

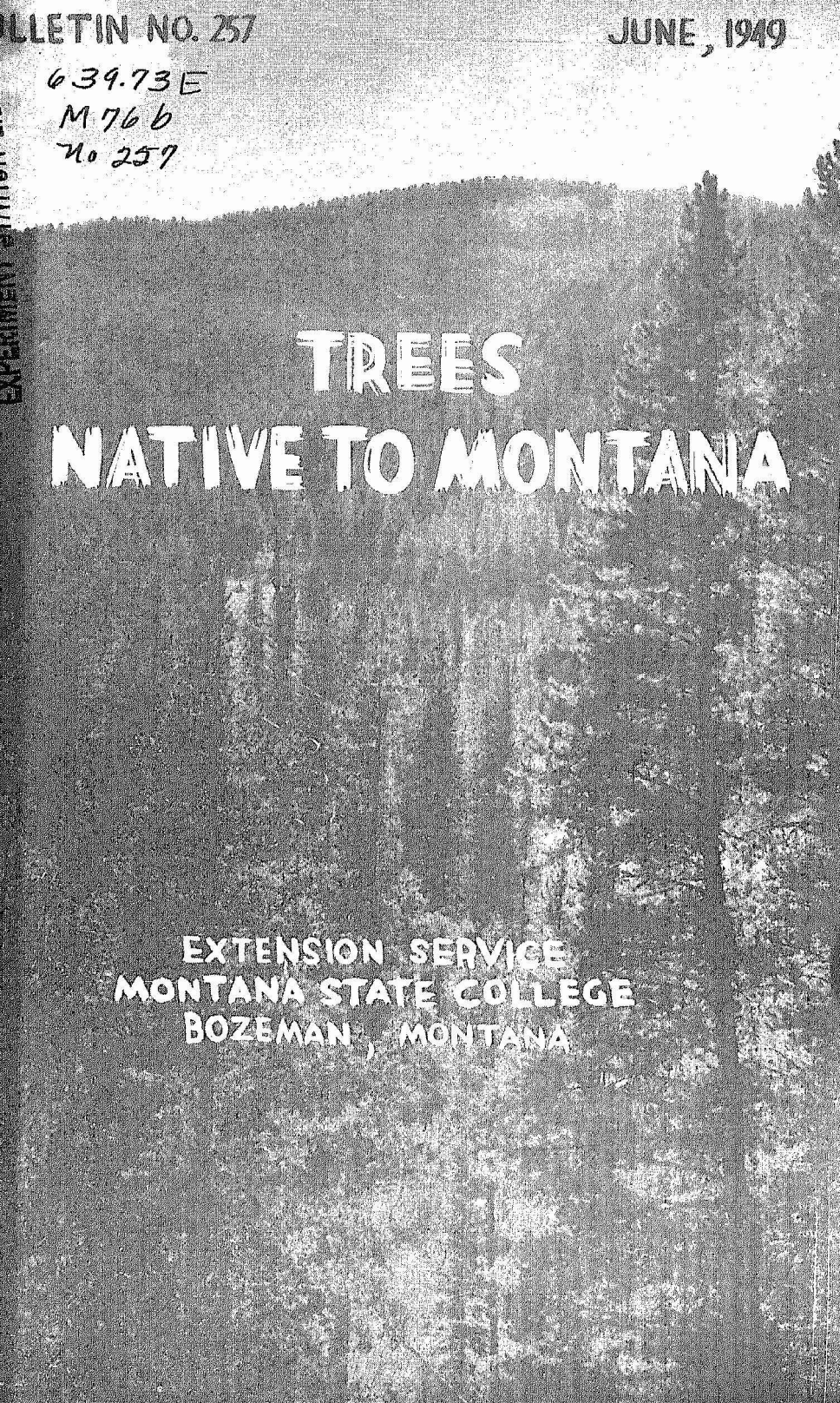
BULLETIN NO. 257

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**TREES**  
**NATIVE TO MONTANA**

**EXTENSION SERVICE**  
**MONTANA STATE COLLEGE**  
**BOZEMAN, MONTANA**

Montana Extension Service in Agriculture and Home Economics, R. B. Tootell, Director.  
Montana State College and United States Department of Agriculture Cooperating.  
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# NATIVE TREES OF MONTANA

JOHN DRUMMOND, Extension Forester

One fifth of Montana's total land area of 93,000,000 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.



## Key to Conifers

## I. Leaves needle-like:

## A. Fruit, a woody cone

## 1. Leaves in bundles

## a. Leaves, evergreen

1) Leaves in bundles of 2 ..... LODPOLE PINE  
(*Pinus contorta*)

2) Leaves mostly in bundles of 3 PONDEROSA PINE  
(*Pinus ponderosa*)

3) Leaves in bundles of 5

## a) Cones cylindrical 6-10" long

WESTERN WHITE PINE (*Pinus monticola*)

## b) Cones egg-shaped

(1) Cones 1½-3" long, remain compact at maturity ..... WHITEBARK PINE  
(*Pinus albicaulis*)

(2) Cones 3-6" long, open widely at maturity ..... LIMBER PINE  
(*Pinus flexilis*)

## b. Leaves, deciduous (drop every year)

1) Twigs densely hairy ..... ALPINE LARCH  
(*Larix lyalli*)

2) Twigs sparsely hairy ..... WESTERN LARCH  
(*Larix occidentalis*)

## 2. Leaves solitary

a. Leaves raised on small but prominent cushions which remain on the twigs after removal of leaves

1) Leaves stiff, sharp-pointed

a) Leaves green or bluish, slightly rigid; 1 to  $1\frac{1}{8}$ " long ..... ENGELMANN SPRUCE  
(*Picea engelmanni*)

b) Leaves blue green, with rigid sharp tips,  $1\frac{1}{3}$ - $\frac{3}{4}$ " long ..... WHITE SPRUCE (*Picea glauca*)

2) Leaves soft, blunt-tipped

a) Cones egg-shaped,  $\frac{1}{2}$ -1" long ..... WESTERN HEMLOCK  
(*Tsuga heterophylla*)

b) Cones cylindrical, 1-3" long ..... MOUNTAIN HEMLOCK  
(*Tsuga mertensiana*)

b. Leaves not raised on cushions

1) Cones pointing downward ..... DOUGLAS FIR  
(*Pseudotsuga taxifolia*)

2) Cones pointing upward

a) Cones green; needles in two rows along stem..... GRAND FIR (*Abies grandis*)

b) Cones yellow-green, or purple; needles not in rows ..... ALPINE FIR (*Abies lasiocarpa*)

B. Fruit berry-like ..... PACIFIC YEW (*Taxus brevifolia*)

## II. Leaves scale-like

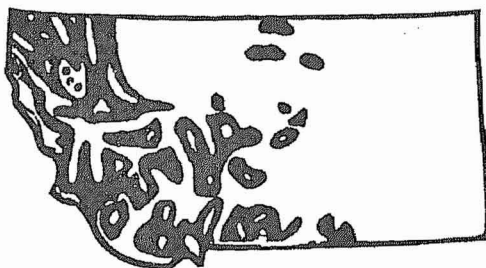
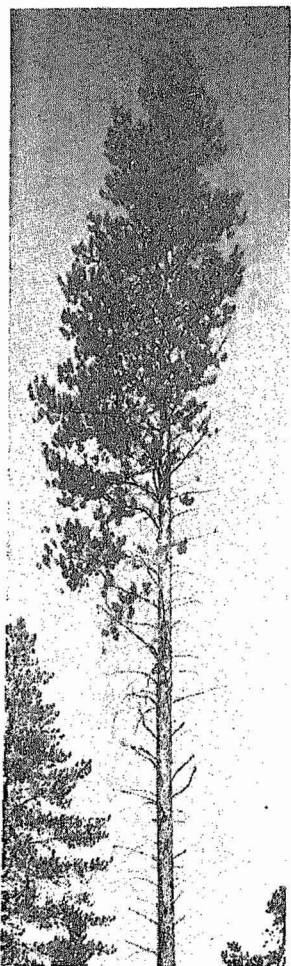
A. Fruit a woody cone ..... WESTERN RED CEDAR  
..... (*Thuja plicata*)

B. Fruit-berry-like ..... ROCKY MOUNTAIN JUNIPER  
..... (*Juniperus scopulorum*)

## Key to Hardwoods or Broadleaf Trees

- I. Leaves or leaf scars opposite
  - A. Leaves simple (single leaf)
    - 1. Leaves smooth round margin ..... BIG TOOTH MAPLE  
(*Acer grandidentatum*)
    - 2. Leaves like sawtooth around edge  
ROCKY MOUNTAIN MAPLE OR DWARF MAPLE  
(*Acer glabrum*)
  - B. Leaves compound (several leaflets)
    - 1. Seven to nine leaflets with fine teeth ..... GREEN ASH  
(*Fraxinus pennsylvanica*)
    - 2. Usually 3, rarely 5-7 leaflets with coarse teeth  
BOXELDER (*Acer Negundo*)
- II. Leaves or leaf-scars alternate
  - A. Leaves simple (single leaf)
    - 1. Leaves evergreen ..... CURLLEAF MOUNTAIN-  
MAHOGANY (*Cerocarpus ledifolius*)
    - 2. Leaves deciduous (drop each year)
      - a. Buds covered with one or two visible bud-scales
        - 1. A single scale covering the entire bud; buds not stalked; leaves commonly slender ..... WILLOW  
(*Salix* species)
        - 2. Two scales covering bud; buds raised upon distinct stalks; leaves broad; fruit woody, cone-like ..... THINLEAF ALDER (*Alnus tenuifolia*)
      - b. Buds covered with three to many visible bud-scales
        - 1. Bark papery or leathery, peeling readily around trunk
          - a. Twigs bitter to the taste, several bud-scales visible ..... WESTERN CHOKECHERRY  
(*Prunus virginiana demissa*)
          - b. Twigs not bitter to the taste, three bud-scales generally visible

