Selecting, planting, and caring for trees, shrubs, and vines

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YOU ARE A SHORT-SEASON, HIGH-ALTITUDE GARDENER IF:

You live in Idaho at an elevation above 4,500 feet, **OR**

Your USDA hardiness zone is 4 or lower, **OR**

You have a frost-free growing season of 110 days or less

University of Idaho Extension

INTRODUCTION

The short-season, high-altitude gardening series was created in response to a critical lack of information about designing landscapes and caring for gardens in the harshest of Idaho's climates. This publication outlines steps for choosing and caring for woody landscape plants (trees, shrubs, and vines).

Woody plants make up a diverse set of landscape elements that include trees, shrubs, and vines. All are perennial, generally long-lived, remain alive above ground through the winter, and continue to increase in size throughout their useful life span. Beyond these basic traits, woody plants come in all sizes and shapes and are used in many ways to shape the outdoor living space. They provide scale and balance; soften hard edges of buildings, gazebos, and other constructed landscape structures; add texture and color; and define the winter landscape.

Woody plants provide seasonal color and interest.

High desert landscape in southeast Idaho

Beeches are massive, well-branched trees.

Poplar trees are suitable around water features.

Along with turfgrass, woody plants are staples within the landscape. They are especially important in short-season climates because annual and herbaceous perennial plants contribute beauty for only a few months in the summer, while woody plants provide aesthetic value year round. Beyond their beauty, woody plants improve property in many ways. They serve as windbreaks, provide summer cooling, dampen noise from traffic and other sources, create privacy, and add to overall economic value.

SELECTION OF SPECIES AND CULTIVARS

Choosing adapted, appropriate species, and properly situating them in the landscape, are essential to creating an attractive landscape. Adaptation is a special concern because woody plants are dominant features in the landscape and are constantly exposed to harsh local climates. They must also be capable of extracting sufficient water and nutrients from local native soils. Even if adapted and attractive, when improperly placed, woody plants may damage nearby buildings and landscape structures or interfere with utilities. If problematic, they can be difficult and expensive to remove.

Following are recommendations for trees, shrubs, and vines that are adapted to the soils and climate of Idaho's short-season, high-altitude areas. We have emphasized two traits that are important but often difficult to combine in woody plants: tolerance to alkaline soils and winter hardiness. This is especially important for the high desert regions of southern Idaho where soil pH is often very high. For many mountain valley locales and the northern panhandle, soil pH is less of an issue. Most plants listed will grow in these regions because alkaline-tolerant plants usually adapt to better soils. Gardeners living in locations with neutral or acidic soils have the enviable option of expanding plant lists to include those adapted to acidic or neutral soils.

Woody plants that tend to suffer from serious problems with insects, diseases, and climate and soil adaptation are purposely excluded from the recommended lists. Most of the woody plants mentioned are easily accessible from local nurseries. A few are less common and may take some effort to find. Spending the time to find unusual plants is often worth the effort, in order to create a unique landscape. Easily obtainable plants are often overused, leading to the phenomenon known as "landscape monotony."

Table 1: Large Trees

COMMON NAME	SCIENTIFIC NAME	HARDINESS ZONE	MATURE HEIGHT	USES & CHARACTERISTICS
Deciduous:				
Beech, European	*Fagus sylvatica*	4	60 ft	Ac/Ak/Sh/Sp
Butternut	*Juglans cinerea*	3	60 ft	Fr/Sh
Cottonwood, Lanceleaf	*Populus acuminata*	2	60 ft	Ak/Sh/Wb
Hackberry, Common	*Celtis occidentalis*	2	60 ft	Ak/Sh
Kentucky Coffeetree	*Gymnocladus dioicus*	3	60 ft	Ak/Fl/Sh
Linden, American	*Tilia americana*	2	60 ft	Ak/Fl/Sh/Sp
Maple, Sugar	*Acer saccharum*	3	80 ft	Fc/Sh
Oak, Bur	*Quercus macrocarpa*	2	70 ft	Ac/Ak/Sh/Sp
Walnut, Black	*Juglans nigra*	4	90 ft	Ak/Fc/Fr/Sh
Willow, Silver	*Salix alba*	2	60 ft	Sh/Wb
Evergreen:				
Fir, Douglas	*Pseudotsuga menziesii*	2	80 ft	Ac/Wi
Fir, White	*Abies concolor*	3	70 ft	Ac/Ak/Wi
Spruce, Colorado	*Picea pungens*	2	70 ft	Ac/Ak/Wb/Wi
Spruce, Engelmann	*Picea engelmannii*	2	70 ft	Ac/Ak/Wb/Wi
Spruce, Norway	*Picea abies*	2	80 ft	Ak/Ac/Wb/Wi
Western Redcedar	*Thuja plicata*	4	90 ft	Ac/Wi

Key to Uses and Characteristics: **Ac**=useful as an accent tree to complement other plants; **Ak**=adapted to highly alkaline soils; **Fc**=striking yellow, orange, or red fall color; **Fl**=attractive flowers; **Fr**=attractive or edible fruit; **Sh**=provides shade; **Sp**=effective in the role of specimen or central feature of the landscape; **Wb**=useful as a windbreak tree; **Wi**=provides winter beauty and interest.

LARGE TREES (50-100 FEET TALL)

Large trees have a combination of height and spread that make them unsuitable for most small urban properties. They should never be planted under power lines and many can damage sidewalks if planted within 10-15 feet. When given adequate room to grow, large trees are irreplaceable for their majesty, ability to provide shade, and noise suppression. Table 1 lists recommended large trees.

Beech, European—Sometimes called the king of the shade trees, it forms a massive canopy and deep shade. Many forms are available, including weeping and purple-leaf cultivars. These make wonderful specimen trees. This tree will tolerate alkaline conditions but requires deep, rich soil and plenty of water. The leaf edges may burn in hot, dry weather.

Butternut—This is similar in form and appearance to the black walnut but smaller, and it does not suppress the growth of other plants underneath the trees. The nuts are edible and similar to English walnuts. It is the hardiest of the nut trees and will grow in Idaho's short-season areas. It should be planted in full sun where the fallen nuts do not create a hazard.

Cottonwood, Lanceleaf—This tree is messy (broken branches), disease-prone, and short-lived, like most trees in its genus. However, it is one of the better poplars and can provide good shade near water features. It is a fast-growing tree and reaches functional size within a few years. It should not be planted near structures.

Hackberry, Common—This is a great replacement for the troublesome elm or the short-lived poplar. It is similar in size and shape, but has fewer problems with volunteer seedlings and broken branches. It produces a high canopy with pleasant, dappled shade. It is very hardy, remarkably well-adapted to high pH soils, and attractive. It is a less common tree that can successfully be used in many Idaho landscapes.

Kentucky Coffeetree—Here is another tree with good adaptation to alkaline soils. It is large and imposing, with beautiful leaves and bold form. In spring it is often covered with long panicles of white flowers. Winter texture and appearance can be somewhat coarse. It should be planted in a sunny location where it has lots of space. It is an uncommon and underappreciated shade tree for Idaho's harsh climate regions.

Linden, American—This tree produces the same perfumed flowers as the better-known littleleaf linden, but has larger leaves and greater mature height. It makes a wonderful shade tree for a large yard. It exhibits nice yellow fall color. American linden is a good street tree where sufficient space is available. It grows best in full sun and may exhibit leaf burn in the hottest, driest desert locations.

Maple, Sugar—Surprisingly adapted to Idaho's climate and soils (if the pH is not above 8), this grows into an attractive and majestic tree that provides shade and intense red and orange fall color. It is for large spaces and needs full sun, plenty of moisture, and rich soil.

Few oaks are adapted to alkaline soils.

Colorado spruce provides good winter interest.

Oak, Bur—This is one of the few oaks adapted to southern Idaho's high pH soils. It is a stately tree that slowly grows both tall and broad, providing deep shade. It is vastly underused and will grow in all of Idaho's harsh climates. It should be planted in full sun away from sidewalks and decks, where the fallen acorns can cause litter problems. In northern Idaho, where soil pH is not an issue, several other oak species have proven adaptable, including English, swamp white, northern red, and sawtooth.

