



# Selecting Landscape Plants: Conifers

*Diane Relf, Extension Specialist, Environmental Horticulture, Virginia Tech*

*Bonnie Appleton, Extension Specialist, Nursery Crops, Virginia Tech*

*Reviewed by David Close, Consumer Horticulture and Master Gardener Specialist, Horticulture, Virginia Tech*

Conifers, also known as narrow-leaved or needled evergreens, are planted primarily for the attractiveness of their evergreen foliage. The variety of sizes, shapes, and colors available contributes to their popularity.

Conifers range in size from prostrate plants growing only a few inches tall to large trees. Shapes include flat ground covers; horizontal spreaders; upright, pyramidal forms; and even weeping and contorted forms. Foliage color ranges from a gold and cream variegation to all shades of green, gray-green, and blue-green.

The most common causes of damage or death of needled evergreens are poorly drained soil, planting too deeply, and winter drying. Most are easily killed by water standing around their roots; therefore, they should be planted in well-drained soil. A raised bed may be the solution for planting on excessively wet sites. In some situations, it is advisable to plant an evergreen with its root ball an inch or two higher than it grew in the nursery. Dig the planting hole twice the diameter of the root ball. After the plant has been put in position, backfill around it with the existing soil or good topsoil. Do not create a situation in which water will not drain from the planting hole by amending the soil with peat moss or other organic material. Use organic materials as mulches, not soil amendments.

Winter drying is a problem for all evergreens. The foliage may be damaged when cold or frozen soils make it difficult for roots to replace moisture as fast as it is lost by the foliage. If the summer or fall has been dry, thoroughly soak the area around the plants in October so the plants go into the winter with an adequate moisture supply. Less winter-hardy evergreens should be planted in areas protected from winter sun and wind to prevent damage and ensure their survival.

Evergreens are sold either balled-and-burlapped or in containers. The burlap may be left on the ball for planting unless it is treated or plastic, in which case it is advisable to drop the wrapping half to all the way off the ball down into the planting hole. Be careful to remove any string or wire wrapped around the plant. Remove metal or plastic containers before planting.

Fertilizing at planting time with a slow-release fertilizer can help with plant establishment. Established plants that have good color and are making satisfactory growth probably don't need fertilizer. Plants weakened by insects, diseases, poor drainage, or infertile soil may respond to fertilizer. If fertilizer is necessary, it should be applied between mid-October and mid-March.

The conifers commonly grown can be divided into the nine plant groups described in the following sections:

## Pine

The pines can be easily distinguished from other evergreens because their leaves are produced in groups or bundles of two, three, or five needles. Pines are used for screens, windbreaks and mass plantings, or are planted as specimen trees. They need full sunlight to develop properly. The species described in the following section are the ones most commonly grown as ornamentals. Four of these species grow to be large trees; mugo pine is usually a shrub.

### Austrian Pine

### *Pinus nigra*

The long, stiff needles of Austrian pine are produced in bundles of two. They are a deep, dark-green color, which makes the plant excellent for use as a background for small trees with colorful flowers or ornamental fruit. Austrian pine develops into a large tree and needs adequate room for growth. It is relatively resistant to air pollutants and will grow on a wide range of soil types. (50 to 60 ft. height; 20 to 40 ft. spread).

### Japanese Black Pine *Pinus thunbergiana*

Japanese black pine produces its stiff, dark green, 3- to 5-inch long needles in bundles of two. Its large, grayish-white terminal buds help distinguish it from most other pines.

Popularity of Japanese black pine has increased during the past few years, primarily because of its informal growth habit. This irregular growth habit makes it a good accent or specimen plant for use in informal landscapes, but it is not well-suited for mass plantings. This tree is salt tolerant and frequently used in the Tidewater area, although it may suffer there from nematode infection. (20 to 80 ft. height; 20 to 40 ft. spread).

### Mugo Pine

### *Pinus mugo*

Sometimes called Swiss mountain pine, mugo pine is an excellent evergreen shrub with a dense, rounded growth habit. Plants of mugo pine show an extremely wide variation in shape, vigor, and size. The compact types such as the variety *P. mugo mugo*, which are usually less than 8 feet tall, are the most desirable. Pruning may be necessary to maintain a desirable growth habit. (15 to 20 ft. height; 30 to 40 ft. spread).