1. Bark orange-brown to grayish white; leaves 2-4 inches long ..... PAPER BIRCH  
(*Betula papyrifera*)
  2. Bark very dark copper-brown, leaves 1-2 inches long ..... WATER BIRCH  
(*Betula fontinalis*)
2. Bark smooth, ridged, or scaly, not peeling readily
- a. Branchlets frequently armed with thorns.  
WESTERN THORNAPPLE  
(*Crataegus douglasii*)
  - b. Branchlets not armed with thorns
    1. Buds resinous to the taste, terminal buds present, leaves usually equal at base
      - a. Leaf stems flattened, leaf blades circular or triangular
        1. Leaf blades nearly circular, 1-2 inches wide ..... GOLDEN ASPEN  
(*Populus tremuloides aurea*)
        2. Leaf blades broadly triangular, 2-4" wide, narrowly pointed at tip  
PLAINS COTTONWOOD  
(*Populus sargentii*)
      - b. Leaf stems round
        1. Leaf blades broadly egg-shaped or somewhat heart-shaped in outline; large, with rather long stems.  
NORTHERN BLACK COTTONWOOD  
(*Populus trichocarpa*)
        2. Buds not resinous to the taste, terminal bud absent, leaves not equal at base ..... AMERICAN ELM  
(*Ulmus americana*)
- B. Leaves compound (7-13 leaflets) .. WESTERN MOUNTAIN  
ASH (*Sorbus sitchensis*)



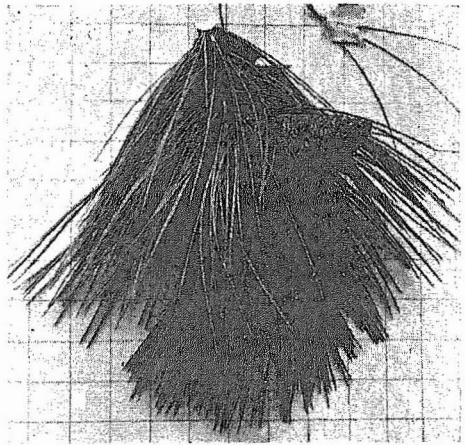
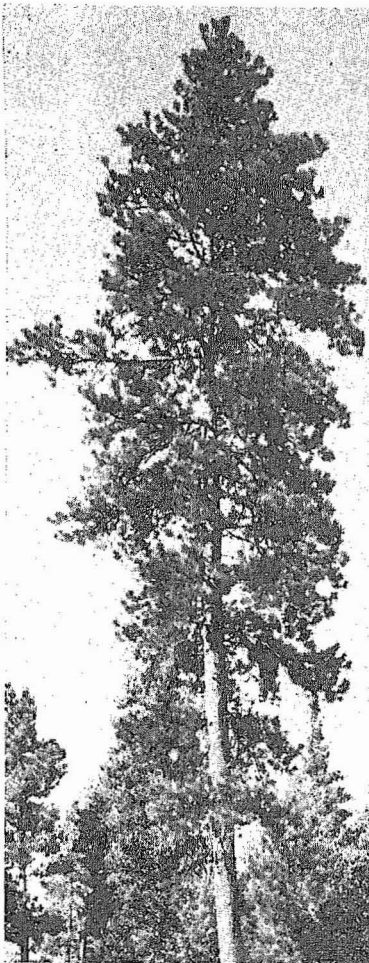
### LOGEPOLE PINE

(*Pinus contorta*)

Lodgepole pine is a tall, slender tree used in the old days by the Indians for their lodge poles. It grows from 30 to 100 feet in height and is often found in dense stands. It is very intolerant (will not grow in the shade of other trees), but young trees come in by the thousands after burns.

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

**Cones:** 1-1½" long, appear to be lopsided; very hard, tightly closed, and armed with sharp spines. Cones hang on trees for many years but the heat of a fire causes them to open and reseed the area.



## PONDEROSA PINE

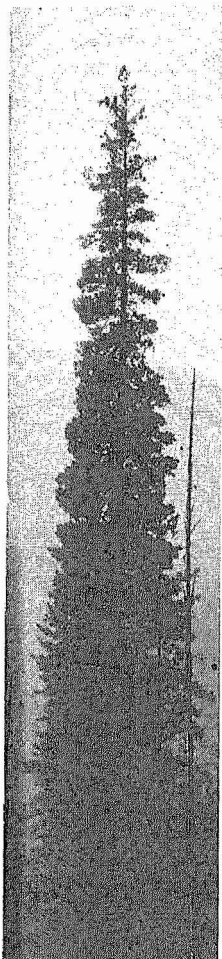
(*Pinus ponderosa*)

Ponderosa pine is the state tree of Montana. It is a very important tree for lumber. It grows from 100 to 170 feet tall. The young trees are often called "black jack" or "bull pine", and the older trees are often called "yellow pine".

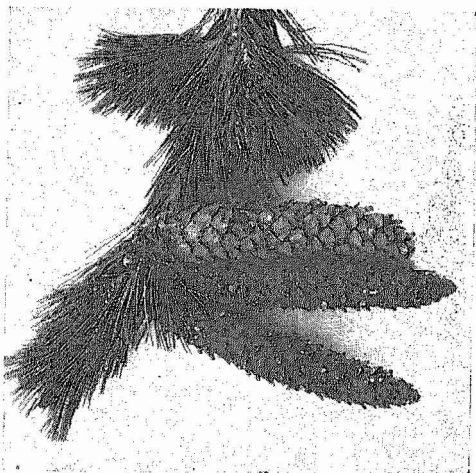
**Needles:** 3 needles in each bundle (sometimes 2), usually 5-7 inches long. Commonly in tufts at the end of the branches.

**Cones:** 2½-5" long, shaped like a top; bright green, becoming reddish brown as cones get older, armed with small spines.

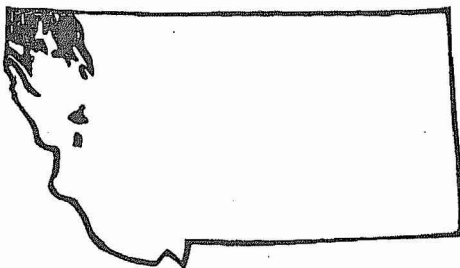
**Bark:** Dark on small trees. Yellow brown to cinnamon red and broken into large flat plates on older trees.



(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 100 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.

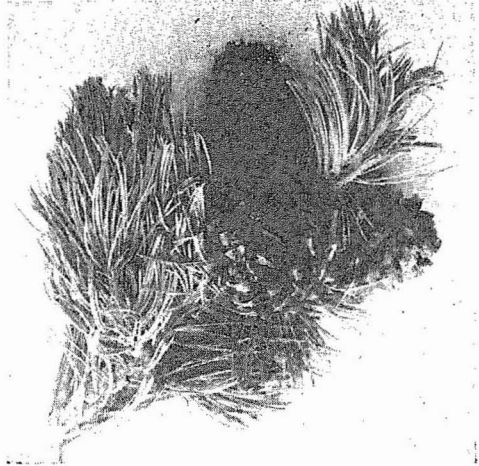
**Cones:** 6-10" long, green before opening and light brown when ripe, scales thin. Found principally at the tops of the trees.

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

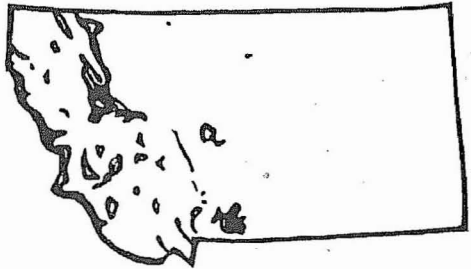




(Courtesy U. S. Forest Service)



(Courtesy U. S. Forest Service)



## WHITE BARK PINE

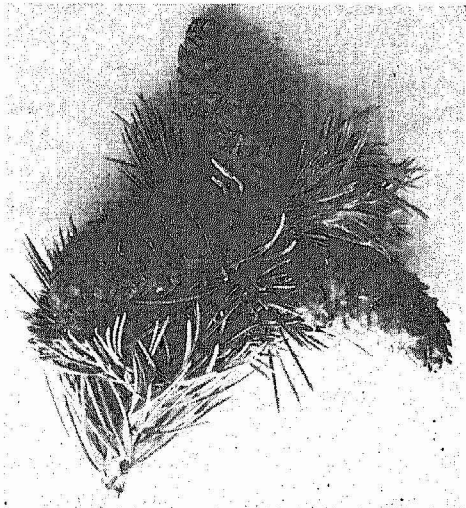
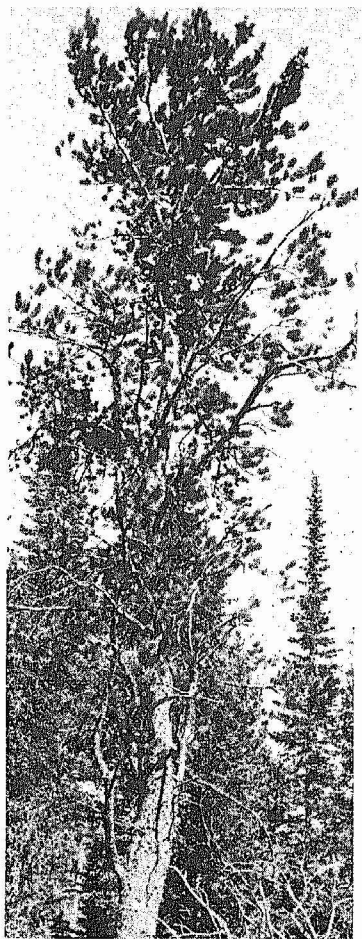
(*Pinus albicaulis*)

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. They are of little commercial value. Seeds are sometimes used for food.

