

Colorado (Blue) Spruce



Colorado (Blue) Spruce (*Picea pungens*)

General Description

A broad, dense, pyramidal tree with stiff branches horizontal to the ground. Native to intermountain states of the west. Choice specimen tree. The largest tree in North Dakota is 85 feet tall with a canopy spread of 30 feet.

Leaves and Buds

Bud Arrangement - Buds are in whorls.

Bud Color - Yellowish-brown, not resinous.

Bud Size - Broadly conical, tips are blunt, about ¼ inch long.

Leaf Type and Shape - Sharply pointed needles are attached individually on peglike projections called sterigmata.

Leaf Margins - Needles are 4-sided.

Leaf Surface - Variably glaucous, 4 to 5 stomatal lines on both sides.

Leaf Length - Needles ¾ to 1¼ inches.

Leaf Width - 1/16 inch needles.

Leaf Color - Variable from dull green, blue-green, to silvery-blue, glaucous.

Flowers and Fruits

Flower Type - Monoecious, separate male and female strobili.

Flower Color - Female strobili are green to purple; male are orange.

Fruit Type - Cones 2½ to 4 inches long, with papery cone scales that have a truncated edge; small, winged seeds, chestnut brown.

Fruit Color - Light yellow-brown or tannish cones, chestnut-brown seeds.

Form

Growth Habit - Branching is broad and dense, with branches extending to the ground.

Texture - Medium, summer and winter.

Crown Height - 30 to 65 feet.

Crown Width - 15 to 25 feet.

Bark Color - Bark is scaly or flaky and ash-brown.

Root System - Shallow and wide spreading.

Environmental Requirements

Soils

Soil Texture - Performs best on moist, well-drained loams.

Soil pH - 6.0 to 7.5.

Windbreak Suitability Group - 1, 3, 4 and 5.

Cold Hardiness

USDA Zone 2.

Water

Does not tolerate flooding. Prefers moist areas, but is the most drought tolerant of the spruces.

Light

Full sun. Does not tolerate shade.

Uses

Conservation/Windbreaks

Medium to tall evergreen for farmstead and field windbreaks.

Wildlife

Nesting sites for birds.

Agroforestry Products

Wood - Used for firewood but burns fast. Good for kindling. Used for Christmas trees.

Urban/Recreational

Popular specimen or ornamental landscape tree. Used singly or in group plantings.

Cultivated Varieties

Blue Globe Spruce (*Picea pungens* 'Glauca Globosa') - Excellent blue-needled dwarf bush.

Hoops Blue Spruce (*P. pungens* 'Hoopsii') - Striking steel-blue, beautiful.

Iseli Foxtail Spruce (*P. pungens* 'Iseli Foxtail') - Blue, bushy-needled form.

Mission Blue Spruce (*P. pungens* 'Mission Blue') - Blue needle color.

Moerheim Blue Spruce (*P. pungens* 'Moerheimii') - A dense, compact form with blue color.

Montgomery Spruce (*P. pungens* 'Montgomery') - Dwarf, blue-needled selection. Excellent, dense habit, but sometimes reverts to taller form.

Thompsons Blue Spruce (*P. pungens* 'Thompsonii') - Silvery-blue needles, similar color to 'Hoopsii'.

Related Species

Black Hills Spruce (*Picea glauca* var. *densata*)

Norway Spruce (*P. abies*)

Pests

Common diseases include Rhizosphaera needle cast, Cytospora canker, and Lirula needle blight. Common insect pests include spider mites, spruce needle miner, pine needle scale, yellow-headed spruce sawfly, and aphid.

BLUE SPRUCE

Picea pungens Engelm.

Plant Symbol = PIPU

Contributed by: USDA NRCS National Plant Data Center & the Biota of North America Program



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Alternate names

Colorado blue spruce, white spruce, silver spruce, Parry spruce, water spruce, *Picea parryana* Sargent

Uses

Blue spruce has been little used for lumber or wood products because it is rarely abundant in nature and the wood is brittle and often full of knots. It sometimes is cut with Engelmann spruce. Because of its cold hardiness, symmetrical pyramidal form, and waxy, blue-hued foliage, blue spruce is widely planted in ornamental and general landscape settings. Numerous horticultural cultivars have been developed, based on needle color and crown form. It is used considerably for Christmas trees and blue

spruce plantations have been established in the northeastern US – these probably the source of

escapes reported for several states far from its native range (Maine, Massachusetts, New York, Pennsylvania, Maryland). Blue spruce is the state tree of Colorado and of Utah.

Status

Please consult the PLANTS Web site and your State Department of Natural Resources for this plant's current status, such as, state noxious status and wetland indicator values.