Walnut, Black—This massive and majestic shade tree is suitable only for large spaces. It may not be adapted to the very coldest of Idaho's short-season, high-altitude regions. However, it does well in the high desert areas. The leaves exude a chemical that may stunt or kill other plants growing directly under the canopy. It should be planted in full sun in a place where the edible nuts do not cause problems.

Willow, Silver—This is one of the better willows among a family of trees that tend to drop branches, and be short-lived and disease-prone. It has beautiful globe form and silver-blue leaves. It is appropriately placed in full sun near water features. It also makes a good windbreak tree—just be sure to place it where broken branches will not cause problems.

Fir, Douglas—Most commonly used for cut Christmas trees, this tree has soft, flexible needles. It is hardy, but very large and best used in spacious, naturalized locations. Cultivars derived from interior Rocky Mountain populations are better adapted than their Pacific Coast counterparts. It is somewhat prone to wind damage and not a good choice for windbreaks.

Fir, White—An exceptional landscape tree for all of Idaho's harsh climates, this is a good alternative to Colorado spruce. It has dense form and retains an excellent conical growth habit. Many cultivars have attractive silver-blue color. It prefers a sunny location and makes an excellent accent tree. The best white fir cultivars for Idaho originate from the Santa Fe and Rio Grande National Forests in New Mexico and Colorado.

Spruce, Colorado—This is probably the most common evergreen tree planted in Idaho, and largely deserves the attention it gets. It is hardy, somewhat drought tolerant, and adapted to alkaline soils. It is best known in its blue form. It is one of the best windbreak trees that can be planted within the high desert climates. It should only be planted where sufficient space is available and should be kept away from structures and sidewalks. Although typically a large tree, there are many forms and cultivars of Colorado Spruce that remain under 25 feet tall and are suitable for small yards.

Spruce, Engelmann—This tree is native to many parts of Idaho. It is denser than Colorado spruce and has a narrower form, making it more appropriate for smaller spaces. However, it should still be considered only for large yards. Engelmann spruce should be planted in a sunny location where its vertical form is unhindered.

Spruce, Norway—Long, pendulous branches with dangling secondary branches and dark green needles distinguish this tree. It is very tolerant of wind and makes a good windbreak tree. It should be planted in full sun with sufficient room to extend its long branches.

Western Redcedar—Native to central and northern Idaho, this tree should grow well in the mountainous regions and moister locations of Idaho's short-season, high-altitude climates, but may be less adapted to the desert regions. It matures into a tall tree and must be given plenty of space, rich soil, and adequate water.

MEDIUM TREES (25-50 FEET TALL)

Medium-sized trees are ideal for use as the dominant feature in small yards and landscapes. For larger areas, they work with tall trees to add variety in form and texture. Many of the medium-sized trees provide added interest by producing flowers, attractive fruit, and interesting bark. The medium-sized evergreens are among the best of their class for adding beauty to the landscape. They often have better form and denser appearance than their larger cousins. Recommended trees are listed in table 2.

Table 2: Medium Trees

COMMON NAME	SCIENTIFIC NAME	HARDINESS ZONE	MATURE HEIGHT	USES & CHARACTERISTICS
Deciduous:				
Amur Corktree	*Phellodendron amurense*	3	40 ft	Ak/Fc/Sh/Wi
Birch, Water	*Betula occidentalis*	3	30 ft	Ac/Sp/Wi
Buckeye, Ohio	*Aesculus glabra*	3	30 ft	Ac/Ak/Fc/Fl
Castor Aralia	*Kalopanax pictus*	4	45 ft	Ak/Fl/Sh
Honeylocust	*Gleditsia inermis*	3	35 ft	Ac/Ak/Fc
Horsechestnut, Common	*Aesculus hippocastanum*	3	50 ft	Fl/Sh/
Horsechestnut, Red	*Aesculus x carnea*	3	30 ft	Fc/Fl/Sh
Ironwood	*Ostrya virginiana*	3	30 ft	Ak/Fc
Linden, Littleleaf	*Tilia cordata*	3	40 ft	Ac/Ak/Fl/Sh
Maple, Norway	*Acer platanoides*	3	50 ft	Ak/Fc/Sh
Maple, Sycamore	*Acer pseudoplatanus*	3	50 ft	Ak/Fc/Sh/Wi
Quaking Aspen	*Populus tremuloides*	3	30 ft	Fc/Sp
Yellowwood	*Cladrastis kentukea*	4	40 ft	Ac/Ak/Fc/Fl/Sh
Evergreen:				
Juniper, Rocky Mountain	*Juniperus scopulorum*	3	30 ft	Ac/Ak/Sc/Wb/Wi
Pine, Austrian	*Pinus nigra*	3	50 ft	Ac/Ak/Wb/Wi
Pine, Bosnian	*Pinus leucodermis*	3	50 ft	Ac/Ak/Wb/Wi
Pine, Limber	*Pinus flexilis*	3	60 ft	Ac/Ak/Wb/Wi
Pine, Swiss Stone	*Pinus cembra*	2	40 ft	Ac/Ak/Wb/Wi
Spruce, Black Hills	*Picea glauca* "Densata"	2	50 ft	Ac/Ak/Wb/Wi

Key of Uses and Characteristics: **Ac**=useful as an accent tree to complement other plants; **Ak**=adapted to highly alkaline soils; **Fc**=striking yellow, orange, or red fall color; **Fl**=attractive flowers; **Sc**=useful for screening purposes; **Sh**=provides shade; **Sp**=effective in the role of specimen or central feature of the landscape; **Wb**=useful as a windbreak tree; **Wi**=provides winter beauty and interest.

Amur Corktree—This tree is adapted to difficult conditions and high pH soils. It provides seasonal interest with good yellow fall color, but its main attraction is the interesting corky bark. Fruitless male cultivars are available that minimize messiness due to fruit drop. It grows best in full sun.

Birch, Water—An Idaho native, this tree tends to have fewer problems with insects and diseases when compared with the imported birches. It requires fairly frequent irrigation, but will withstand infertile soils. It makes an excellent specimen around water features but also does well in a sunny irrigated lawn. It has interesting cinnamon-colored bark, streaked with white. Water birch can be pruned to form clumps (best) or single-trunk trees.

Buckeye, Ohio—This tree produces a marvelous display of yellow-green flowers in the spring, followed by round, somewhat spiny fruit, and finishes the season with a good display of yellow fall color. It can handle high pH soils but is not drought tolerant. It makes a good accent tree in a sunny lawn area that receives frequent irrigation. The seeds are toxic to humans and some livestock.

Castor Aralia—A long-lived tree that withstands poor soils and harsh conditions, this has unique palm-shaped leaves, plus form and texture that provide a tropical appearance to the landscape. It produces attractive white flowers in the spring. This is another tree that is uncommon in the short-season, high-altitude regions of Idaho and should definitely be used more often. It may not be hardy in zone 3 areas. Castor aralia should be planted in full sun.

Honeylocust—A common landscape tree, this is useful where feathery texture and light shade are desired. It makes an excellent street tree. Many thornless cultivars are available that exhibit differences in mature size and leaf color. Seedless cultivars are best for most landscapes. Cultivar selection is important to ensure winter hardiness. The cultivar 'Sunburst' is less hardy, while 'Skyline' has performed better in cold climates.

Horsechestnut, Common—Beautiful spring flowers and deep shade distinguish this tree. Where space is adequate to hold its broad form, it is an excellent urban tree in a sunny or partly shady location. The spiny fruit can be messy on landscape structures and toxic if consumed. It is hardy in all but the very coldest regions of Idaho, but is not a drought tolerant tree.

