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TREES NATIVE TO MONTANA

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Native Trees of Montana

JOHN DRUMMOND, Extension Forester

One fifth of Montana's total land area of 93,000⁰⁰⁰ acres is covered with trees. Montana's trees are of interest to all of us. Everyone enjoys their beauty on the landscape and their cooling shade on a hot summer day.

Trees furnish lumber for houses, pulp for paper, poles for telephones and electric lines and wood for many other products. The Christmas tree areas of northwestern Montana furnish Christmas trees for 3,000,000 homes each year.

But trees are also important in many other ways. By holding back the moisture in the mountains, trees avert floods, conserve water and provide a steady flow for summer irrigation. When planted around the homes, trees not only provide beauty but also protection from cold winds of winter and the hot drying winds of summer.

To know trees is to appreciate them. Almost everyone knows a few trees by name. This booklet, though not complete, includes most of the species commonly seen. It should help interested people become acquainted with the native trees of Montana. This should lead to a desire to perpetuate their beauty and usefulness.

The first section of the booklet gives the description of the softwood or evergreen species. The second section gives hardwood or broadleaf trees.

It is hoped that this booklet will be used by young and old and will help develop a sincere appreciation for one of Montana's most important resources.

Most of the photographs of leaves were made over squares. These are all one-inch squares to make it easier to visualize the size.

How to Use Keys for Identifying Trees

Keys are for identifying unknown trees. They give brief descriptions of each kind and include outstanding distinguishing characteristics. Two choices are always presented; either a characteristic is or is not present and these are the only choices possible for the trees included. The key can be followed through until the unknown tree is identified.

To gain an understanding of what keys are, how they are made, and how they are used, let us take an example. Suppose you wish to describe five of your friends, so that another person meeting any one of the five will know him on sight. Bill has black hair and is tall. Jim also has black hair but is short. Pete resembles Jim in these respects but Pete has blue eyes while Jim's are brown. Two other of your five friends have blond hair; but one, Henry, is fat while the other, Jack, is thin. For simplicity these descriptions can be organized in key form as follows:

I. Black Hair

Tall	Bill
Short	
Brown eyes	Jim
Blue eyes	Pete

II. Blond Hair

Fat	Henry
Thin	Jack

Tree keys are made up in much the same manner.

INDEX

(See page 47 for index of all trees and shrubs)

How to Use Keys.....	4
Key to Conifers.....	5-7
Conifers	8-24
Key to Broadleaf Trees.....	24-27
Broadleaf Trees	28-45
Less Common Trees	46-47

CONIFERS

Plants with seeds borne on cone scales without a covering around the seed. Leaves are usually evergreen and needle- or scale-like. Exceptions appear in the junipers and yews, which have berry-like cones, and in the larches with their needle-like leaves that fall each winter.

Key to the Conifer Trees

(This key makes use of letters to designate the sets of contrasting characters. Always choose between sets bearing the same letter, for example a and a. If the tree name is not given after the choice you make, you must indent to the next set as indicated by the paired letters.)

a. Leaves mostly scale-like, often overlapping, about $\frac{1}{4}$ in. long or less - b

b. Seeds in woody scaled cones: young branches flattened.



Western Redcedar

b. Seeds in berry-like cones; branches not flattened.



Rocky Mountain Juniper

a. Leaves needle-like, $\frac{1}{2}$ in. or longer - c



c. Leaves in bundles or clusters of 2 to many - d

d. Leaves in clusters of 10 or more on short spur branches



Twigs densely hairy; leaves 4-angled; near timberline.

Alpine Larch

Twigs sparsely or not at all hairy; leaves 3-angled; lower elevations.

Western Larch

d. Leaves in bundles of 2 to 5 - e

e. Leaves in bundles of 2 or 3 - f



f. Leaves 3-8 in. long; cones 3 in. or longer.

Ponderosa Pine

f. Leaves less than 3 in. long; cones 2 in. or less.

Lodgepole Pine

e. Leaves in bundles of 5 - g



g. Cones cylindrical, 4-10 in. long; cone scales thin; western Montana.



Western White Pine

g. Cones top- or egg-shaped, less than 6 in. long; cone scales thick - h



h. Cones 2-3 in. long, purple when young, remain closed when mature, disintegrate on ground so old cones are not usually present under trees; near timberline.

Whitebark Pine

h. Cones 3-4 in. long, greenish when young, open when mature, sticky with resin and do not disintegrate quickly; medium altitude.

Limber Pine

c. Leaves single, not grouped in bundles or clusters - i



i. Leaves 4-sided, can be rolled between fingers - j

j. Cone scales angular and with fine-toothed margins.



Engelman Spruce

- j. Cone scales rounded and smooth-edged.



White Spruce

- i. Leaves flat or nearly so - k

- k. Leaves not narrowed at base; cones pointed upward on tree; cone scales falling individually - l



- l. Cone scales as long as broad (scales usually can be found at base of tree); leaves usually not appearing in rows.



Alpine Fir

- l. Cone scales broader than long; leaves usually appearing to be on 2 sides of stem.



Grand Fir

- k. Leaves narrowed at base into a short stalk or raised from stem on a short stalk; cones hanging downward or cones berry-like, the entire cone or berry falling when mature



- m. Seeds in berry-like cones



Pacific Yew

- m. Seeds in woody or papery cones - n

- n. Cones with prominent 3-pointed bracts extending beyond the scales



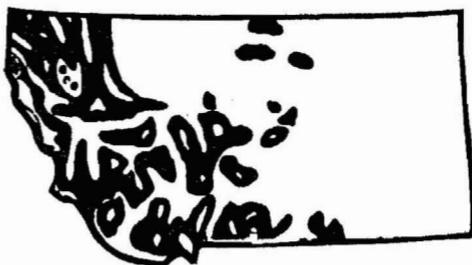
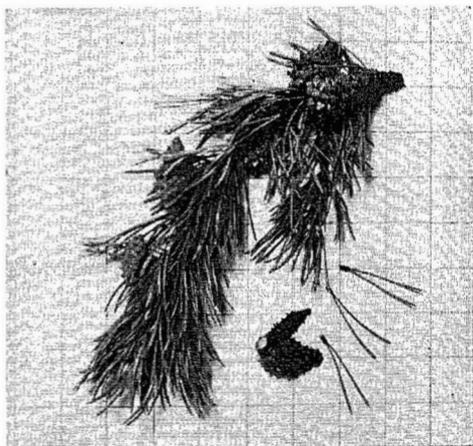
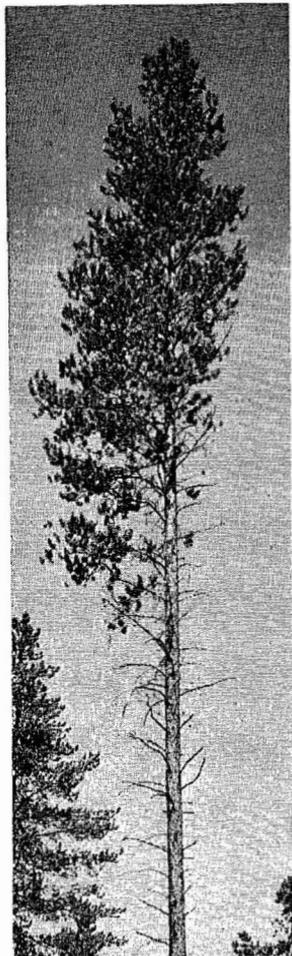
Douglas Fir

- n. Cones without such bracts - o



- o. Cones 1 in. long or less; leaves flat or grooved on upper side **Western Hemlock**

- o. Cones 1-2 1/2 in. long; leaves rounded or ridged above **Mountain Hemlock**



LOGGEPOLE PINE

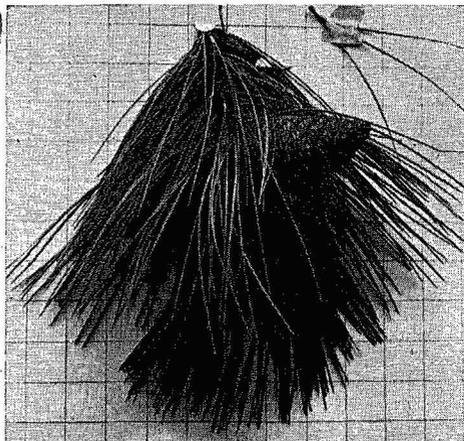
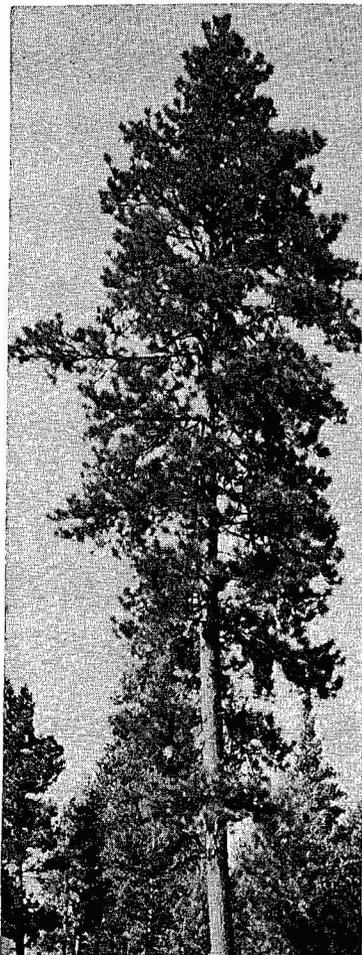
(*Pinus contorta*)

Lodgepole pine is a tall, slender tree, 30 to 100 feet high and 1 to 2½ feet in diameter. It grows fast and often forms dense stands. The young trees do not grow in the shade under other trees, but after a fire they come in much thicker than they can grow and there is a natural thinning of the stand. The common name of this tree is derived from the early use made of it by the Indians and pioneer white settlers of the northwest.

Needles: 1-3" long, 2 in each bundle.

Cones: 1-1½" long, appear lopsided, armed with sharp spines. Cones may open at maturity, but often remain closed for many years. Heat of a fire will usually cause the cones to open and the area to be reseeded.

Bark: About ⅔" thick, orange-brown to gray, flaky.



