



United States Department of Agriculture



# Conservation Trees and Shrubs for Montana



Montana

Natural  
Resources  
Conservation  
Service

[mt.nrcs.usda.gov](http://mt.nrcs.usda.gov)

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Front and back cover photos: USDA-NRCS



# INTRODUCTION:

## Conservation Tree and Shrub Guide for Montana

This guide is designed as an aid for planting trees and shrubs in Montana. It can be used to select plants for windbreaks, riparian plantings, recreation, and wildlife plantings, ornamental or environmental plantings, reforestation, and critical area plantings. Montana has diverse climates with harsh growing conditions. Understanding which species of trees and shrubs can grow in each soil, site, and climatic conditions is critical to the success of a planting.

This publication focuses on describing trees and shrubs capable of tolerating Montana's climatic and environmental conditions, the site conditions where they are best adapted to grow, and some of the benefits each tree and shrub species provides. When looking at the provided attributes, consider these two points:

- Characteristics and traits are approximations, and variability within a species or across the state is common.
- Plant performance varies over time as a plant grows and matures. For example, even "drought tolerant" species require adequate moisture until their root systems become well established.

### Common Problems that Can Lead to Decline in Trees and Shrubs in Montana:

#### Drought

Individual trees vary widely in their resistance to drought. In years of low rainfall, many tree species can be substantially weakened or killed by drought. Deciduous trees appear to die from the top down, have small, off-colored leaves, and narrow growth rings. Conifers generally die from the bottom up when subjected to drought. Drought, and other factors that weaken a tree, may lead to secondary invasion by fungi and/or insects and further weaken the tree.

#### Leaf Scorch

This condition is caused by unfavorable weather conditions such as high temperature, dry winds, and/or low soil moisture. Affected trees generally have yellow or brown leaf edges and tips. Affected leaves may remain on the tree or drop early. Watering during hot and dry conditions may prevent or alleviate this problem.

#### Fall Freeze Damage

Plants still actively growing in the fall may be damaged by unseasonably cold periods. This damage occurs before the plant goes into winter dormancy as indicated by development of fall color and normal leaf drop. Frozen leaves often hang on the tree until spring. This may cause little to no damage or kill the entire plant. Planting trees and shrubs adapted to the climate of Montana is critical to lessen the chances of fall freeze damage. Also, allowing trees to grow at an appropriate rate by not pushing them with fertilizer and excessive watering can minimize winter freeze damage.

#### Winter Freeze Damage

Prolonged mid-winter warm temperatures may cause non-adapted species to begin growing as if it is spring. For example, chinooks (warm winter winds) may cause winter thaw periods when daytime winter temperatures exceed 60°F for several days. This condition may cause winter injury when temperatures drop again, leading to minimal viability for new growth. In such cases, only the main trunk and scaffold branches may be viable in spring. Planting species adapted to Montana's climate can lessen chances of winter freeze damage. In addition, planting less-hardy species in protected locations such as the north side of a house or interior of an established shelterbelt can minimize winter freeze damage.



## Winter Desiccation

Winter desiccation is most common with evergreens because evergreens require water to grow year-round. Winter desiccation occurs when inadequate water is available in the root zone to meet the demands of transpiration. It occurs when winter sun and wind cause water loss from needles and frozen soil conditions prevent roots from taking up water to replenish leaf-water supply. The usual symptom is purpling or death of needles on the windward side or side facing afternoon sun. Symptoms may be more severe in newly transplanted trees that have not established a good root system. Late fall and winter watering can minimize winter desiccation.

## Sunscald

Bark on the southwest side of tree trunks may be killed by sunscald. Sunscald occurs when bark warms and thaws in the winter afternoon sun, then refreezes when night temperatures drop rapidly, killing live tissue. Damage is most common on darker-colored, smooth-barked trees such as mountain ash, apple, and maple. Tree wraps can help prevent sunscald. Planting in a site that is shaded in the winter is recommended for susceptible trees.

## Frost Cracking

Frost cracking is caused by extremely rapid temperature changes in bark and wood. As with sunscald, the bark and wood on the sunny side of the tree warms during the day. If a cold front moves in with a dramatic drop in temperature (i.e., from 30°F to -20°F in a very short time period), uneven contraction of the wood causes a crack to form suddenly directly below the bark. Damage is most common in hardwood tree species such as green ash and trees growing in open, unsheltered areas. Frost cracking is not common in Montana, and trees usually heal cracks without significant impacts.

**Learn more about plants best suited to your site conditions by visiting the local Natural Resources Conservation Service field office or [nrcs.usda.gov/montana](https://nrcs.usda.gov/montana). Find contact information at [nrcs.usda.gov/contact](https://nrcs.usda.gov/contact).**

**Color key guide used throughout this document:**

Shrubs (*grey*)

Deciduous Trees (*green*)

Conifers (*brown*)



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# PART I: Tree and Shrub Species General Information

## SHRUBS

### Almond, Russian (*Prunus tenella*)



Herman, D.E. et al.; provided by ND State Soil Conservation Committee, USDA-NRCS PLANTS Database

- 20-Year Height:** 5 feet
  - Growth Rate:** moderate
  - Growth Habit:** spreading, suckering
  - Drought Tolerance:** medium
  - Shade Tolerance:** intolerant
  - Wildlife Value:** good for winter browse, cover and nesting sites for birds and small mammals, attracts pollinators
  - Disease/Pests:** no major pest or disease problems
  - Native to MT:** no
  - Other:** often planted for surplus of flowers
- Flower:** white to pink
  - Foliage:** green, showy red in fall
  - Soils:** adapted to all soil types, prefers loamy soil

### Ash, European Mountain (*Sorbus aucuparia*)



M. Lavin, MSU

M. Lavin, MSU

- 20-Year Height:** 20 feet
  - Growth Rate:** moderate
  - Growth Habit:** single or multi-stemmed
  - Drought Tolerance:** low
  - Wildlife Value:** berries are a food source for birds, nesting habitat
  - Disease/Pests:** fireblight, borers, and cankers can be serious problems on stressed plants
  - Native to MT:** no
  - Other:** yellowish-red bark, clusters of orange fruit, does best in protected areas
- Shade Tolerance:** intermediate
  - Flower:** white
  - Foliage:** green, orange in fall
  - Soils:** adapted to medium and coarse soils

### Buffaloberry, Silver (*Shepherdia argentea*)



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- 20-Year Height:** 10 feet
  - Growth Rate:** moderate
  - Growth Habit:** multi-stemmed, loosely branched, thorny, suckering, thicket-forming
  - Drought Tolerance:** medium
  - Wildlife Value:** shelter and nesting cover for birds and small mammals, browse for big game and rodents, food sources for some songbirds and grouse, attracts pollinators
  - Disease/Pests:** heart rot disease, stem decay, branch canker
  - Native to MT:** yes
  - Other:** red berries can be used for jellies, fixes nitrogen
- Shade Tolerance:** intermediate, prefers full sun
  - Flower:** small, yellow
  - Foliage:** white-gray
  - Soils:** adapted to all soil types, high salinity tolerance, tolerates heavy clay, subirrigated soils



## Caragana (*Caragana arborescens*)



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**20-Year Height:** 12 feet

**Growth Rate:** rapid

**Growth Habit:** erect, multi-stemmed

**Drought Tolerance:** high

**Wildlife Value:** provides shelter and nesting for birds and small mammals, seeds are a food source, attracts pollinators

**Disease/Pests:** stem decay and branch cankers; leaf spot diseases, red spider mites, blister beetles, grasshoppers, and aphids

**Native to MT:** no

**Other:** Also known as Siberian pea, can spread into grasslands and prairies

**Shade Tolerance:** intermediate

**Flower:** small, showy, yellow

**Foliage:** green, yellow in fall

**Soils:** adapted to all soil types

## Cherry, Black (*Prunus serotina*)



T. Davis Sydnor, The Ohio State University, Bugwood.org

**20-Year Height:** 20 feet

**Growth Rate:** moderate

**Growth Habit:** ovoid crown shape

**Drought Tolerance:** medium

**Wildlife Value:** fruit provides excellent food for birds and mammals, attracts pollinators

**Disease/Pests:** tent caterpillar, cherry scallop shell moth, black knot, leaves not palatable to grasshoppers

**Native to MT:** no

**Other:** leaves, twigs, bark, and seeds produce a cyanogenic glycoside and can cause livestock poisoning; fruits can be used in jelly if properly prepared

**Shade Tolerance:** intolerant

**Flower:** white

**Foliage:** green

**Soils:** adapted to medium and coarse soils

## Cherry, Nanking (*Prunus tomentosa*)



Herman, D.E. et al.; provided by ND State Soil Conservation Committee, USDA-NRCS PLANTS Database

**20-Year Height:** 7 feet

**Growth Rate:** moderate

**Growth Habit:** single crown, upright, irregular

**Drought Tolerance:** low

**Wildlife Value:** fruit for birds and small mammals, browse for ungulates, attracts pollinators

**Disease/Pests:** branch canker

**Native to MT:** no

**Other:** edible, tart fruit

**Shade Tolerance:** intolerant

**Flower:** white to pink

**Foliage:** green, conspicuous fall foliage

**Soils:** adapted to medium and coarse soils, prefers loamy soil



## Chokeberry, Black (*Aronia melanocarpa*)



Levi Doll, USDA-NRCS

**20-Year Height:** 6 feet

**Growth Rate:** moderate

**Growth Habit:** multi-stemmed, suckering

**Drought Tolerance:** low

**Wildlife Value:** berries are excellent food source for birds, deer browse, attracts pollinators

**Disease/Pests:** tent caterpillar

**Native to MT:** no

**Other:** tolerates low, wet areas

**Shade Tolerance:** tolerant

**Flower:** white

**Foliage:** shiny and green, red in fall

**Soils:** adapted to medium and coarse soils

## Chokecherry (*Prunus virginiana*)



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**20-Year Height:** 15 feet

**Growth Rate:** moderate to rapid

**Growth Habit:** oval to rounded, suckering

**Drought Tolerance:** high

**Wildlife Value:** birds, rabbits, rodents, and bears all seek out and eat fruit, cover and nesting habitat for birds, winter deer browse, attracts pollinators

**Disease/Pests:** X-disease, black knot, stem decay, Valsa canker, honey fungus, tent caterpillars and aphid insect pests

**Native to MT:** yes

**Other:** fruit flesh is edible and used for jellies, young foliage can be poisonous to livestock, stone seeds are poisonous, 'Schubert' variety (or Canada red) has purple leaves and is available as single- or multi-stem plants (see page 39)

**Shade Tolerance:** intermediate

**Flower:** white

**Foliage:** green, orange in fall

**Soils:** adapted to all soil types

## Cinquefoil, Shrubby (*Dasiphora fruticosa*)



Ted Nelson, USDA-NRCS

**20-Year Height:** 3 feet

**Growth Rate:** moderate

**Growth Habit:** hardy, rounded, multi-stemmed

**Drought Tolerance:** medium

**Wildlife Value:** nesting cover, attracts pollinators

**Disease/Pests:** downy and powdery mildew, rust, leaf spot, and root rot; spider mites and aphids

**Native to MT:** yes

**Other:** many cultivated varieties available, fairly maintenance free, browse-resistant

**Shade Tolerance:** intermediate

**Flower:** yellow, sometimes whitish, flowers throughout season

**Foliage:** green with bluish cast

**Soils:** adapted to all soil types



## Cotoneaster (*Cotoneaster integerrimus*)



Herman, D.E. et al.; provided by ND State Soil Conservation Committee, USDA-NRCS PLANTS Database