Horsechestnut, Red—One of the smaller members of its genus, this tree is beautiful in full bloom with its large candles of bright red spring flowers. It forms dense shade under a tight, flattened crown. It requires consistent irrigation in dry climates and even then may experience some leaf burn in hot weather. The seeds are toxic to humans and some livestock.

Ironwood—Another uncommon tree in Idaho landscapes, this provides fine leaf texture and brilliant yellow fall color. It is very drought tolerant and is one of the best trees for tolerance to road salt. It can grow in shade and makes a good understory tree.

Littleleaf linden is a popular and effective street tree.

Linden, Littleleaf—This has gained popularity as an outstanding street tree. It maintains a tight and attractive crown and produces very fragrant spring flowers. It should be placed in a sunny location where it will provide shade and/or accent. Many cultivars are available and provide choice in growth habit, density, and appearance. Branches may break due to heavy snow and ice.

Maple, Norway—A commonly planted tree in the colder areas of Idaho, it comes in many forms and includes cultivars with purple summer leaf color. It provides good fall color and is a useful tree where heavy shade is desired. Norway maple produces large quantities of large leaves and heavy crops of seeds, causing it to be somewhat messy in the fall. The roots are shallow and can cause heaving of sidewalks and uneven lawn surfaces.

Maple, Sycamore—Somewhat similar to Norway maple in size and form, this tree provides additional interest with its peeling, orange bark. It produces outstanding burgundy fall color. It should be hardy in all but the coldest locations in Idaho and is tolerant of road salt.

Quaking Aspen—This is one of the most misused trees in Idaho's landscapes. It is short-lived, suckers freely, and becomes diseased and stressed in areas with hot, windy summers. It is not a good yard tree for most situations. However, in the mountainous regions at elevations above 5,000 feet (4,000 in northern Idaho), it can be used to create a spectacular naturalized effect with its contrasting white bark, shimmering leaves, and intense yellow fall color.

Yellowwood—This tree is desirable for its stunning spring bloom. In good years, it is covered with white flowers. It also provides good yellow fall color. It is a tough tree that actually prefers high pH soils and should be hardy throughout zone 4. It requires full sun and makes a good medium-sized shade or accent tree.

Juniper, Rocky Mountain—A native, upright juniper, this grows as a small- to medium-sized tree. It is hardy and drought tolerant. It is an excellent choice for use in windbreaks, but also makes a handsome specimen tree for tough sites. It is better adapted to the high desert areas rather than the northern Idaho valleys, where it tends to suffer from fungal diseases. It needs full sun and prefers to grow in rocky soils, but is adaptable.

Pine, Austrian—Commonly planted in landscapes in Idaho, this tree tends to be more attractive than Scotch pine due to longer needles, darker color, and denser form. It also has furrowed bark that adds to winter interest. It is somewhat drought tolerant and does well on lean soils, making it a good choice for windbreaks in Idaho's harsher climates. Austrian pine can be prone to branch breakage where winter snow loads are heavy.

Pine, Bosnian—This is often used effectively as a specimen in small yards because of its very slow growth rate. Given enough time it grows into a fairly large, hardy evergreen. It is a dense tree with dark green needles. It prefers soil on the dry side and a sunny location.

Pine, Limber—Its silvery needles remain on the tree for many years, giving the branches a thick, brush-like appearance. It is one of the most drought-tolerant of the pines and is suitable for all of Idaho's short-season, high-altitude regions. Limber pine grows slowly and can often be successfully placed in fairly small spaces. It makes a good windbreak tree.

Pine, Swiss Stone—This is often listed as a small conifer due to its slow growth rate. It will eventually become fairly large, but it takes many years. It is denser than most other pines and holds its lower branches well. It is also exceptionally hardy and withstands extremely windy conditions, making it a good candidate as a long-lived windbreak tree.

Spruce, Black Hills—The large form of the better known dwarf Alberta spruce, this tree has a denser structure than most other spruces. It has short needles, and a narrow conical form that makes it suitable for smaller spaces than would be suggested by its height. It is slow growing and can be planted in the shade.

SMALL TREES (10-25 FEET TALL)

Small trees are crucial to unifying a landscape. They add beauty to entryways and provide scale and variety to the entire landscape. They are also among the best flowering specimen plants available. Unfortunately, they are often overlooked in the landscape planning process. Many adapted small trees are available for use by the short-season, high-altitude gardener. Recommended trees are listed in table 3.

Most of the trees classified as small are inherently so and will never become larger than advertised. A few are listed as small because of slow growth rate and will eventually reach a mature size of fairly significant proportions. Before making a purchase, be sure to do some homework and understand the true nature of selected trees.

Table 3: Small Trees

COMMON NAME	SCIENTIFIC NAME	HARDINESS ZONE	MATURE HEIGHT	USES & CHARACTERISTICS
Deciduous:				
Amur Maackia	*Maackia amurensis*	3	25 ft	Ac/Ak/Fl/Wi
Chokecherry, Amur	*Prunus maackii*	2	25 ft	Fc/Fl/Fr/Wi
Crabapple	*Malus* spp.	3	20 ft	Fl/Fr/Sh
Hackberry, Netleaf	*Celtis reticulata*	4	20 ft	Fc
Hawthorn	*Crataegus* spp.	3	15 ft	Fc/Fl/Fr
Hornbeam, American	*Carpinus caroliniana*	3	20 ft	Ak/Fc/Sh/Wi
Linden, Mongolian	*Tilia mongolica*	3	25 ft	Ac/Ak/Fc/Fl/Sh
Maple, Bigtooth	*Acer grandidentatum*	3	25 ft	Ac/Ak/Fc/Sh
Maple, Rocky Mountain	*Acer glabrum*	3	15 ft	Ac/Fc
Maple, Shantung	*Acer truncatum*	4	20 ft	Ac/Fc/Fl
Maple, Tartarian	*Acer tataricum*	3	20 ft	Ac/Ak/Fc
Plum, Canada	*Prunus nigra*	3	20 ft	Ac/Fc/Fl/Fr/Wi
Redbud	*Cercis canadensis*	4	25 ft	Ac/Fl
Evergreen:				
Pine, Bristlecone	*Pinus aristata*	2	15 ft	Ac/Sp/Wi
Pine, Pinyon	*Pinus edulis*	3	15 ft	Ac/Wi
Spruce, Hoopsi	*Picea pungens* 'Hoopsii'	3	20 ft	Ac/Sp/Wi

Key of Uses and Characteristics: **Ac**=useful as an accent tree to complement other plants; **Ak**=adapted to highly alkaline soils; **Fc**=striking yellow, orange, or red fall color; **Fl**=attractive flowers; **Fr**=attractive or edible fruit; **Sh**=provides shade; **Sp**=effective in the role of specimen or central feature of the landscape; Wi=provides winter beauty and interest.

Amur Maackia—An outstanding small tree for short-season climates, it produces beautiful white spring flowers and has peeling golden bark that adds winter interest. It is an adaptable small tree that is tolerant of alkaline soils and harsh conditions. It should be planted as an accent tree in full sun.

Chokecherry, Amur—This is a well-behaved version of the native chokecherry. It has fewer tendencies to sucker, is more compact, and is easier to prune as a single-trunk tree. It produces numerous white flowers in the spring and black berries in summer. It provides winter interest due to its showy bronze bark. It is extremely hardy, tolerant to wind, and makes a good accent tree in a sunny location.

Crabapple—This has an unearned reputation as a poor, messy landscape tree. There are numerous improved cultivars available that are relatively problem-free. A crabapple in full bloom creates glory in the landscape. Flower color ranges from white to dark red and can be single or double. Fruits, which come in many colors, may be lacking or persistent (meaning they remain on the tree through the winter to provide food for birds). Excellent cultivars include: 'Bechtel'—double pink flowers and very few small green fruit; 'Snow Cloud'—white, single flowers and no fruit; and 'Indian Summer'—red flowers and small red fruit that persist through winter.

Hackberry, Netleaf—Native to Idaho and surrounding states, this is an ideal tree for low-water situations. It is a miniature version of its Midwest cousin and has similar tolerance to cold, wind, and alkaline soil.