PONDEROSA PINE

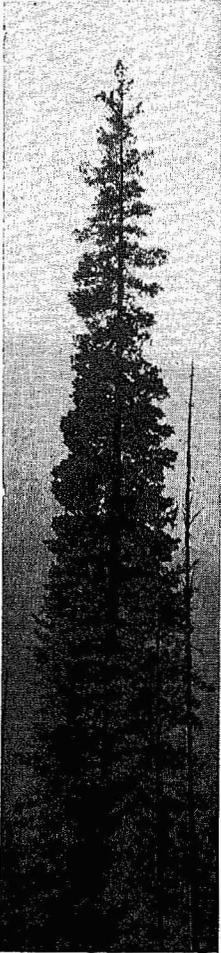
(*Pinus ponderosa*)

Ponderosa pine is the state tree of Montana. It is a very important tree for lumber. It grows from 50 to 180 feet tall. The young trees are often called "black jack" or "bull pine", and the older trees are often called "yellow pine".

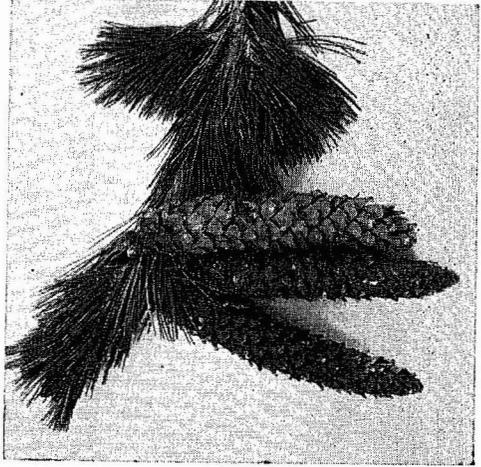
Needles: 2 or 3 needles in each bundle, usually 3-6 inches long. Commonly in tufts at the end of the branches.

Cones: 3-6" long, shaped like a top; bright green, becoming reddish brown as cones get older, armed with small spines.

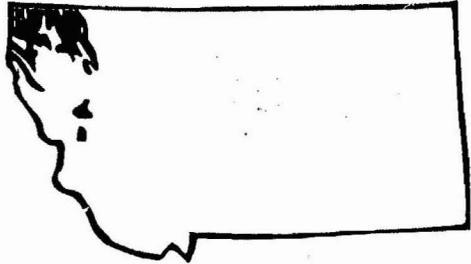
Bark: Dark on small trees. Yellow brown to cinnamon red and broken into large flat plates on older trees.



(Courtesy U. S. Forest Service)



(Courtesy U. S. Forest Service)



WESTERN WHITE PINE

(*Pinus monticola*)

This tree is very important because its wood is soft, light in weight, and easily worked. It is a tall, very straight tree 75 to 200 feet in height. Its lumber is used for mill work and matches. The blister rust disease is a very serious enemy.

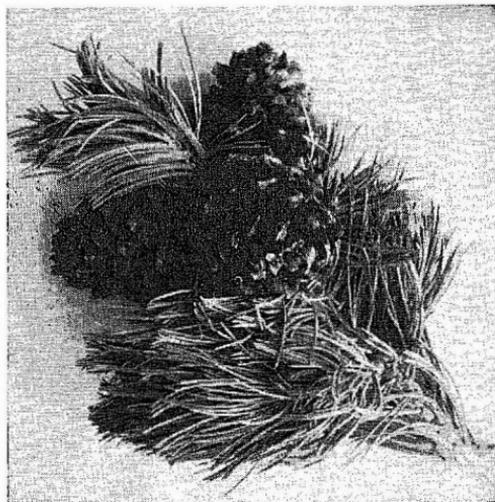
Needles: 2-4" long, in clusters of 5, flexible, bluish green.

Cones: 5-10" long, green before opening and light brown when ripe, scales thin. Found principally at the tops of the trees.

Bark: Thin, smooth, and light gray on young trees. In dark gray square or rectangular plates on older trees.



(Courtesy U. S. Forest Service)



(Courtesy U. S. Forest Service)

**WHITEBARK PINE**

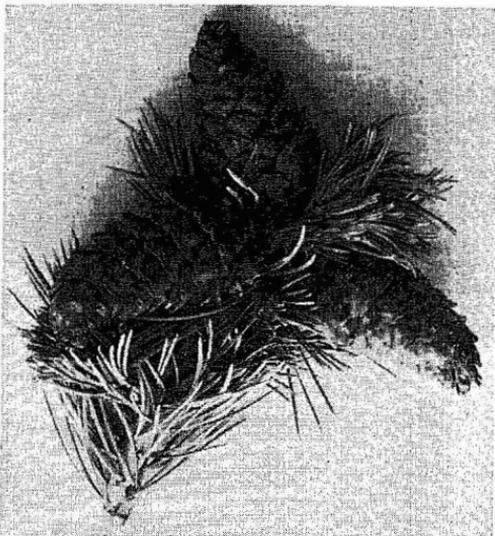
(Pinus albicaulis)

Both white bark pine and limber pine are usually short and twisted. Adapted to a wide variety of sites but usually found on rocky soils and exposed sites at high elevations. It is of little commercial value.

Needles: $1\frac{1}{2}$ - $2\frac{1}{2}$ " long, 5 in each bundle. Grow in clusters at the end of the branches.

Cones: 2-3" long, almost round, chocolate brown or purple. Seeds large, $\frac{1}{3}$ to $\frac{1}{2}$ " long without wings.

Bark: Thin, scaly, light gray.



(Courtesy U. S. Forest Service)



LIMBER PINE

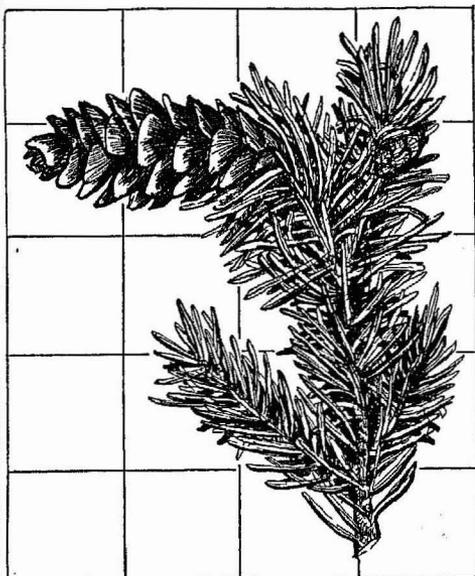
(*Pinus flexilis*)

Like Whitebark pine, limber pine is usually a twisted and stunted tree, from 30-50 feet in height. It is of little commercial value. Adapted to a wide variety of sites, but usually found on summits, ridge tops and rocky foothills.

Needles: $1\frac{1}{2}$ -3" long, in clusters of 5, dense clusters at the ends of the branches.

Cones: 3-6" long, green when young, turning pale, greenish brown when the tree matures. Seeds large, $\frac{1}{3}$ - $\frac{1}{2}$ " long without wings. Good to eat.

Bark: Thin, smooth, light gray on younger trees, dark brown and plated on older trees.



ALPINE LARCH
(*Larix lyallii*)

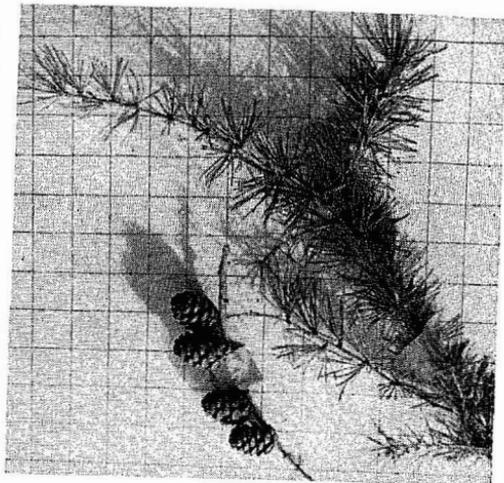
(Courtesy U. S. Forest Service)

This is a small tree 25 to 50 feet tall that grows only at very high elevations near the limits of tree growth. It is not important as a commercial tree. Like all larches it drops its needles in the fall of the year.

Needles: 1-1½" long in clusters of 30 to 40 or more. Sharp pointed, pale blue green, turning yellow late in the autumn.

Cones: 1½-2" long, egg-shaped, red-purple in color; cone scales broader than long, fringed at the margin and covered with fine matted hair on the lower surface. Purple seed wings stick out from among the cone scales.

Bark: Thin, ash gray on young trees; purplish or reddish brown with loose scales on older trees.



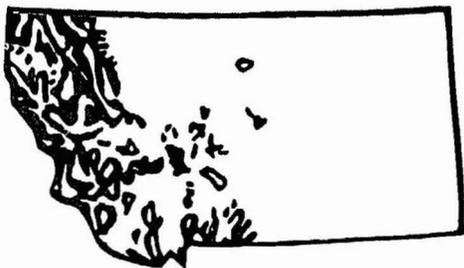
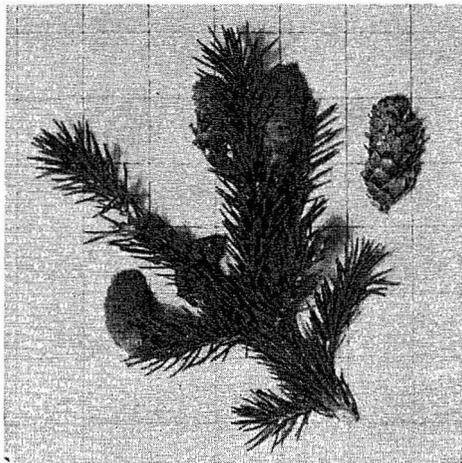
WESTERN LARCH
(*Larix occidentalis*)

Western larch is a large forest tree 100 to 200 feet in height. It has a straight trunk with a very open crown. It loses its needles in the winter, and in this way the larches are different than the rest of the cone-bearing trees. Western larch is used for poles, lumber, ties. It is intolerant (will not grow in the shade).

Needles: 1-1 $\frac{3}{4}$ " long, in clusters of 14 to 30, triangular, sharp pointed, but soft to touch. Light pale green in color turning yellow before falling in the early autumn.

Cones: 1-1 $\frac{1}{2}$ " long, oblong, purple-red to red-brown, with numerous thin, stiff scales. Seeds: $\frac{1}{4}$ " long with thin fragile wing $\frac{1}{2}$ " long.

Bark: Thin, dark colored and scaly on young trees; up to 4-6" thick, broken into plates, and red brown to cinnamon brown on older trees.

