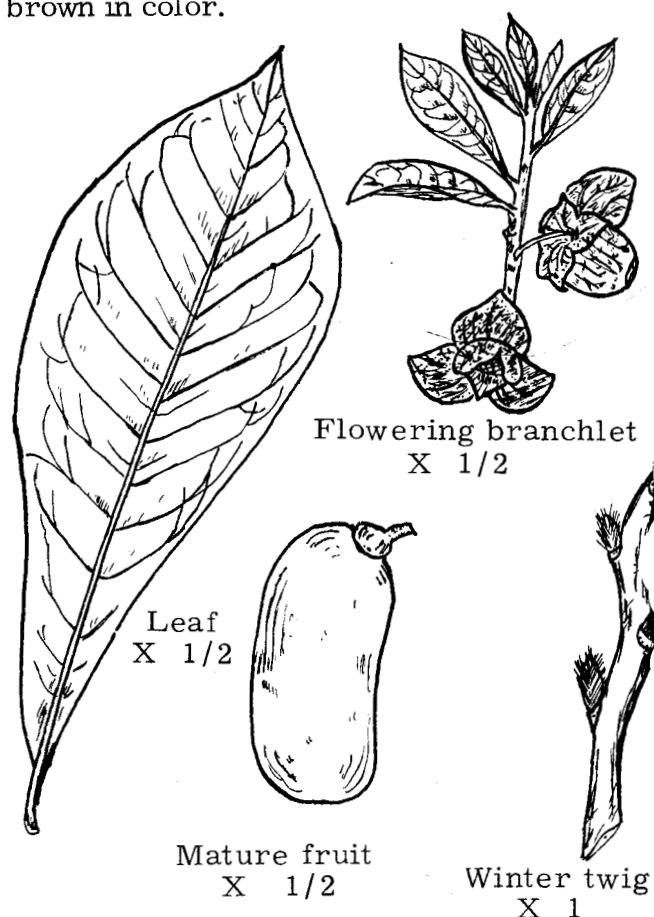
A low, slender tree or tall-growing shrub occurring in southeast Nebraska. Commonly growing in thickets in river or creek bottoms.

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.

Fruits - 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.



Pawpaw - *Asimina triloba*