



University of Nevada
Cooperative Extension

Special Publication-06-04

SELECTED NATIVE TREES OF NORTHERN NEVADA

Are They Right for the Home Landscape?

JoAnne Skelly

Extension Educator, Carson City / Storey County

In an arid environment, home gardeners sometimes consider using native trees in their landscape to conserve water. The term “native” is misleading. All plants are native to somewhere. If the goal of the gardener is to use only trees native to the environment around the home, without any supplemental irrigation, the native tree options may range from limited to none. When the selection is broadened to include trees native to all of northern Nevada, the number of possibilities increases. The focus of this publication is to provide home gardeners with information on trees native to northern Nevada.

People often think that native trees will survive on the natural precipitation that occurs around their homes, no matter what the tree’s native environment is. This is rarely true. All trees need water to get started, and some need more than others throughout their life to grow and thrive, particularly if they are planted outside their natural range. In the mountains, where precipitation is the greatest, there is a wider variety of native trees than there is in the drier desert valleys. There are very few trees in the deserts of northern Nevada, usually only pinyon and Utah juniper, with occasional stands of cottonwoods, willows, and a few others growing where there are streams.

In many cases, native trees are inappropriate for use in the home landscape because their growth is limited to a certain elevation, to a specific soil type, or by soil drainage requirements. Native soils are very different from landscape soils. Planting native trees in a clay soil when they are accustomed to growing in fast-draining, sandy soils will probably kill them. Planting pinyon pine or Utah juniper, which thrive in an arid environment, into an irrigated home landscape is a recipe for failure.

Additionally, native trees are not always available from local nurseries. They can be difficult to propagate or slow to mature, rarely surviving in containers. These factors make it economically difficult for nurseries to grow and supply them. If a “native” tree comes from a nursery in another state, it is probably not from genetic stock native to Nevada, even though it may be hardy and appropriate for use here.

Putting these constraints aside, there are some native trees that can do well in home landscapes and are available at local nurseries. Sometimes, although a tree may be outside its native range and elevation, it may grow well in a home landscape with supplemental irrigation, increased management, and awareness that the tree may experience some stress. For example, incense cedar, a common tree on the moist west slope of the Sierra Nevada, can work well in a large home landscape outside of its normal “native” environment, if it is watered properly at the right time of year.

CONCLUSION

A home gardener should choose trees, whether native or adapted, that meet the goals for the landscape, including:

- Aesthetics
- Function
- Water-efficiency
- Erosion control
- Flammability
- Cost
- Maintenance
- Pest resistance or susceptibility



Pinyon pine in Storey County

Some questions to ask before selecting a tree include:

- Will the tree thrive, not merely survive?
- Is it available for purchase?
- How much water does it need?
- What kind of soil and drainage does the tree require?
- Will it grow in the general environment and microclimate of the specific site?
- Does it attract wildlife?
- Is it subject to weak limbs or shallow roots that may produce hazards?



Incense cedar

KEY TO TABLE 1

Table 1 is a partial list of trees native to northern Nevada. Willows have not been individually identified. The list provides information for home gardeners to use when determining whether certain trees are desirable and appropriate for use in their landscapes. All trees listed are hardy for northern Nevada. Some are more suited to higher elevations, but if kept irrigated, they can grow outside their native range.

Precipitation rates are in inches per year where known (Fire Effects Information System, USFS, 2005; Burns and Honkala, 1990; Ellefson, et al, 1992). Average precipitation for much of northern Nevada is 7 inches to 10 inches per year (National Oceanic and Atmospheric Administration, 2006). Flood-tolerant trees are mentioned and need large quantities of water each year. Note that landscape irrigation generally exceeds native summer precipitation, and many native trees receive their annual moisture in the form of snow, with almost no summer precipitation occurring.