**ENGELMANN SPRUCE**

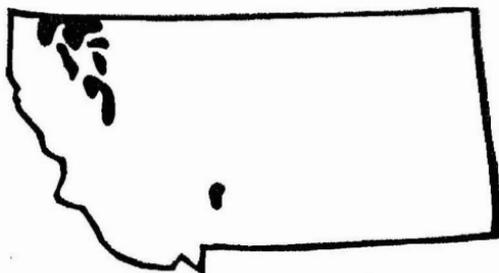
(*Picea engelmanni*)

Engelmann spruce is commonly found in cool mountain canyons along streams and lakesides. At high elevations it is found in nearly pure stands. This spruce has a straight trunk with spreading and drooping branches in regular whorls forming a narrow spire. Its wood is white and soft.

Needles: 1-1 $\frac{1}{8}$ " long, single, sharp pointed, bluish green to silvery white in color.

Cones: 1 $\frac{1}{2}$ -2 $\frac{1}{2}$ " long, oblong, with papery soft scales.

Bark: Thin, scaly, cinnamon red to purple brown in color.



WHITE SPRUCE

(*Picea glauca*)

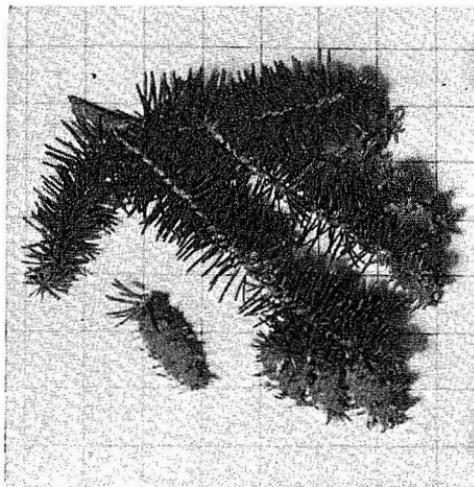
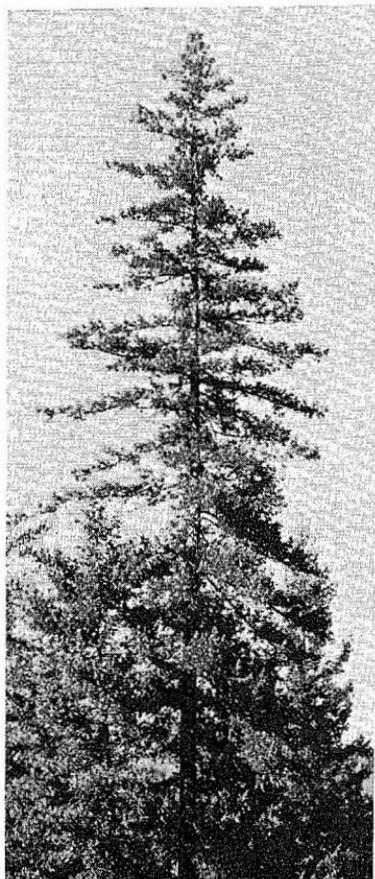
(Courtesy U. S. Forest Service)

This tree grows over a large area in Canada and Alaska, and is found occasionally in Montana. Like Englemann spruce it prefers damp woods and banks of streams and lakes. Usually it is a rather small tree 60 to 70 feet high and is not used for commercial purposes.

Needles: $\frac{1}{8}$ - $\frac{3}{4}$ " long, with sharp rigid tips crowded on upper side of branch.

Cones: 1-2 $\frac{1}{2}$ " long, light green or reddish.

Bark: Thin, ash brown to silvery, separated into irregular thin plates.



DOUGLAS-FIR
(*Pseudotsuga taxifolia*)

Douglas-fir is really not a fir at all. Many things about it are different than the true firs, especially the cones. Although it is a large forest tree in other areas, it seldom gets taller than 130 feet in Montana. Douglas-fir is used extensively for Christmas trees in this state.

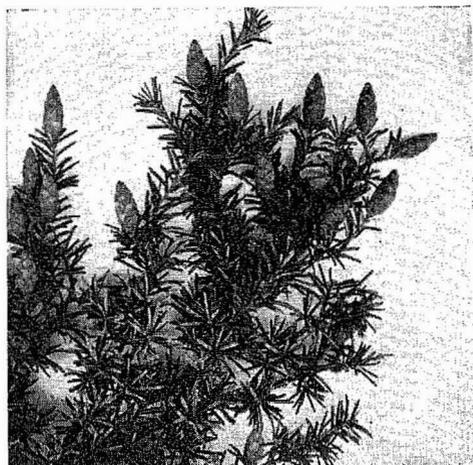
Needles: $\frac{3}{4}$ - $1\frac{1}{4}$ " long, single, flat, slightly grooved above and marked below with two light bands. Needles become narrow at base where they are attached to the branchlets; sharper at the end than the other firs but not so pointed as spruce.

Cones: 2-3" long, $\frac{3}{4}$ -1" in diameter, oblong, can be identified by the three-pointed wings or bracts that stick out beyond the cone scales. Cones differ from true firs because they hang downward and do not shatter when they mature.

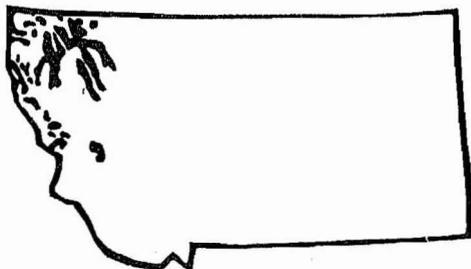
Bark: Smooth, gray brown with resin blisters on young trees, thick, deeply grooved cork-like gray to gray-brown on old trees.



(Courtesy U. S. Forest Service)



(Courtesy U. S. Forest Service)



WESTERN HEMLOCK

(*Tsuga heterophylla*)

Western hemlock is a large tree 125 to 175 feet high that is found only in humid areas where the soil is deep and moist. It has a very dense and drooping foliage which forms a pyramidal crown with a drooping terminal leader.

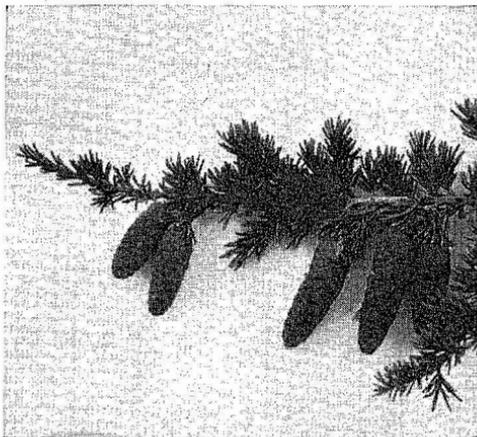
Needles: $\frac{1}{4}$ - $\frac{3}{4}$ " long, single, rounded at end, flat and grooved above. Dark shiny green on the upper surface; appear to grow mainly from the two opposite sides of the branchlets.

Cones: $\frac{3}{4}$ -1" long, oblong, hanging down; light brown in color.

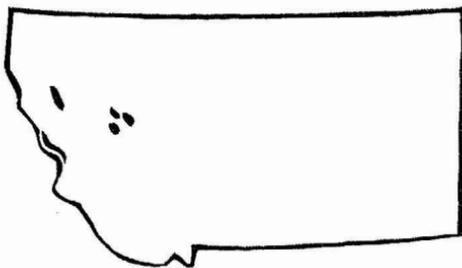
Bark: On old trees, 1-1 $\frac{1}{2}$ " thick, deeply divided into broad flat ridges; russet brown in color.



(Courtesy U. S. Forest Service)



(Courtesy U. S. Forest Service)



MOUNTAIN HEMLOCK

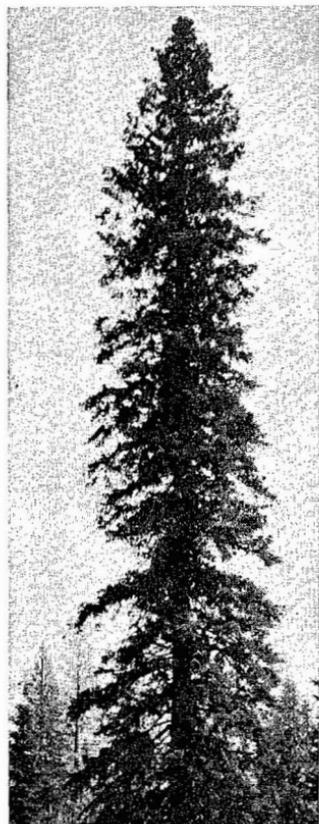
(*Tsuga mertensiana*)

Mountain hemlock is usually found at higher elevations near the timber line. Although it may be a taller tree on better sites, it is often a short, sprawling tree with drooping branches and tops. It has very little commercial value.

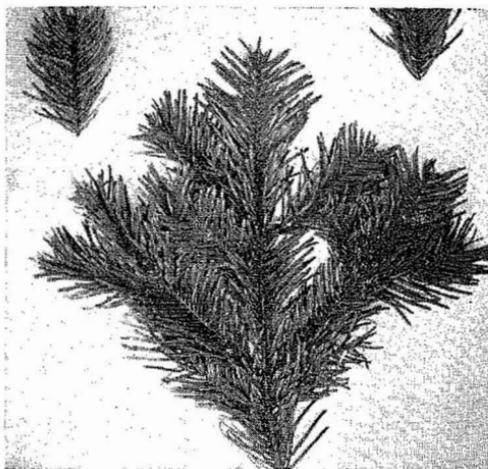
Needles: $\frac{1}{2}$ to 1" long, pale bluish-green, often grooved on upper surface, bluntly pointed, stand out from all sides of the branches.

Cones: 1 to 3" long, yellow-green to purple, oblong and narrowed toward the ends, mature in one season.

Bark: Thin (1 to $1\frac{1}{2}$ "), broken and rough on young trees; on old trunks hard, purplish to red-brown.