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

**Cones:**  $1\frac{1}{2}$ -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

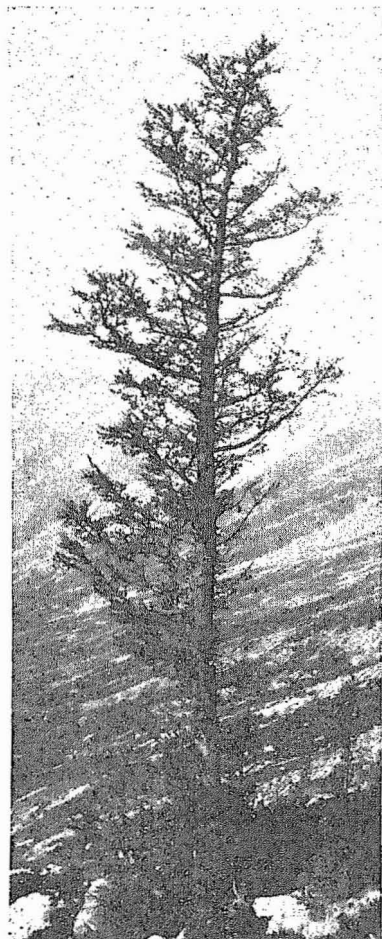
(*Pinus flexilis*)

Like white bark pine, limber pine is usually a twisted and stunted tree, from 20 to 80 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.

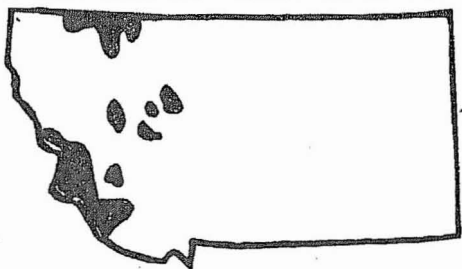
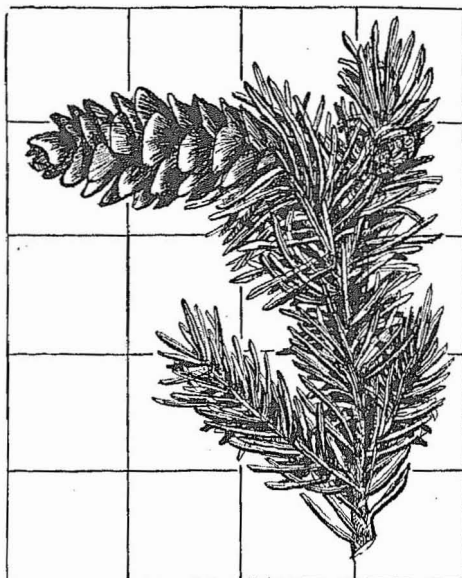
**Needles:** 1½-3" long, in clusters of 5, dense clusters at the ends of the branches.

**Cones:** 3-6" long, green when young, turning pale, greenish brown when the tree matures. Seeds large, ⅓-½" long without wings. Good to eat.

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



(Courtesy U. S. Forest Service)



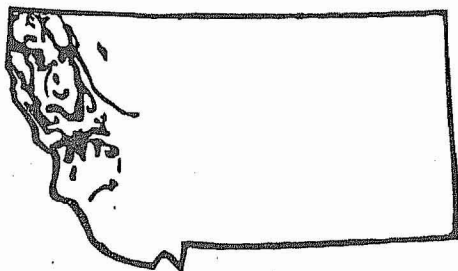
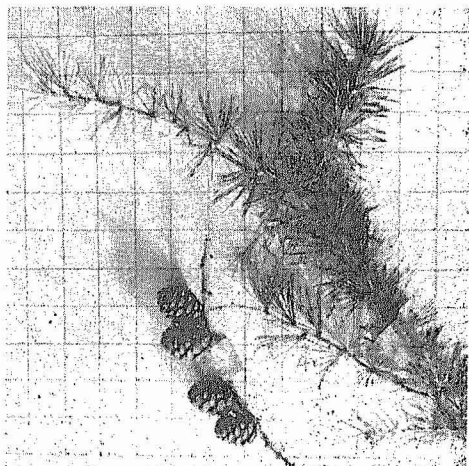
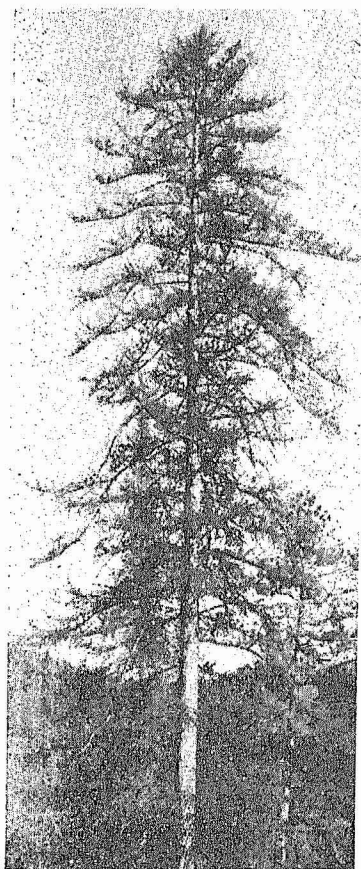
**ALPINE LARCH**  
(*Larix lyalli*)

This is a small tree 25 to 50 feet tall that grows only at very high elevations near the limits of tree growths. 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.



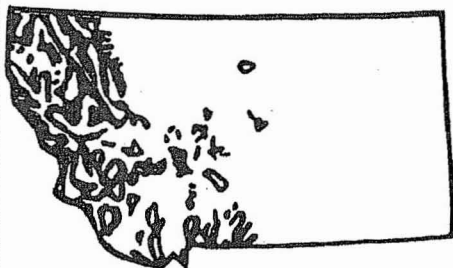
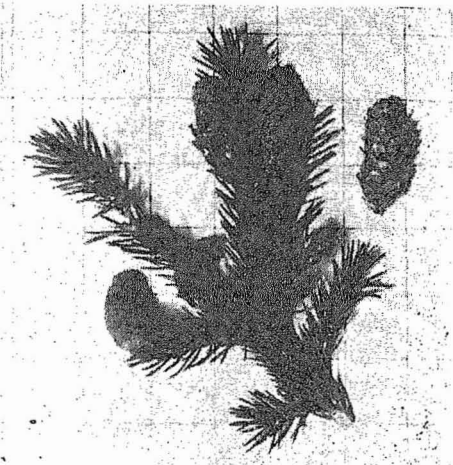
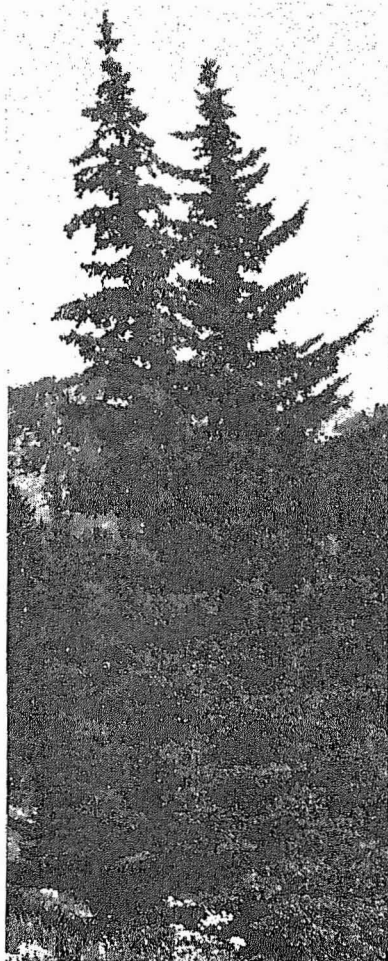
**WESTERN LARCH**  
(*Larix occidentalis*)

Western larch is a large forest tree 100 to 200 feet in height. It has a straight trunk with a very open crown. It also 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, etc. 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.

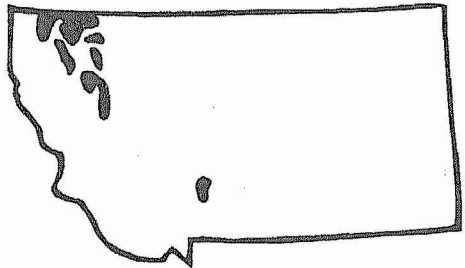
**Needles:** 1-1 $\frac{1}{8}$ " long, single, sharp pointed, bluish green to silvery white in color.

**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.



(Courtesy U. S. Forest Service)



## WHITE SPRUCE

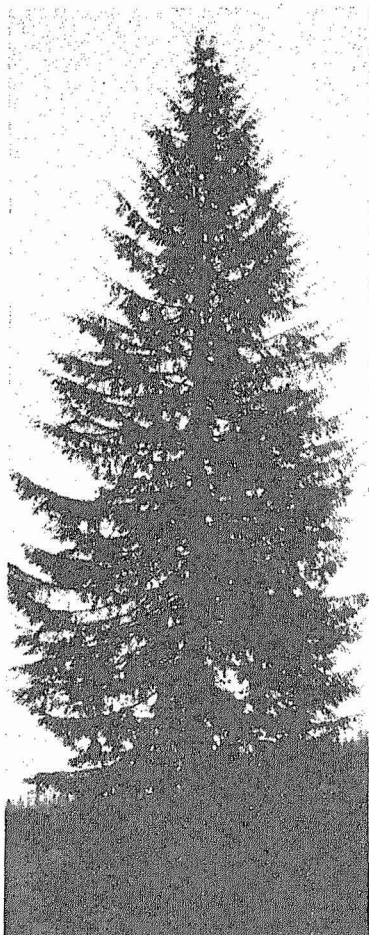
(*Picea glauca*)

This tree grows over a large area in Canada and Alaska, but 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:**  $\frac{1}{3}$ - $\frac{3}{4}$ " long, with sharp rigid tips crowded on upper side of branch.

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

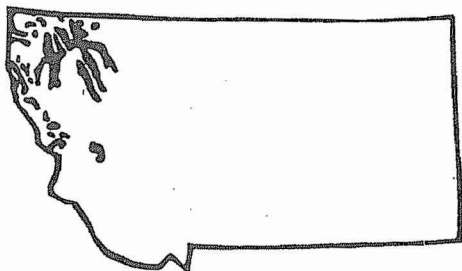
**Bark:** Thin, ash brown to silvery, separated into irregular thin plates.