Soil type can be an important factor in a tree's success as a landscape plant. A **poor** soil has little organic matter or nutrient content, little or too much water-holding capacity, a high (above 8) or low (below 5) pH, and sometimes a high salt content. An **average** soil has some organic matter that allows for nutrient exchange, some water-holding capacity, a pH from 6.5 to 8, and low to medium salt content. A **good** soil contains quite a bit of organic matter that provides more than adequate nutrient exchange for plants, good drainage while maintaining sufficient air and moisture for plants, and a low salt content. **Coarse** soils have smaller particles than **rocky** soils. A plant that needs a **rich** soil needs a soil that is deep and full of organic matter. A **deep** soil has plenty of depth for root development and water penetration, without the interference of an impermeable layer, such as clay or caliche. A **thin** soil has little depth available. The information in Table 1 is merely a generalization of the native soil condition where the tree is commonly found.

If a tree has a **poor** listing under drainage, it will tolerate poorly drained or very wet soils. **Good** drainage means a tree is adapted to moderately drained soils. An **excellent** listing in the drainage category means a tree species requires well-draining soil.

Heights are listed in feet. Note that most of the heights listed are for trees in their native habitats. Trees rarely reach these maximum heights in the home landscape.

Elevation ranges for conifers are based on the research of David Charlet, author of Nevada Conifers, who documented actual ranges based on arboretum reports and site visits. Those for deciduous trees are taken from the Fire Effects Information Service and are an approximation for Nevada trees.

Erosion control is listed as **poor**, **fair**, **good**, and **excellent**. A **poor** erosion-control plant will only hold soil in place on slopes less than 30 percent. A **fair** rating indicates efficient erosion control on slopes of 30 to 40 percent, while a **good** rating is a tree that

will hold soil on a 40 to 60 percent slope. An **excellent** erosion-control plant rapidly grows an extensive root system that holds the soil in place even on a slope greater than 60 percent. **ND** means no documentation was found. Also, some trees are not given an erosion-control rating because of their slow growth, but as a mature species, they do control erosion.

Trees with a **high** fire hazard rating should be avoided or used very minimally 30 feet to 200 feet from a structure, depending on the slope, to reduce the chance of the trees igniting in a wildfire and spreading fire to a structure.

If a plant is an excellent **resprouter**, the top of it may be burned or killed in a fire, but it can grow back rapidly from roots, crowns, and stems, providing important erosion control and slope stabilization after the fire. Resprouters often come back with vigor, reestablishing a burned landscape in a short period of time.

Many trees provide habitat and attract wildlife to the landscape. This can be positive or negative, depending on the homeowner's perspective and on the animal attracted to the yard. Birds (**b**) in the landscape are often desirable; birds nesting on or in the house or damaging trees may be a problem. Trees may attract small mammals (**sm**), including rodents, skunks, rabbits, porcupines, and raccoons. These, in turn, can attract large mammals (**lm**), such as coyotes, bobcats, and mountain lions which may eat domestic cats and dogs. Rabbits are attractive to some people and a nuisance to others. Porcupines may girdle valuable trees. Skunks appeal to few people. Large mammals also include deer and bears. Deer and bears can damage property, and bears can endanger humans. Cover (**c**) not only shelters quail and songbirds, but can encourage higher rodent populations. More rodents usually mean more snakes, including rattlesnakes.