(Courtesy U. S. Forest Service)



(Courtesy U. S. Forest Service)



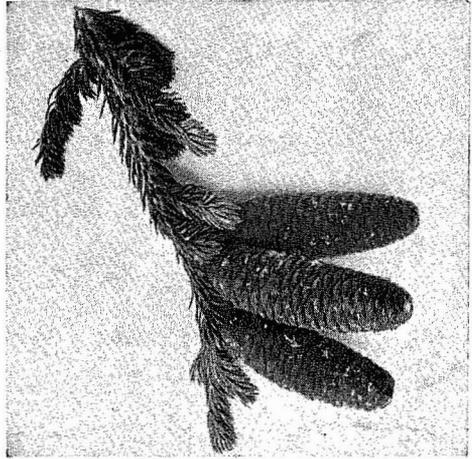
(GRAND FIR)
(*Abies grandis*)

Grand fir, sometimes called lowland white fir, is one of the two true native firs found in Montana. Sometimes it is difficult to tell it from alpine fir but it usually grows at lower elevations and often has a wider crown with broad spreading lower limbs. It grows in damp sites, seldom getting more than 120 feet in height and 3 feet in diameter in Montana. The wood of this tree has a disagreeable odor.

Needles: $\frac{1}{2}$ -2" long, blunt, single, notched at ends, dark green and lustrous on upper surface, silvery white below, straight, flexible, stand out distinctly from two opposite sides of the branches or grow nearly erect.

Cones: 2-4" long, cylindrical, bright green, growing upward. Mature in one season. Cone scales shatter in the fall.

Bark: Thin, smooth, gray brown with resin blisters, white blotches on young stems, but 2-3" thick, red brown, hard and rough on older trees.



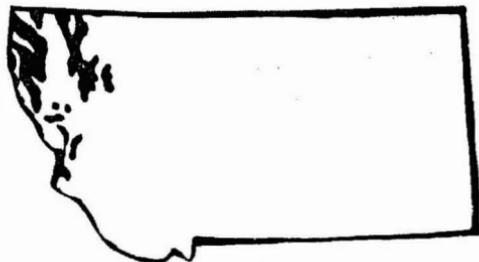
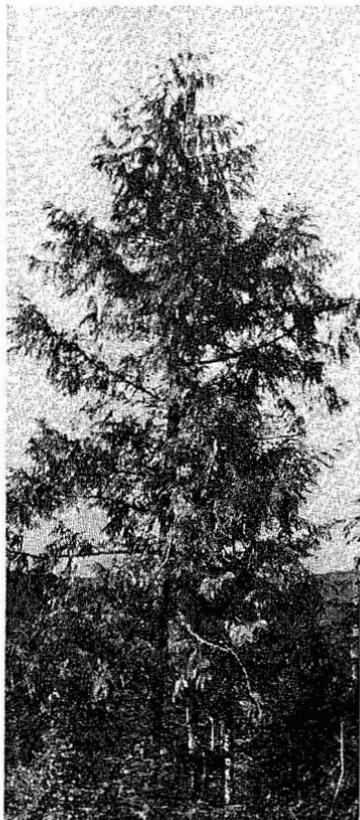
ALPINE FIR
(*Abies lasiocarpa*)

A tree reaching a height of 80 feet and 2 feet in diameter, but becomes much smaller at high elevations and is often a prostrate shrub at timberline. A long, dense, narrow pyramidal, spire-like crown, with short, thick branches is usually characteristic. It grows in shaded places where many other trees will not live, and although commonly found at high elevations, it extends downward in cool narrow canyons and north slopes.

Needles: $1/2$ - $1\frac{1}{2}$ " long, flat, crowded on the branches and often nearly erect by a twist at the leaf base; blue-green in color.

Cones: 2-4" long, cylindrical, purplish; cone scales mostly longer than broad, shatter individually leaving only the cone axis on the tree.

Bark: Thin, gray, smooth except for numerous resin blisters on young trees; becoming $1-1\frac{1}{2}$ " thick, gray to cinnamon red on older trunks.



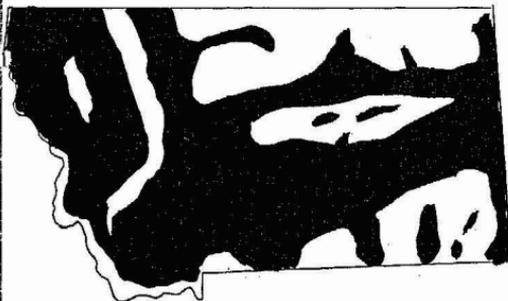
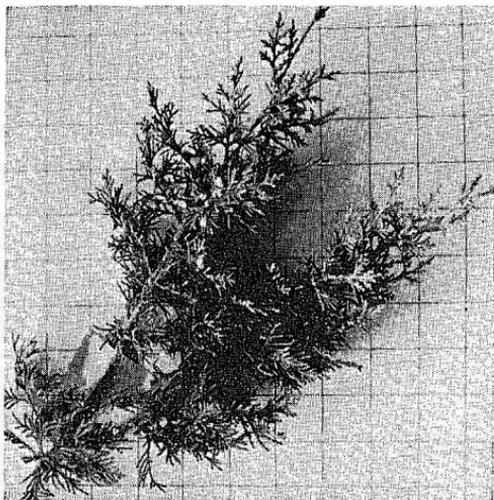
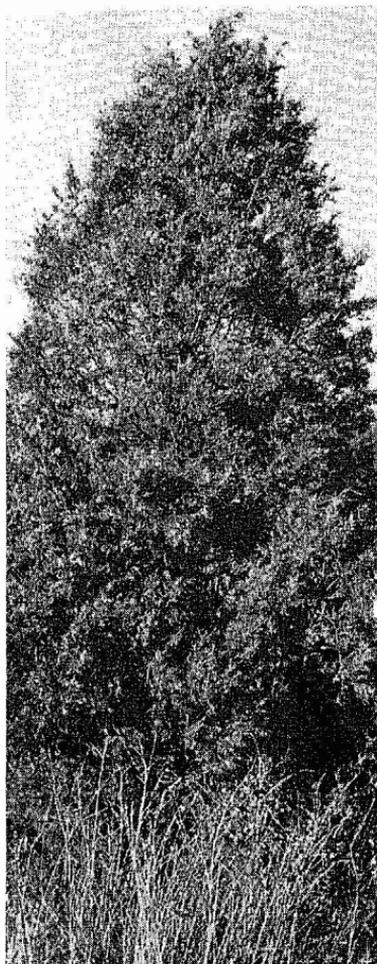
WESTERN REDCEDAR
(*Thuja plicata*)

Western redcedar, also called giant arborvitae, is a large tree which grows to about 150 feet in height and 6 feet in diameter in Montana. It has a cone-shaped form with horizontal or drooping branches. This tree is tolerant of shade and reproduction is usually plentiful in favorable sites; the growth is rapid and trees over 1,000 years have been reported.

Leaves: Scale-like, $\frac{1}{8}$ - $\frac{1}{4}$ ", overlapping; branches in form of flat sprays.

Cones: Leathery or somewhat woody, $\frac{1}{2}$ " long, composed of 8-12 thin, spine-tipped scales. c

Bark: Thin, $\frac{1}{2}$ -1", stringy, fibrous, with narrow ridges; cinnamon-red to gray-brown on old trunks.



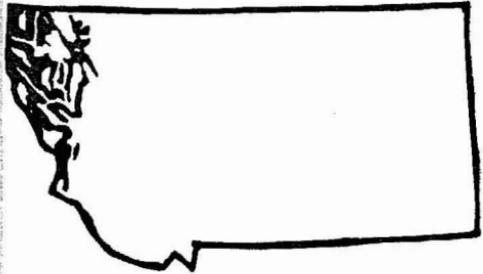
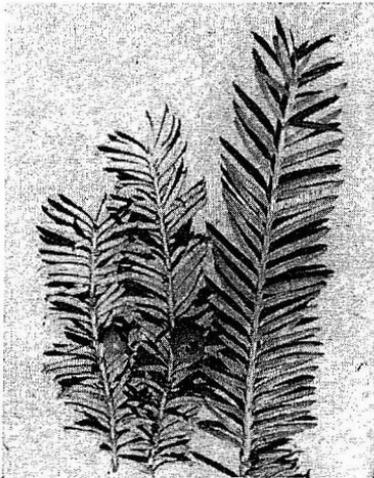
ROCKY MOUNTAIN JUNIPER
(*Juniperus scopulorum*)

This tree varies from a bushy shrub to a tree 50 feet high and 3 feet in diameter. The trunk is short and stout, often dividing near the ground and the crown is typically dense, the branches spreading or upright, but in protected sites the branches may become long, slender, and drooping. Trees are often infected by a rust fungus which forms hard galls $\frac{1}{2}$ -1" in diameter.

Leaves: Scale-like, about $\frac{1}{8}$ " long, pointed; ashy-green on some trees while green or yellow-green on others.

Fruit: Berry-like, 1-2-seeded, blue-green or green, about $\frac{1}{4}$ " diameter. This berry-like structure is truly a fleshy, few-seeded cone.

Bark: Thin, fibrous, stringy, red-brown or gray-brown in color.



PACIFIC YEW
(*Taxus brevifolia*)

A shrub or small tree rarely over 50 feet high in Montana. It grows in moist soil and withstands shade better than other forest trees in the northwest. Illness and deaths among cattle have been attributed to eating the foliage of this plant in large quantities.

Leaves: $\frac{1}{2}$ -1" long, single, flat, pointed, green above and paler beneath, taper at base into a short petiole.

Fruit: Single seed with a hard, bony shell, surrounded by fleshy tissue that becomes scarlet when mature. This fruit-like structure is a modification of a cone and is not similar to the fruits of the flowering plants.

Bark: Very thin, $\frac{1}{4}$ ", scaly, dark red-purple in color.

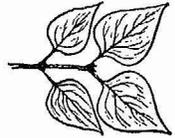
BROADLEAF TREES

These are true flowering plants, although in many trees the flowers are not showy. In some, particularly the alders, the flowers are borne in cone-like structures that superficially resemble the conifers.