(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.

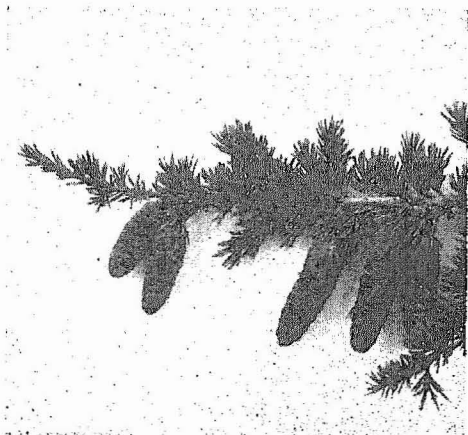
**Cones:**  $\frac{3}{4}$ -1" long, oblong, hanging down; light brown in color.

**Bark:** Thin (1-1 $\frac{1}{2}$ ") even on older trees. Deeply furrowed on older trees. Russet brown in color.

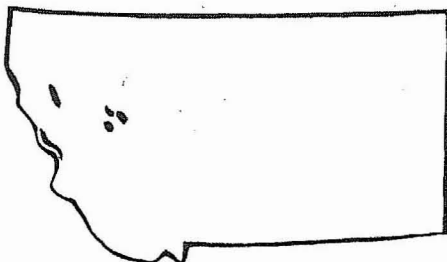




(Courtesy U. S. Forest Service)



(Courtesy U. S. Forest Service)

**MOUNTAIN HEMLOCK**

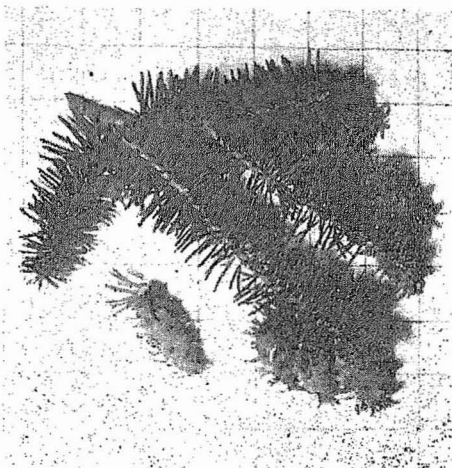
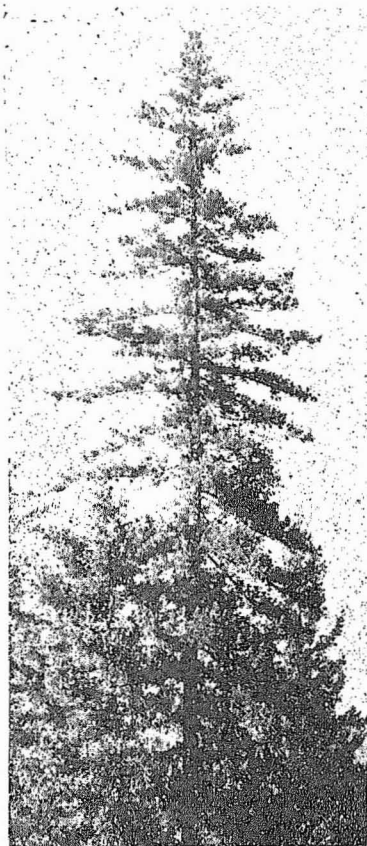
(Tsuga mertensia)

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.



### DOUGLAS FIR

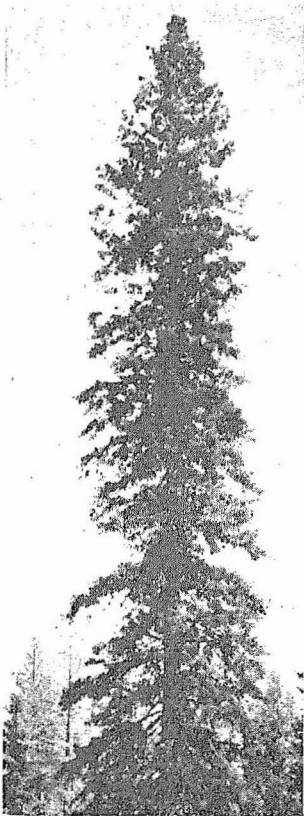
(*Pseudotsuga taxifolia*)

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.

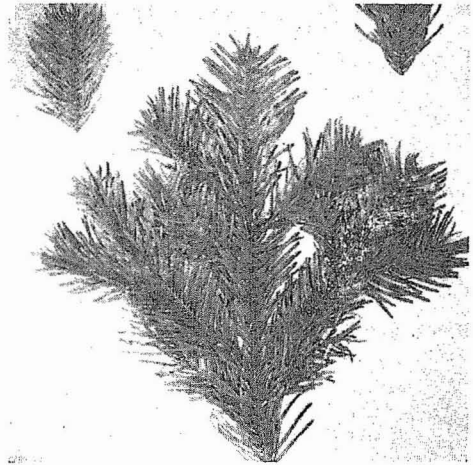
**Needles:**  $\frac{3}{4}$ - $1\frac{1}{4}$ " long, single, flat, slightly grooved above and marked below with two light bands. Needles become narrow at base where they are attached to the branchlets. Sharper at the end than the other firs but not so pointed as spruce.

**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.

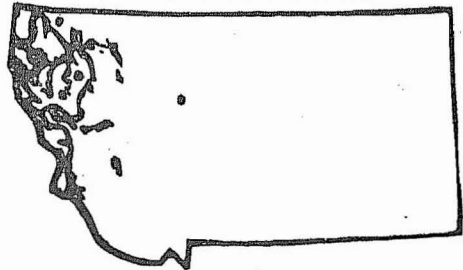
**Bark:** Smooth, gray brown with resin blisters on young trees, thick, deeply grooved cork-like gray to gray-brown on old trees.



(Courtesy U. S. Forest Service)



(Courtesy U. S. Forest Service)



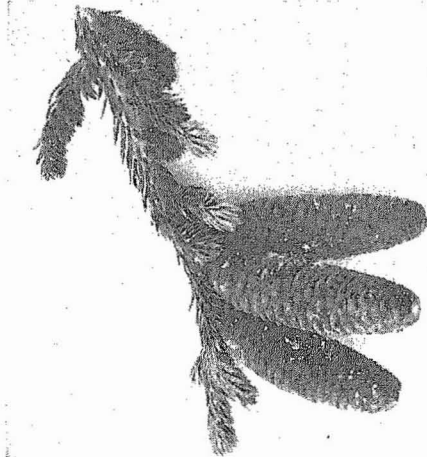
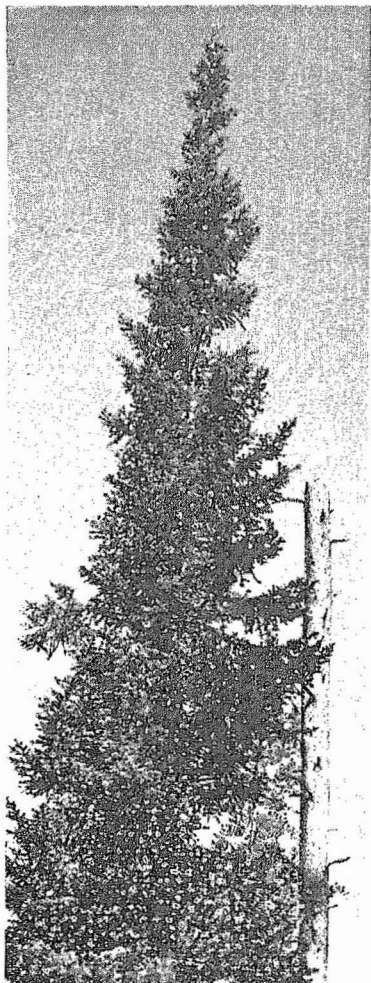
**GRAND FIR**  
(*Abies grandis*)

Grand fir, sometimes called lowland white fir, is one of the two true 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.

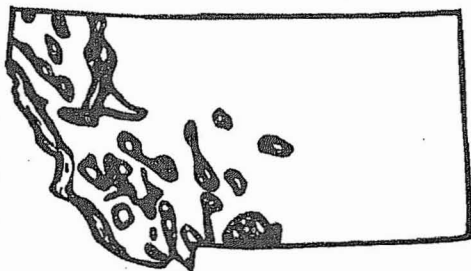
**Needles:**  $\frac{1}{2}$ " long, blunt, single, notched at ends, dark green and lustrous on upper surface, silvery white below, straight, flexible, stand out distinctly from two opposite sides of the branches or grow nearly erect.

**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 and chalky white blotches on young stems. 2-3" thick, red brown, hard and rough on older trees.



(Courtesy U. S. Forest Service)



### ALPINE FIR

(*Abies lasiocarpa*)

The long, dense, spire-shaped crown tells this tree from all other firs. Commonly found at high elevations and along streams in cool narrow canyons. It grows in shady places where many other trees will not live. Its wood is white, soft and brittle.

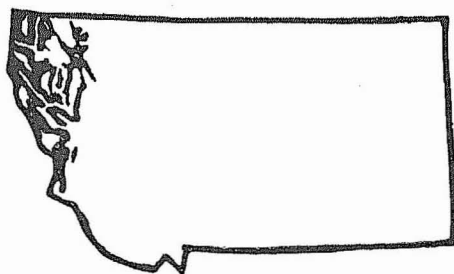
**Needles:** 1-1 $\frac{3}{4}$ " long, single, flat, those on lower branches crowded and point upward. Blue green in color.

**Cones:** 2 $\frac{1}{2}$ -4" long, oblong and cylindrical, purplish gray to black. Cone scales shatter when seeds fall in the autumn.

**Bark:** Smooth and chalky on young stems. 1-1 $\frac{1}{2}$ " thick, gray to cinnamon red, slightly rough and fissured on older stems.