**20-Year Height:** 9 feet

**Growth Rate:** moderate

**Growth Habit:** spreading, open and upright, arching branches

**Drought Tolerance:** high

**Wildlife Value:** fruit are valuable food source for birds and mammals

**Disease/Pests:** fireblight, pear slug (sawfly larva), deer will browse

**Native to MT:** no

**Other:** should not be planted near apples (fireblight hosts), can spread into grasslands and prairies

**Shade Tolerance:** intolerant

**Flower:** small, pinkish-white

**Foliage:** shiny dark green, red in fall

**Soils:** adapted to medium soils

## Currant, Golden (*Ribes aureum*)



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**20-Year Height:** 6 feet

**Growth Rate:** moderate

**Growth Habit:** upright, spreading

**Drought Tolerance:** high

**Wildlife Value:** roosting, loafing, nesting for birds, food source for birds and mammals, attracts pollinators

**Disease/Pests:** leaf spot, host for white pine blister rust, currant worm

**Native to MT:** yes

**Other:** edible berries

**Shade Tolerance:** intermediate

**Flower:** fragrant, golden-yellow

**Foliage:** green

**Soils:** adapted to medium soils

## Dogwood, Redosier (*Cornus sericea*)



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**20-Year Height:** 8 feet

**Growth Rate:** moderate

**Growth Habit:** loose and rounded, multi-stemmed

**Drought Tolerance:** low

**Wildlife Value:** wildlife browse and forage, birds eat fruit, dense cover, attracts pollinators

**Disease/Pests:** twig blight

**Native to MT:** yes

**Other:** red bark provides winter color

**Shade Tolerance:** tolerant

**Flower:** cream

**Foliage:** green, red in fall

**Soils:** adapted to all soil types





## Elderberry, Red (*Sambucus racemosa*)



M. Lavin, MSU

**20-Year Height:** 10 feet

**Growth Rate:** moderate

**Growth Habit:** multi-stemmed

**Drought Tolerance:** low

**Shade Tolerance:** intermediate

**Flower:** white

**Foliage:** green

**Soils:** adapted to fine and medium soil types

**Wildlife Value:** food and cover for birds and mammals, attracts pollinators

**Disease/Pests:** viral cankers, bacterial and fungal leaf spots, powdery mildew, and cane borers

**Native to MT:** yes

**Other:** edible berries, fruit may be toxic to humans without sufficient preparation, leaves are toxic to livestock

## Hawthorn, Arnold (*Crataegus x anomala*)



Herman, D.E. et al.; provided by ND State Soil Conservation Committee, USDA-NRCS PLANTS Database

**20-Year Height:** 15 feet

**Growth Rate:** moderate

**Growth Habit:** upright to horizontal, symmetrical

**Drought Tolerance:** medium

**Shade Tolerance:** intolerant

**Flower:** white, has unpleasant odor

**Foliage:** green

**Soils:** adapted to all soil types, does best in moist soils

**Wildlife Value:** nesting and cover habitat, food, and browse for a variety of birds and mammals, attracts pollinators

**Disease/Pests:** no major pest or disease problems

**Native to MT:** no

**Other:** large thorns, bright orange-red fruit can be used for jams

## Hawthorn, Black (*Crataegus douglasii*)



Dave Powell, USDA Forest Service (retired), Bugwood.org

**20-Year Height:** 15 feet

**Growth Rate:** moderate

**Growth Habit:** small tree with thorny branches, prone to suckering, thicket forming

**Drought Tolerance:** medium

**Shade Tolerance:** intermediate

**Flower:** white

**Foliage:** green

**Soils:** adapted to all soil types, does best in moist soils

**Wildlife Value:** abundant food, cover, and browse for birds, deer, and other mammals, attracts pollinators

**Disease/Pests:** susceptible to fireblight, cedar-hawthorn rust, cedar-quince rust, leaf blight, fruit rot, and leaf spot

**Native to MT:** yes

**Other:** produces black berries, develops deep taproot



## Honeysuckle, Blueleaf (*Lonicera korolkowii*)



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- 20-Year Height:** 8 feet
  - Growth Rate:** moderate
  - Growth Habit:** spreading branches
  - Drought Tolerance:** medium
  - Wildlife Value:** food, cover and nesting for songbirds, attracts pollinators
  - Disease/Pests:** aphids
  - Native to MT:** no
  - Other:** plant only aphid-resistant cultivars, bright red berries are not edible
- Shade Tolerance:** intermediate
  - Flower:** yellow to pink
  - Foliage:** green to blue-gray
  - Soils:** adapted to all soil types

## Lilac, Common (*Syringa vulgaris*)



USDA-NRCS

- 20-Year Height:** 8 feet
  - Growth Rate:** moderate
  - Growth Habit:** upright, multi-stemmed, suckering
  - Drought Tolerance:** high
  - Wildlife Value:** little value for fruit or browse, good songbird nesting habitat
  - Disease/Pests:** powdery mildew
  - Native to MT:** no
  - Other:** plant in areas with good air circulation to reduce powdery mildew
- Shade Tolerance:** intermediate, prefers direct sun
  - Flower:** white to purple, fragrant and showy
  - Foliage:** green, yellow in fall
  - Soils:** adapted to all soil types, does not tolerate poorly drained soil

## Mahogany, Curl-Leaf Mountain (*Cercocarpus ledifolius*)



USDA-NRCS PLANTS Database

- 20-Year Height:** 9 feet
  - Growth Rate:** moderate
  - Growth Habit:** multi-stemmed
  - Drought Tolerance:** high
  - Shade Tolerance:** intermediate, prefers direct sun
  - Wildlife Value:** excellent browse for ungulates, cover for birds and small mammals
  - Disease/Pests:** no major pest or disease problems
  - Native to MT:** yes
  - Other:** heat tolerant, rare toxic affects to cattle
- Flower:** yellow
  - Foliage:** shiny, deep green, gray bark
  - Soils:** adapted to medium and coarse soils, very tolerant of limy and shallow soils, can grow on limestone rock outcrop



## Maple, Amur (*Acer ginnala*)



USDA-NRCS

- 20-Year Height:** 15 feet
  - Growth Rate:** moderate
  - Growth Habit:** single or multi-stemmed, spreading branches
  - Drought Tolerance:** medium
  - Wildlife Value:** cover for birds and small mammals
  - Disease/Pests:** usually pest-free, aphids
  - Native to MT:** no
  - Other:** considered a shrub or low-growing tree
- Shade Tolerance:** intermediate
  - Flower:** light yellow
  - Foliage:** green, bright red in fall
  - Soils:** adapted to medium and coarse soils

## Maple, Rocky Mountain (*Acer glabrum*)



M. Lavin, MSU



M. Lavin, MSU

- 20-Year Height:** 15 feet
  - Growth Rate:** moderate
  - Growth Habit:** multi-stemmed, spreading branches
  - Drought Tolerance:** medium
  - Wildlife Value:** cover and browse for ungulates, cover and nesting habitat for game birds, songbirds, and small mammals
  - Disease/Pests:** no major pest or disease problems
  - Native to MT:** yes
  - Other:** red bark provides winter color, re-sprouts after fire
- Shade Tolerance:** intermediate
  - Flower:** green
  - Foliage:** green, yellow to orange in fall
  - Soils:** adapted to medium and coarse soils, prefers moist soils

## Ninebark (*Physocarpus malvaceus*)



Dave Powell, USDA Forest Service, Bugwood.org



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- 20-Year Height:** 5 feet
  - Growth Rate:** moderate
  - Growth Habit:** multi-stemmed, spreading in clumps
  - Drought Tolerance:** medium
  - Wildlife Value:** good cover and food, attracts pollinators
  - Disease/Pests:** no major pest or disease problems
  - Native to MT:** yes
  - Other:** shredding bark, ornamental purple leaf varieties available
- Shade Tolerance:** intermediate
  - Flower:** white
  - Foliage:** green, red in fall
  - Soils:** adapted to all soil types



## Plum, American (*Prunus americana*)



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**20-Year Height:** 10 feet

**Growth Rate:** moderate

**Growth Habit:** round-headed crown, suckering

**Drought Tolerance:** medium

**Wildlife Value:** important for nesting, loafing, browse and food for birds and mammals, attracts pollinators

**Disease/Pests:** stem decay, branch cankers, black knot, plum pockets, tent caterpillar

**Native to MT:** yes

**Other:** thorny, ticket forming, edible fruit

**Shade Tolerance:** intolerant

**Flower:** white

**Foliage:** green, orange in fall

**Soils:** adapted to medium and coarse soils

## Rose, Woods' (*Rosa woodsii*)



Mary Ellen (Mel) Harte, Bugwood.org



William M. Ciesla, Forest Health Management International, Bugwood.org

**20-Year Height:** 3 feet

**Growth Rate:** moderate

**Growth Habit:** suckering, spreading, stems upright or semi-weeping

**Wildlife Value:** Fruits and foliage are a valuable food source for birds and mammals, nesting and cover, attracts pollinators

**Disease/Pests:** no major pest or disease problems

**Native to MT:** yes

**Other:** thorny, thicket-forming, fruit is a source of vitamin C

**Drought Tolerance:** high

**Shade Tolerance:** intermediate

**Flower:** showy, pink

**Foliage:** green

**Soils:** adapted to medium and coarse soils

## Sagebrush, Big (*Artemisia tridentata*)



M. Lavin, MSU

**20-Year Height:** 4 feet

**Growth Rate:** slow

**Growth Habit:** multi-stemmed, sprouting

**Drought Tolerance:** high

**Wildlife Value:** winter browse for ungulates, food and cover for birds and small mammals

**Disease/Pests:** sagebrush defoliator moth, microbial and fungal pathogens

**Native to MT:** yes

**Other:** an important shrub on western rangelands

**Shade Tolerance:** intolerant

**Flower:** small, yellow

**Foliage:** gray-green, evergreen

**Soils:** adapted to medium and coarse soils



## Sagebrush, Silver (*Artemisia cana*)



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**20-Year Height:** 4 feet

**Growth Rate:** moderate

**Growth Habit:** sprouting, spreading

**Drought Tolerance:** high

**Wildlife Value:** winter browse for ungulates, food and cover for birds and small mammals

**Disease/Pests:** sagebrush defoliator moth, microbial and fungal pathogens

**Native to MT:** yes

**Other:** re-sprouting species

**Shade Tolerance:** intolerant

**Flower:** small, yellow

**Foliage:** gray-green, evergreen

**Soils:** adapted to all soil types

## Sandcherry, Western (*Prunus pumila* var. *besseyi*)



Herman, D.E. et al.; provided by ND State Soil Conservation Committee, USDA-NRCS PLANTS Database