Jeffrey pines in a home landscape

SELECTED NATIVE TREES OF NORTHERN NEVADA

Table 1, page 1

| | Annual Precipitation (inches) | Light | Soil Type | Drainage ¹ | Height (feet) | Elevation Range (feet) | Erosion Control ² | Fire Hazard | Resprouts After Fire | Wildlife ³ | Remarks |
|--|-------------------------------------|-----------------------|------------------------------|-----------------------|---------------|---------------------------|---------------------------------|------------------|-------------------------|-----------------------|---|
| <i>Abies concolor</i> var. <i>lowiana</i> White fir | 35 – 40 | Sun | Any | Good | 50 – 180 | 6,000 – 9,500 | Poor | High | No | lm,c, | Slightly silver appearance. Prone to bark beetles if water-stressed. Not best at lower elevations. |
| <i>Abies lasiocarpa</i> Subalpine fir | 24+ | Shade | Most | Any | 60 – 90 | 6,040 – 10,000 | Varies with soil type | High | No | b, sm, lm, c | Requires cool summers and wet winters. Does not tolerate high temperatures. Good windbreak. Slow-growing. |
| <i>Abies magnifica</i> Red fir | 33 – 64 | Sun | Coarse, nutrient rich | Excellent | 80 – 180 | 6,500 – 8,880 | Good | Med | No | b, sm, lm, c | Restricted to the Carson Range of the Sierra Nevada. Requires cold, wet winters. |
| <i>Acer glabrum</i> Rocky Mountain maple | 9 – 60 | Part shade, sun | Any | Good | 6 – 18 | 2,800 – 9,000 | Good | Low to med | Yes | b, sm, lm, c | Orange-red fall foliage. |
| <i>Acer negundo</i> Box-elder | 18 – flood tolerant | Part shade, sun | Any | Good | 18 – 60 | 4,000 – 10,000 | Poor | Low | Yes | b, sm, lm, c | Withstands drought and temperature extremes. Brittle limbs. Attracts box-elder bugs in quantity. Horticultural varieties available. |
| <i>Alnus incana</i> <i>subspecies</i> <i>tenuifolia</i> Thin-leaf alder | 24 – flood tolerant | Part shade, sun | High in organic matter | Poor | 10 – 20 | 4,500 – 8,000 | Excellent | Low | Yes | b, sm, lm, c | Invasive roots. Prefers stream environment. Forms thickets. Good for high water table areas. |
| <i>Alnus</i> <i>rhombifolia</i> White alder | 18 – flood tolerant | Any | Low in organic matter | Any | 16 – 80 | 100 – 8,000 | Poor | Low | Some | b, sm, lm, c | Grows along permanent streams. |
| <i>Amelanchier</i> <i>alnifolia</i> Western serviceberry | 14 – 18 | Part shade, sun | Any | Excellent | 3 – 26 | 4,000 – 9,500 | Excellent | Low | Yes | b, lm, c | Usually grows in moist ravines or on north slopes. Edible fruit. |

¹**Drainage:** **poor** = tolerant of very wet soils; **good** = does well under average drainage; **excellent** = requires well-drained soil.

²**Erosion Control:** **poor**, **fair**, **good**, or **excellent** soil stabilization can vary with soil texture, slope, and age of tree. **ND** = not documented.

³**Wildlife:** **b** = birds, **sm** = small mammals, **lm** = large mammals, **c** = cover.

Table 1, page 2

| | Annual Precipitation (inches) | Light | Soil Type | Drainage ¹ | Height (feet) | Elevation Range (feet) | Erosion Control ² | Fire Hazard | Resprouts After Fire | Wildlife ³ | Remarks |
|--|-------------------------------------|-----------------|-------------|-----------------------|------------------|---------------------------|---------------------------------|-------------|-------------------------|-----------------------|---|
| <i>Betula occidentalis</i> Water birch | 24 – flood-tolerant | Part shade | Any | Good | 12 – 33 | 1,800 – 9,000 | Poor | Low | Yes | b, lm, c | Smooth shiny bark reddish in color. Good winter color. Forms clumps. Grows along streams. |
| <i>Calocedrus decurrens</i> Incense cedar | 20 – 80 | Shade, sun | Any | Good | 50 – 125 | 4,500 – 7,800 | Good | High | No | c | Red bark. Takes summer heat and tolerates poor soils. Good screen, windbreak. |
| <i>Cercocarpus ledifolius</i> Curlleaf mountain-mahogany | 8 – 14 | Sun | Deep, rocky | Excellent | 12 – 35 | 2,000 – 9,900 | Excellent | High | No | b, sm, lm, c | Highly drought-resistant. Evergreen. |
| <i>Cornus sericea</i> Red-osier dogwood | 18 – flood-tolerant | Part shade, sun | Rich | Poor to Good | 3 – 19 | 4,800 – 9,500 | Excellent | Low | Yes | b, sm, lm, c | Beautiful red branches. White fruit. Readily available ornamental. |
| <i>Crataegus douglasii</i> variety <i>rivularis</i> Black hawthorn | Moist | Sun | Deep | Good | 3 – 20 | 2,200 – 5,400 | Excellent | High | Yes | b, sm, lm, c | Forms thickets that become ladder fuels. Good barrier plant with strong thorns. |
| <i>Juniperus occidentalis</i> Western juniper | 10 – 13 | Sun | Thin, rocky | Excellent | 15 – 30 | 4,130 – 9,100 | ND | Med to high | No | b, sm, lm, c | Slow-growing. |
| <i>Juniperus osteosperma</i> Utah juniper | 10 – 20 | Sun | Any | Good | 10 – 26 | 2,500 – 9,200 | Good | High | No | b, sm, lm, c | Slow-growing. Associated with singleleaf pinyon. Most widely distributed juniper in Nevada. |
| <i>Juniperus scopulorum</i> Rocky Mountain juniper | 12 – 26 | Part shade, sun | Rocky | Good | 13 – 18 | 5,200 – 9,200 | Good | High | No | b, sm, lm, c | Slow-growing, cold hardy. Occurs in the mountains of eastern Nevada from north to south. Horticultural varieties available. |
| <i>Picea engelmannii</i> Engelmann spruce | 24+ | Part shade, sun | Average | Excellent | 45 – 130 | 8,000 – 11,600 | Good | High | No | b, sm, lm, c | Restricted to near timberline in White Pine and Elko counties. Grows in cool summer areas. |