(Courtesy U. S. Forest Service)



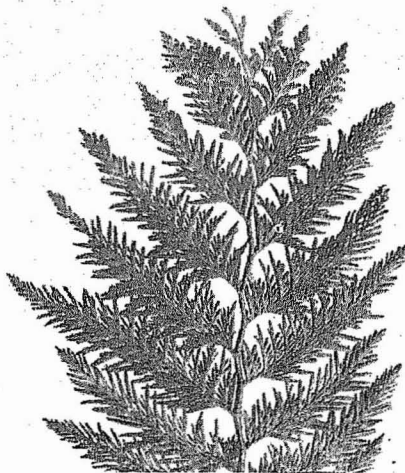
**PACIFIC YEW**  
(*Taxus brevifolia*)

Pacific yew is a small tree rarely over 30 feet high in Montana. It is commonly a shrub, branching freely into broad, flat sprays. Its wood is very hard, heavy and strong. The Indians used the wood for paddles, spear-handles, bows and fishhooks. Pacific yew grows in moist soils and withstands shade better than any other forest tree in the northwest. It is an evergreen but its fruit is a berry-like seed rather than a cone.

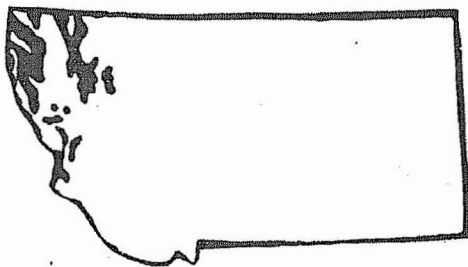
**Needles:**  $\frac{1}{2}$ -1" long, single, flat, sharp-pointed, green above and paler beneath, appear on branchlets to form flat sprays.

**Fruit:** Single berry-like seed with a hard bony shell,  $\frac{1}{3}$ " long, falls from tree during October.

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



(Courtesy U. S. Forest Service)



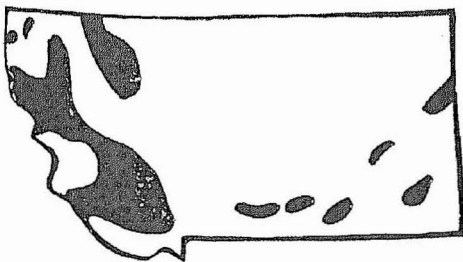
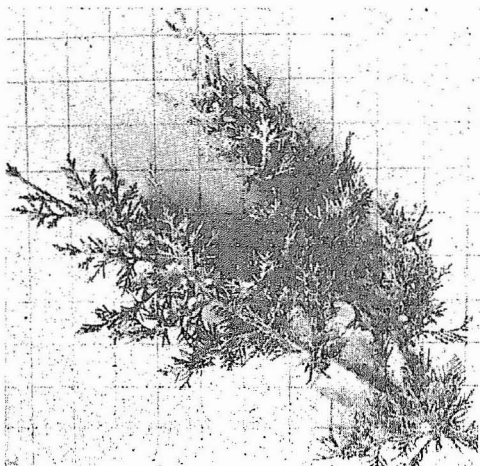
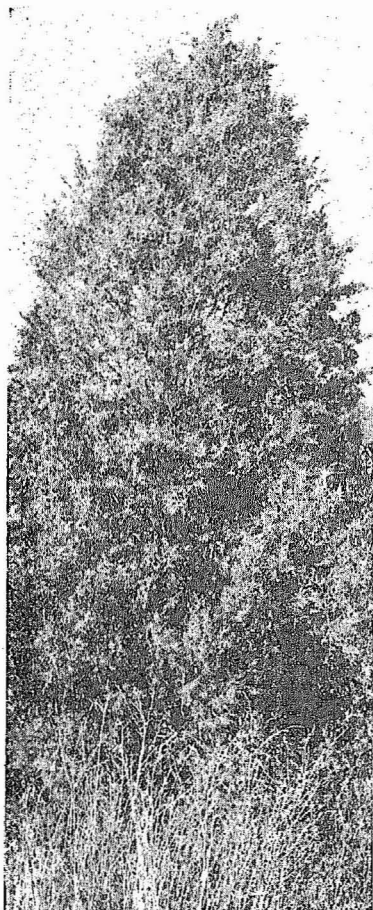
**WESTERN REDCEDAR**  
(*Thuja plicata*)

Western redcedar, also called giant arborvitae, is a large tree which grows to 200 feet in height and 8 feet in diameter under the most favorable conditions though it seldom reaches more than 150 feet in Montana. It has a very cone-shaped form with horizontal or drooping branches. This tree grows best in very moist places. Because its wood resists decay, it is used for telephone, telegraph, and power poles, and for shingles.

**Leaves:** Small,  $\frac{1}{8}$ - $\frac{1}{4}$ " , overlapping, scale like, papery, form a flat spray. Dark green above and light green below.

**Cones:**  $\frac{1}{2}$ " long, round to oblong, composed of 8-12 thin spine-tipped scales.

**Bark:** Thin,  $\frac{1}{2}$ -1" , stringy, fibrous, with narrow ridges. Cinnamon red and gray brown on older trees.



### ROCKY MOUNTAIN JUNIPER

(*Juniperus scopulorum*)

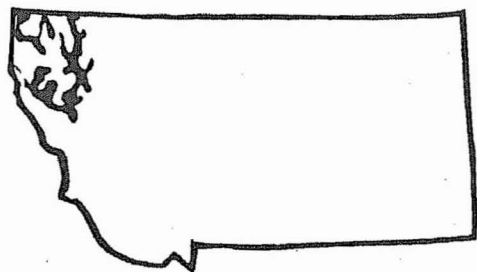
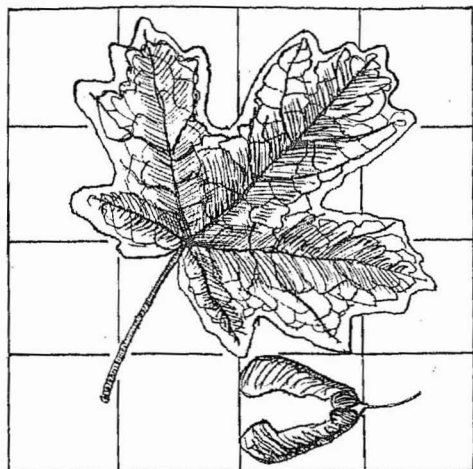
This tree varies from a bushy shrub 15-20 feet high to a tree 50 feet high. It is a very drought resistant tree and does well on dry soils. It has a short trunk often divided near the ground and the crown is typically irregular and round. Because its wood is so resistant to decay, it is often used for fence posts.

**Leaves:** Scale-like, about  $\frac{1}{8}$ " long. Ashy green, sometimes dark green.

**Fruit:** Berry-like, 1-2 seeded, light blue, covered with a waxy bloom.  $\frac{1}{4}$ - $\frac{1}{3}$ " in diameter.

**Bark:** Thin, fibrous and stringy. Light cinnamon brown in color.





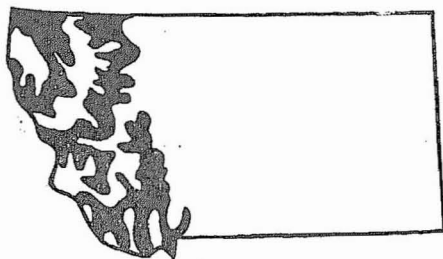
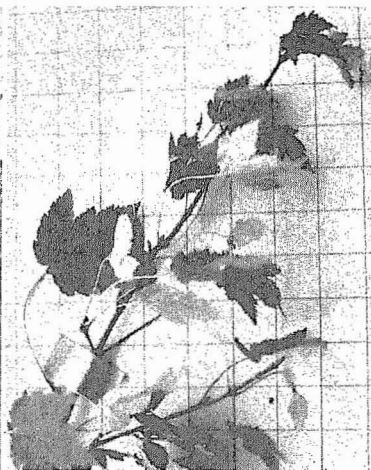
**BIGTOOTH MAPLE**  
(*Acer grandidentatum*)

Bigtooth Maple is a small tree 30 to 40 feet in height. It grows along mountain streams and on the moist sides of canyons. Like all maples, its branches occur in pairs opposite each other.

**Leaves:** Single, 2-5" in diameter. Dark green and shiny above, pale and somewhat hairy below. Divided into 3-5 lobes, smooth around the margin, leaf stems stout and hairy.

**Fruit:** A winged nut with 2 spreading wings  $\frac{1}{2}$ -1" long, joined at the base.

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



## ROCKY MOUNTAIN MAPLE

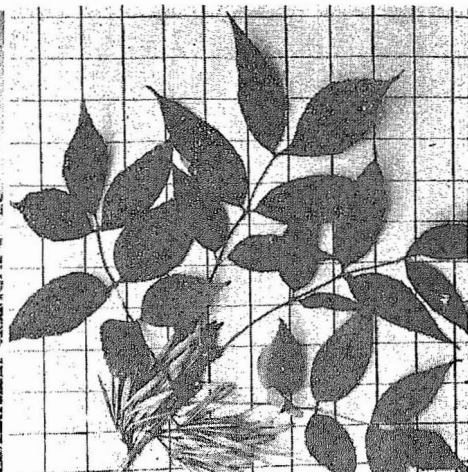
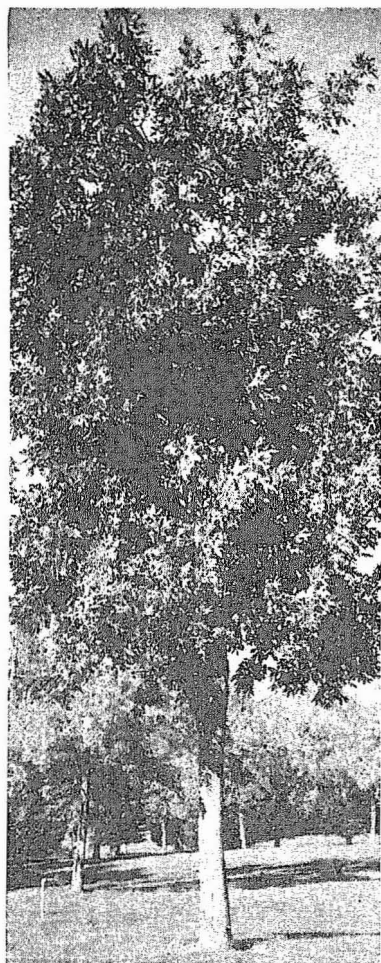
(*Acer glabrum*)

This species is a small tree or shrub rarely over 30 feet high. 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 after the fall frosts, as the leaves are varied and beautiful.