## Scotch Pine

### *Pinus sylvestris*

Scotch pines, commonly grown for Christmas trees, can be recognized by their short, twisted needles that are produced in bundles of two. Young scotch pines have a symmetrical, pyramidal shape but develop an open growth habit as they mature. Mature specimens develop a reddish-orange, flaking bark on upper branches. (30 to 60 ft. height; 30 to 40 ft. spread).

## White Pine

### *Pinus strobus*

The delicate, soft, light bluish-green foliage of the white pine makes it an attractive evergreen tree. It is easily recognized because it is the only commonly grown five-needled pine. Easily transplanted and fast growing, it will become a large tree and needs adequate room to develop properly.

On favorable sites, white pine sometimes grows too fast to retain its dense foliage. This can be avoided by pruning the tree to increase its density. However, when pruning white pine, note that needles are not produced evenly along the stem but are clustered near the tip. When the tip is cut back, some needles must be left on the remaining portion or the twig will die back to the previous year's growth.

White pine is sensitive to air pollution and road salts and is not a good choice for planting in city conditions. It also can have difficulty growing in the Tidewater area due to summer heat and drought. (50 to 80 ft. height; 20 to 40 ft. spread).

## Spruce

The needle-like foliage of the spruces has four angles when seen in cross section; the needles are not flat as with most conifers that produce their needles singly. Spruces can be recognized by the persistent raised leaf bases that remain on the twigs after the needles have fallen.

Spruces are native to cool climates and are poorly adapted for growing in the warmer areas. They should be planted only in well-drained soils. Young trees with dense foliage and a symmetrical growth habit are the most attractive. The dense, symmetrical form can be quickly lost if planted in shade. The four spruces described in the following section are the ones most commonly available in the nursery trade.

## Dwarf Alberta Spruce

### *Picea glauca* 'Conica'

The dwarf Alberta spruce is a miniature, cone-shaped tree. It grows very slowly and seldom needs pruning. The bright-green, dense foliage makes it attractive. Its maximum size under Virginia conditions seldom exceeds 4 to 6 feet. Alberta spruce is primarily a novelty specimen plant and is seldom used in basic landscaping, but is often used as a container plant.

## Colorado Blue Spruce

### *Picea pungens* var. *glauca*

The blue spruce is one of the strongest accent plants we have. Because of its stiff growth habit and unusual color, it stands out wherever it is planted. Placing this tree in a landscape is difficult because it is so dominant. It is best used as a single specimen for accent. A blue spruce grows slower than green types and usually commands a higher price. It is not well adapted to the warm Tidewater area. (90 to 135 ft. height; 20 to 30 ft. spread).

## Norway Spruce

### *Picea abies*

Norway spruce is one of the fastest growing of all the spruces. As the tree grows older, the side branches become horizontal with a slight upturn at the tip. Secondary branches hang downward from the main branches, giving the tree a graceful appearance. The large cones (4 to 6 inches long), largest of any of the spruces, are an added attraction in years when they are produced. Norway spruce is the best adapted large spruce for Tidewater area. (40 to 60 ft. height; 25 to 30 ft. spread).

## Fir

The flat needles of firs leave a round, but flat (or flush) scar when they fall from the twig. The cones of firs are borne in an erect position, while those of most other conifers hang downward. Concolor fir is generally the only species of fir grown in Virginia as a landscape plant. Fraser fir (*A. fraseri*) is a major Christmas tree species in western Virginia.

## Concolor/White Fir

### *Abies concolor*

The concolor fir is similar to blue spruce in foliage color and general form. It is better adapted to the northern and western portions of the state, and will not tolerate Tidewater heat. Because of its greater insect and disease resistance, it may be preferable to blue spruce. (30 to 50 ft. height; 15 to 30 ft. spread).

## Hemlock

Hemlock can be recognized by its short, flat needles with narrow, white stripes on the underside. Its small cones are only about 1/2 inch long. Only one species of hemlock is commonly planted in Virginia.