¹ **Drainage:** **poor** = tolerant of very wet soils; **good** = does well under average drainage; **excellent** = requires well-drained soil.

² **Erosion Control:** **poor, fair, good, or excellent** soil stabilization can vary with soil texture, slope, and age of tree. **ND** = not documented.

³ **Wildlife:** **b** = birds, **sm** = small mammals, **lm** = large mammals, **c** = cover.

Table 1, page 3

| | Annual Precipitation | Light | Soil Type | Drainage ¹ | Height (feet) | Elevation Range (feet) | Erosion Control ² | Fire Hazard | Resprouts After Fire | Wildlife ³ | Remarks |
|--|-------------------------|-----------------------|--------------------|-----------------------|---------------|---------------------------|---------------------------------|------------------|-------------------------|-----------------------|---|
| <i>Pinus albicaulis</i> Whitebark pine | 24 – 72 | Sun | Rocky | Good | 40 – 60 | 6,800 – 10,750 | Excellent when mature | Med | No | b, sm, lm, c | Subject to white pine blister rust. Don't plant near currants, the alternate disease host. Wind- tolerant. |
| <i>Pinus contorta</i> var. <i>murrayana</i> Lodgepole pine | 18 – 60 | Part shade, sun | Coarse | Good | 50 – 125 | 5,000 – 9,200 | Poor | High | No | b, sm, lm, c | Needs winter water/snow. Doesn't tolerate alkaline soils. |
| <i>Pinus flexilis</i> Limber pine | 14 – 18 | Sun | Rocky | Good | 30 – 50 | 6,000 – 11,500 | Excellent when mature | Med – high | No | b, sm, lm, c | Occurs in the mountains of eastern Nevada from north to south. Subject to white pine blister rust. Don't plant near currants, the alternate disease host. |
| <i>Pinus jeffreyi</i> Jeffrey pine | 14 – 18 | Sun | Coarse | Good | 60 – 175 | 4,500 – 9,100 | Good | Med – high | No | b, sm, lm, c | Hardy, drought tolerant. Grows in far northwestern counties. |
| <i>Pinus lambertiana</i> Sugar pine | 33 – 69 | Sun | Coarse, average | Good | 80 – 225 | 5,200 – 7,000 | Good | Med – high | No | b, sm, c | Subject to white pine blister rust, don't plant near currants, the alternate disease host. In far northwestern counties. |
| <i>Pinus longaeva</i> Great Basin bristlecone pine | 3 – 12 | Sun | Thin, rocky | Excellent | 15 – 60 | 6,760 – 11,600 | ND | Low – med | No | b, sm, c | Highly drought-tolerant. Restricted to high-elevation sites. |
| <i>Pinus monophylla</i> Singleleaf pinyon | 8 – 18 | Sun | Coarse | Excellent | 11 – 20 | 2,800 – 8,740 | Fair | High | No | b, sm, lm, c | Edible nuts. Slow growing. Intolerant of irrigation. Grows with Utah juniper. |
| <i>Pinus monticola</i> Western white pine | 30 – 59 | Sun | Most | Good | 60 – 200 | 5,400 – 9,200 | Good | High | No | b, sm, lm, c | Subject to white pine blister rust. Don't plant near currants, the alternate disease host. Occurs in far northwestern counties. |
| <i>Pinus ponderosa</i> Ponderosa pine | 11 – 17 | Sun | Coarse, average | Good | 60 – 225 | 4,200 – 9,000 | Good | Med – high | No | b, sm, lm, c | Found at lower elevations than Jeffrey pine. Doesn't take desert heat or wind. |