Crabapple trees bring glorious spring color.

Hawthorn—This is another tree that has an unearned negative reputation as a coarse, thorny tree, due mostly to the English hawthorn, usually sold as the cultivar "Paul's Scarlet." Many species and cultivars of hawthorn are available, providing a medley of superior forms and growth habits. Choice species include: Russian hawthorn (*Crataegus ambigua*), cockspur hawthorn (*C. crus-galli*), Washington hawthorn (*C. phaenopyrum*), and green hawthorn (*C. viridis*). Many cultivars exist within each species and all have beautiful flowers, small persistent fruit, and are winter-hardy to at least zone 4. They are excellent street and accent trees for sunny locations.

Hawthorns are beautiful both in flower and in fruit.

Maples are some of the best trees for fall color.

Hornbeam, American—This tree is related to beeches and alders, and shares many of the same nice features. It is difficult to find, but worth seeking. It is an excellent small tree that can withstand high pH soils. Fall color is an effective orange-red and the silver-blue bark adds winter interest. It grows well in sun or shade.

Linden, Mongolian—This is among the largest of the small trees and in some cases may grow taller than 25 feet. In many ways, it is similar to its linden cousins. It is hardy, adapts to alkaline soils, and produces aromatic flowers. Unlike other lindens, it has an oval rather than pyramidal form. It is an excellent shade and accent tree for a sunny location.

Maple, Bigtooth—This is the tree that provides the southeast Idaho mountains with fabulous red fall color. It is uncommon in commerce but slowly becoming more available. This species is the most tolerant of the maples to drought and high pH soils, but will grow anywhere in Idaho's short-season climates. It is a beautiful small to medium tree that can be used for shade or accent.

Spruce, pine, and fir make good specimen plantings.

Maple, Rocky Mountain—A small native tree that usually grows in clump form, it has many attractive features, including bright red young stems, pink to reddish seeds, and bright yellow fall color. It is becoming more consistently available in nurseries and is a wonderful small accent tree. It will grow well in the shade of larger trees.

Maple, Shantung—This is also called the purpleblow maple. Newly developing leaves are purple in color, fading to green. It is one of the best small maples for accent purposes. It produces masses of yellow spring flowers and finishes the season with bright red fall color. It is drought tolerant, but does not like shade.

Maple, Tartarian—Considered one of the best small maples for alkaline soils, it is far superior to the more commonly planted amur maple. It has nice form, bright red seeds, and good fall color. It makes an excellent accent tree for a sunny location.

Plum, Canada—This small native tree produces masses of white flowers and edible fruit. It is very hardy, not drought tolerant, but will grow in most soils. It makes a very attractive accent tree for a sunny location and provides some winter interest with its black bark. Unused fruit can be messy.

Redbud—This is likely not hardy in the coldest mountain regions of Idaho, but is worthy of consideration in the warmer valleys. It brings some of the earliest spring color in the form of bright pink flowers. Redbud needs moderately fertile soil and moist conditions to be at its best. It grows well in the shade of larger trees and makes an outstanding accent tree, especially if planted in groups.

Pine, Bristlecone—Related to the long-lived trees of the eastern Sierra Nevada, this can eventually become a moderate-sized tree, but grows slowly and seldom outgrows its place in the landscape. Its unique gnarled form makes it a great specimen plant, especially near a rock garden or perennial bed. It is very drought tolerant and prefers a dry, sunny place in the yard. Note: in northern Idaho, bristlecone pine can grow more rapidly and have a less gnarled form than if it is grown in the harsher conditions of the southern deserts.

Pine, Pinyon—This small native tree is adapted to dry sites and alkaline soils. The northern forms are extremely hardy and suitable for all of Idaho's drier short-season, high-altitude areas. It works well in low-water or naturalized gardens.

Spruce, Hoopsi—This is a dwarf, exceptionally blue form of Colorado spruce. It has all the same advantages and problems, but is a smaller tree. It is an outstanding tree where space is limited, and makes a very nice specimen.

TALL SHRUBS (6-12 FEET TALL)

Tall shrubs can fill the same role as small trees in the landscape. In addition, they can serve as screens and barriers. Because of their height, most make poor foundation plantings (plantings to hide the foundation of a building), but do serve to add texture, form, and color to many other places in the landscape. See table 4 for recommended tall shrubs.

Buffaloberry—This is a tough, thorny, hardy shrub that can be pruned to form a small tree. It has attractive yellow flowers followed by bright red berries that attract wildlife. If pruned and maintained, it is a good general landscape plant; otherwise it is best in a naturalized location. Buffaloberry is very drought tolerant and makes a good xeriscape subject. It may be short-lived in regions with higher rainfall such as northern Idaho.

Cotoneaster—This includes a variable and important group of landscape plants. Not all are winter-hardy in Idaho's short-season climates, but some species and cultivars are adapted. The best tall forms include Peking cotoneaster (*C. acutifolius*), hedge cotoneaster (*C. lucidus*), European cotoneaster (*C. integerrimus*), and flowering cotoneaster (*C. multiflorus*). Most of the cotoneasters make good hedging or screening plants. All produce abundant bright red or dark black berries that persist into winter. Many also show intense red fall color. Cotoneasters prefer slightly dry conditions, lean soils, and sun or part shade.

Dogwood, Red-twig—Native to most of Idaho's short-season, high-altitude regions, this is an outstanding landscape shrub, combining hardiness and four-season beauty. It has an attractive mounding shape, numerous clusters of white flowers, fruit that attracts birds, and bright red stems that are unparalleled for creating winter interest in front of a snowy background. New smaller and more refined cultivars have recently been introduced. Red-twig dogwood is tolerant of shade but grows denser in full sun. It is also tolerant of alkaline soils but is only moderately drought tolerant and requires some irrigation.

Table 4: Tall Shrubs

COMMON NAME	SCIENTIFIC NAME	HARDINESS ZONE	MATURE HEIGHT	USES & CHARACTERISTICS
Deciduous:				
Buffaloberry	*Shepherdia argentea*	2	10 ft	Ak/Fl/Sc
Cotoneaster	*Cotoneaster* spp.	3	Var.	Ak/Fc/Sc
Dogwood, Red-twig	*Cornus sericea*	2	8 ft	Ak/Fl/Sc/Sp/Wb/Wi
Elderberry	*Sambucus cerulean*	3	10 ft	Ac/Ak/Fl/Fr
Euonymous, Winterberry	*Euonymus bungeanus*	4	8 ft	Ac/Fc
Honeysuckle, Blueleaf	*Lonicera korolkowii*	3	6 ft	Ak/Fl/Sc/Wb
Lilac	*Syringa* spp.	3	10 ft	Ak/Fl/Sc/Wb
Mockorange	*Philadelphus lewisii*	4	8 ft	Fl
Nanking Cherry	*Prunus tomentosa*	3	8 ft	Ak/Fl/Fr/Wb
Serviceberry	*Amelanchier alnifolia*	3	10 ft	Ac/Ak/Fc/Fl/Fr
Siberian Peashrub	*Caragana arborescens*	2	10 ft	Ak/Fl/Wb
Sumac, Smooth	*Rhus glabra*	2	10 ft	Ak/Fc/Fl/Sp
Viburnum, Arrowwood	*Viburnum dentatum*	2	8 ft	Ac/Fc/Fl/Fr
Viburnum, Cranberrybush	*Viburnum trilobum*	2	10 ft	Ac/Fc/Fl/Fr
Viburnum, Nannyberry	*Viburnum lentago*	2	10 ft	Ak/Fc/Fl/Fr
Willow, Polar Bear	*Salix salicola*	2	12 ft	Ak/Sc/Sp
Evergreen:				
Arborvitae	*Thuja occidentalis*	2	Var.	Ak/Sc/Wb/Wi
Juniper	*Juniperus* spp.	2	Var.	Ac/Ak/Sp/Wb/Wi
Pine, Mugo	*Pinus mugo*	2	10 ft	Ac/Ak/Wi

Key of Uses and Characteristics: **Ac**=useful as an accent shrub to complement other plants; **Ak**=adapted to highly alkaline soils; **Fc**=striking yellow, orange, or red fall color; **Fl**=attractive flowers; **Fr**=attractive or edible fruit; **Sc**=useful for screening purposes; **Sp**=effective as a specimen or central feature of the landscape; **Wb**=useful as a windbreak plant; **Wi**=provides winter beauty and interest.