## Canada Hemlock

### *Tsuga canadensis*

Hemlock is one of the most graceful and beautiful of the needled evergreen trees, but it needs moist, well-drained soil to develop properly. It prefers partial shade and should be protected from the wind. It is easy to transplant but requires a good soil. Hemlock will withstand close shearing and is one of the better needled evergreens for growing as a hedge. Native to western Virginia, it can rarely survive the heat of

the Tidewater area. (40 to 70 ft. height; 25 to 35 ft. spread).

## Cedar and False Cypress

*Cedrus*, or true cedar, makes an outstanding landscape plant where it is hardy. Cedars may have difficulty in the

Colder, western portions of Virginia, especially if they are not in a protected location. Even in the Tidewater area, the tops of large trees are often killed by cold temperatures. The needle-like evergreen foliage of true cedars usually is produced in bunches near the terminals of branches. Cones of true cedars are borne upright on the upper side of branches. The best species to use are Atlas cedar (*Cedrus atlantica*) and deodar cedar (*C. deodara*). (Atlas -40 to 60 ft. height; 30 to 40 ft. spread. Deodar -150 to 200 ft. height; 150 ft. spread).

*Chamaecyparis* (*Chamaecyparis* spp.), or false cypress, is a variable evergreen. Both tree and shrub forms are available in a wide variety of foliage colors. They are native to cool, moist climates, and some species may have difficulty in the Tidewater area though others will grow fairly well. *Chamaecyparis* should be planted in protected locations and in limited quantities on a trial basis rather than as an extensive permanent planting. The cultivars of Hinoki falsecypress (*C. obtusa*) are better adapted to Virginia than the others. 'Erecta' forms a slender column, 'Filicoides' has twisting frond-like foliage and 'Gracilis' is a slender tree with weeping branchlets. The varieties of Sawara falsecypress (*C. pisifera*) offer great diversity in foliage and tree form. (40-75 ft. height; 10-20 ft. spread).

## Leyland Cypress *x Cupressocyparis leylandii*

An interesting interspecific hybrid (between cypress and false cypress) that grows rapidly and serves as an excellent screen and windbreak. It has good dark green foliage pressed into flat fans on a pyramidal shaped tree. There are many cultivars available with foliage ranging from golden yellow to blue green to green flecked with white. A major pest problem now, in addition to bagworms, is seiridium canker which causes them to turn rusty brown and can easily wipe them out. This usually develops where there is excessive water stress (in low spots, where black plastic has been used under mulch, etc.). It tolerates salt spray and relatively poor planting sites except those that are poorly drained. Many people feel that it has been over-used. (60-70 ft. height; 12-15 ft. spread).

## Juniper

Junipers have sharp, pointed, needle and scale-like foliage. Their fruit is a fleshy, blue berry. The sexes are separate, and only female plants produce berries.

Junipers are among the best adapted landscape conifers and hence the most commonly grown evergreens. They withstand dry, poor soils better than other evergreens. Junipers need full

sun for best development. None of the junipers will grow on wet, poorly drained soil or in heavy shade.

There are hundreds of varieties of juniper from which to choose. They come in all sizes and shapes with colors varying from yellow-green to green, blue-green, gray-green, or silver. Because so many varieties of juniper have been grown, many of the names have become confused. For landscape purposes we can divide them into three major groups: prostrate, spreading, and upright. The varieties described here are those most commonly available.

The prostrate (creeping) junipers are low growing plants used primarily as ground covers. They seldom grow over 18 inches high and will spread over a large area. The foliage of many prostrate junipers changes color in winter. The summer and winter foliage colors and sizes of some common prostrate juniper varieties are given in Table 1.