¹Drainage: **poor** = tolerant of very wet soils; **good** = does well under average drainage; **excellent** = requires well-drained soil.²Erosion Control: **poor**, **fair**, **good**, or **excellent** soil stabilization can vary with soil texture, slope, and age of tree. **ND** = not documented.³Wildlife: **b** = birds, **sm** = small mammals, **lm** = large mammals, **c** = cover.

Table 1, page 4

| | Annual Precipitation (inches) | Light | Soil Type | Drainage ¹ | Height (feet) | Elevation Range (feet) | Erosion Control ² | Fire Hazard | Resprouts After Fire | Wildlife ³ | Remarks |
|--|-------------------------------------|-----------------------|--------------------|-----------------------|-------------------------|------------------------------|---------------------------------|------------------|-------------------------|---------------------------|--|
| <i>Pinus washoensis</i> Washoe pine | 10 – 35 | Sun | ND | Excellent | 115 | 6,240 – 8,500 | ND | High | No | b, c | Rare. Occurs in northwestern Nevada. |
| <i>Populus angustifolia</i> Narrowleaf cottonwood | 18 – flood-- tolerant | Sun | Coarse, average | Good | 45 – 60 | 5,000 – 8,000 | Excellent | Low | Yes | b, sm, lm, lm, c | Needs stream zone environment. Invasive roots. Needs large growing area. Produces cotton seed litter. |
| <i>Populus balsamifera</i> subspecies <i>trichocarpa</i> Black cottonwood | 8 – flood- tolerant | Sun | Coarse, average | Good | 30 – 100 | 4,500 – 7,500 | Excellent | Low | Yes | sm, lm, c | Shallow invasive roots. Produces cotton seed litter. |
| <i>Populus fremontii</i> Fremont cottonwood | 9 – flood- tolerant | Sun | Most | Poor to Good | 20 – 60 | 2,200 – 5,500 | Excellent | Low | Yes | sm, lm, c | Widely used as ornamental. Needs moisture all year. Invasive roots. Fairly salt-tolerant. Needs large growing area. Produces cotton seed litter. |
| <i>Populus tremuloides</i> Quaking aspen | 18+ | Part shade, sun | Coarse, average | Good | 20 – 50 | 6,500 – 11,000 | Excellent | Low | Yes | b, sm, lm, c | Invasive roots. Needs water all year. |
| <i>Prunus emarginata</i> Bitter cherry | 14 – 18 | Sun | Medium | Good | 3 – 30 | 4,000 – 9,000 | Excellent | Low | Yes | b, sm, lm, c | Yellow fall color. Red bark. Bitter red fruit. |
| <i>Prunus virginiana</i> variety <i>demissa</i> Western chokecherry | 14 – 18 | Part shade | Coarse | Excellent | 3 – 20 | 4,900 – 10,000 | Fair | Low – high | Yes | b, sm, lm, c | Shiny red bark, attractive white flowers. Widely used as ornamental. Can form thicket. More fire risk when a thicket. |
| <i>Pseudotsuga menziesii</i> Douglas fir | 24 – 120 | Part shade, sun | Average | Good | 80 – 160 | 6,240 – 9,800 | ND | Med – high | No | b, sm, lm, c | Tolerates wind. |
| <i>Salix species</i> ⁴ Willow | 18 – flood- tolerant | Shade, sun | Any | Poor | Varies by species | All | Excellent | Low | Yes | b, sm, lm, c | Needs water and has invasive roots. Usually inappropriate for small urban landscapes. |

¹Drainage: **poor** = tolerant of very wet soils; **good** = does well under average drainage; **excellent** = requires well-drained soil.²Erosion Control: **poor**, **fair**, **good**, or **excellent** soil stabilization can vary with soil texture, slope, and age of tree. **ND** = not documented.³Wildlife: **b** = birds, **sm** = small mammals, **lm** = large mammals, **c** = cover.⁴There are 38 species of willow in Nevada (NRCS, 1998). For more information read "Native Hardwoods of Nevada" (Rowley, 1994)