Key to Broadleaf Trees

(This key makes use of letters to designate the sets of contrasting characters. Always choose between sets bearing the same letter, for example **a** and **a**. If the tree name is not given after the choice you make, you must indent to the next set of characteristics as is indicated by the letter at the end of the line.

a. Leaves two at a level (opposite) - b



b. Leaf blade of 1 part (simple) - c

c. Leaf margin sharply toothed; small tree or shrub



Rocky Mountain Maple

c. Leaf margin not toothed or with blunt teeth

Bigtooth Maple

b. Leaf with several leaflets (compound) - d

d. Leaflets 3 or 5, margins with few large teeth; 1-2 year twigs green



Boxelder

d. Leaflets 5 or 7, margins smooth or finely toothed; twigs gray

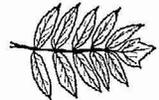


Green Ash

a. Leaves one at a level (alternate) - e



e. Leaf with several leaflets (compound)



Sitka Mountain Ash

e. Leaf undivided (simple) - f



f. Leaf edges rolled under, lower surface covered with woolly hairs



Curleaf Mountain Mahogany

f. Leaf edges flat, lower surface not woolly - g

g. Stem spiny - h

- h. Spines smooth and shiny, on sides of stems



Black Hawthorn

- h. Spines rough, at tip of stems (really pointed dwarf branches)



American Plum

g. Stems not spiny - i

- i. Leaf-stem (petiole) flattened - j



- j. Buds not sticky on crushing

Quaking Aspen

- j. Buds sticky with resin

Plains Cottonwood

- i. Leaf-stem cylindrical or channelled - k



- k. Buds sticky with resin when crushed - l

- l. Leaf blades whitish or gray beneath, sharply contrasted with upper green surface

Black Cottonwood

- l. Leaf blades light green beneath, the two surfaces not sharply contrasted

Narrowleaf Cottonwood

- k. Buds not sticky on crushing - m

- m. Bark on trunk white, twigs brown

Paper Birch

- m. Bark whitish—green to black - n

- n. Bud scales 1, forming a cap over bud



Willow

- n. Bud scales 2 or more - o



- o. Leaf base unequal, one half larger; bark on trunk ridged showing prominent alternations tan and brown layers



American Elm

- o. Leaf base equal, the two halves similar; bark tight or if ridged then without prominent layers - p

- p. Buds raised on short stalks, usually some

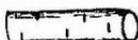


old cone-like structures from previous season on tree; bud scales 2

Thinleaf Alder

- p. Buds not stalked; bud scales more than 2 - q

- q. Bark on 5-10 year old stems with



corky spots (lenticles) that are crosswise on stem; 1 year twigs often blister - roughened; fruit not fleshy

Water Birch

- q. Bark has small, oval



to circular lenticles or none; twigs not roughened by blisters; fruit fleshy plum or cherry-like

- r. Fruit $\frac{1}{2}$ in. or larger;



flowers and fruits in clusters of 2-5, their stems attached at one level

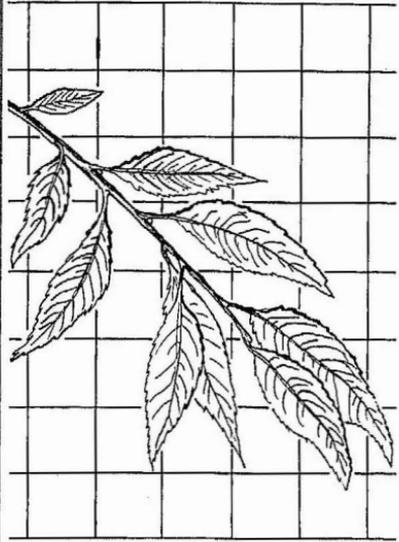
American Plum

- r. Fruit less than $\frac{1}{2}$ in. in diameter, more



than 5 attached along sides of a central axis.

Common Chokecherry



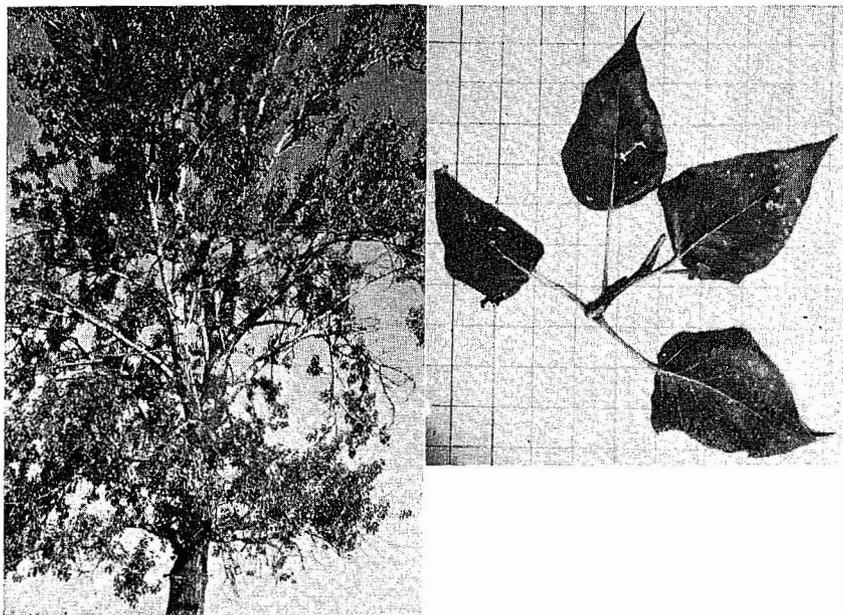
PEACHLEAF WILLOW
(*Salix amygdaloides*)

There are nearly 40 kinds of native willows in Montana, but most of them do not reach tree size. Of the 10 species that may appear as a tree, the peachleaf willow is the most abundant and widespread and is one of the few that is characteristically a tree. It is usually 30 to 50 feet high and as much as 2 feet in diameter. The crown is rounded and has straight, ascending branches.

Leaves: 2-4" long and $\frac{3}{4}$ -1 $\frac{1}{2}$ " wide; long pointed; light green and lustrous above, pale and dull beneath.

Fruit: A conical capsule about $\frac{1}{4}$ " long. As is true of all willows, the fruits are borne on female trees while the pollen is produced on other trees considered as male trees.

Bark: Brown, $\frac{1}{2}$ -1 $\frac{3}{4}$ " thick, irregularly furrowed.



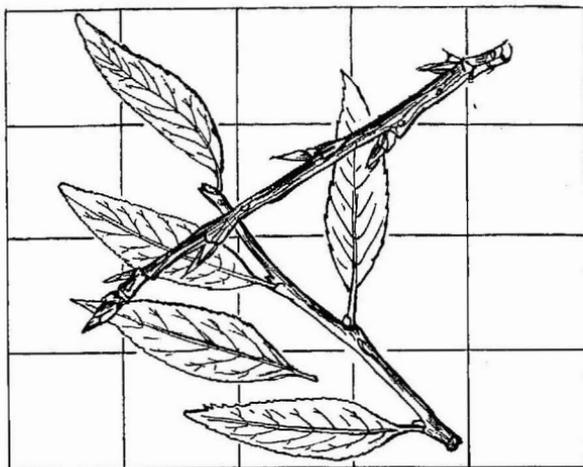
BLACK COTTONWOOD

(*Populus trichocarpa*)

Black cottonwood is the largest of the cottonwoods, growing to a height of 120 feet. Its trunk is commonly clean of branches up to one-half its height. Trees grown in open, have broad oval shaped crowns. It grows on moist soils along water courses.

Leaves: 4-6 inches long and 3-4 inches wide; broad, rounded at base; thick, leathery; deep shiny green on upper surface, very veiny and silvery white on lower surface.

Bark: Smooth and greenish on young stems; becoming pale gray and sharply furrowed, 1 to 2½" thick.



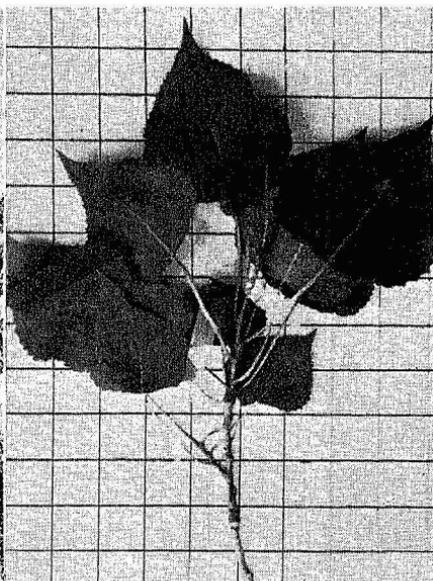
NARROWLEAF COTTONWOOD

(*Populus angustifolia*)

This is a medium size tree 50 to 70 feet high. Like the other cottonwoods it grows in moist places.

Leaves: 2-6" long and $\frac{3}{4}$ to $1\frac{1}{2}$ " wide; smooth and yellow green on the top and smooth and paler on the bottom; thin and firm in texture. Leaf stems are short, slender and slightly flattened on the upper side.

Bark: Smooth, unbroken and pale green on young trees; light gray brown and brown on older trees.

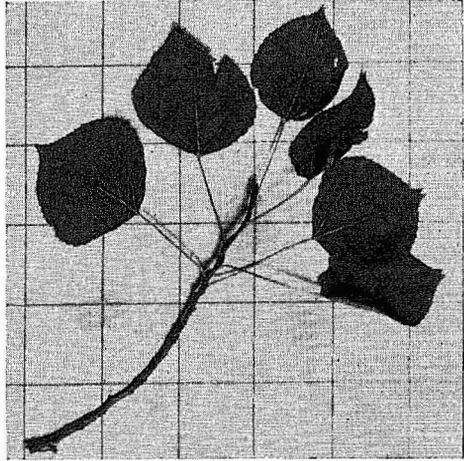
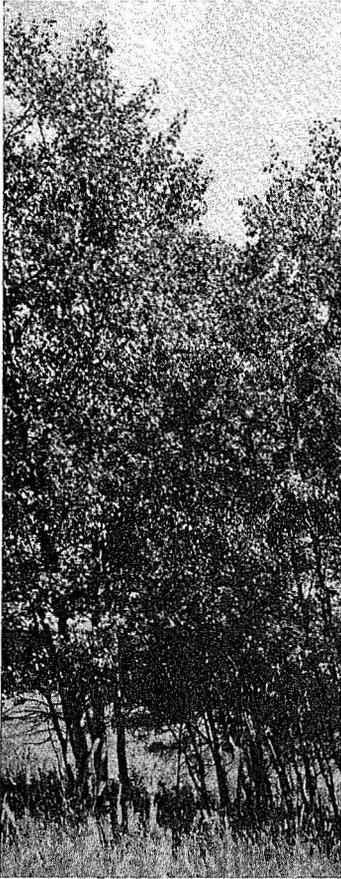
**PLAINS COTTONWOOD**

(*Populus sargentii*)

This is a large tree 60 to 90 feet high and often 6 to 7 feet in diameter. It has a broad open crown with stout, erect and spreading branches. Like all cottonwoods it grows only where there is an abundance of soil moisture.