**Table 1. Approximate Sizes and Foliage Colors of Some Common Prostrate Junipers**

Variety	Height (inches)	Spread (feet)	Summer Color	Winter Color
<i>J. horizontalis</i>	10	6 to 8	gray-green	slate
'Bar Harbor'				
<i>J. horizontalis</i>	6	6 to 8	blue	blue
'Blue Rug'				
<i>J. horizontalis</i>	10	6 to 8	blue-green	
blue-green				
'Procumbens'				
<i>J. chinensis</i>	10	6 to 7	gray-green	
gray-green				
'San Jose'				
<i>J. chinensis</i> var.	10	6 to 7	green	green
sargentii 'Glauca'				
<i>J. chinensis</i> var.	18	6 to 7	blue	blue
sargentii 'Viridis'				

Spreading junipers can be divided into two groups. The first group has a horizontal growth habit which gives the plant a flat-topped appearance. Branches on the second group have an arching pattern of growth that makes a more vase-shaped plant. The approximate sizes of some of the most commonly grown varieties of spreading juniper are shown in Table 2. Most spreading junipers retain the same foliage color year round.

**Table 2. Approximate Sizes and Foliage Colors of Some Spreading Varieties of Junipers**

Variety	Height (feet)	Spread (feet)	Foliage Color
<i>J. chinensis</i>	1-11/2	6	green
'Pfitzer Glauca'			
<i>J. chinensis</i>	3	6	blue
'Pfitzeriana Compacta'			
<i>J. chinensis</i>	4	6	blue-green
'Armstrong'			
<i>J. chinensis</i>	8	8	light-blue
'Hetzii'			
<i>J. sabina</i>	2	5	green

'Arcadia'			
<i>J. sabina</i>	2	4	dark-green
'Skandia'			
<i>J. chinensis</i>	3	5	blue-gray
'Maney'			

Most upright junipers are actually tree types which are grown as shrubs. Unless they are heavily sheared, they will quickly outgrow their intended use. To develop their natural beauty, they need to be planted where they have plenty of room to grow. The foliage color of most upright junipers does not change with the seasons. Colors of some of the most common varieties are given in Table 3.

**Table 3. Foliage Colors of Some Common Varieties of Upright Junipers**

<i>J. chinensis</i> 'Ames'	gray-blue
<i>J. scopulorum</i> 'Blue Heaven'	powder-blue
<i>J. virginiana</i> 'Burki'	blue
<i>J. virginiana</i> 'Canaertii'	blue-green
<i>J. chinensis</i> 'Iowa'	blue
<i>J. chinensis</i> 'Keteleeri'	green
<i>J. scopulorum</i> 'Pathfinder'	light-blue
<i>J. scopulorum</i> 'Skyrocket'	bluish green
<i>J. chinensis</i> 'Columnaris Glauca'	silvery-gray

## Yew

Yews are a popular evergreen in western and northern portions of Virginia. Their flattened, needle-like leaves are the darkest green of all the needled evergreen shrubs. Their fleshy, red fruit, ability to grow in shade, and lack of serious insect or disease pests also contribute to their popularity.

The sexes are separate in yews. Male flowers are produced on one plant and the female flowers on another. Only female plants produce the attractive berries, but both sexes need to be present to ensure fruit production. One male plant is generally sufficient to pollinate six to eight female plants. The black seed within the red female fruit is poisonous, as are most other parts of the plant.

Yews will withstand almost any exposure and will grow in any reasonably good garden soil that has good drainage. They prefer a shaded or partially shaded planting site with a moist, well-drained soil. Direct sunlight and strong winds may injure the foliage in winter in the colder parts of the state, as will the summer heat in the Tidewater area.

Among the yews grown as ornamentals, the English yew (*Taxus baccata*) may be the most ornamental, but the Japanese yew (*Taxus cuspidata*) is the hardiest. Most ornamental varieties grown in Virginia are forms of the intermediate yew (*Taxus x media*), which is a hybrid of the two species.

The many varieties of yew can be divided into three major groups: upright, globe-shaped, and spreading. Upright yews are usually less than half as wide as they are tall. Globe-shaped or rounded ones have about the same width and height.

Spreading yews are two to three times as wide as they are tall. Some of the most commonly grown varieties are listed in Table 4. (English - 35 to 60 ft. height; 15 to 25 ft. spread. Japanese - 10 to 40 ft. height; equal spread).