**20-Year Height:** 4 feet

**Growth Rate:** moderate

**Growth Habit:** open, multi-stemmed, suckering

**Drought Tolerance:** high

**Wildlife Value:** browse for wildlife, food and cover for birds and small mammals, attracts pollinators

**Disease/Pests:** leaf curl, black knot, fireblight

**Native to MT:** yes

**Other:** plant more than one shrub for fruit production

**Shade Tolerance:** intolerant

**Flower:** white

**Foliage:** green

**Soils:** adapted to medium and coarse soils

## Serviceberry, Saskatoon (*Amelanchier alnifolia*)



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**20-Year Height:** 10 feet

**Growth Rate:** moderate

**Growth Habit:** upright, multi-stemmed

**Drought Tolerance:** high

**Wildlife Value:** browse for ungulates, food and cover for birds and small mammals, attracts pollinators

**Disease/Pests:** tent caterpillar

**Native to MT:** yes

**Other:** edible fruit, leaves can cause toxicity issues in livestock

**Shade Tolerance:** intermediate

**Flower:** white

**Foliage:** green, red-orange in fall

**Soils:** adapted to all soil types



## Silverberry (*Elaeagnus commutata*)



Herman, D.E. et al.; provided by ND State Soil Conservation Committee, USDA-NRCS PLANTS Database

**20-Year Height:** 6 feet

**Growth Rate:** moderate

**Growth Habit:** upright, multi-stemmed, suckers profusely

**Drought Tolerance:** high

**Wildlife Value:** important browse for ungulates, food and cover for birds and small mammals, attracts pollinators

**Disease/Pests:** host for crown rust

**Native to MT:** yes

**Other:** forms dense thickets, good for erosion control

**Shade Tolerance:** intolerant

**Flower:** yellow

**Foliage:** white-gray to silver

**Soils:** adapted to medium and coarse soils, medium salinity tolerance

## Snowberry, Common and Western (*Symphoricarpos spp.*)



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**20-Year Height:** 3 feet

**Growth Rate:** moderate

**Growth Habit:** suckering, thicket forming

**Drought Tolerance:** high

**Wildlife Value:** browse and thermal cover for mammals, food and cover for birds, attracts pollinators

**Disease/Pests:** no major pest or disease problems

**Native to MT:** yes

**Other:** excellent for erosion control, bright white fruit

**Shade Tolerance:** intermediate

**Flower:** light pink

**Foliage:** green, yellow in fall

**Soils:** adapted to all soil types

## Sumac, Skunkbush (*Rhus trilobata*)



Herman, D.E. et al.; provided by ND State Soil Conservation Committee, USDA-NRCS PLANTS Database

**20-Year Height:** 8 feet

**Growth Rate:** slow

**Growth Habit:** spreading, sprouting, thicket forming

**Drought Tolerance:** high

**Wildlife Value:** fruits provide food source through winter for birds and small mammals, dense thickets provide shelter and nesting cover for birds and mammals, wildlife browse, attracts pollinators

**Disease/Pests:** none

**Native to MT:** yes

**Other:** re-sprouts after fire

**Shade Tolerance:** intermediate

**Flower:** yellow

**Foliage:** scented green leaves, yellow-orange to red in fall

**Soils:** adapted to medium and coarse soils, prefers well drained soil



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**Willow** (*Salix bebbiana*, *S. boothii*, *S. drummondiana*, *S. exigua*,  
*S. geeyeriana*, *S. lutea*)



Herman, D.E. et al.; provided by ND State Soil Conservation Committee, USDA-NRCS PLANTS Database

**20-Year Height:** 10 feet

**Growth Rate:** rapid

**Growth Habit:** upright, clumped to vigorous suckering

**Drought Tolerance:** low

**Wildlife Value:** shelter for birds, forage for ungulates, beavers consume branches, attracts pollinators

**Disease/Pests:** twig cankers, tar spot, aphids, willow galls, and scale insects

**Native to MT:** yes

**Other:** used for riparian habitat improvement and revegetation through container planting, cutting planting, and/or transplants, provides excellent streambank stabilization

**Shade Tolerance:** intermediate

**Flower:** green to yellow

**Foliage:** green, yellow in fall

**Soils:** adapted to all soil types



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## DECIDUOUS TREES

### Ash, Green (*Fraxinus pennsylvanica*)



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M. Lavin, MSU

**20-Year Height:** 18 feet

**Growth Rate:** rapid

**Growth Habit:** single stem, oval to elliptical crown

**Drought Tolerance:** medium

**Shade Tolerance:** tolerant

**Flower:** green

**Foliage:** green, yellow in fall

**Soils:** adapted to all soil types

**Wildlife Value:** seeds eaten by wildlife, nesting site

**Disease/Pests:** webworms, aphids, emerald ash borer (not in Montana as of this publication date), stem decay, branch/twig cankers, anthracnose, leaf rust, ash yellows

**Native to MT:** yes

**Other:** can withstand short periods of flooding

### Aspen, Quaking (*Populus tremuloides*)



M. Lavin, MSU



M. Lavin, MSU

**20-Year Height:** 25 feet

**Growth Rate:** rapid

**Growth Habit:** single stem, upright with sparse crown

**Drought Tolerance:** low

**Shade Tolerance:** intolerant

**Flower:** brown/gray

**Foliage:** green, yellow in fall

**Soils:** adapted to all soil types

**Wildlife Value:** browse, nesting and thermal cover, food and building material for beaver, cavity nesting

**Disease/Pests:** leaf spot, wetwood, stem canker, decay and pocket gopher damage to roots

**Native to MT:** yes

**Other:** root sprouting (clonal) species, preferred browse species by wildlife and livestock

### Birch, Paper (*Betula papyrifera*)



U.S. National Herbarium, Department of Botany, NMNH, Smithsonian Institution by permission from Howard, R.A.

**20-Year Height:** 25 feet

**Growth Rate:** rapid

**Growth Habit:** single stem, narrow, thin canopy

**Drought Tolerance:** low

**Shade Tolerance:** intolerant

**Flower:** yellow

**Foliage:** green, yellow in fall

**Soils:** adapted to all soil types, prefers moist, well drained soils

**Wildlife Value:** browse, nesting, sapsucker feeding

**Disease/Pests:** bronze birch borer

**Native to MT:** yes

**Other:** older trees have white bark used by Native Americans





## Birch, Water (*Betula occidentalis*)



M. Lavin, MSU

**20-Year Height:** 25 feet

**Growth Rate:** rapid

**Growth Habit:** multi-stemmed

**Drought Tolerance:** low

**Shade Tolerance:** intermediate

**Flower:** yellow

**Foliage:** green

**Soils:** adapted to all soil types, wet sites

**Wildlife Value:** nesting and cover for wildlife, shade cover for streamside planting

**Disease/Pests:** no major pest or disease problems

**Native to MT:** yes

**Other:** bronze to deep red bark, native to western Montana riparian areas

## Boxelder (*Acer negundo*)



**20-Year Height:** 18 feet

**Growth Rate:** rapid

**Growth Habit:** multi-stemmed, irregular crown

**Drought Tolerance:** high

**Shade Tolerance:** tolerant

**Flower:** white

**Foliage:** green

**Soils:** adapted to all soil types

**Wildlife Value:** nesting site

**Disease/Pests:** stem decay

**Native to MT:** yes

**Other:** sap used to make syrup, highly sensitive to phenoxy herbicides, boxelder bugs can be a nuisance

Herman, D.E. et al.; provided by ND State Soil Conservation Committee, USDA-NRCS PLANTS Database

USDA-NRCS

## Buckeye, Ohio (*Aesculus glabra*)



**20-Year Height:** 20 feet

**Growth Rate:** moderate

**Growth Habit:** small tree, single stem, oval to rounded crown

**Drought Tolerance:** medium

**Shade Tolerance:** tolerant

**Flower:** green

**Foliage:** green, yellow-orange to red in fall

**Soils:** adapted to fine and medium soils

**Wildlife Value:** nuts provide food for some species

**Disease/Pests:** leaf scorch

**Native to MT:** no

**Other:** prefers full sun, inedible fruit, can be structurally weak under heavy snow loads

Herman, D.E. et al.; provided by ND State Soil Conservation Committee, USDA-NRCS PLANTS Database



## Cottonwood, Black (*Populus balsamifera* ssp. *trichocarpa*)



M. Lavin, MSU

- 20-Year Height:** 45 feet
  - Growth Rate:** rapid
  - Growth Habit:** single stem, large tree
  - Drought Tolerance:** low
  - Wildlife Value:** browse, perch, and denning sites
  - Disease/Pests:** susceptible to many issues, mainly cankers
  - Native to MT:** yes
  - Other:** largest of Montana cottonwoods, heavy limbs, high amounts of “cotton” during seed dispersion, sucker easily, weak wooded
- Shade Tolerance:** intolerant
  - Flower:** yellow
  - Foliage:** green
  - Soils:** adapted to all soil types, requires moist site with seasonal high-water table

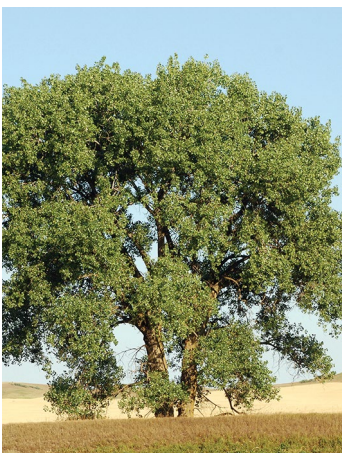
## Cottonwood, Narrowleaf (*Populus angustifolia*)



USDA-NRCS

- 20-Year Height:** 45 feet
  - Growth Rate:** rapid
  - Growth Habit:** single stem, medium to large tree
  - Drought Tolerance:** low
  - Wildlife Value:** browse, perch, den and nesting sites
  - Disease/Pests:** susceptible to many issues, mainly cankers
  - Native to MT:** yes
  - Other:** can grow at higher elevations, high amounts of “cotton” during seed dispersion, sucker easily
- Shade Tolerance:** intolerant
  - Flower:** white
  - Foliage:** green
  - Soils:** adapted to medium and coarse soils, requires moist site with seasonal high-water table

## Cottonwood, Plains (*Populus deltoides* spp. *monilifera*)



USDA-NRCS

- 20-Year Height:** 40 feet
  - Growth Rate:** rapid
  - Growth Habit:** single stem, large tree
  - Drought Tolerance:** high
  - Wildlife Value:** browse, perch, den, and nesting sites
  - Disease/Pests:** susceptible to many issues, mainly cankers
  - Native to MT:** yes
  - Other:** high amounts of “cotton” during seed dispersion, sucker easily
- Shade Tolerance:** intolerant
  - Flower:** yellow
  - Foliage:** green
  - Soils:** adapted to all soil types, requires moist site with seasonal high water table



## Crab Apple, Siberian (*Malus baccata*)



Herman, D.E. et al.; provided by ND State Soil Conservation Committee, USDA-NRCS PLANTS Database