Elderberries produce edible fruit and add beauty.

Fragrance adds to the attraction of lilacs in bloom.

Elderberry—A clump-forming shrub, this provides summer-long interest, starting with huge, flat clusters of white flowers, followed up with bird-pleasing blue-black fruit. They can be somewhat rangy and wild looking, but make good screen or accent plants. Best for naturalized areas because of a tendency to sucker and suffer wind damage. Many new cultivars have been selected that are smaller and neater than the species. Elderberries tolerate alkaline conditions but need rich, moist soil. This shrub can withstand some shade.

Euonymous, Winterberry—This should be winter-hardy through zone 4, but may not be hardy in the coldest mountain areas. It is a tall shrub that can be pruned as a small tree. It produces interesting red berries and has great fall color. It is a good accent plant, prefers good soil and fertile garden conditions, and withstands some shade.

Honeysuckle, Blueleaf—This is one of the resistant honeysuckles that can be grown in Idaho where the aphid-vectored witch's broom disease has become commonplace. It is a large, arching plant with blue-green leaves, rose-hued flowers, and red fruit. It is extremely cold-hardy and withstands dry and alkaline soils. It makes a good tall screen or border in a sunny location.

Lilac—This lovely bush comes in an unending array of forms: tall or short; white, pink, or purple flowers; loose or tight flower panicles; upright or arching shape. Some, like the Japanese tree lilac (*Syringa reticulata*) can be pruned to be a small and beautiful tree. *Syringa meyeri* 'Palibin,' the dwarf Korean lilac, is only 4 feet tall. Most, but not all, lilacs are hardy in the harshest Idaho climates. All prefer full sun and tolerate alkaline soils. Most cultivars make effective screens and windbreaks and add accent value.

Mockorange—This bush is available in the common garden form (several species and hybrids of which *Philadelphus x virginalis* hybrids are small statured), or its native wild form (*Philadelphus lewisii*), which happens to be Idaho's state flower. All are fountain-shaped plants that produce wonderfully fragrant white flowers. The wild form is more adapted to dry soil conditions and is great for naturalized plantings.

Nanking Cherry—A drought and wind tolerant plum relative, it grows as a somewhat open plant but can be pruned to give it denser appearance. The pink flowers are attractive and followed by bright red, edible berries. It can be planted in full sun as part of a windbreak or naturalized hedge. In situations where spring weather is damp, branches may die back due to a disease called brown rot, limiting its use in northern Idaho.

Serviceberry—This is known to bears and hikers for its blue-black, seedy, raisin-like berries. It is very tolerant of drought and poor soils but will also grow under fertile, moist conditions. It forms a tall background or accent plant that is covered with white flowers in spring and berries in fall. Fall color is outstanding. Some of the new Canadian cultivars grow very large berries with outstanding flavor.

Siberian Peashrub—Useful as the shortest element in rural windbreaks, this sturdy plant can live under extreme conditions. However, given proper care it forms a tall, handsome shrub. It is covered with spectacular and fragrant yellow flowers in spring and pea-like pods into the fall. It is a choice border and barrier plant. It is especially valuable in a low-water situation.

Nice fall leaf color and colorful berries are attributes of most viburnums.

Sumac, Smooth—The unique, compound leaves of this bush provide exotic summer beauty and brilliant red fall color. It must be properly placed because it suckers and may form fairly large colonies. It is drought tolerant and an excellent plant for naturalizing. It can be used to stabilize steep banks or as a border plant. Staghorn sumac is similar but has branches covered with brown, moss-like fuzz.

Viburnum, Arrowwood—This is one of the deciduous viburnums that should be hardy in the harshest of Idaho's climates. It is a tall shrub with coarse leaves. Its beauty comes from large clusters of white spring flowers and black fruit that are loved by birds. In fall, the leaves turn bright red. It makes a nice accent plant and grows best in full sun or partial shade in moderately rich soil. It is best in a location with some protection from the wind.

Viburnum, Cranberrybush—The maple-shaped leaves of this tall, hardy shrub turn bright orange in the fall. White flower clusters are followed by bright red fruit. This shrub will develop into a very attractive accent or general garden shrub in moderately rich soil and with some irrigation. It prefers full sun or part shade.

Viburnum, Nannyberry—This shade tolerant bush makes an excellent subject for planting at the edge of a zone of taller trees. It is a tall shrub that produces clusters of white flowers and edible, persistent berries that turn red, then blue-black. If trained when young, it can be shaped into a small tree. It is hardy and tolerant of alkaline conditions but needs fairly rich soil.

Willow, Polar Bear—An interesting shrub with fuzzy stems and silver-blue leaves, this is very winter-hardy and withstands wind. Because of its unique color, it can be used as an effective accent or specimen plant, and also makes a good barrier. It prefers alkaline soils and will grow where conditions range from very wet to moderately dry. It grows best in full sun.

Arborvitae—In nature, this is typically a tall tree. But many dwarf forms have been selected that will do well in specific situations in the short-season landscape. Not all arborvitae cultivars are hardy enough for the high-altitude climate so they need to be selected carefully. Most hardy cultivars belong to the species *Thuja occidentalis* and are also known as white cedar. Most are large, mounded or columnar shrubs with soft, feathery foliage. They are adapted to alkaline soils but require consistent moisture. They get burned by drying winter winds, so should be planted in full sun in a site protected from wind.

Juniper—A common plant in Idaho's landscapes, this bush is irreplaceable for its ability to add winter interest. Junipers come in myriad shapes and sizes and a cultivar exists for virtually every landscape need. Many species and cultivars are tall, with unique columnar, mounding, or twisted form. The tall forms should not be planted next to buildings unless used to hide ugly architectural features, but many of these make great accent or specimen plants in sunny locations.

Pine, Mugo—Typically a small tree or tall shrub that has a vase-shaped growth, it has nice form and dark green needle color. Mugo pine cultivars vary in mature size: some are less than two feet tall while others may be as tall as 15 feet. It is very hardy, provides excellent accent or specimen value, and creates good winter interest

SHORT SHRUBS (1-6 FEET TALL)

Small shrubs are versatile elements in the landscape. Due to their size, they are appropriate for foundation plantings and to permanently fill small spaces that other plants may outgrow. They make great companion plants for annuals and perennials and give accent to rockeries and berms. Many small shrubs feature extended flowering seasons, an uncommon trait in many of the larger shrubs or trees. Some are evergreen. As a group, they come in a variety of shapes and only imagination limits their potential uses. Table 5 lists recommended short shrubs.

Almond, Russian—This is a hardier version of the dwarf pink almond. It will thrive in all of Idaho's harsh climates. Its main attraction is the abundant attractive pink blooms that emerge in early spring. Once bloom is complete, it is not especially attractive and needs companion plants to hide among. It makes a good accent or hedge plant in full sun.

Cinquefoil— This is an unusual woody plant in that it blooms over an extended period of the summer. Flower color varies from white to yellow to red. It is hardy, adapted to tough soils, and makes a nice accent or border plant in a sunny situation.