Leaves: Broadly triangular, 3-6" long and usually slightly longer than broad. The leaf stem or petiole is flattened, slender and $2\frac{1}{2}$ - $3\frac{1}{2}$ " long. The leaf has a round toothed margin.

Bark: Gray and smooth on young trees, thick, ash-gray and furrowed on older trees.

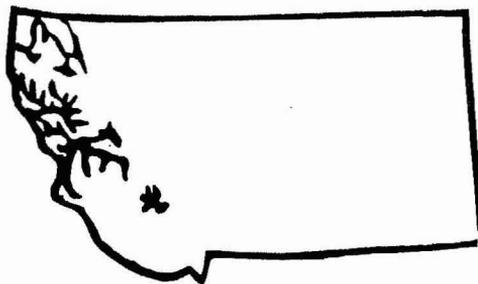
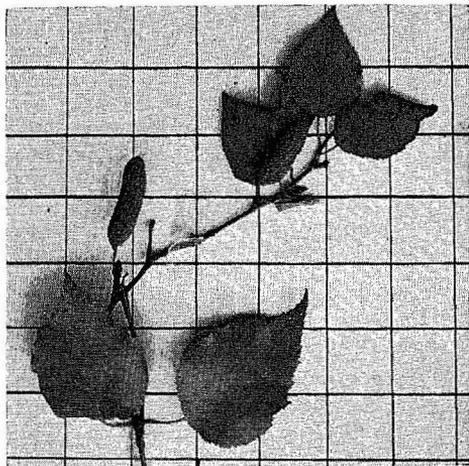


QUAKING ASPEN
(*Populus tremuloides*)

This tree is also called quaking aspen because its leaves tremble in the slightest breeze. It is usually found in higher elevations in moist places. In exposed places it is greatly stunted but on better sites it grows in pure tree stands and the trees have straight trunks clean of branches for 2/3 of their length. The wood is soft, light and will not withstand decay unless treated.

Leaves: Small and rounded, 1½-3" in diameter, fine tooth-like margin. Green and lustrous above, dull or pale below. Turn golden yellow in autumn.

Bark: Thin, gray white to cream colored, often marked by dark wart-like swellings. Becomes dark and furrowed near the base of old trees.

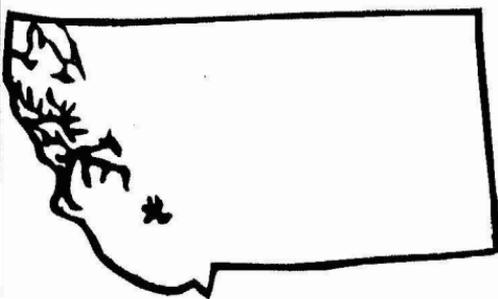
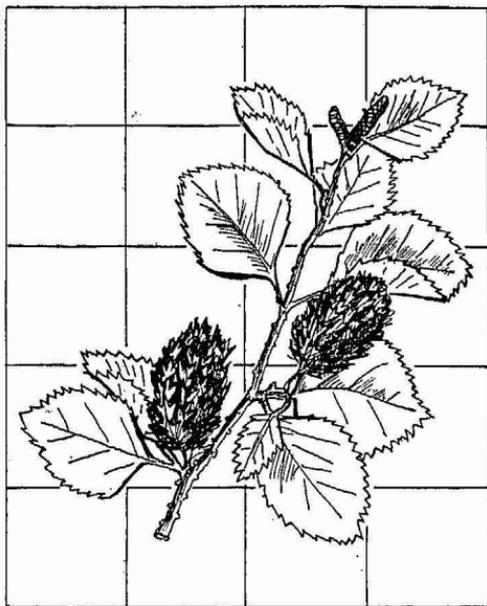
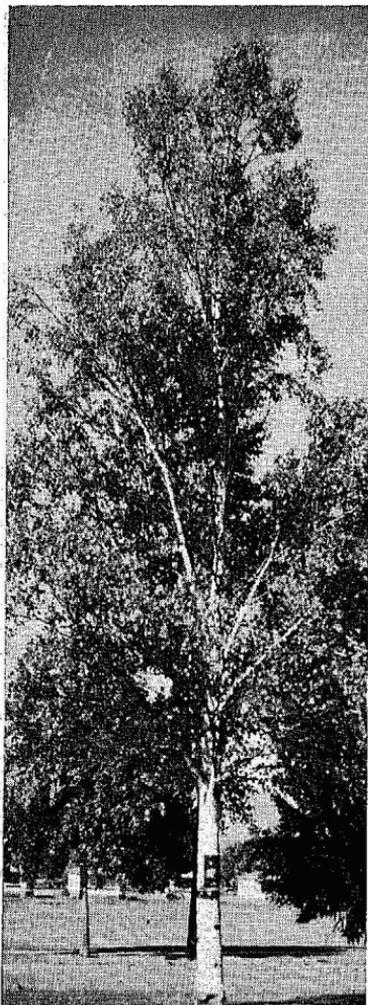


WATER BIRCH
(*Betula occidentalis*)

This is a shrub or small tree 20-25 feet high, sometimes called red birch, that grows along stream courses and on moist sites. It has a broad, open crown with graceful ascending branches. Frequently it is found in dense thickets.

Leaves: Egg shaped, margins evenly or doubly toothed, thin and firm, dark green above, pale yellow green below. Leaf stem rather thick and short, stout, $\frac{1}{3}$ - $\frac{1}{2}$ " long.

Bark: Thin, $\frac{1}{4}$ ", smooth, lustrous, dark bronze.

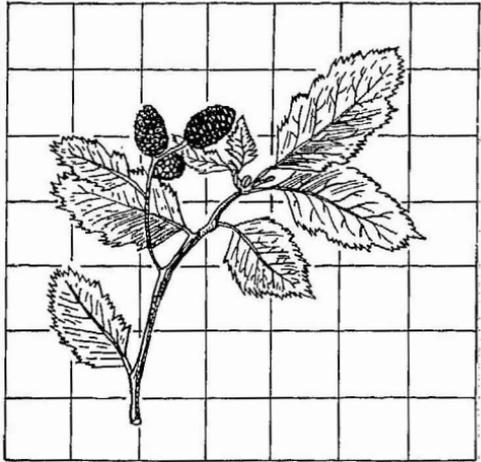
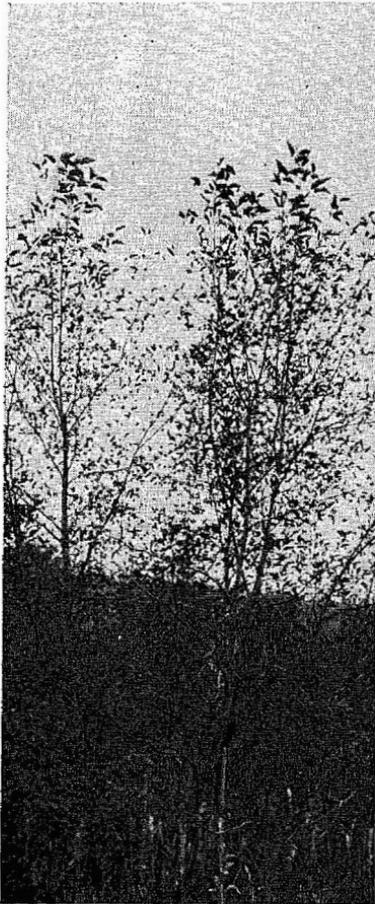


PAPER BIRCH
(*Betula papyrifera*)

Paper birch is a beautiful tree growing 60 to 80 feet high. The older trees have open crowns with hanging branches. It cannot stand shade but takes over extensive areas after fires. It was used by the Indians for canoes and baskets.

Leaves: Egg shaped, 2-5" long and 1-2" wide, usually rounded at the base, margins densely toothed, dull, dark green and shiny above, yellow-green below.

Bark: Cream-white; separating into thin, papery layers; marked by long, narrow swellings; inner bark orange.



THIN LEAF ALDER

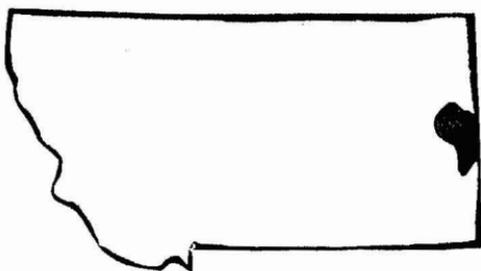
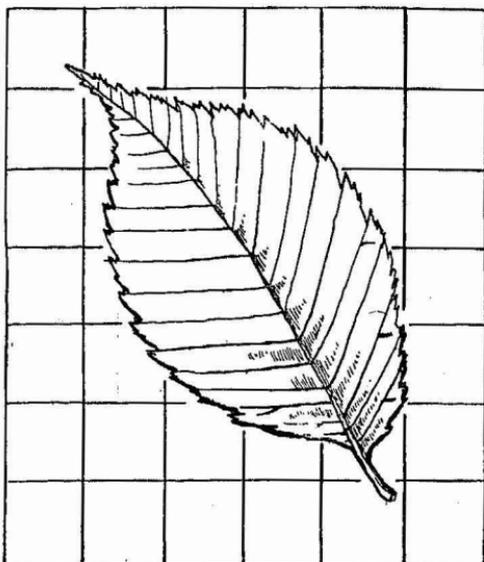
(*Alnus tenuifolia*)

Thin leaf alder is a shrub or small tree 30 feet high with an open crown and wide spreading and ascending branches. It grows on moist, well-drained sites such as the bank of mountain streams and canyons. Abundant water is necessary for its growth.

Leaves: $1\frac{1}{2}$ -4" long and $1-2\frac{1}{2}$ " wide, broadly egg-shaped, slightly hairy on the upper surface and wooly along the veins of the lower surface, borders with coarse teeth pointing upwards; deep grass-green on upper surface, light yellow-green below.

Bark: Thin, bright red brown, broken on surface into little scales on old trees.

Fruit: A cone-like structure nearly round to slightly oblong bears the seeds.