- 20-Year Height:** 15 feet
  - Growth Rate:** moderate
  - Growth Habit:** small tree, single stem, round to spreading
  - Drought Tolerance:** low
  - Wildlife Value:** deer and other species utilize the fruit, fair browse value
  - Disease/Pests:** scab, fireblight, cankers, powdery mildew and rust
  - Native to MT:** no
  - Other:** native to Asia
- Shade Tolerance:** intermediate
  - Flower:** white
  - Foliage:** green
  - Soils:** adapted to all soil types, prefers heavy loam

## Elm, American (*Ulmus Americana*)



M. Lavin, MSU



M. Lavin, MSU

- 20-Year Height:** 50 feet
  - Growth Rate:** rapid
  - Growth Habit:** single stem, large canopy
  - Drought Tolerance:** medium
  - Wildlife Value:** food and occasional browse
  - Disease/Pests:** Dutch elm disease, elm bark and leaf beetles, leaf miner and verticillium wilt
  - Native to MT:** yes
  - Other:** some cultivars are more disease and pest resistant, requires heavy annual pruning to avoid severe snow load breakage once established
- Shade Tolerance:** intermediate
  - Flower:** green
  - Foliage:** green
  - Soils:** adapted to all soil types

## Elm, Siberian (*Ulmus pumila*)



Herman, D.E. et al.; provided by ND State Soil Conservation Committee, USDA-NRCS PLANTS Database

- 20-Year Height:** 25 feet
  - Growth Rate:** rapid
  - Growth Habit:** single stem
  - Drought Tolerance:** high
  - Wildlife Value:** nesting and cover
  - Disease/Pests:** elm leaf beetle, cankerworm
  - Native to MT:** no
  - Other:** resistant to Dutch elm disease, weak wood breaks easily under heavy snow loads, prolific seeder can be a problem, invasive in some states, highly sensitive to phenoxy herbicides
- Shade Tolerance:** intolerant
  - Flower:** green
  - Foliage:** green
  - Soils:** adapted to all soil types



## Hackberry, Common (*Celtis occidentalis*)



Herman, D.E. et al.; provided by ND State Soil Conservation Committee, USDA-NRCS PLANTS Database

**20-Year Height:** 15 feet

**Growth Rate:** rapid

**Growth Habit:** single stem

**Drought Tolerance:** high

**Shade Tolerance:** tolerant

**Flower:** green

**Foliage:** green

**Soils:** adapted to all soil types, somewhat tolerant to alkaline soils

**Wildlife Value:** purple fruit consumed by wildlife and birds

**Disease/Pests:** witches' brooms, leaf galls

**Native to MT:** no – native to North and South Dakota

**Other:** good replacement for elm because of its similar form and adaptability

## Honeylocust (*Gleditsia triacanthos*)



C. Meier, USDA-NRCS

USDA-NRCS

**20-Year Height:** 20 feet

**Growth Rate:** rapid

**Growth Habit:** single crown

**Drought Tolerance:** high

**Shade Tolerance:** intolerant

**Flower:** yellow

**Foliage:** green

**Soils:** adapted to fine and medium soils

**Wildlife Value:** food and nesting sites

**Disease/Pests:** problems include leafhopper, cankers, borers, webworms, mites, powdery mildew, rust and leaf spot

**Native to MT:** no

**Other:** transplants easily, some cultivars do not produce fruit and thorns, non-nitrogen fixing member of legume family, pod like fruit can be messy

## Linden, American (*Tilia Americana*)



Herman, D.E. et al.; provided by ND State Soil Conservation Committee, USDA-NRCS PLANTS Database

**20-Year Height:** 25 feet

**Growth Rate:** moderate

**Growth Habit:** single stem

**Drought Tolerance:** low

**Shade Tolerance:** tolerant

**Flower:** yellow

**Foliage:** green, yellow in fall

**Soils:** adapted to medium and coarse soils

**Wildlife Value:** seeds are food for birds and wildlife, provides den sites, attracts pollinators

**Disease/Pests:** linden borer, linden looper, spring cankerworm, gypsy moth, tent caterpillars, basswood leaf miner, Japanese beetle, adolescent sunscald

**Native to MT:** no

**Other:** Also known as American basswood, cultivars exist that have larger leaves, good for beehive honey production during spring bloom



## Locust, Black (*Robinia pseudoacacia*)



T. Davis Sydnor, The Ohio State University, Bugwood.org



Richard Gardner, Bugwood.org

**20-Year Height:** 25 feet  
**Growth Rate:** rapid  
**Growth Habit:** multi-stemmed  
**Drought Tolerance:** high

**Shade Tolerance:** intolerant  
**Flower:** white  
**Foliage:** green  
**Soils:** adapted to all soil types, tolerates dry, infertile soils,

**Wildlife Value:** seeds provide food for birds, attracts pollinators  
**Disease/Pests:** black locust borer and leaf miner  
**Native to MT:** no  
**Other:** used in reclamation plantings, fixes nitrogen, two thorns present at base of leaf stalks, invasive in some states

## Maple, Silver (*Acer saccharinum*)



T. Davis Sydnor, The Ohio State University, Bugwood.org



T. Davis Sydnor, The Ohio State University, Bugwood.org

**20-Year Height:** 45 feet  
**Growth Rate:** rapid  
**Growth Habit:** single stem  
**Drought Tolerance:** low

**Shade Tolerance:** intermediate  
**Flower:** yellow  
**Foliage:** green  
**Soils:** adapted to all soil types

**Wildlife Value:** abundant seed crops consumed by birds and other wildlife, buds and bark are also food sources for mammals, cavity nesting, attracts pollinators  
**Disease/Pests:** verticillium wilt, tar spot, cottony maple scale, maple bladder gall, susceptible to severe iron chlorosis on high pH soils  
**Native to MT:** no  
**Other:** rapid growth provides shade quicker than most trees, breaks easily under heavy snow loads, spreading seedlings can be a problem

## Oak, Bur (*Quercus macrocarpa*)



USDA-NRCS



USDA-NRCS

**20-Year Height:** 18 feet  
**Growth Rate:** slow  
**Growth Habit:** single stem, stout branches  
**Drought Tolerance:** high

**Shade Tolerance:** intermediate  
**Flower:** yellow  
**Foliage:** green  
**Soils:** adapted to all soil types

**Wildlife Value:** food (acorns and foliage), cover, nesting for birds and squirrels  
**Disease/Pests:** oak wilt, leaf galls, bullet gall, kermes scale, bacterial leaf scorch, and powdery mildew  
**Native to MT:** yes, southeast Montana  
**Other:** long life span, deep taproot, can be difficult to transplant, slow growing



## Pear, Chinese (*Pyrus ussuriensis*)



Herman, D.E. et al.; provided by ND State Soil Conservation Committee, USDA-NRCS PLANTS Database

- 20-Year Height:** 20 feet
  - Growth Rate:** moderate
  - Growth Habit:** small tree, single stem, dense round crown
  - Drought Tolerance:** medium
  - Wildlife Value:** nesting and cover, attracts pollinators
  - Disease/Pests:** girdling and deer browse can damage trunks
  - Native to MT:** no
  - Other:** fruit can be used for jams and jellies
- Shade Tolerance:** intolerant
  - Flower:** white
  - Foliage:** green
  - Soils:** adapted to medium soils

## Poplar, White or Silver (*Populus alba*)



Herman, D.E. et al.; provided by ND State Soil Conservation Committee, USDA-NRCS PLANTS Database

- 20-Year Height:** 25 feet
  - Growth Rate:** rapid
  - Growth Habit:** single stem
  - Drought Tolerance:** medium
  - Wildlife Value:** browse and nesting
  - Disease/Pests:** galls, cankers, leaf spots, powdery mildew, aphids, borers, and scale insects
  - Native to MT:** no
  - Other:** numerous root sprouts, can ruin foundations and sewer pipes, confused with silver maple because of maple-shaped leaves, can be messy during seed dispersion
- Shade Tolerance:** intolerant
  - Flower:** yellow
  - Foliage:** green
  - Soils:** adapted to all soil types

## Walnut, Black (*Juglans nigra*)



Herman, D.E. et al.; provided by ND State Soil Conservation Committee, USDA-NRCS PLANTS Database

- 20-Year Height:** 16 feet
  - Growth Rate:** rapid
  - Growth Habit:** single stem
  - Drought Tolerance:** low
  - Wildlife Value:** nesting and nuts good food source for mammals
  - Disease/Pests:** thousand canker disease, parasitic nematodes, mistletoe, bacterial blight, white trunk rot, root rots
  - Native to MT:** no
  - Other:** heartwood is used for veneer and furniture, select hardy seed sources, produces edible nuts, allelopathic
- Shade Tolerance:** intolerant
  - Flower:** yellow
  - Foliage:** green
  - Soils:** adapted to medium soils



## Willow, Golden or White (*Salix alba*)



Herman, D.E. et al.; provided by ND State Soil Conservation Committee, USDA-NRCS PLANTS Database

- 20-Year Height:** 25 feet
  - Growth Rate:** rapid
  - Growth Habit:** single stem
  - Drought Tolerance:** low
  - Wildlife Value:** cover and browse for several wildlife species
  - Disease/Pests:** stem rot, watermark disease, anthracnose
  - Native to MT:** no
  - Other:** branches shed easily, can be invasive along waterways
- Shade Tolerance:** intolerant
  - Flower:** yellow
  - Foliage:** green
  - Soils:** adapted to all soil types

## Willow, Peachleaf (*Salix amygdaloides*)

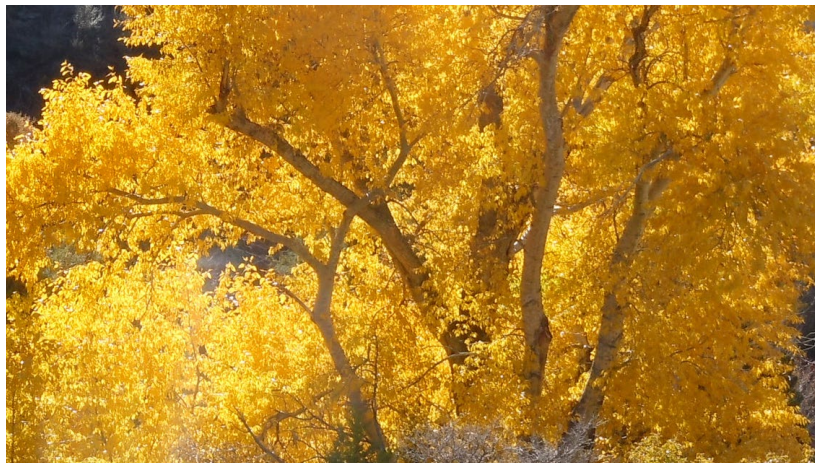


M. Lavin, MSU



M. Lavin, MSU

- 20-Year Height:** 40 feet
  - Growth Rate:** rapid
  - Growth Habit:** multi-stemmed
  - Drought Tolerance:** low
  - Wildlife Value:** browse and used for food or structure by beavers
  - Disease/Pests:** cankers, powdery mildew, leaf spots, willow leaf beetle, and scale
  - Native to MT:** yes
  - Other:** easy to grow from cuttings, overstory dominant riparian species
- Shade Tolerance:** intolerant
  - Flower:** white
  - Foliage:** green
  - Soils:** adapted to medium and coarse soils