Table 5: Short Shrubs

COMMON NAME	SCIENTIFIC NAME	HARDINESS ZONE	MATURE HEIGHT	USES & CHARACTERISTICS
Deciduous:				
Almond, Russian	*Prunus tenella*	2	3 ft	Ak/Fc/Fl
Cinquefoil	*Potentilla fruticosa*	2	3 ft	Ac/Fl
Cotoneaster	*Cotoneaster* spp.	3	Var.	Ac/Ak/Gc/Fc/Fr
Currant, Alpine	*Ribes alpinum*	3	6 ft	Fol/Fr
Currant, Golden	*Ribes aureum*	2	4 ft	Ak/Fc/Fl/Fr
Ninebark	*Physocarpus opulifolius*	3	6 ft	Ak/Fc/Fl
Purple Broom	*Cytisus purpureus*	3	1 ft	Ak/Fl/Gc
Purpleleaf Sandcherry	*Prunus x cistena*	3	4 ft	Ak/Fc/Fl
Pygmy Caragana	*Caragana pygmaea*	3	3 ft	Ak/Fl
Rose	*Rosa x hybrida*	3	3 ft	Fl
Slender Deutzia	*Deutzia gracilis*	4	3 ft	Fl
Snowberry	*Symphoricarpos albus*	3	4 ft	Ak/Fl/Fr
Viburnum, Witherod	*Viburnum cassinoides*	3	5 ft	Fc/Fl
Weigela	*Weigela* spp.	3	6 ft	Fl
Evergreen:				
Arborvitae, Dwarf	*Thuja occidentalis*	3	3 ft	Ak/Wi
Juniper	*Juniperus* spp.	2	Var.	Ak/Gc/Wi
Kinnikinnick	*Arctostaphylos uva-ursi*	3	1 ft	Gc
Mountain Lover	*Paxistima canbyi*	2	1 ft	Ak/Gc/Wi
Oregon Grape Holly	*Mahonia aquifolium*	4	3 ft	Fl/Fr/Wi
Pine, Dwarf	*Pinus* spp.	3	Var.	Ak/Sp/Wi
Spruce, Dwarf	*Picea* spp.	3	Var.	Ak/Sp/Wi

Key of Uses and Characteristics: **Ak**=adapted to highly alkaline soils; **Gc**=useful as a groundcover; **Fc**=striking yellow, orange, or red fall color; **Fl**=attractive flowers; **Fol**=grown primarily for foliage; **Fr**=attractive or edible fruit; **Sp**=effective as a specimen or focal point; **Wi**=provides winter beauty and interest.

Cotoneaster—Cultivars come in many forms. Cotoneasters are available in mounding, spreading, or ground-hugging growth habits. All exhibit interesting branching patterns, small but pretty pink flowers, and a fantastic display of persistent fall berries. Most also show intense red fall leaf color. They make great accent plants, especially in rock gardens. The low growing cotoneasters are generally not as hardy as some of the tall growing forms. Three species (cranberry, *Cotoneaster apiculatus*; spreading, *Cotoneaster divaricatus*; and rockspray, *Cotoneaster horizontalis*) are hardy to zone 4 and can probably be grown in zone 3 where there is sufficient winter snow cover to provide protection. Cotoneasters should be planted in full sun where they have room to freely spread. They do not respond well to shearing or heavy pruning. They do well in alkaline soils and have some drought tolerance.

Currant, Alpine—One of the smallest currants, this has inconspicuous flowers and fruit. It is usually grown for its foliage and responds well to shearing and shaping. It is very hardy, can take either full sun or shade, and needs moderate levels of moisture.

Currant, Golden—A native of Idaho, this plant is adapted to harsh conditions. Its best feature is the fall display of edible berries that are usually yellow to orange, but also come in red and black. In some years, it is loaded with berries sufficient to change the color of the entire plant. It makes a good hedge or border plant. It can live in extreme drought, but looks best with some added water.

Ninebark—This Idaho native is becoming more commonly used in landscapes. Outstanding cultivars have recently been developed. It is extremely hardy and enhances the landscape with abundant white spring flowers and intense purple-red fall color. It is a versatile plant that can be used for accent, hedging, or naturalized plantings in sunny to partly shady locations.

Purple Broom—This tough, hardy low-growing shrub blooms prolifically in late spring. It requires very little fertilizer, minimal pruning, and prefers alkaline soils. Its diminutive size makes it perfect for foundation or low border plantings or for use as a groundcover.

Purpleleaf Sandcherry—Among the largest of the small shrubs, this plant's most interesting feature is the purple foliage that can be used judiciously to accent other plants. It produces pink flowers in spring but seldom produces fruit. It can sucker, so should be placed where slow spread will not create problems.

Pygmy Caragana—A miniature version of its bigger cousin, the Siberian peashrub, this shrub has the same hardiness, tolerance to poor soils, and magnificent spring bloom. It can be used in full sun for foundation plantings or for hedge borders around decks, gazebos, and other non-living landscape features. It will withstand shearing and can be used in a formal garden situation. This is a shrub that needs to be used more in Idaho's harsh climates.

Berry-producing trees and shrubs attract winter flocks of cedar waxwing.

Many cultivars of winter-hardy roses available. This one is called "Morden Sunrise."

Rose—Roses are often considered the ultimate landscape flowering plant. Until recently, roses hardy enough to survive Idaho's short-season, high-altitude regions were limited to a few wild species and old shrub varieties that were large and bloomed only once a season. Cultivars in the Explorer and Parkland (Morden) series produced by breeders in Canada have changed that. Not only are these roses hardy to zone 3, they are civilized in form and habit. Some have hybrid tea form. The best cultivars include: "Winnepeg Parks," "Morden Blush," "Morden Sunrise," "Morden Ruby," "Hope for Humanity," "Quadra" (climber), "Champlain," and "William Baffin." All provide continuous bloom if planted in full sun and good soil.

Slender Deutzia—This is covered with beautiful white blooms in early spring. The remainder of the year, it is an unassuming mounded shrub. It should be placed with other plants, such as evergreen shrubs, that will enhance its spring beauty while helping it fade into the background for the remainder of the year. It is hardy and requires good soil and irrigation to be at its best.

Snowberry—An Idaho native, this that can be used in shady or sunny naturalized areas. It provides excellent erosion control on steep banks. Its most prominent feature is the bright white berries that follow small pink blooms. Some new cultivars have pink or red berries and are more compact, making them worthy of accent planting. It needs full sun and can be planted in dry, poor soils. The native forms tend to be invasive and should be planted only in naturalized locations.

Viburnum, Witherod—A dense, rounded shrub, this has bronze summer foliage that turns red in the fall. It has clusters of white flowers in the spring and berries that change color during development, from green to pink to red to blue to black. It is a good plant for accent or naturalized plantings and can withstand partial shade.

Weigela—This shrub is beautiful in bloom but loses its charm afterward. It is best planted as a background feature among other trees and shrubs. Flowers come in a variety of colors, from white to red. It is a hardy and reliable plant under normal landscape conditions.

Arborvitae, Dwarf—Also known as globe white cedar, this is a small form of a typically larger species. The plants are hardy and provide green winter color to the landscape. It does not do well in locations with constant dry winter winds and prefers full sun and moist soil.

Juniper—This group of variable species and cultivars are extremely hardy, tolerant of alkaline soils and droughty conditions, and can provide season-long interest in the yard. The short forms vary from mat-like to a few feet tall. Spreading junipers are 1 to 4 feet tall and tend to have much greater breadth than height. Groundcover and spreading forms should be planted where they have room to expand. They are most effective in full sun and can be used as foreground plants for leggy shrubs.

Kinnikinnick—This outstanding evergreen groundcover is native to Idaho. It withstands poor soils and drought, but does even better in good garden conditions. It remains short and spreads to fill in around rocks, structures, and mounds. It is excellent for protecting steep slopes. Kinnikinnick does best in shade where summer temperatures are warm. It needs water for establishment but can survive with very little irrigation once the root system has developed.

Mountain Lover—Also called canby paxistima or Oregon boxwood, this is a low-growing evergreen that tends to spread over time. Its attraction is its fine foliage and small green leaves. It makes a great groundcover in partial to heavy shade (it can take full sun in the coolest climates). It is very hardy, but prefers moist, alkaline soil with some organic matter.

Oregon grape holly is an evergreen, winter-hardy native plant.