**Leaves:** 3-5" broad, about as long as broad, rounded in outline, distinctly divided into 3 (sometimes 5) lobes. Tips sharp, taper pointed. Margins have numerous unequal sharp teeth pointed forward. Thin, dark green above, and paler below.

**Fruit:** A 2 winged nut with wings joined in the base.

**Bark:** Thin, smooth, dark red brown.



### GREEN ASH

(*Fraxinus pennsylvanica*)

The green ash is a medium size, usually round topped tree 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.

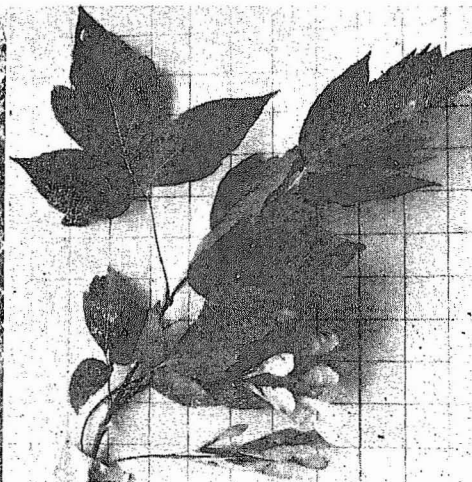
**Leaves:** With 7-9 leaflets, usually 7. Leaflets 4-6" long and 1½" wide. Long, pointed margin, finely toothed. Bright green on both surfaces.

**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.



(Courtesy U. S. Forest Service)



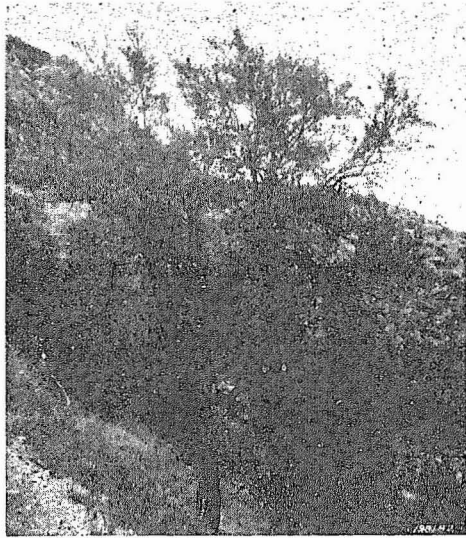
### INLAND BOXELDER

(*Acer negundo*)

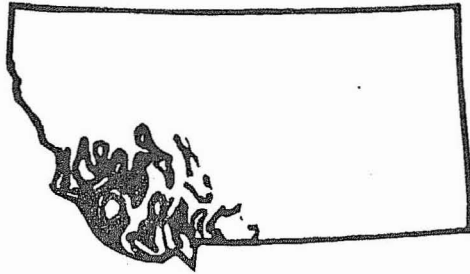
Boxelder is a maple, but differs from the other maples in that its leaves are divided into three (rarely 5-7) distinct leaflets. It is found along water courses and seldom gets more than 10" in diameter. When grown in the open it has spreading branches which form a round crown.

**Leaves:** Composed of three distinct leaflets (rarely 5-7). Leaflets 2-4" long, about 2" wide. Tips with tapering points, bases usually wedge-shaped. Margin with coarse and irregular teeth above middle. Light green and smooth above; paler and hairy beneath; leaf stems long, slender, covered with very fine hairs.

**Bark:** Gray, firm, deeply fissured,  $\frac{1}{2}$ " or less in thickness.



(Courtesy U. S. Forest Service)



## MOUNTAIN MAHOGANY

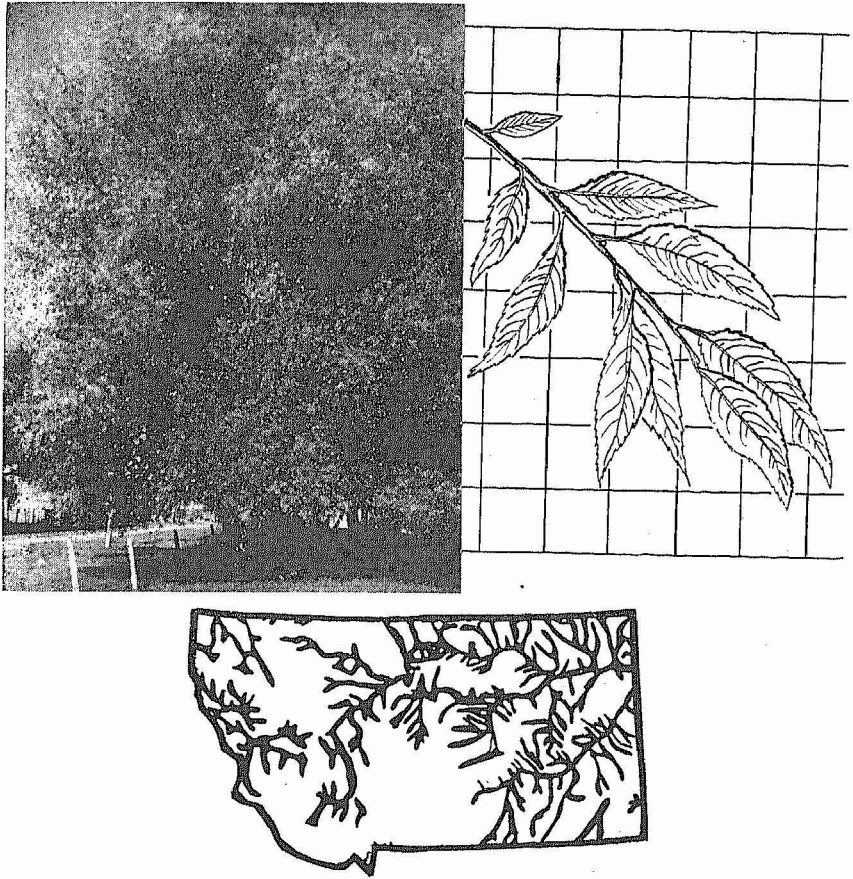
(*cerocarpus ledifolius*)

Mountain mahogany is a very short tree or shrub that reaches a height of 15 or 20 feet in Montana. Usually found growing on dry, gravelly soil. Its short, crooked trunk with large, crumpled and irregular limbs form a low, dense crown.

**Leaves:** Evergreen,  $\frac{1}{2}$ -1" long,  $\frac{1}{3}$ - $\frac{2}{3}$ " wide, with round pointed ends and smooth margins; green above, pale and hairy beneath; curve toward the lower side.

**Fruit:** 1 seeded, chestnut brown, covered with long hairs.

**Bark:** Hard, thin, flaky, red brown in color.

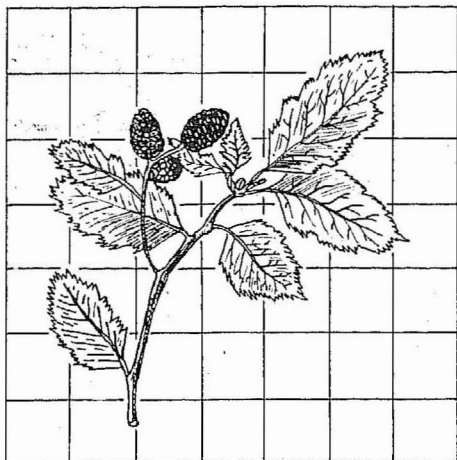
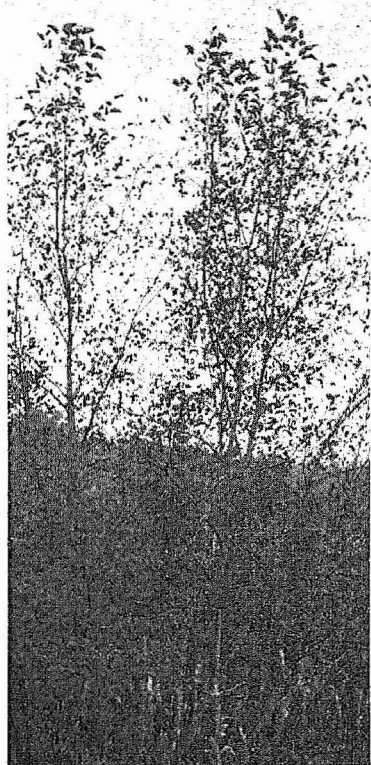


## WILLOW

There are many species of willows but most of them do not reach tree size. Commonly found in wet locations such as along stream banks, they reproduce by sprouts and the limbs or twigs will grow if cut from the tree and planted in a wet place. The young sprouts are very pliable and were used by the Indians for making baskets.

**Leaves:** Simple, alternate, narrow, dark green on the upper surface.

**Bark:** Smooth and shiny on young branches, thick, dark colored, separated into ridges by deep irregular furrows on older trees. Wood soft and easy to cut.