USDA-NRCS



## CONIFERS

### Fir, Douglas (*Pseudotsuga menziesii*)



Bill Cook, Michigan State University, Bugwood.org



Tom DeGomez, University of Arizona, Bugwood.org

**20-Year Height:** 15 feet  
**Growth Rate:** moderate  
**Growth Habit:** single stem, pyramidal  
**Drought Tolerance:** low

**Shade Tolerance:** intermediate  
**Foliage:** green  
**Soils:** adapted to medium and coarse soils

**Wildlife Value:** food, browse by several wildlife species, cones and needles winter food for blue grouse

**Disease/Pests:** Douglas fir beetle, deer browse and rubbing, spruce budworm, dwarf mistletoe west of the Continental Divide, Cooley spruce gall adelgid

**Native to MT:** yes

**Other:** not a true fir, pointed buds, historically one of the most valuable and important commercial tree species in the world

### Fir, Grand (*Abies grandis*)



Chris Schnepf, University of Idaho, Bugwood.org



Dave Powell, USDA Forest Service (retired), Bugwood.org

**20-Year Height:** 25 feet  
**Growth Rate:** moderate  
**Growth Habit:** single stem  
**Drought Tolerance:** medium

**Shade Tolerance:** tolerant  
**Foliage:** green  
**Soils:** adapted to medium and coarse soils

**Wildlife Value:** nesting sites and yearlong cover for several wildlife species

**Disease/Pests:** spruce budworm, Douglas-fir tussock moth, western balsam bark beetle, fir engraver beetle, dwarf mistletoes, heart and root rots

**Native to MT:** yes

**Other:** adapted to a variety of conditions, good for restoration of disturbed sites

### Fir, Subalpine (*Abies lasiocarpa*)



Sheri Hagwood, USDA-NRCS PLANTS Database

**20-Year Height:** 15 feet  
**Growth Rate:** slow  
**Growth Habit:** single stem  
**Drought Tolerance:** low

**Shade Tolerance:** tolerant  
**Foliage:** green  
**Soils:** adapted to medium and coarse soils

**Wildlife Value:** nesting sites and yearlong cover for several wildlife species

**Disease/Pests:** heart rot

**Native to MT:** yes

**Other:** shallow root system makes it susceptible to windthrow, prefers acidic soils, moist sites, and high elevations





## Fir, White (*Abies concolor*)



Herman, D.E. et al.; provided by ND State Soil Conservation Committee, USDA-NRCS PLANTS Database

**20-Year Height:** 20 feet

**Growth Rate:** slow

**Growth Habit:** single stem

**Drought Tolerance:** medium

**Shade Tolerance:** intermediate

**Foliage:** green

**Soils:** adapted to medium and coarse soils

**Wildlife Value:** yearlong cover for several wildlife species, deer browse new foliage, porcupines use and can girdle trees

**Disease/Pests:** young trees are subject to sunscald, spruce budworm, Douglas-fir tussock moth, bark beetles, mistletoe, heart rot fungi, root diseases, fir engraver beetle

**Native to MT:** no

**Other:** shallow root system, susceptible to windthrow

## Juniper, Rocky Mountain (*Juniperus scopulorum*)



Herman, D.E. et al.; provided by ND State Soil Conservation Committee, USDA-NRCS PLANTS Database

**20-Year Height:** 12 feet

**Growth Rate:** slow

**Growth Habit:** multi-stemmed shrub

**Drought Tolerance:** high

**Shade Tolerance:** intolerant

**Foliage:** green

**Soils:** adapted to medium and coarse soils

**Wildlife Value:** food (berries and browse), nesting, yearlong cover for several wildlife species

**Disease/Pests:** cedar-apple rust, tip blight

**Native to MT:** yes

**Other:** should not be planted near crab apples, serviceberries, currants, or hawthorns (due to alternate host status for apple scab), can spread onto rangeland and disturb natural ecosystems, common ornamental species

## Larch, Siberian (*Larix sibirica*)



Herman, D.E. et al.; provided by ND State Soil Conservation Committee, USDA-NRCS PLANTS Database

**20-Year Height:** 16 feet

**Growth Rate:** moderate

**Growth Habit:** single stem

**Drought Tolerance:** high

**Shade Tolerance:** intolerant

**Flower:** red

**Foliage:** green, yellow in fall

**Soils:** adapted to all soil types

**Wildlife Value:** nesting value for several wildlife species

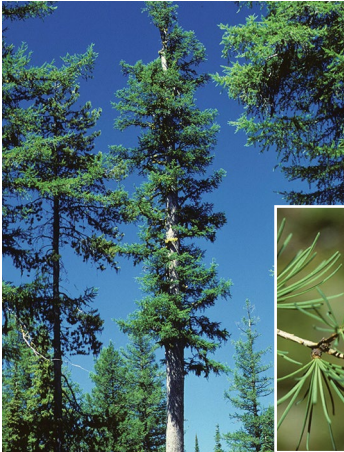
**Disease/Pests:** cankerworm

**Native to MT:** no

**Other:** cold-hardy tree, needles turn yellow and shed each year



## Larch, Western (*Larix occidentalis*)



U.S. National Herbarium,  
Department of Botany, NMNH,  
Smithsonian Institution by  
permission from Niehaus, T.F.



U.S. National Herbarium,  
Department of Botany, NMNH,  
Smithsonian Institution by  
permission from Niehaus, T.F.

**20-Year Height:** 17 feet  
**Growth Rate:** rapid  
**Growth Habit:** single stem  
**Drought Tolerance:** low

**Shade Tolerance:** intolerant  
**Flower:** red  
**Foliage:** green, yellow in fall  
**Soils:** adapted to medium and coarse soils, adapted to acidic soils

**Wildlife Value:** cover, food and nesting value for several wildlife species, cavity nesting sites in snags

**Disease/Pests:** root diseases, dwarf mistletoe, needle blight, needle cast

**Native to MT:** yes, west of the Continental Divide

**Other:** Also known as tamarack, valuable commercial tree, needles turn yellow and are shed each fall

## Pine, Austrian (*Pinus nigra*)



Vanessa Richins Myers,  
About.com, Bugwood.org

**20-Year Height:** 17 feet  
**Growth Rate:** moderate  
**Growth Habit:** single stem  
**Drought Tolerance:** medium

**Shade Tolerance:** intolerant  
**Flower:** yellow  
**Foliage:** green  
**Soils:** adapted to medium soils

**Wildlife Value:** nesting and yearlong cover for several wildlife species

**Disease/Pests:** needle blight, canker, pine wilt, sooty mold, pine moth, spider mites, pine bark adelgid, European pine sawfly

**Native to MT:** no

**Other:** like ponderosa pine but slower growing, prone to disease

## Pine, Limber (*Pinus flexilis*)



M. Lavin, MSU



M. Lavin, MSU

**20-Year Height:** 10 feet  
**Growth Rate:** slow  
**Growth Habit:** single stem  
**Drought Tolerance:** high

**Shade Tolerance:** intolerant  
**Flower:** green  
**Foliage:** green  
**Soils:** adapted to medium soils

**Wildlife Value:** nesting and seeds critical for rodents and birds, valuable seed for bears

**Disease/Pests:** white pine blister rust

**Native to MT:** yes

**Other:** five needles per bundle, can be confused with whitebark pine, cones hang down – whitebark cones are upright



## Pine, Lodgepole (*Pinus contorta*)



Paul Langlois, Live Botanical Collections, USDA APHIS PPQ, Bugwood.org



Paul Bolstad, University of Minnesota, Bugwood.org

**20-Year Height:** 17 feet  
**Growth Rate:** rapid  
**Growth Habit:** single stem  
**Drought Tolerance:** low

**Shade Tolerance:** intolerant  
**Flower:** yellow  
**Foliage:** green  
**Soils:** adapted to all soil types

**Wildlife Value:** nesting and thermal cover

**Disease/Pests:** mountain pine beetle, mistletoe, rust and root rot

**Native to MT:** yes

**Other:** two needles per bundle, shallow root systems, susceptible to windthrow

## Pine, Ponderosa (*Pinus ponderosa*)



Scott Roberts, Mississippi State University, Bugwood.org



Paul Wray, Iowa State University, Bugwood.org

**20-Year Height:** 17 feet  
**Growth Rate:** moderate  
**Growth Habit:** single stem  
**Drought Tolerance:** high

**Shade Tolerance:** intolerant  
**Flower:** yellow  
**Foliage:** green  
**Soils:** adapted to medium and coarse soils

**Wildlife Value:** cover, food value in seeds, nesting birds/rodents, roosting

**Disease/Pests:** beaver and porcupine damage, Ips bark beetle, mistletoe, western gall rust, needle cast, western pine beetle, dwarf mistletoe

**Native to MT:** yes

**Other:** many alternative common names, two and three needle per bundle varieties, tolerant to strong winds, state tree of Montana

## Pine, Scots or Scotch (*Pinus sylvestris*)



Herman, D.E. et al.; provided by ND State Soil Conservation Committee, USDA-NRCS PLANTS Database

**20-Year Height:** 17 feet  
**Growth Rate:** rapid  
**Growth Habit:** single stem  
**Drought Tolerance:** medium

**Shade Tolerance:** intolerant  
**Foliage:** green  
**Soils:** adapted to medium and coarse soils

**Wildlife Value:** cover and food for birds and small mammals, deer browse

**Disease/Pests:** Cyclaneusma needle cast, western gall rust, Lophodermium needle cast, tip moth, sawflies, pine needle scales and giant conifer aphid

**Native to MT:** no

**Other:** two needles per bundle, mature bark orange on upper trunk and branches, common windbreak species



## Pine, Western White (*Pinus monticola*)



M. Lavin, MSU



M. Lavin, MSU

**20-Year Height:** 35 feet  
**Growth Rate:** rapid  
**Growth Habit:** single stem  
**Drought Tolerance:** low

**Shade Tolerance:** intermediate  
**Flower:** yellow  
**Foliage:** green  
**Soils:** adapted to medium and coarse soils

**Wildlife Value:** cover and seeds for wildlife food  
**Disease/Pests:** white pine blister rust, root diseases, needle cast  
**Native to MT:** yes  
**Other:** five needle pine, once common in western Montana, many trees killed by blister rust

## Redcedar, Western (*Thuja plicata*)



J. Glenn, USDA-NRCS



J. Glenn, USDA-NRCS

**20-Year Height:** 20 feet  
**Growth Rate:** slow  
**Growth Habit:** single stem  
**Drought Tolerance:** low

**Shade Tolerance:** tolerant  
**Foliage:** green  
**Soils:** adapted to medium soils

**Wildlife Value:** winter cover and browse for several wildlife species, protection from browse needed during establishment

**Disease/Pests:** no major pests  
**Native to MT:** yes  
**Other:** does not do well on open, dry sites, used for various wood products including shingles, posts, pulp, important cultural species