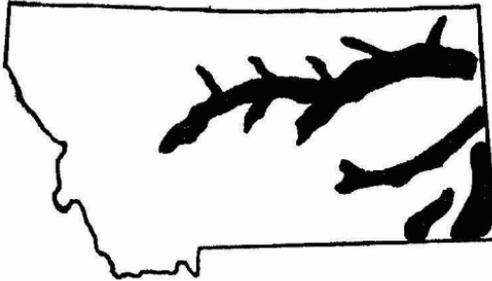
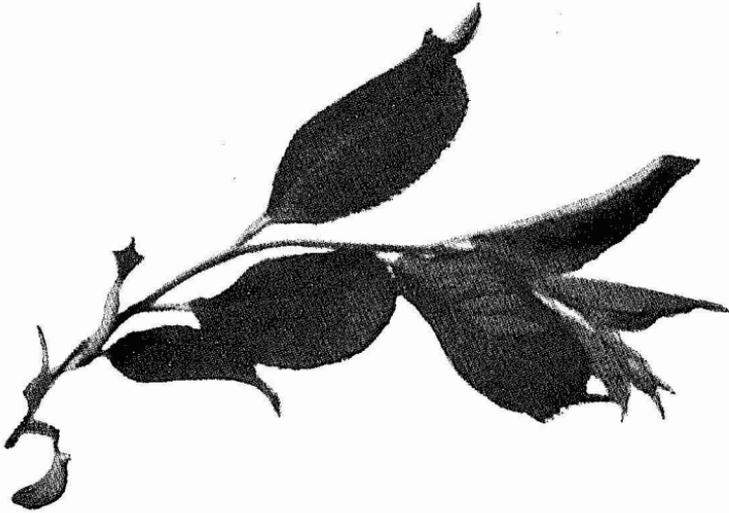
AMERICAN ELM
(*Ulmus americana*)

American elm is a large majestic tree in eastern United States but rather small in its limited occurrence in eastern Montana. The trunk is usually divided into several erect limbs forming a symmetrical vase-shaped crown. It is found only on moist land particularly along streams. Dutch Elm disease is a serious enemy.

Leaves: 3-6" long, 1-3" wide, unequal at the base, margins coarsely double-toothed, dark green and rough to touch above, pale and slightly hairy below, turns clear yellow in the autumn.

Bark: 1-1½" thick, ashy gray, divided by fissures into broad ridges.

Fruit: Winged, ½" long with the seed cavity encircled by a thin papery wing.



AMERICAN PLUM

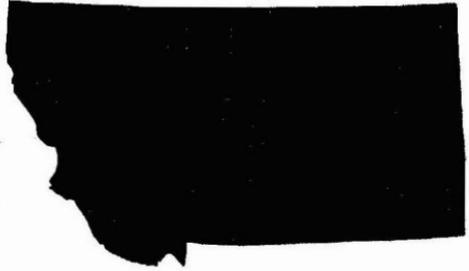
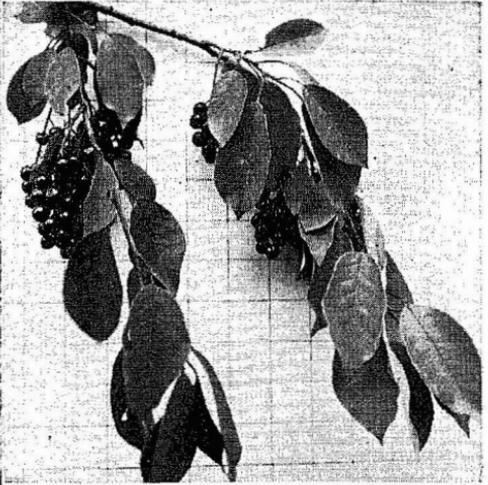
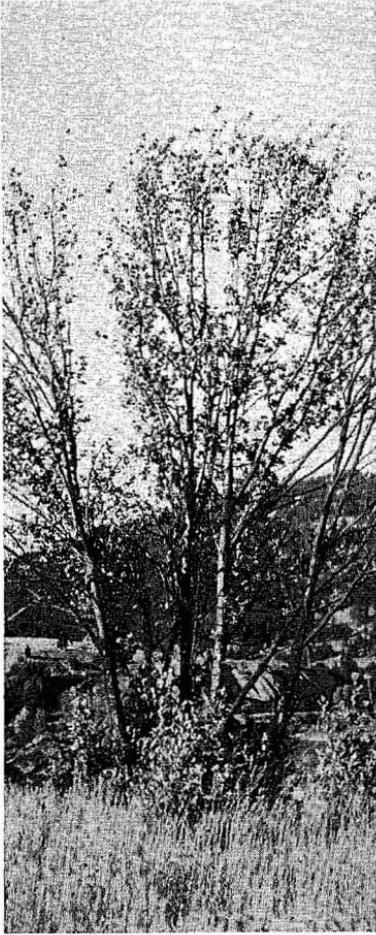
(*Prunus americana*)

A shrub or small tree up to 25 feet high with a trunk 3-8 inches in diameter that branches near the ground or sometimes at the 3-6 foot level. The crown is broad, with many spreading branches.

Leaves: Oval to slightly longer, 2-3½" long and 1-1¾" wide, with a pointed tip. The edges are sharply and often doubly toothed. The surfaces are dark green above and somewhat pale below, without hairs.

Fruit: Oval to spherical; about 1" in diameter; red and often spotted at maturity; thick-skinned; fleshy bright yellow, juicy. Used for jellies.

Bark: Up to ½" thick; dark brown, tinged with red; outer layer forming plates on older trunks.



COMMON CHOKECHERRY

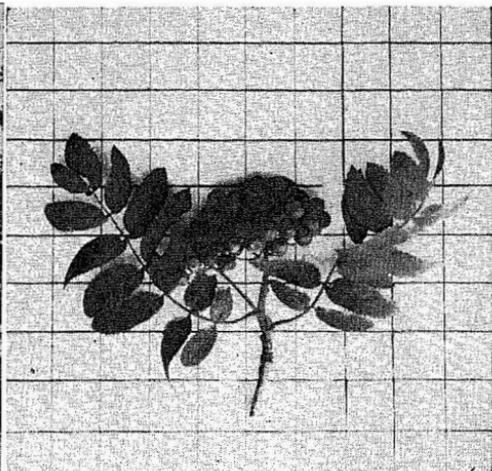
(*Prunus virginiana*)

Found on mountain slopes, stream borders, and dry hills, common chokecherry is more commonly a shrub than a tree. It usually has a crooked trunk and a spreading crown often forming dense thickets. Rarely does it grow over 30 feet in height in this area.

Leaves: 2-4" long, 1-2" wide, oval or egg-shaped, sharp or taper-pointed at the tip, rounded at the base, margins finely toothed, dark green above, pale and somewhat hairy beneath.

Bark: Thin, red brown, slightly furrowed with tan marks; very bitter to the taste.

Fruit: $\frac{1}{4}$ - $\frac{1}{3}$ " in diameter, in dense clusters. Bright red, scarlet or nearly black, thick skin, juicy, can be eaten.



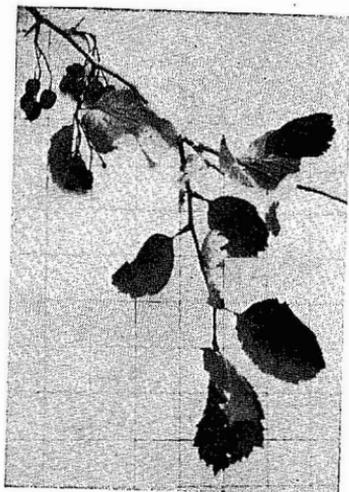
SITKA MOUNTAIN ASH

(*Sorbus sitchensis*)

Sitka mountain ash or western mountain ash is of interest because it is not a true ash. It is usually a shrub except when cultivated. It is an outstanding tree for ornamental purposes because of its beautiful bright orange, berry-like fruit which often stay on the tree during the late fall and early winter after the leaves have fallen.

Leaves: Occur alternately; 4-6" long with 7 to 13 leaflets 1-2" long and 1/2-1" wide; leaflets oblong to lance shaped, blue-green above, pale below.

Bark: Thin (1/8 inch), light gray; smooth or slightly roughened by scales.



BLACK HAWTHORNE

(*Crataegus douglasii*)

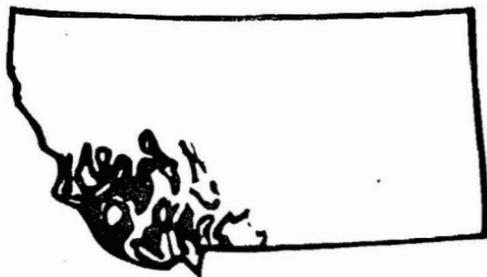
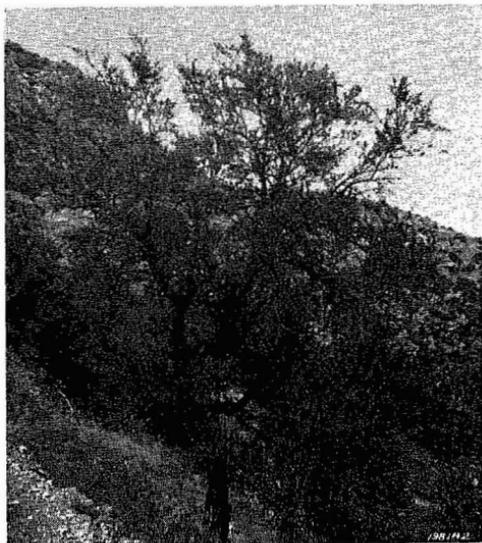


Black hawthorne, one of several species, is usually a shrub but under favorable conditions it may become a small tree. It rarely gets more than 35 feet high. It has a round topped crown with spreading and ascending branches. Usually it has spines $\frac{1}{3}$ -1" long on the branchlets.

Leaves: Broad, egg-shaped, thick, somewhat leathery, round or pointed at the tips; wedge-shaped at the base, coarsely sawtoothed toward the tips, dark green above, paler below; usually somewhat cut into unequal lobes. Leaves are often spotted with orange-colored disease areas. This rust disease spends part of its life on hawthorne and part on juniper, where it has a conspicuous slimy growth in the spring when discharging spores which later becoming hard galls.

Bark: Gray; shiny red to brown on younger twigs.

Fruit: About $\frac{1}{2}$ " in diameter, compact and many seeds, usually in cluster of 8 or 10. The flesh is sweet and succulent.