Oregon Grape Holly—This shrub does best in shady places where it is protected by snow cover or at least planted away from drying winter winds. It has holly-like leaves, bright yellow flowers, and clusters of blue fruit. The evergreen leaves turn an attractive purple color in the winter. It is ideal for naturalized plantings under large trees and is also effective as a foundation planting on the shady side of a building.

Pine, Dwarf—This diverse group of cultivars is derived from several species of tree pines. Dwarf pines are not new to the nursery trade, but recently have become the focus of much attention. As a result, many new cultivars are available, expressing myriad forms and sizes. Most are well-adapted to Idaho's harsh climates and can be used to add winter texture and interest to any landscape. They are worthy of being used to a greater extent in cold-season Idaho landscapes.

Spruce, Dwarf—Like dwarf pine, this is an expanding group of cultivars derived from tree species. They are selected for short stature and tight growth habit. These cultivars are an attractive option in the short-season landscape. Cultivars are available in shades of blue and silver; in mounding, globular, or weeping form; and sizes from less than one foot to 10 or more feet tall. Along with dwarf pines, they can provide an effective theme in a short-season landscape. Also look for cultivars of dwarf fir.

HARDY VINES

Vines provide unusual form in the landscape and are often difficult to control. For these reasons, they should be used sparingly and with a specific effect in mind. They can provide color over vertical or horizontal spaces that are hard to address with other plants. They can also be used to soften hard edges of buildings and structures in the landscape. Not many vines are hardy enough to thrive in Idaho's short-season, high-altitude regions, but a few good candidates are listed in table 6.

Bittersweet—This is planted mostly for its colorful orange fruit capsules. To set fruit, both a male and female plant must be present. Each plant will grow to a length of 20 feet or more, and can survive cold and difficult soil conditions. These vines require support to grow upward, and continuous pruning to look good.

Clematis—This is probably the best vine available to the short-season gardener. Not all cultivars and species are hardy enough to handle short-season conditions, but some will do well in areas rated USDA zone 2. For this reason, it is important to select cultivars for winter-hardiness. Some species and cultivars act more like herbaceous perennials, dying back to the ground each winter, but re-growing each spring to become vigorous and floriferous. Flowers come in all shapes and colors imaginable and are followed by attractive, beard-like fruiting capsules. A properly placed clematis vine provides exceptional specimen and/or accent value. Most vining-type clematis species require full sun to part shade; moist, deep soils; and a location where the roots remain cool.

Porcelainberry—Not locally well-known, this is a nice vine that is adapted to the zone 4 and warmer areas of Idaho. It prefers slightly acidic soil but should do well in all but the most alkaline soils of southern Idaho. It will grow to a height of 10 to 15 feet and will climb fences, trellises, or other structures that have "handles" where the tendrils can attach. The most attractive feature of porcelainberry is the steel-blue berries that set on late in the season. It grows best in rich soil, with frequent irrigation, and full sun to partial shade.

Table 6: Hardy Vines

COMMON NAME	SCIENTIFIC NAME	HARDINESS ZONE	MATURE HEIGHT	USES & CHARACTERISTICS
Deciduous:				
Bittersweet	*Celastrus scandens*	3	20 ft	Fr/Sc
Clematis	*Clematis* spp.	4	12 ft	Ak/Fl/Sp
Porcelainberry	*Ampelopsis brevipedunculata*	4	12 ft	Fr/Sc
Trumpet creeper	*Campsis radicans*	4	15 ft	Ak/Fl/Sc/Sp

Key of Uses and Characteristics: **Ak**=adapted to highly alkaline soils; **Fl**=attractive flowers; **Fr**=attractive or edible fruit; **Sc**=useful for screening purposes; **Sp**=effective as a specimen or or central feature of the landscape.

Clematis produces the most beautiful flowers among vines.

Trumpet Creeper—This aggressive, large vine is hardy in zone 4 and may be suited for the warmest of Idaho's short-season areas. It can grow to a height of 30 feet and will attach itself to and climb almost any surface. For this reason, it may be best not to plant it next to structures. One of the nice features of trumpet creeper is the long bloom period, which begins in early summer and lasts until late fall. The flowers are large, orange to red in color, very striking, and attractive to hummingbirds. Trumpet creeper needs full sun to part shade and plenty of water. It will grow horizontally along wires or fences to make an effective screen.

PLANTING AND CARING FOR WOODY PLANTS

General principles and practices for growing healthy, attractive trees, shrubs, and vines are largely universal and only marginally influenced by climate and soil conditions. Much of the information printed in most garden books will apply in Idaho's short-season, high-altitude areas. However, a few concepts and practices are unique to the climate, and understanding these ideas may help in establishing and maintaining healthy, attractive woody plants in the landscape.

SITE PREPARATION

One of the most important aspects of preparing a landscape for trees and shrubs is site assessment. Many short-season, high-altitude areas have variable terrain and within a single property there may be numerous soil types, exposures, and microclimates. Each section of the yard will need to be evaluated for existing natural features which, when combined with intended use, will help you select proper plant materials. For example, a naturalized tree, shrub, and perennial setting will have very different planting and maintenance requirements than a formal rock garden or a leisure area with a lawn and trees.

Assessing irrigation requirements is essential in nearly all of Idaho's environments. Irrigation systems should be designed to provide optimal water for each section of the landscape, and plants should be grouped according to water needs. This is called "zone landscaping." The idea is to plant drought tolerant plants together and away from moisture-loving plants, which should be placed where they can be easily and frequently watered.

Soil preparation is important because many of the soils in Idaho's short-season, high-altitude regions are either shallow and alkaline, or shallow and stony. Amending soil over a large area is difficult and expensive but may be necessary. The first step in soil preparation is to understand local soil type, pH, and water table depth. These will determine the amendment needs and ultimately determine the plant species that can be grown successfully.

Alkaline soils are best managed by choosing adapted plants and adding large quantities of organic matter. Stony soils can be amended by adding topsoil or large quantities of compost. Even with stony soils, choosing adapted plants will lessen the need for amendments.

A high water table is one of the most difficult soil problems to resolve satisfactorily to ensure the health of most trees and shrubs. A few species can handle this condition, such as willows, poplars, and red-twig dogwood. However, most desirable landscape plants cannot survive long in saturated soils. Solutions for saturated soil conditions include installing drain tiles across the property to remove water, or building and planting into raised berms that artificially create a healthy root zone above the saturated soil.

The best way to deal with difficult soils and climates in a large yard is to use extensive naturalized areas. Plan a landscape that incorporates plants that are native or locally adapted, and eliminate the need for extensive soil amendment.

High elevation soils are often shallow and stony.

PLANTING

Planting practices and choices are more important in short-season areas than in places where plants have time to outgrow mistakes. Because the growing season is limited in Idaho's short-season, high-altitude regions, a slow start can result in an extended delay in woody plant establishment and growth. Avoid problems by following good planting practices, including digging a large hole, planting at the proper depth, using water to settle the soil after placement, and irrigating properly during the first few months of growth.

Controversy exists about the best time to plant trees and shrubs in a cool climate. Early spring planting allows time for root establishment before winter. On the other hand, fall planting helps avoid the stresses of summer heat on new plants. The timing is probably not as important as proper technique and care.

The most common mistake in caring for newly planted trees and shrubs is over-watering. This is especially true in cool climates. Optimal watering will depend on the type of stock (bare root, ball and burlap, or container), but none need to be watered every day. Dormant bare root trees need watering on a 4 to 8 day schedule for the first few months, after which a 6 to 10 day routine is sufficient in most soils. Actively growing ball and burlap or container plants may need water every 3 to 4 days during a 2 month establishment phase, after which a 6 to 10 day schedule is optimal.