## Spruce, Colorado Blue (*Picea pungens*)



Herman, D.E. et al.; provided by ND State Soil Conservation Committee, USDA-NRCS PLANTS Database

**20-Year Height:** 15 feet  
**Growth Rate:** slow  
**Growth Habit:** single stem  
**Drought Tolerance:** medium

**Shade Tolerance:** intermediate  
**Flower:** yellow  
**Foliage:** green  
**Soils:** adapted to medium and coarse soils

**Wildlife Value:** food and nesting  
**Disease/Pests:** spider mites, spruce needleminer, pine needle scale, yellow-headed spruce sawfly, aphids, white terminal weevil, spruce budworm  
**Native to MT:** no  
**Other:** wood is brittle and often full of knots, cold hardy



## Spruce, Engelmann (*Picea engelmannii*)



M. Lavin, MSU

**20-Year Height:** 14 feet

**Growth Rate:** slow

**Growth Habit:** single stem

**Drought Tolerance:** low

**Shade Tolerance:** tolerant

**Flower:** yellow

**Foliage:** green

**Soils:** adapted to fine and medium soils, moist sites

**Wildlife Value:** nesting and thermal cover

**Disease/Pests:** spruce budworm, Cooley spruce gall adelgid, spruce needleminer

**Native to MT:** yes

**Other:** tolerates cold frost pockets, shallow root systems, prone to windthrow

## Spruce, Western White or Black Hills (*Picea x albertiana*)



Herman, D.E. et al.; provided by ND State Soil Conservation Committee, USDA-NRCS PLANTS Database

**20-Year Height:** 12 feet

**Growth Rate:** slow

**Growth Habit:** single stem

**Drought Tolerance:** high

**Shade Tolerance:** tolerant

**Flower:** yellow

**Foliage:** green

**Soils:** adapted to medium soil

**Wildlife Value:** nesting, browse, and yearlong cover for multiple wildlife species

**Disease/Pests:** spider mite, spruce needleminer, pine needle scale, yellow-headed spruce sawfly, aphids, spruce budworm

**Native to MT:** yes

**Other:** cross between white and Engelmann spruce



USDA-NRCS

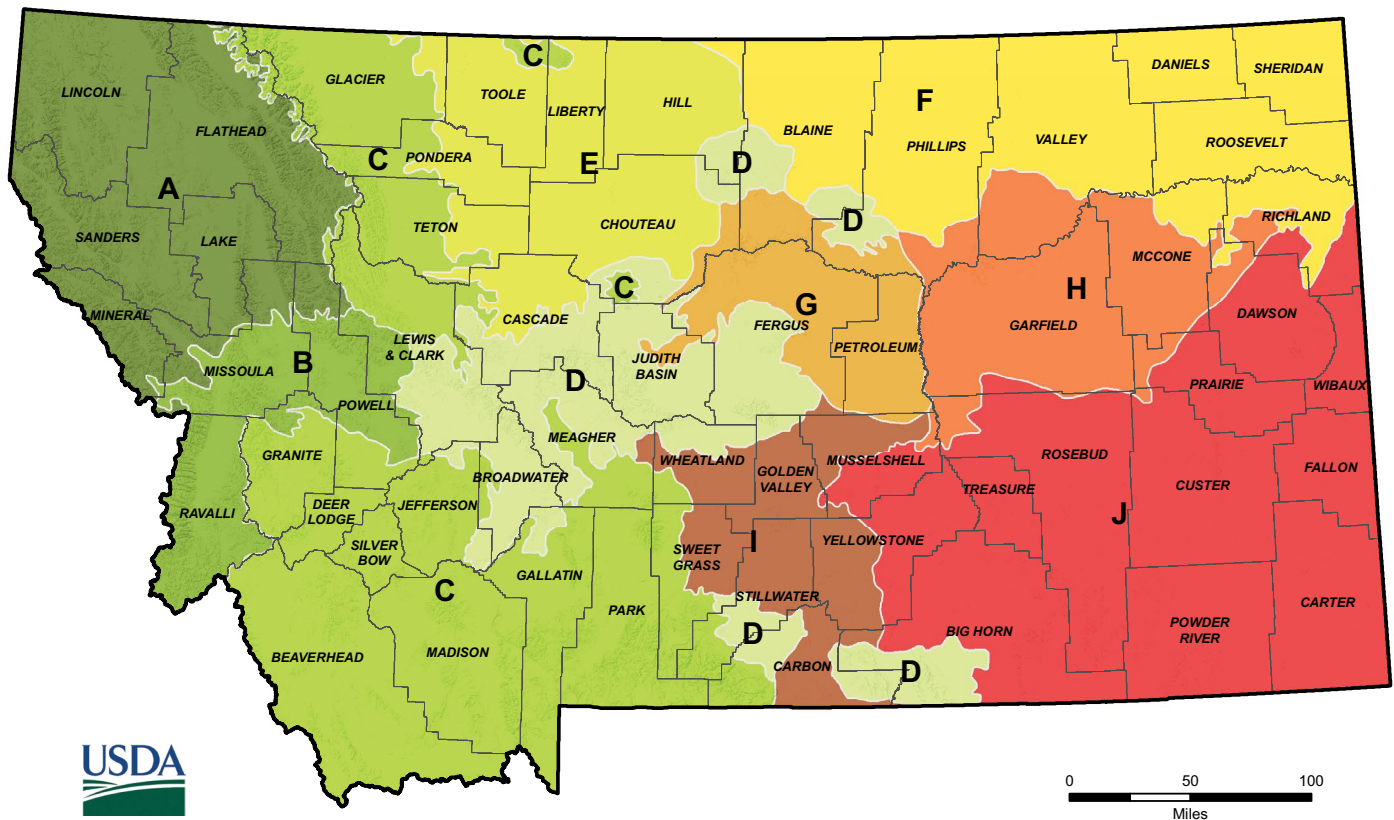


# PART II: Montana Conservation Tree and Shrub Planting Zones and Plant Hardiness Zones

## NRCS Plant Adaptation Zones

The Plant Adaptation Zone is a classification system developed by the Natural Resources Conservation Service (NRCS) for Montana. The state is divided into 10 zones identified as letters 'a' through 'j' where environmental conditions are generally uniform throughout. Within a particular zone, moisture and temperature regimes are relatively consistent with respect to changes in elevation and aspect. The zone letters are only used to designate areas and imply no order of limitation or severity. This site classification system integrates length of growing season, minimum winter temperature, and chinook wind frequency. Species are recommended for planting only in listed zones. NOTE: Zone boundaries are generally along Major Land Resource Unit (MLRU) boundaries. More information on the MLRAs can be viewed by downloading USDA Handbook 296 and viewing maps at:

<https://www.nrcs.usda.gov/resources/data-and-reports/major-land-resource-area-mlra>.



SOURCE: Plant Adaptation Zones  
NRCS State Office - Bozeman, MT  
January 2000

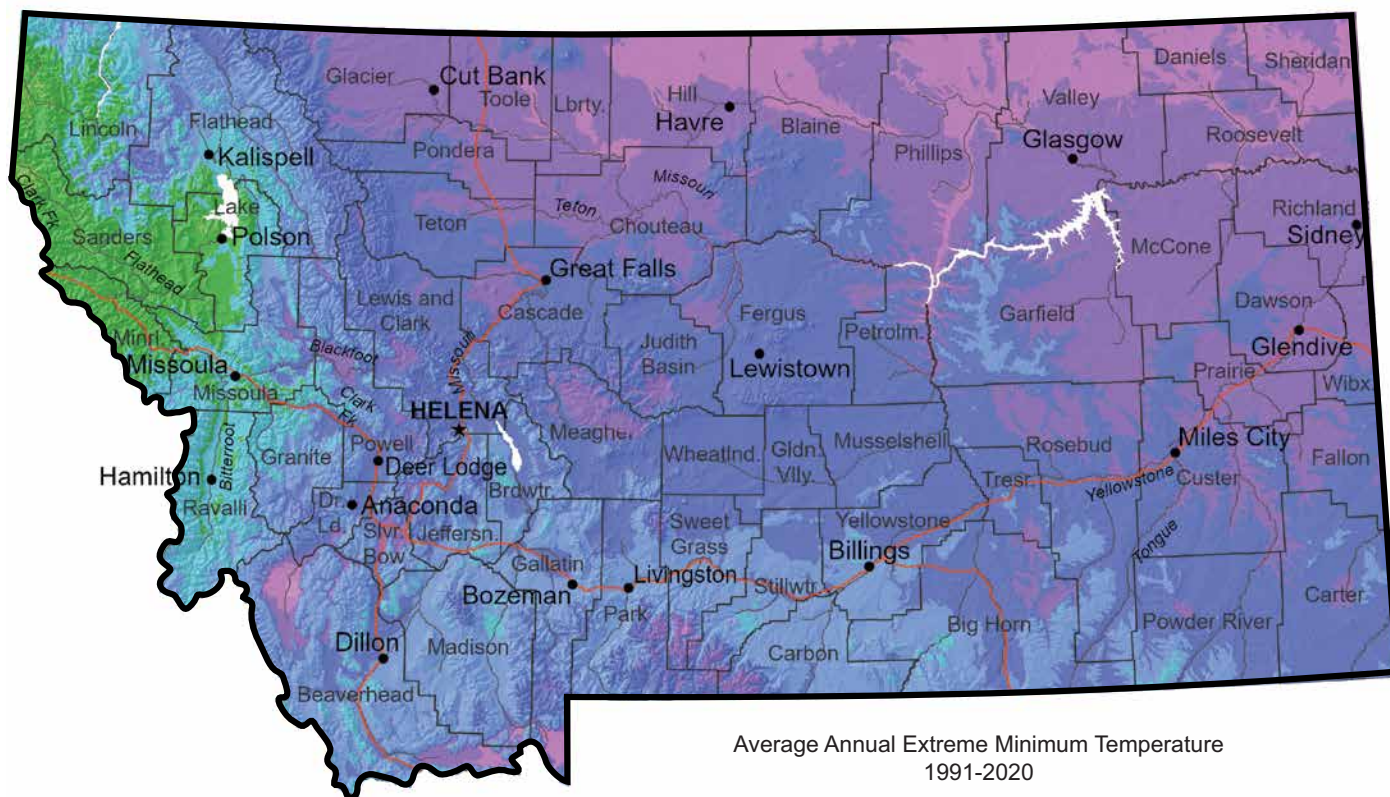
NRCS STATE OFFICE - BOZEMAN, MT (MAY 2017)



## USDA Plant Hardiness Zones

The USDA Plant Hardiness Zones were developed nationwide and are the standard by which gardeners and growers determine which plants are most likely to thrive at a location. The map is based on the average annual minimum winter temperature, divided into 10-degree Fahrenheit zones. For site specific maps, see the interactive USDA Plant Hardiness Zone website:

<https://planthardiness.ars.usda.gov/>.