### THIN LEAF ALDER

(*Alnus tenuifolia*)

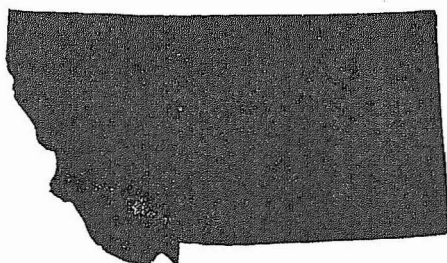
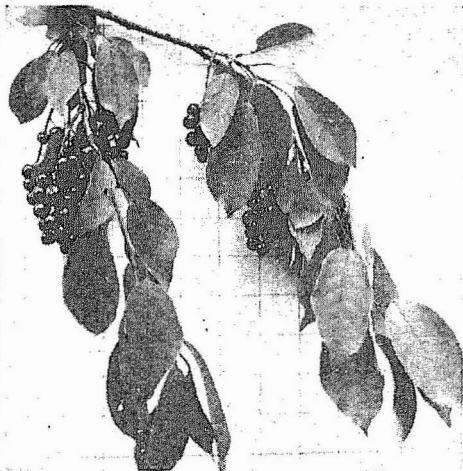
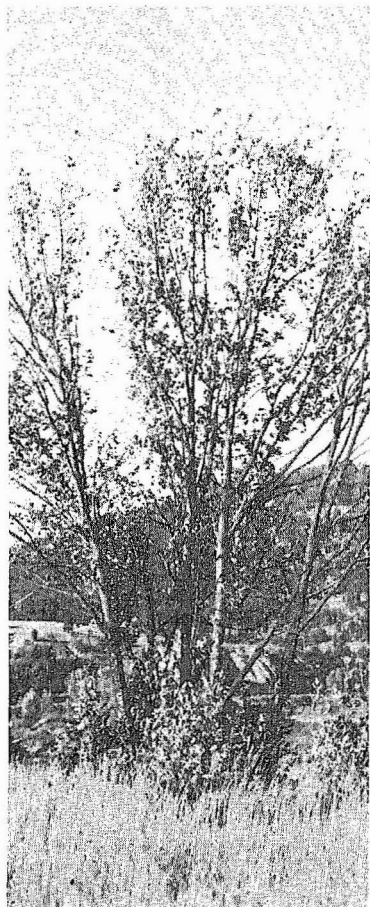
Thin leaf alder, sometimes called mountain alder, is a shrub or small tree with an open crown and wide spreading and ascending branches. It grows on moist, well-drained sites such as the bank of mountain streams and canyons. Abundant water is necessary for its growth.

**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 nut nearly round to slightly oblong.





### WESTERN CHOKECHERRY

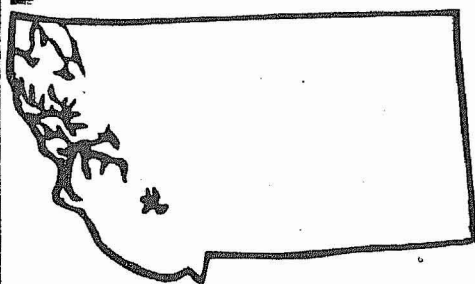
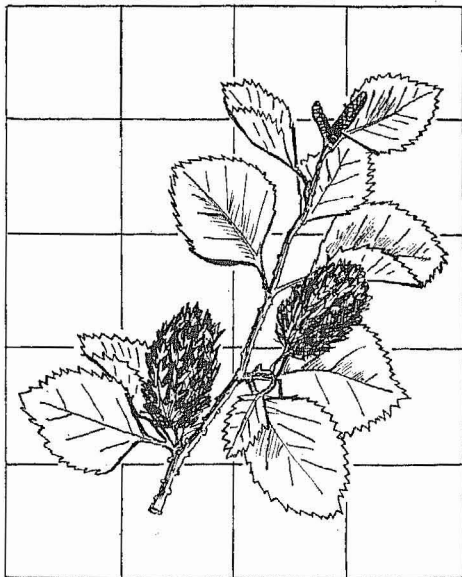
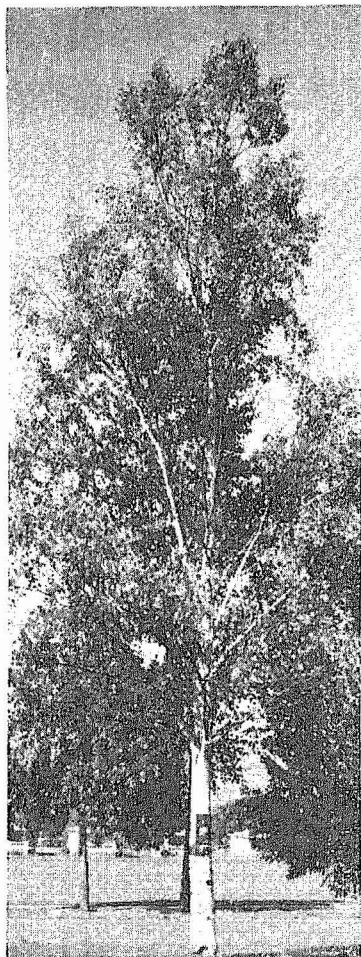
(*Prunus virginiana demissa*)

Found on mountain slopes, stream borders, and dry hills, western 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 and marked with little white 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.

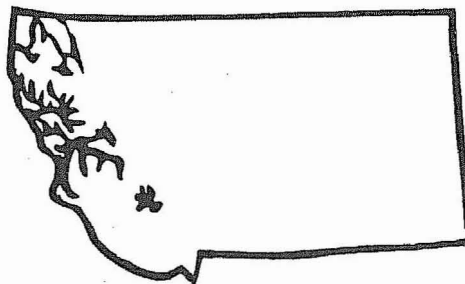
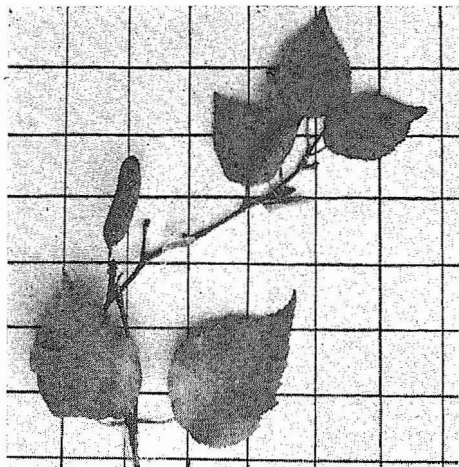


**PAPER BIRCH**  
(*Betula papyrifera*)

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, light, yellow-green below.

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

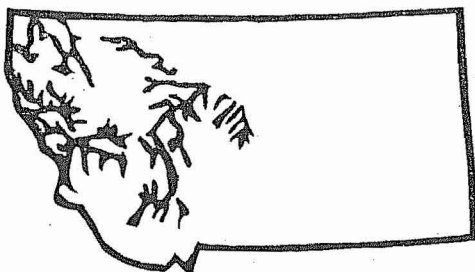
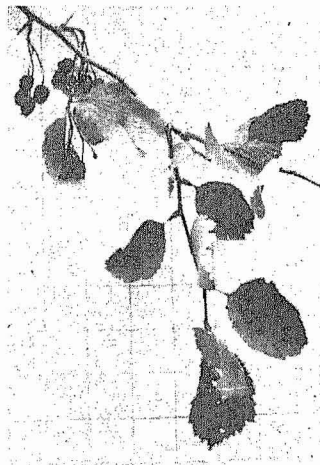
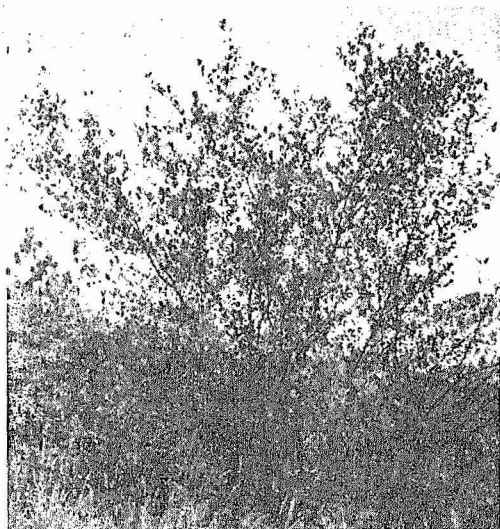


**WATER BIRCH**  
(*Betula fontinalis*)

This is a shrub or small tree 20-25 feet high 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.



(*Crataegus douglasii*)

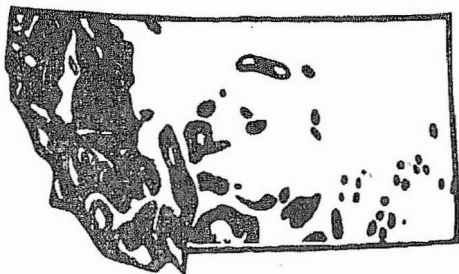
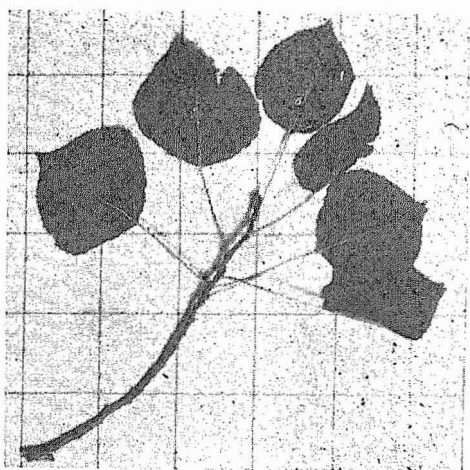
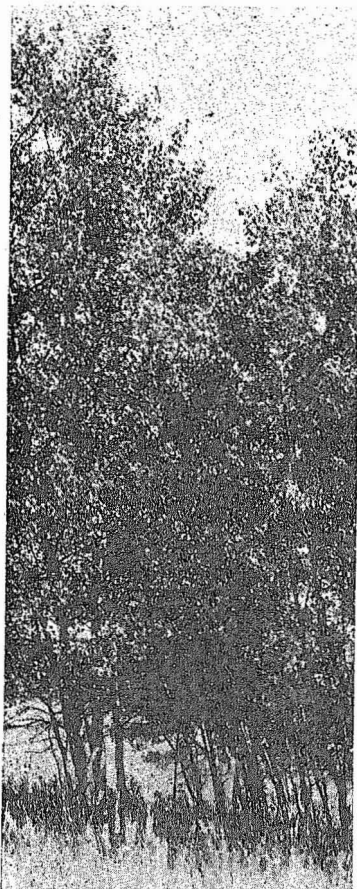
### WESTERN THORNAPPLE

Western thornapple 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. Often it has blunt 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 saw-toothed toward the tips. Dark green above, paler below. Leaves usually somewhat cut into unequal lobes.