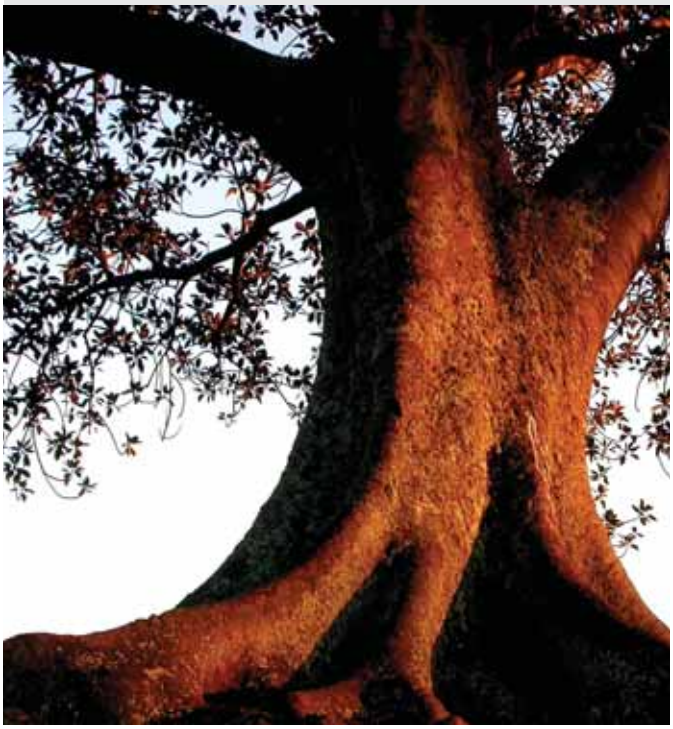
Avoid fertilizing newly planted trees unless the soil is unusually lean. High levels of fertility will cause a spurt of new shoot growth that is likely to be damaged during the first winter. Also, low levels of fertility will favor root growth and help the plants become established.

FERTILIZING ESTABLISHED TREES AND SHRUBS

Once trees and shrubs are established, fertilization practices will have an effect on long-term health. Sufficient nutrients should be present to keep the plant growing at a steady but not excessively rapid pace. Steady, moderate growth will encourage strong branches that can stand up to snow loads and wind.

Consistent use of organic mulches will lessen or eliminate the need for applied fertilizers. The best mulches are wood products, including bark and chips. These should be maintained at a depth of three to four inches in large areas near the trunk.

Some fertilizer application may still be needed, especially when trees are young. For the first few years of growth, trees and shrubs will need the application of a complete fertilizer with a nutrient ratio of approximately 3 N (nitrogen): 1 P (phosphorus): 2 K (potassium). Mature trees are more self-sufficient and the only critical fertilizer element may be nitrogen. In a landscape where surrounding plants, such as turfgrass, are being routinely fertilized, mature woody plants will get more than adequate nutrition to remain healthy and maintain a moderate growth rate.



Mature trees have limited requirements for applied fertilizers.

In short-season, high-altitude climates, timing of fertilizer application has an impact on winter survival. Late summer applications may encourage tender new growth which could be damaged by cold winter weather. The best time to fertilize woody plants depends on where you live and the type of soils you have. In low rainfall areas with non-sandy soils, the best time to fertilize trees and shrubs is in the fall, after growth has stopped and just before or after leaves have dropped. In places with higher rainfall or sandy soil, fall-applied fertilizers may leach through the soil. The best fertilization procedures under these conditions is to apply very small amounts at three different times in early May, early June, and early July. At the time of application, soil should be moist but not frozen, with a temperature of at least 40˚F.

Trees and shrubs never need large amounts of applied fertilizers. If they are healthy and growing rapidly, the best choice may be to postpone fertilization. If growth is slow, a good general rule is to apply fertilizer that is high in nitrogen (such as a 10-5-5 formulation) at a rate of 1 to 2 lbs of nitrogen per 1,000 square feet. Since a 10-5-5 formula is 10% nitrogen, that means 10 to 20 lbs of actual fertilizer product per 1,000 square feet. For trees located in lawn areas, the fertilizer rate should be adjusted according to the applications made for the grass. The application area should extend twice the distance from the trunk to the outermost branches, because this is where most feeder roots develop. Recent research has shown that the practice of deep fertilizer injection for lawn trees is unnecessary because the roots are capable of competing with the grass for nutrients applied to the soil surface.

Tender plants such as hybrid tea roses need winter protection.

Trees and shrubs grown in containers can be moved to a protected place in winter.

IRRIGATING ESTABLISHED TREES AND SHRUBS

Proper watering is another very important practice for keeping trees and shrubs healthy in short-season, high-altitude climates, especially the high deserts. But even plants growing in moist mountains and alpine valleys will benefit from occasional irrigation. Consistent, appropriate irrigation keeps plants healthy and capable of dealing with other stresses that are common in harsh climates.

Most yards are watered to maintain the health of the lawn, with resulting frequent irrigations that wet only the top 6 to 10 inches of soil. Shallow irrigation is inadequate for trees and shrubs, which have an active root zone 3 to 4 feet deep. Established tree and shrub beds should be irrigated once every 10 days (in the heat of summer) to 2 weeks (in spring and fall) with sufficient water to wet the soil to a depth of at least 2 ½ feet. Irrigation demands are always in conflict within mixed tree and turf plantings. Handle these areas of the landscape by watering routinely for the grass, then once every 3 to 4 weeks apply sufficient water to wet the 2 ½ to 3 foot tree root zone depth.

The simplest method to figure out whether you have watered deeply enough is to poke a stiff steel rod into the soil immediately after irrigating. The rod will easily slide into the soil to the depth that it is wet.

Lawn areas that include trees should never be irrigated every day. This practice may damage roots, cause diseases, and shorten the lives of the trees (with the exception of species like willows and poplars that prefer lots of water). Irrigating once every 3 to 5 days is much better for general landscape maintenance. In many mountain areas and moister north Idaho climates, irrigation will likely be much less frequent.

Another important aspect of irrigation is impact on fall acclimatization. A short dry period in early fall will help plants prepare for winter cold. Irrigation should cease around the middle of September, and soil around trees and shrubs should be allowed to dry out. Follow this short dry period with a final deep irrigation (to a depth of at least 3 feet) just before the soil freezes. This should be timed to take advantage of local weather conditions, but will usually be around the end of October in most years. A deep watering in late fall will supply moisture necessary for winter survival, a practice especially critical for evergreens that continue to use moisture in the wintertime.

WINTER PROTECTION

Extreme and often impractical measures are needed to protect tender trees and shrubs from winter injury in short-season, high-altitude regions. The effort may be worthwhile for a few choice landscape plants, but on a large scale the task becomes daunting. For this reason, select plants that are adapted to a short-season, high altitude area to keep the landscape healthy and attractive during the winter months.

Where protection is needed, many options exist. Tarps or other protective materials will provide some protection. Short shrubs can be protected by piling leaves or other organic matter, or even snow, over the tops of branches. More elaborate measures include wrapping plants with burlap and landscape fabric, or using Styrofoam or other insulating covers.

Container gardening is an option that allows you to grow tender plants that would otherwise not survive an Idaho winter. Small trees and shrubs can be planted in pots, placed strategically in the outdoor living space in the summer, and then moved into a dry, unheated garage or shed for winter protection. Plants that respond well to this practice include Japanese maple, roses, and grapes. It is important to occasionally water overwintering container plants to prevent the soil in the pots from completely drying out.

For young trees, even those that are adapted to a harsh climate, it may be important to protect the trunks for several years until they have time to develop a thick corky bark layer. During a typical high altitude winter, plants will experience extreme nighttime cold and intense daytime sunshine. Bright winter sun striking frozen tree trunks will quickly warm one side of the trunk, often causing it to swell and split. The resulting wound is permanent and will negatively impact the health and structural integrity of the tree. Prevent this type of injury by wrapping the trunks with burlap, coating with a paper/asphalt emulsion, applying a plastic tube, or painting the trunks white (this last may not always be effective). All of these protective methods help prevent the heat buildup that causes winter damage.

Find more gardening resources and publications online at *extension.uidaho.edu/homegard.asp*

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PHOTO CREDITS

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