Average Annual Extreme Minimum Temperature  
1991-2020

Temp (F)	Zone	Temp (C)	Temp (F)	Zone	Temp (C)
-40 to -35	Zone 2	-40 to -37.2	-20 to -15	Zone 5b	-28.9 to -26.1
-35 to -30	Zone 3	-37.2 to -34.4	-15 to -10	Zone 6a	-26.1 to -23.3
-30 to -25	Zone 4	-34.4 to -31.7	-10 to -5	Zone 7a	-23.3 to -20.6
-25 to -20	Zone 5a	-31.7 to -28.9	-5 to 0	Zone 8a	-20.6 to -17.8

**USDA** Agricultural Research Service  
U.S. DEPARTMENT OF AGRICULTURE

**Oregon State University**  
Mapping by the  
PRISM Climate Group  
College of Engineering  
Oregon State University



## PART III: Montana Conservation Tree and Shrub Groups

In addition to the plant adaptation and plant hardiness zones, NRCS uses the Montana Conservation Tree and Shrub Group (CTSG) classifications to further refine appropriate species for individual site conditions. Characteristics between planting locations can vary and there can even be differences within a location. There are many factors that can limit the success of a tree or shrub planting including choosing species for sites that are too wet, too dry, too steep, too shallow, too salty, too sandy or clayey to support their growth. Care must be taken to ensure conditions on individual sites are considered when selecting suitable species that will perform well.

The CTSG key and descriptions can help to identify species that are best adapted to each set of site characteristics. The CTSG group numbers have been included in the species tables for your reference. For more information about the groups, group numbers, and key features,

see the Montana Field Office Technical Guide, Section II, Windbreak Interpretations at <https://efotg.sc.egov.usda.gov/#/state/MT/documents/section=2&folder=8339>.

The Web Soil Survey (<https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm>) may help to understand general soil characteristics in the area. However, soil surveys are typically developed at a scale that may not be adequate for site-specific tree plantings. A site visit and case-by-case decision may be necessary to determine which CTSG group is most appropriate.

The CTSG key and descriptions are technical, and it may be most helpful to get some expert guidance. Consider working with the local NRCS field office. Refer to your conservation plan to see what group your planting project is located in to choose the most suitable species. Find contact information at [nrcs.usda.gov/contact](https://nrcs.usda.gov/contact).

### Montana Conservation Tree and Shrub Suitability Groups (CTSG), group numbers and key features

Group Number	Description
1	Soils Receiving Beneficial Moisture (Flooding, Seasonal High-Water Table)
2	Wet Soils
3	High Available Water Capacity
4	Slow / Moderate Permeability (Uplands)
5	Low / Moderate Available Water Capacity
6	Moderately Deep Soils
7	Droughty Soils
8	Limy at Surface
9	Saline/Sodic Soils
10	Unsuited

#### GROUP 1

**Soils Receiving Beneficial Moisture:** These are deep, well drained to somewhat poorly drained soils that receive beneficial moisture from favorable landscape positions, flooding, runoff from adjacent land, or have a beneficial seasonally high-water table during spring. Competition from grass and weeds is the principal concern in establishing and managing trees and shrubs. Somewhat poorly drained soils may have excessive water for some species.

#### GROUP 2

**Wet Soils:** Soils in this group are deep, poorly drained or somewhat poorly drained, and excessively wet or ponded during the spring or overflow periods. Wetness and drainage will influence the selection of tree and shrub species for soils in this group. Competition from grass and weeds is the principal concern in establishing and managing trees and shrubs. Spring planting may be delayed because of wet conditions. Soil blowing is a concern on the sandy and organic soils.





### GROUP 3

**High Available Water Capacity:** Soils in this group are deep, well drained soils, have loamy and fine sandy textures and high available water capacity. Competition from grass and weeds is the principal concern in establishing and managing trees and shrubs on these soils.

### GROUP 4

**Slow / Moderate Permeability (Uplands):** Soils in this group are moderately deep and deep, have loamy surface textures with clayey subsoils, have moderate to very slow permeability, and occur on uplands. High clay content and water availability will influence the selection of tree and shrub species for these soils. Competition from grass and weeds is the principal concern in establishing and managing trees and shrubs on these soils.

### GROUP 5

**Low / Moderate Available Water Capacity:** Soils in this group are deep, well drained soils, with loamy and clayey textures, and low to moderate available water capacity. Competition from grass and weeds and abrasion from soil blowing are the principal concerns in establishing and managing trees and shrubs on these soils.

### GROUP 6

**Moderately Deep Soils:** Soils in this group are well-drained, mostly loamy texture, and are moderately deep over sand, gravel, bedrock and other layers than can severely restrict root growth. They have low or moderate available water capacity. Droughtiness will influence the selection of tree and shrub species for use on these soils. Competition from grass and weeds is the principal concern in establishing and managing trees and shrubs on these soils. Supplemental watering may be needed for establishment.

### GROUP 7

**Droughty Soils:** Soils in this group are deep, excessively to moderately well drained, sandy in texture, typically have low to very low available water capacity, and do not normally have adequate moisture. Drought conditions and abrasion from soil blowing are the principal concerns in establishing and managing trees and shrubs on these soils. Specialized site preparation and planting methods are needed to establish trees and shrubs. Supplemental water may be essential for successful establishment.

### GROUP 8

**Limy at Surface:** Soils in this group are calcareous at or near the surface. They do not receive beneficial moisture from run-in, flooding, or seasonal high-water tables. High calcium content and competition from grass and weeds are the principal concerns in establishing and managing trees and shrubs on these soils.

### GROUP 9

**Saline/Sodic Soils:** Soils in this group are affected by salinity and/or sodicity. Concentrations of salt will severely affect the establishment, vigor, and growth of trees and shrubs on these soils.

### GROUP 10

**Unsuited:** Soils in this group have one or more characteristics such as soil depth, texture, drainage, available water capacity, slope, or salts which severely limits planting, survival, or growth of trees and shrubs. Soils in this group are usually not recommended for farmstead and feedlot shelterbelts, field windbreaks, and plantings for recreation and wildlife. All soils on moderately steep to steep slopes (generally greater than 15 percent) and soils that are generally too wet, too shallow, or have other severely restrictive conditions fall into Group 10.



# PART IV: Summary of Tree and Shrub Species Characteristics

## SPECIES CHARACTERISTICS: Deciduous Shrubs

Common Name	Scientific Name	Native to Montana (Y/N)	Plant Hardiness Zone	Plant Adaptation Zones	Conservation Tree and Shrub Suitability Groups <sup>1</sup>	20-Year Height <sup>2</sup> (feet)	Crown Width <sup>2</sup> (feet)	Growth Rate <sup>3</sup>	Drought Tolerance <sup>4</sup>	Minimum Precipitation (inches)	Salinity Tolerance <sup>5</sup>
Almond, Russian*	<i>Prunus tenella</i>	N	2	A, B, D - J	1, 3, 4, 5	5	6	M	M	12	N
Ash, European Mountain	<i>Sorbus aucuparia</i>	N	3	N/A	N/A	20	10	M	L	20	N
Buffaloberry, Silver*	<i>Shepherdia argentea</i>	Y	2	All	1 - 9	10	7	M	M	15	H
Caragana*	<i>Caragana arborescens</i>	N	2	All	1, 3 - 9	12	12	R	H	12	M
Cherry, Black*	<i>Prunus serotina</i>	N	3	N/A	N/A	20	10	M	M	15	M
Cherry, Nanking*	<i>Prunus tomentosa</i>	N	2	A, B, D - J	1, 3, 4, 5	7	8	M	L	15	N
Chokeberry, Black*	<i>Aronia melanocarpa</i>	N	3	D - J	N/A	6	5	M	L	14	L
Chokecherry*	<i>Prunus virginiana</i>	Y	2	All	1 - 6	15	9	M - R	H	13	L
Cinquefoil, Shrubby*	<i>Dasiphora fruticosa</i>	Y	2	All	1, 3 - 8	3	4	M	M	11	M
Cotoneaster	<i>Cotoneaster integerrimus</i>	N	3	A, B, D - J	1, 3, 5	9	4	M	H	10	L
Currant, Golden*	<i>Ribes aureum</i>	Y	2	All	1 - 6, 8, 9	6	5	M	H	12	N
Dogwood, Redosier*	<i>Cornus sericea</i>	Y	2	All	1, 2	8	6	M	L	18	L
Elderberry, Red*	<i>Sambucus racemosa</i>	Y	3	N/A	N/A	10	6	M	L	24	N
Hawthorn, Arnold*	<i>Crataegus x anomala</i>	N	3	A, B, J	1, 3, 4, 5	15	12	M	M	14	N
Hawthorn, Black*	<i>Crataegus douglasii</i>	Y	4	A - E	N/A	15	12	M	M	15	L
Honeysuckle, Blueleaf*	<i>Lonicera korolkowii</i>	N	2	A, B, D - J	1, 3, 4, 5, 6, 8	8	8	M	M	12	M
Lilac, Common	<i>Syringa vulgaris</i>	N	2	All	1, 3 - 8	8	7	M	H	10	M
Mahogany, Curl-Leaf Mountain	<i>Cercocarpus ledifolius</i>	Y	4	B, C, D	N/A	9	7	M	H	10	N
Maple, Amur	<i>Acer ginnala</i>	N	2	A, B, D - J	1, 3, 4, 5	15	10	M	M	15	M
Maple, Rocky Mountain	<i>Acer glabrum</i>	Y	3	N/A	N/A	15	10	M	M	15	N
Ninebark*	<i>Physocarpus malvaceus</i>	Y	2	A-D	N/A	5	6	M	M	14	N

N/A = information not available

\* = Attracts pollinators

<sup>1</sup> Information is a generalization of complex site interactions. Consult local experts with questions.

<sup>2</sup> The expected 20-year tree or shrub height and width is listed. Use this information to determine arrangement and spacings of tree and shrub plantings, planting plan species components, and species effectiveness for achieving objectives, and other planting design considerations.

<sup>3</sup> Growth Rate after successful establishment: R = Rapid, M = Moderate, S = Slow

<sup>4</sup> Drought Tolerance compared to other species with the same growth habit from the same geographical region: H = High, M = Medium, L = Low

<sup>5</sup> Salinity Tolerance defined as only a slight reduction ( $\leq 10\%$ ) in plant growth: N = None (tolerant to a soil with an electrical conductivity of the soil solution extract or 0 - 2 dS/m), L = Low (tolerant to 2.1 - 4.0 dS/m), M = Medium (tolerant to 4.1 - 8.0 dS/m), H = High (tolerant to > 8.0 dS/m)



## SPECIES CHARACTERISTICS: Deciduous Shrubs

Common Name	Scientific Name	Native to Montana (Y/N)	Plant Hardiness Zone	Plant Adaptation Zones	Conservation Tree and Shrub Suitability Groups <sup>1</sup>	20-Year Height <sup>2</sup> (feet)	Crown Width <sup>2</sup> (feet)	Growth Rate <sup>3</sup>	Drought Tolerance <sup>4</sup>	Minimum Precipitation (inches)	Salinity Tolerance <sup>5</sup>
Plum, American*	<i>Prunus americana</i>	Y	3	All	1, 3, 4, 5	10	9	M	M	14	L
Rose, Woods*	<i>Rosa woodsii</i>	Y	2	All	1, 3, 4, 5, 6	3	6	M	H	12	L
Sagebrush, Big	<i>Artemisia tridentata</i>	Y	2	All	N/A	4	5	S	H	10	M
Sagebrush, Silver	<i>Artemisia cana</i>	Y	2	All	N/A	4	5	M	H	10	L
Sandcherry, Western*	<i>Prunus pumila var. besseyi</i>	Y	3	A, B, D - J	1, 3, 5, 6, 7	4	6	M	H	12	N
Serviceberry, Saskatoon*	<i>Amelanchier alnifolia</i>	Y	2	A, B, D - J	1, 3, 4, 5, 6	10	8	M	H	12	L
Silverberry*	<i>Elaeagnus commutata</i>	Y	2	All	1, 3, 4, 5, 6, 9	6	6	M	H	12	M
Snowberry, Common and Western*	<i>Symphoricarpos spp.</i>	Y	3	All	N/A	3	5	M	H	12	M
Sumac, Skunkbush*	<i>Rhus trilobata</i>	Y	3	All	1, 3 - 9	8	5	S	H	10	M
Willows*	<i>Salix bebbiana,</i> <i>S. boothii,</i> <i>S. drummondiana,</i> <i>S. exigua,</i> <i>S. geyeriana,</i> <i>S. lutea</i>	Y	3	All	1 - 3	10	5 - 10	R	L	15	L

N/A = information not available

\* = Attracts pollinators

<sup>1</sup> Information is a generalization of complex site interactions. Consult local experts with questions.