**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.



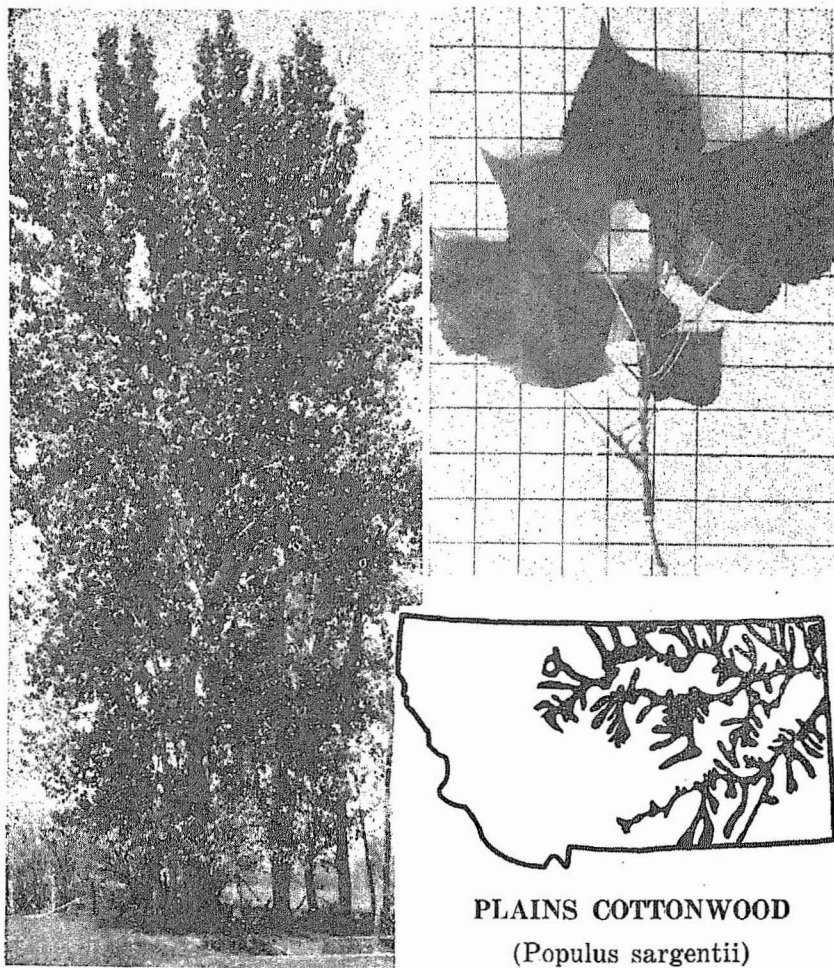
### ASPEN

(*Populus tremuloides*)

This tree is also called quaking asp 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.



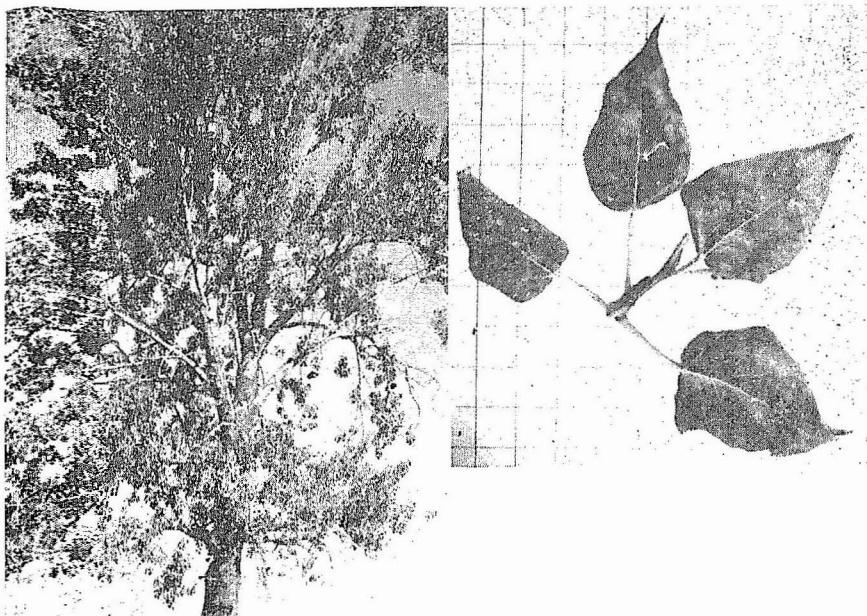
### PLAINS COTTONWOOD

(*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, 3-4" long and usually slightly longer than broad. The leaf stem or petiole is flattened, slender and 2½"-3½" long. The leaf has a round toothed margin.

**Bark:** Gray and smooth on young trees, thick and furrowed on older trees.



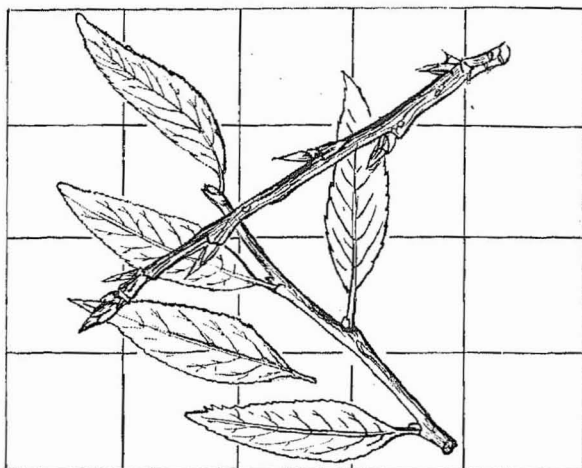
**NORTHERN BLACK  
COTTONWOOD**  
(*Populus trichocarpa*)

Northern 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:** 5-6 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 1½ inches thick.





**NARROWLEAF  
COTTONWOOD**

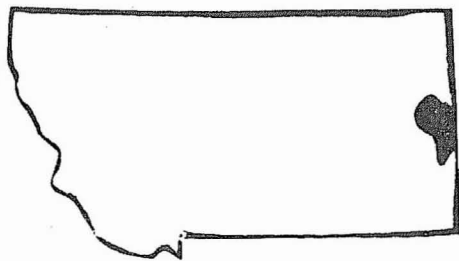
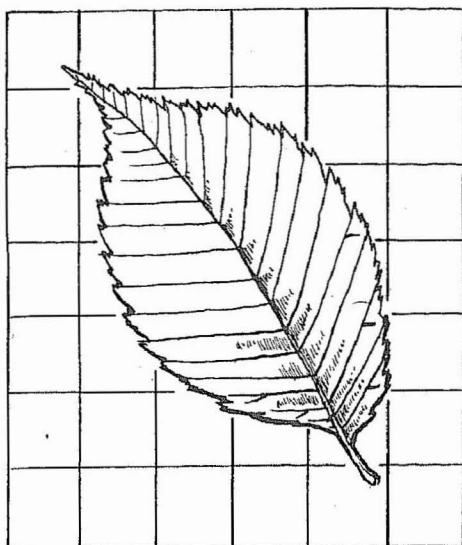
(*Populus angustifolia*)

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.





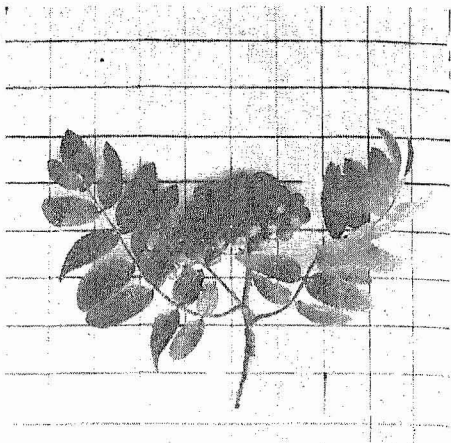
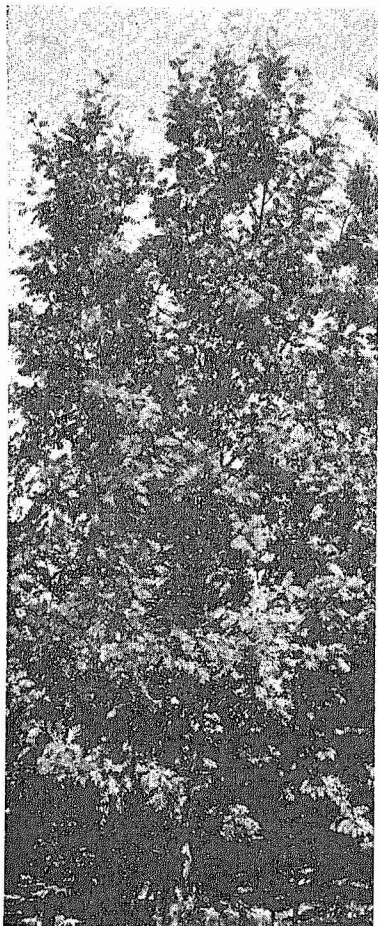
**AMERICAN ELM**  
(*Ulmus americana*)

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 near the ground 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:** 4-6" 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:** A winged-nut with the seed cavity encircled by a thin papery wing.



**WESTERN MOUNTAIN ASH**  
(*Sorbus sitchensis*)

Western Mountain Ash is of peculiar interest because it is not a true ash. It is usually a shrub except when cultivated. Western mountain ash 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 2-4" long and  $\frac{1}{2}$ -1" wide; leaflets oblong to lance shaped; blue-green above, pale below.

**Bark:** Thin ( $\frac{1}{8}$  inch), light gray; smooth or slightly roughened by scales.

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