**Table 4. Approximate Mature Height of Some Commonly Grown Varieties of Yew**

<b>Upright Varieties</b>	
<i>T. cuspidata</i> 'Capitata'	6 to 8 ft.
<i>T. x media</i> 'Hicksii'	6 to 10 ft.
<i>T. x media</i> 'Kelseyi'	4 to 6 ft.
<b>Globe-Shaped or Rounded Varieties</b>	
<i>T. x media</i> 'Brownii'	4 to 6 ft.
<i>T. x media</i> 'Halloran'	3 to 5 ft.
<b>Spreading Varieties</b>	
<i>T. x media</i> 'Densiformis'	3 to 4 ft.
<i>T. x media</i> 'Wardii'	4 to 6 ft.

## Arborvitae

Arborvitae are small, evergreen trees and shrubs with needle-like juvenile leaves, scale-like mature foliage, and branchlets flattened in one plane. Arborvitae has flattened, scale-like needles with rounded edges. Its seed is produced in small cones. Arborvitae can be injured seriously by late spring frosts and by winter drying. It tends to be a relatively short-lived plant and is very susceptible to bagworms. (40 to 60 ft. height; 10 to 15 ft. spread).

### Eastern Arborvitae *Thuja occidentalis*

Also called American arborvitae or white cedar, this plant is native throughout the northern half of eastern North America, especially in moist areas. This plant has long been established in American gardens and, according to some, is overused. Arborvitae propagates readily from cuttings, is relatively easy to produce in a short time, and is inexpensive; thus it is a favorite of building contractors and discount stores.

At maturity, arborvitae are usually dense, pyramidal, 40 to 50 foot trees, but cultivars range from dwarf to rounded or globe shapes with foliage colors of yellow, blue, and various shades of green. Branches are erect and spreading with thin, scaly bark.

### Oriental Arborvitae *Thuja orientalis* (*Platyclusus orientalis*)

This tree is similar to Eastern Arborvitae, but less tolerant of wet areas. Branches tend to be slender and vertical, holding leaves in flat fans. This is especially noticeable when trees are young. It is not recommended for areas where winters are cold as foliage tends to get brown and ragged in cold, windy areas.

## Dwarf and Slow-Growing Conifers

Contemporary, residential landscapes frequently require the use of low maintenance plants which must fit within the scale of small suburban environments. Dwarf conifers can be effectively used in such small scale landscapes to add diversity of form, texture, and coloration. Since the dwarf conifers are evergreen, these features are manifested throughout the year and tend to dominate the winter scene. Dwarf conifers are simply specific cultivars of the species previously discussed.

**Landscape Use.** The wide diversity of plant growth habits enables one to use dwarf conifers effectively in foundation plantings, in shrub borders, or as patio plants. The particularly interesting shapes and growth characteristics of many dwarf conifers serve as ideal accent or focal points, and caution should be exercised not to overuse species with exceptionally strong features. In rock gardens or in landscapes with an alpine theme, dwarf conifers are unexcelled. Textures vary from coarse to very fine, and colors range from yellowish-green through all shades of green, all the way to pale-blue.

**Culture.** As a general rule, the dwarf and slow-growing conifers are adaptable to a wide range of soil conditions. Most are fairly drought tolerant, extremely cold hardy, and relatively insensitive to soil fertility. However, optimal growth is obtained when plants are grown in well-drained, moist soils of medium fertility. Since most plants are purchased container-grown, the root ball should be gently loosened around the outside during planting, with special care being taken to avoid planting the root system below the original level. Pruning is not generally required to maintain the size or form of the plant. Dwarf conifers are notably insect and disease free, although spider mites might present problems on the dense-foliaged types if left uncontrolled. Mulching prevents weed infestations, eliminates the necessity for mowing close to the plant (thereby reducing the potential for mechanical damage), and serves to highlight the plant's exceptional features.

One good example of a dwarf conifer is *Picea abies* 'Nidiformis,' the birdnest spruce. This plant may attain a height of 4 feet and a width of 5 to 6 feet. It is globose in shape and often somewhat depressed in the top, reminding one of a bird's nest. The foliage is a good, dark-green color of medium to fine texture. Birdnest spruce is best used in foundation or border plantings, or in a container.

This publication adapted for Virginia from *Selecting Landscape Plants- Needled Evergreens*, with permission from Long and Zuroweste, Department of Horticulture, University of Missouri.