<sup>2</sup> The expected 20-year tree or shrub height and width is listed. Use this information to determine arrangement and spacings of tree and shrub plantings, planting plan species components, and species effectiveness for achieving objectives, and other planting design considerations.

<sup>3</sup> Growth Rate after successful establishment: R = Rapid, M = Moderate, S = Slow

<sup>4</sup> Drought Tolerance compared to other species with the same growth habit from the same geographical region: H = High, M = Medium, L = Low

<sup>5</sup> Salinity Tolerance defined as only a slight reduction ( $\leq 10\%$ ) in plant growth: N = None (tolerant to a soil with an electrical conductivity of the soil solution extract or 0 - 2 dS/m), L = Low (tolerant to 2.1 - 4.0 dS/m), M = Medium (tolerant to 4.1 - 8.0 dS/m), H = High (tolerant to > 8.0 dS/m)



# SPECIES CHARACTERISTICS: Deciduous Trees

Common Name	Scientific Name	Native to Montana (Y/N)	Plant Hardiness Zone	Plant Adaptation Zones	Conservation Tree and Shrub Suitability Groups <sup>1</sup>	20-Year Height <sup>2</sup> (feet)	Crown Width <sup>2</sup> (feet)	Growth Rate <sup>3</sup>	Drought Tolerance <sup>4</sup>	Minimum Precipitation (inches)	Salinity Tolerance <sup>5</sup>
Ash, Green	<i>Fraxinus pennsylvanica</i>	Y	2	All	1, 3, 4, 5, 6	18	11	R	M	10	L
Aspen, Quaking	<i>Populus tremuloides</i>	Y	1	All	N/A	25	8	R	L	15	L
Birch, Paper	<i>Betula papyrifera</i>	Y	2	A, B	N/A	25	8	R	L	16	M
Birch, Water	<i>Betula occidentalis</i>	Y	2	N/A	N/A	25	10	R	L	10	N
Boxelder	<i>Acer negundo</i>	Y	2	All	N/A	18	12	R	H	11	L
Buckeye, Ohio	<i>Aesculus glabra</i>	N	3	F, H, J	N/A	20	15	M	M	15	N
Cottonwood, Black	<i>Populus blasamifera</i> <i>spp. trichocarpa</i>	Y	2	A - E, G, I, J	N/A	45	25	R	L	16	N
Cottonwood, Narrowleaf	<i>Populus angustifolia</i>	Y	3	A - E, G, I, J	N/A	45	25	R	L	16	M
Cottonwood, Plains	<i>Populus deltoides</i> <i>spp.</i> <i>monilifera</i>	Y	3	All	1, 2, 3	40	25	R	H	16	N
Crab apple, Siberian	<i>Malus baccata</i>	N	2	All	1, 3, 4, 5, 6	15	14	M	L	12	L
Elm, American	<i>Ulmus americana</i>	Y	3	N/A	N/A	50	30	R	M	15	L
Elm, Siberian	<i>Ulmus pumila</i>	N	3	All	1 - 9	25	19	R	H	12	M
Hackberry, Common	<i>Celtis occidentalis</i>	N	2	A, B, D - J	1, 3, 4, 5	15	10	R	H	12	L
Honeylocust	<i>Gleditsia triacanthos</i>	N	4	A, B, J	1, 2, 3, 4, 5	20	11	R	H	12	M
Linden, American*	<i>Tilia americana</i>	N	2	A-D, I	N/A	25	20	M	L	16	N
Locust, Black*	<i>Robinia pseudoacacia</i>	N	3	A - C, I, J	N/A	25	15	R	H	12	M
Maple, Silver*	<i>Acer saccharinum</i>	N	3	N/A	N/A	45	35	R	L	20	L
Oak, Bur	<i>Quercus macrocarpa</i>	Y	2	A - D, G - J	1, 3, 4, 5	18	15	S	H	10	L
Pear, Chinese*	<i>Pyrus ussuriensis</i>	N	3	All	N/A	20	18	M	M	14	L
Poplar, White or Silver	<i>Populus alba</i>	N	3	All	1, 2, 3, 5	25	19	R	M	12	M
Walnut, Black	<i>Juglans nigra</i>	N	4	A, B, F, H, J	N/A	16	14	R	L	14	N
Willow, Golden or White	<i>Salix alba</i>	N	2	All	1, 2	25	13	R	L	13	M
Willow, Peachleaf	<i>Salix amygdaloides</i>	Y		N/A	N/A	40	25	R	L	24	N

N/A = information not available

\* = Attracts pollinators

<sup>1</sup> Information is a generalization of complex site interactions. Consult local experts with questions.

<sup>2</sup> The expected 20-year tree or shrub height and width is listed. Use this information to determine arrangement and spacings of tree and shrub plantings, planting plan species components, and species effectiveness for achieving objectives, and other planting design considerations.

<sup>3</sup> Growth Rate after successful establishment: R = Rapid, M = Moderate, S = Slow

<sup>4</sup> Drought Tolerance compared to other species with the same growth habit from the same geographical region: H = High, M = Medium, L = Low

<sup>5</sup> Salinity Tolerance defined as only a slight reduction ( $\leq 10\%$ ) in plant growth: N = None (tolerant to a soil with an electrical conductivity of the soil solution extract or 0 - 2 dS/m), L = Low (tolerant to 2.1 - 4.0 dS/m), M = Medium (tolerant to 4.1 - 8.0 dS/m), H = High (tolerant to > 8.0 dS/m)



# SPECIES CHARACTERISTICS: Conifers

Common Name	Scientific Name	Native to Montana (Y/N)	Plant Hardiness Zone	Plant Adaptation Zones	Conservation Tree and Shrub Suitability Groups <sup>1</sup>	20-Year Height <sup>2</sup> (feet)	Crown Width <sup>2</sup> (feet)	Growth Rate <sup>3</sup>	Drought Tolerance <sup>4</sup>	Minimum Precipitation (inches)	Salinity Tolerance <sup>5</sup>
Fir, Douglas	<i>Pseudotsuga menziesii</i>	Y	3	All	1, 3, 4, 5	15	10	M	L	13	L
Fir, Grand	<i>Abies grandis</i>	Y	4	A, B	N/A	25	15	M	M	11	N
Fir, Subalpine	<i>Abies lasiocarpa</i>	Y	3	N/A	N/A	15	8	S	L	20	N
Fir, White	<i>Abies concolor</i>	N	3	N/A	N/A	20	12	S	M	18	N
Juniper, Rocky Mountain	<i>Juniperus scopulorum</i>	Y	3	All	1 - 7, 9	12	9	S	H	8	L
Larch, Siberian	<i>Larix sibirica</i>	N	2	All	N/A	16	9	M	H	12	N
Larch, Western	<i>Larix occidentalis</i>	Y	4	A, B	N/A	17	12	R	L	15	N
Pine, Austrian	<i>Pinus nigra</i>	N	4	All	N/A	17	12	M	M	12	M
Pine, Limber	<i>Pinus flexilis</i>	Y	3	A, B, E - J	1, 3 - 8	10	9	S	H	10	N
Pine, Lodgepole	<i>Pinus contorta</i>	Y	2	A-D	N/A	17	11	R	L	14	N
Pine, Ponderosa	<i>Pinus ponderosa</i>	Y	3	A - D, F - J	1, 3 - 8	17	12	M	H	10	L
Pine, Scotch or Scots	<i>Pinus sylvestris</i>	N	3	A - D, F - J	1, 3, 4, 5	17	12	R	M	10	L
Pine, Western White	<i>Pinus monticola</i>	Y	3	A, B	N/A	35	25	R	L	15	N
Redcedar, Western	<i>Thuja plicata</i>	Y	5	N/A	N/A	20	10	S	L	30	N
Spruce, Colorado Blue	<i>Picea pungens</i>	N	2	All	1, 2, 3, 4, 5	15	10	S	M	10	L
Spruce, Engelmann	<i>Picea engelmannii</i>	Y	2	All	N/A	14	10	S	L	15	N
Spruce, Western White	<i>Picea x albertiana</i>	Y	2	All	N/A	12	9	S	H	10	L

N/A = information not available

\* = Attracts pollinators

<sup>1</sup> Information is a generalization of complex site interactions. Consult local experts with questions.

<sup>2</sup> The expected 20-year tree or shrub height and width is listed. Use this information to determine arrangement and spacings of tree and shrub plantings, planting plan species components, and species effectiveness for achieving objectives, and other planting design considerations.

<sup>3</sup> Growth Rate after successful establishment: R = Rapid, M = Moderate, S = Slow

<sup>4</sup> Drought Tolerance compared to other species with the same growth habit from the same geographical region: H = High, M = Medium, L = Low

<sup>5</sup> Salinity Tolerance defined as only a slight reduction ( $\leq 10\%$ ) in plant growth: N = None (tolerant to a soil with an electrical conductivity of the soil solution extract or 0 - 2 dS/m), L = Low (tolerant to 2.1 - 4.0 dS/m), M = Medium (tolerant to 4.1 - 8.0 dS/m), H = High (tolerant to > 8.0 dS/m)



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## Regional Conservation Nurseries

Montana Conservation Seedling Nursery, Department of Natural Resources Conservation Service (DNRC), 2705 Spurgin Road, Missoula, MT 59804, 406-542-4244, [mtnursery@mt.gov](mailto:mtnursery@mt.gov). Ordering information available at: <http://archive-dnrc.mt.gov/divisions/forestry/forestry-assistance/conservation-seedling-nursery>.

Lincoln-Oakes Nurseries, North Dakota Association of Soil Conservation Districts, 3310 University Drive, Bismarck, ND 58504, 701-223-8575. Ordering Information available at: <http://www.lincolnoakes.com/stock/pc/home.asp>



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