Table 1, page 5

| | Annual Precipitation (inches) | Light | Soil Type | Drainage ¹ | Height (feet) | Elevation Range (feet) | Erosion Control ² | Fire Hazard | Resprouts After Fire | Wildlife ³ | Remarks |
|---|-------------------------------------|-----------------------|----------------|-----------------------|---------------|---------------------------|---------------------------------|---------------|-------------------------|-----------------------|---|
| <i>Sambucus nigra</i> subspecies <i>cerulea</i> Blue elderberry | 18+ | Sun | Any | Excellent | 6 – 20 | 5,000 – 8,000 | Excellent | Low | Yes | b, sm, lm, c | Edible fruit. Good ornamental for cooler sites. |
| <i>Sambucus racemosa</i> variety <i>racemosa</i> Red elderberry | 18+ | Part shade, sun | Rich, rocky | Poor to Good | < 20 | 3,500 – 11,000 | Fair to good | Low | Yes | b, sm, lm, c | Good ornamental for cooler sites. |
| <i>Shepherdia argentea</i> Silver buffaloberry | 18+ | Sun | Any | Good | 3 – 24 | 3,500 – 6,500 | Good | Low | Yes | b, sm, lm, c | Good ornamental. Can form thicket. Good windbreak or barrier. |
| <i>Tsuga mertensiana</i> *Mountain hemlock | 38 – 60 | Shade, sun | Coarse | Excellent | 75 – 100 | 7,920 – 9,650 | Poor | Med – high | No | b, c | Found in far northwestern counties. |

¹ **Drainage:** **poor** = tolerant of very wet soils; **good** = does well under average drainage; **excellent** = requires well-drained soil.

² **Erosion Control:** **poor**, **fair**, **good**, or **excellent** soil stabilization can vary with soil texture, slope, and age of tree. **ND** = not documented.

³ **Wildlife:** **b** = birds, **sm** = small mammals, **lm** = large mammals, **c** = cover.

REFERENCES

- Brenzel, K.N., Editor. 2001. Sunset western garden book. Sunset Publishing Corporation. Menlo Park, California.
- Burns, R.M. and B.H. Honkala. 1990. Silvics of North America. Volume 1 – conifers. USDA Forest Service Agricultural handbook 654. Washington, D.C.
- Charlet, D.A. 1996. Atlas of Nevada conifers – a phytogeographic reference. University of Nevada Press. Reno, Nevada.
- Ellefson, C., T. Stephens, and D. Welsh. 1992. Xeriscape gardening – water conservation for the American landscape. Macmillan Publishing Company. New York, New York.
- Fire Effects Information System. 2005. <http://www.fs.fed.us/database/feis/plants>. USDA Forest Service, Intermountain Research Station, Fire Science Laboratory. Missoula, Montana.
- Johnson, W. and J. Christopherson. 1992. Trees for Tahoe landscapes. Fact Sheet 92-49. University of Nevada Cooperative Extension. Reno, Nevada.
- Lanner, R.M. 1983. Trees of the Great Basin – a natural history. University of Nevada Press. Reno, Nevada.
- Monzingo, H.N. 1984. Shrubs of the Great Basin – a natural history. University of Nevada Press. Reno, Nevada.
- National Oceanic and Atmospheric Administration. 2006. <http://www.ncdc.noaa.gov/oa/climate/online/ccd/nrmcp.txt>
- Natural Resources Conservation Service. 1998. Nevada native plant list. United States Department of Agriculture. Reno, Nevada.
- Rowley, P. 1994. Native hardwoods of Nevada – a checklist. Fact Sheet 94-47. University of Nevada Cooperative Extension. Reno, Nevada.

The University of Nevada, Reno is an Equal Employment Opportunity/Affirmative Action employer and does not discriminate on the basis of race, color, religion, sex, age, creed, national origin, veteran status, physical or mental disability, and sexual orientation in any program or activity it operates. The University of Nevada employs only United States citizens and aliens lawfully authorized to work in the United States.