Description

General: Pine Family (Pinaceae). Native trees growing to 50 meters tall, the crown long-conic; branches whorled, ascending to slightly to strongly drooping; twigs not pendent, stout, yellow-brown, usually without hair; many small twigs produced on the main trunk and between the main whorls of branches; bark relatively thick, gray-brown, breaking into furrows and rounded ridges, only slightly scaly. Needles are evergreen, borne singly and at right angles from all sides of the twig, 1.6-3 cm long, 4-angled, stiff and sharply spine-tipped, silvery to blue-green. Seed cones are green or violet, ripening pale buff, (5) 6-11 (12) cm long, ellipsoid, pendent, the scales elliptic to diamond-shaped, widest below middle, stiff at the base, the tip flexible, unevenly toothed, and extending 8-10 mm beyond seed-wing impression. The common name is based upon the blue foliage color of some races.

Variation within the species: trees with similar color tend to occur in small, local populations, suggesting that color traits are under genetic control. The color variation does not conform to a clinal pattern. Most other variable features in blue spruce (e.g., physiology, early survival, growth rate) similarly do not follow geographical parameters; date of bud set follows a local altitudinal pattern.

Besides features of habit, leaf color, and habitat, blue spruce is distinguished from Engelmann spruce by its cones and cone scales that average larger in size, but these characteristics are often partially or completely overlapping. Blue spruce also differs in its glabrous twigs.

Plant Materials <<http://plant-materials.nrcs.usda.gov/>>

Plant Fact Sheet/Guide Coordination Page <<http://plant-materials.nrcs.usda.gov/intranet/pfs.html>>

National Plant Data Center <<http://npdc.usda.gov>>

Distribution

The native range of blue spruce is the central and southern Rocky Mountains of the USA – in Idaho, Wyoming, Utah, Colorado, New Mexico and Arizona. For current distribution, please consult the Plant Profile page for this species on the PLANTS Web site.

Adaptation

Blue spruce commonly occurs on stream banks in moist canyon bottoms (hence one of its common names, water spruce) but may grow on gentle to steep mountain slopes in Douglas fir or spruce-fir woods up to timberline; at 1800-3000 meters elevation in mid-montane forests. It often grows with subalpine fir, white fir, and Engelmann spruce. It is cultivated on a wide variety of soils, except those that are very moist.

Establishment

Blue spruce begins to produce seed at about 20 years; maximum seed production occurs between 50-150 years. Good cone years occur at intervals of 2-3 years. Seed germination is mostly confined to exposed mineral soil with side shade and overhead light, but natural reproduction is scanty, probably because the light seeds are prevented from coming into contact with mineral soil by the dense herbage, grass, or other ground-cover vegetation that is usually abundant in the habitat of the species. Seedling establishment is probably benefited by moisture availability and shading, which prolong snow and soil moisture in late spring.

Blue spruce is a slow-growing tree and some individuals have been reported to live for more than 600 years. Reproduction by layering has not been reported for this species.

Management

Western spruce budworm larvae feed on old needles in late April, then mine developing buds and defoliate new tree growth. Heavy repeated attacks kill the tree.

Cultivars, Improved and Selected Materials (and area of origin)

These plant materials are readily available from commercial sources. Contact your local Natural Resources Conservation Service (formerly Soil Conservation Service) office for more information. Look in the phone book under "United States Government." The Natural Resources Conservation Service will be listed under the subheading "Department of Agriculture."

References

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Prepared By

Guy Nesom
Formerly BONAP, North Carolina Botanical Garden, University of North Carolina, Chapel Hill, North Carolina

Species Coordinator

Gerald Guala
USDA, NRCS, National Plant Data Center, Baton Rouge, Louisiana

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For more information about this and other plants, please contact your local NRCS field office or Conservation District, and visit the PLANTS Web site <<http://plants.usda.gov>> or the Plant Materials Program Web site <<http://Plant-Materials.nrcs.usda.gov>>

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Colorado blue spruce

Picea pungens

Growth Form: conical

Crown Density: dense

Size: 60-100 feet high

15-35 foot spread

Drought Resistance: fair

Cold Hardiness: excellent

Growth Rate: slow

Life Span: long

Elevational Range: to 9,500 feet

Soil Conditions: fair alkaline tolerance

Possible Insect Problems: pine needle scale, tussock moth, terminal weevil, gall aphids

Possible Disease Problems: Valsa canker, spruce witches' broom

Wildlife Value: high: song and ground birds and grouse; hooved and small browsers

Seasonal Color: bluish evergreen

Miscellany: native; Colorado's state tree; high ornamental value



Taken from: Trees for Conservation, a buyer's guide, Colorado State Forest Service