MOUNTAIN MAHOGANY

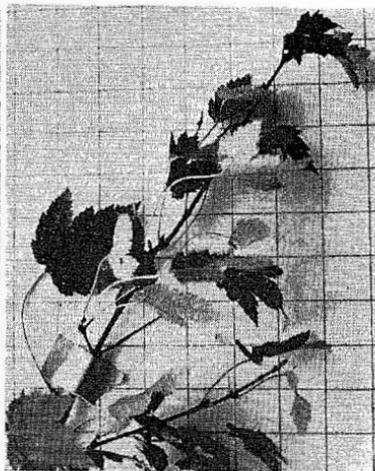
(*Cercocarpus ledifolius*)

A shrub or small tree rarely over 20 feet high in Montana. The trunk is short and crooked with a round compact crown composed of crooked and spreading branches. Usually found growing on dry, gravelly, wind-swept slopes.

Leaves: Evergreen, $\frac{1}{2}$ -1" long, $\frac{1}{3}$ - $\frac{2}{3}$ " wide; thick and leathery, margins smooth and curled toward the lower side; dark green and lustrous above, pale and densely hairy beneath.

Fruit: 1-seeded and grain-like, covered with long hairs; tipped with a hairy, elongated style 2-3" long.

Bark: As much as 1" thick on old trunks, thin on smaller plants and branches; red-brown, hard, flaky.



ROCKY MOUNTAIN MAPLE

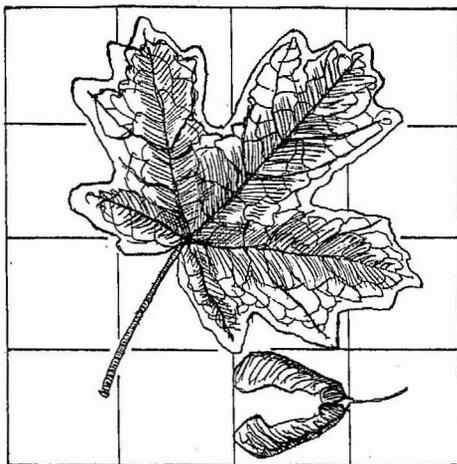
(*Acer glabrum*)

This species is a shrub or small tree 20-30 feet high and with a trunk diameter up to 8 inches. It is found on moist sides along mountain streams and on sides of canyons. Rocky Mountain maple, often called dwarf maple, is a striking feature of mountain sides in autumn after the leaves have taken on their varied coloration.

Leaves: 2-4" broad, about as long as broad, rounded in outline, distinctly divided into 3-5 lobes; thin, dark green above, paler below. Brilliant red, thickened areas, resulting from mite damage, are very often present on Montana Rocky Mountain maples.

Fruit: Slightly spreading or nearly erect, broad wings, $\frac{3}{4}$ -1" long, often rose-colored in summer.

Bark: Thin, smooth, dark red-brown.



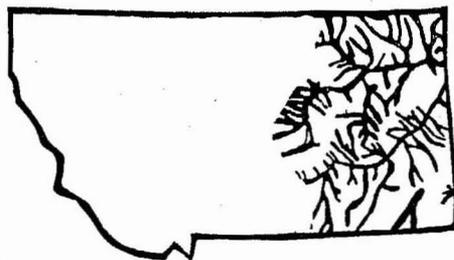
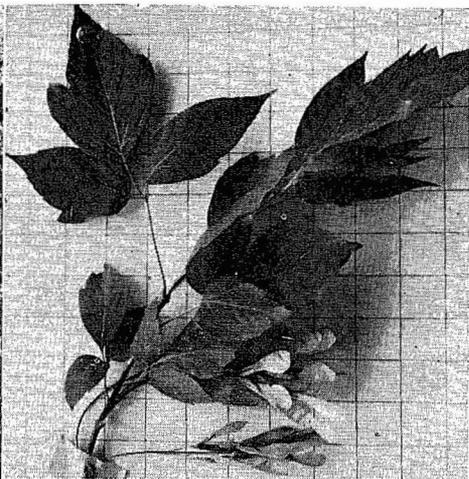
BIGTOOTH MAPLE
(*Acer grandidentatum*)

A small tree 30 to 40 feet high and about 8 inches in diameter. The branches are stout and usually erect. This tree is similar and sometimes confused with the Rocky Mountain maple. The bigtooth maple, however, has leaf margins that are smooth except for few large, blunt teeth, while the Rocky Mountain maple has many sharp teeth. This tree has been reported as being in northwestern Montana, but this is questionable because of the absence of recorded specimens and a general distribution that does not come as far north as Montana.

Leaves: 3-5 lobed; 2-5" wide; dark green and lustrous above, pale below; turning yellow and scarlet before falling.

Fruit: Spreading or erect wings, 1/2-1" long; often rose-colored in summer, green at maturity.

Bark: Thin, dark brown, separating on surface into plate-like scales.



BOXELDER

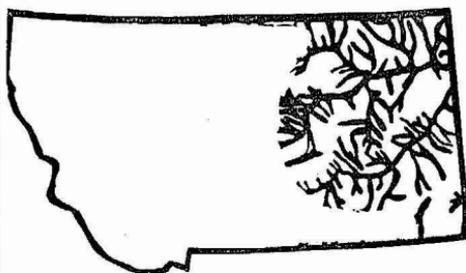
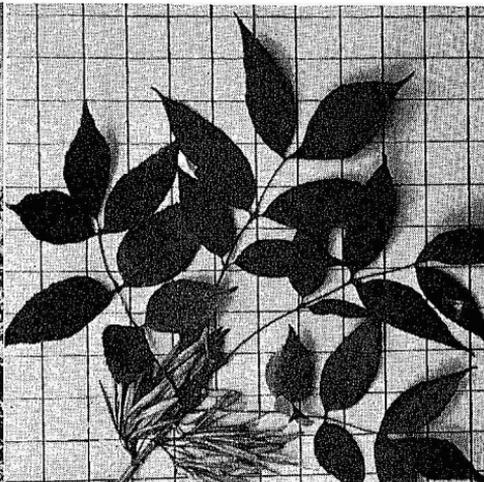
(Acer negundo)

A small tree rarely over 50 feet high and with a trunk diameter of about 1 foot. The trunk is usually irregular and divides above the ground at a height of 3-6 feet. When grown in the open the crown is round, the branches widespreading. This tree is a close relative of the maples, but differs in that its leaves are divided into three or rarely as many as seven leaflets.

Leaves: Compound of 3 distinct leaflets (rarely 5-7); leaflets $1\frac{1}{2}$ -4" long, $1\frac{1}{2}$ -2" wide; margins coarse and irregularly toothed above the middle; light green and smooth above; pale and hairy beneath.

Fruit: A double winged fruit united at base; 1-2" long.

Bark: Gray, firm, $\frac{1}{2}$ " or less thick, deeply divided by furrows into broad, rounded ridges.



GREEN ASH

(*Fraxinus pennsylvanica*)

The green ash is a medium size, usually round-topped tree 30-50 feet high with slender spreading branches. Although usually found along the banks of streams, it stands drought very well and is often planted for windbreak and beautification purposes.

Leaves: With 7-9 leaflets, usually 7. Leaflets 2-4" long and 1½" wide. Long, pointed tips, finely toothed margins. Bright green on both surfaces.

Fruit: A winged nut with a long, narrow wing 1-2½" long.

Bark: Gray to brown, tinged with red; slightly furrowed, ½-2/3" thick.

LESS COMMON TREES



Juniper Utah (*Juniperus osteosperma*)—This tree is very similar to the Rocky Mountain juniper but differs in that the berries are red-brown with sweet pulp rather than the blue, resinous pulp of our more common juniper. The leaf-covered branches are also usually completely covered with leaves and cylindrical.

This small tree is confined to the Big Horn Mountains of south central Montana and extends from here far to the southwest.



Alder Mountain (*Alnus sinuata*)—This tree or shrub is very similar to thinleaf alder but differing mainly in that the flowers develop on year-old twigs rather than those of the current season; the fruiting cones are borne on stalks shorter than the cones, and the individual fruits, sometimes incorrectly referred to as seeds, are not winged. Along streams in the mountains of western Montana.



Cottonwood Lanceleaf (*Populus x acuminata*)—Very similar to the narrowleaf cottonwood but differs in having a leaf-stem $\frac{3}{4}$ the length of the blade and the blade being less than twice as long as wide with a somewhat rounded base. This tree is generally thought to be a hybrid between the narrowleaf cottonwood and plains cottonwood.



Oak Bur (*Quercus macrocarpa*)—This is a variety of the common large mossycup oak of the East. The tree is somewhat smaller as is also the acorn, but otherwise it is similar to the bur oak of the East that is common in Montana city plantings. Native to southeastern Montana, in Carter county, and possibly in Powder River county.



Hawthorn—The following additional species of hawthorn are known to be in Montana, and there may be still others:

Columbia Hawthorn.....	<i>Crateagus columbiana</i>
Fleshy Hawthorn.....	" <i>succulentus</i>
Roundleaf Hawthorn.....	" <i>rotundifolia</i>
River Hawthorn.....	" <i>rivularis</i>
William Hawthorn.....	" <i>williamsii</i>

The species of hawthorn hybridize where they occur in the same range and frequent hybrids make classification sometimes difficult.

INDEX

CONIFERS

Cedar, Western Red	22
Fir, Alpine	21
Fir, Douglas	17
Fir, Grand	20
Hemlock, Mountain	19
Hemlock, Western	18
Juniper, Rocky Mountain	23
Larch, Alpine	13
Larch, Western	14
Pine, Limber	12
Pine, Lodgepole	8
Pine, Ponderosa	9
Pine, Western White	10
Pine, White Bark	11
Spruce, Engleman	15
Spruce, White	16
Yew, Pacific	24

BROADLEAF TREES

Alder, Thinleaf	35
Ash, Green	45
Ash, Sitka Mountain	39
Aspen, Quaking	32
Birch, Paper	34
Birch, Water	33
Boxelder	44
Chokecherry, Common	38
Cottonwood, Narrowleaf	30
Cottonwood, Black	29
Cottonwood, Plains	31
Elm, American	36
Hawthorne, Black	40
Mahogany, Mountain	41
Maple, Big Tooth	43
Maple, Rocky Mountain	42
Plum, American	37
Willow	28

LESS COMMON TREES

Alder, Mountain	46
Buckthorn, Cascara	47
Cherry, Pin	47
Cottonwood, Lanceleaf	46
Hawthorn	46
Juniper, Utah	46
Oak, Bur	46