

# Rocky Mountain

National Park  
Colorado



## Trees

As the Rocky Mountains lifted, erosional forces turned rock slowly into rich soil where plants and trees began to establish their presence. In harsh, mountain environments precipitation increases with elevation, winds become stronger, and the sun's intensity is greater due to the thin mountain air while temperatures decrease. In the Central Rocky Mountains, trees grow between 5500 ft.-11500 ft. (1650 m.-3450 m). At higher elevations trees are excluded by cold temperatures and at lower elevations dry conditions prohibit tree growth. Different tree species dominate areas depending on elevation, precipitation, and length of growing season. Only evergreen trees and a few, hearty deciduous trees thrive in a harsh mountain environment.

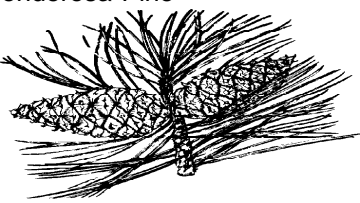
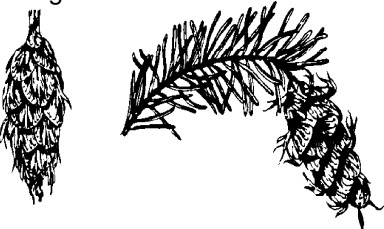
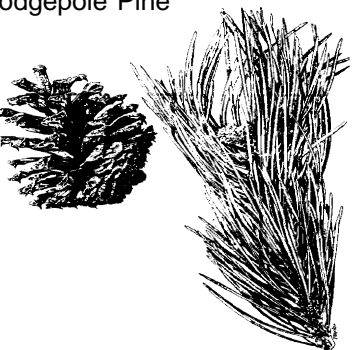
The Montane forest ecosystem, 5500 ft.-9000 ft. (1650 m.-2700 m.), consists of Ponderosa pine forests on warm south-facing slopes, and Douglas-fir forests on cooler, north-facing slopes. Aspen and Lodgepole pine are common, indicating areas of past disturbances from fire, windthrow, flooding, or logging.








Subalpine forests, 9000 ft. to 11500 ft. (2700 m.-3450 m.), are dense, moist communities composed of spire-like Engelmann spruce and Subalpine fir. Lodgepole pine and Aspen may be found in the lower subalpine, and Limber pine are often present throughout. The upper forest consists of spruce and firs that become wind-sculptured tree islands called krummholz.

Riparian ecosystems appear as narrow bands of distinctive vegetation along ponds and streams. Blue spruce, Aspen, Narrowleaf cottonwoods, and shrubs dominate these areas.

What follows is a list of the commonly found trees in the park and identification information.

Sources: John Emerick's "Rocky Mountain National Park: Natural History Book", 1995, Roberts Rinehart Publishers, Niwot, CO. John Emerick's "From Grasslands to Glacier", 1992, Johnson Printing, Boulder, CO. Jack L. Carter's "Trees and Shrubs of Colorado", 1988, Johnson Books, Boulder, CO. Thomas S. Elias's "Trees of North America", 1987, Gramercy Publishing Company, New York, NY. Ruth Ashton Nelson's "Rocky Mountain Plants", 1992, Roberts Rinehart Publishers, Niwot, CO.

Common Name	Scientific name/ Habitat	Charateristics
Ponderosa Pine 	<i>Pinus ponderosa</i> Montane 5600 ft.-9500 ft. (1680 m.-2850 m.)	Mature trees large, with open rounded or flat-topped crown. Height to 100 ft., trunk massive, to 3 ft. diameter. Bark thick, reddish, with vanilla, or butterscotch scent. Needles 3 in. to 7 in. long, in bundles of 2 to 3. Female cones large, woody, with a short spine on each scale. Trees scattered or in clumps, generally uncrowded. Diverse understory, dominated by shrubs and grasses.
Douglas Fir 	<i>Pseudotsuga menziesii</i> Montane 5500 ft.-9500 ft. (1650 m.-2850 m.)	Straight Christmas-tree shape with relatively dense foliage in crown. Height to approximately 100 ft., trunk diameter to 30 inches. Needles 1 in. long, flat, with a rounded tip and a short stalk attaching them to the twig. Female cones 2 in. to 3 in. long, with prominent three-pronged papery bracts protruding from between the cone scales. Relatively dense stands. Sparse understory.
Lodgepole Pine 	<i>Pinus contorta</i> Montane and Subalpine 7800 ft.-11500 ft. (2340 m.-3450 m.)	Trees in dense stands are tall and straight, with narrow crowns; in open sites, their crown is broader, resembling ponderosa. Height to approximately 90 ft., trunk diameter to 18 inches. Needles 1 in. to 2 in. long in bundles of two; more of a yellow-green color than those of other conifers. Female cones up to 2 in. long, many remaining closed and attached to the tree for many years. Stands often appearing even-aged, with most of the trees about the same size. Usually sparse understory. Trees in younger stands often nearly all lodgepole; older stands invaded by shade-tolerant spruce, subalpine fir, or Douglas fir.

Common Name	Scientific name/ Habitat	Characteristics
Rocky Mountain Juniper or Red Cedar 	<i>Juniperus scopulorum</i> Montane 5000 ft.-8000 ft. (1500 m.-2400 m.)	Shaped like pyramids with an irregular to slightly rounded crown. Height to approximately 16 ft. to 49 ft., trunk diameter up to 3.3 ft. Leaves small, scale-like occurring in pairs, pale-green to grayish-green. Cones appear as berry-like seeds, green or purple containing 1 to 3, usually 2 seeds. Bark is thin, reddish-brown to grayish, and scaly. Grows in rock areas, ridges, cliffs, and hillsides.
Quaking Aspen 	<i>Populus tremuloides</i> Montane, Subalpine, and Riparian. 6000 ft.-10000 ft. (1800 m.-3000 m.)	Often grow in clumps or groves. Height 39 ft. to 100 ft., diameter to 23 in. or more. Broad, oval leaves with thin, flattened stem. Smooth, light-colored bark ranging from bone white to tan or greenish. Lush green understory compared to conifer forests. Older groves usually invaded by young conifers. The only common deciduous tree growing on mountain slopes away from riparian zones.
Narrowleaf Cotton- wood 	<i>Populus angustifolia</i> Riparian 5000 ft.-8000ft. (1500 m.-2400 m.)	Small, slender tree with a narrow cone-shaped crown. Height to approximately 60 ft., trunk diameter to 1.6 ft. Leaves, alternate, 2 in. to 3.6 in. long, broadest near the middle tapering to a point, fine toothed along the margin. Bark is smooth, yellowish-green, becomes thicker on older trees with fissured ridges. Occurs along streams, margins of marshy areas, occasionally in roadside ditches.
Colorado Blue Spruce 	<i>Picea pungens</i> Montane and Riparian 7000 ft.-9500 ft. (2100 m.-2850 m.)	Narrow, pyramidal and an open to dense, irregularly cone-shaped crown. Possible silver-blue color or green. Height from 65 ft. to 115 ft., trunk diameter 32 in. Needles rigid, sharp to the touch almost spine-tipped. Cones over 2.4 in. long; bluish color not obvious. Bark is gray and scaly. Occurs in small groves along streams and occasionally in mixed forests.
Englemann Spruce 	<i>Picea engelmannii</i> Subalpine 9000 ft.-11500 ft. (2700 m.-3450 m.)	Straight trunk and dense crown having a narrow conical shape. Height to approximately 100 ft., trunk diameter to 30 in. Needles attached singly to twig, 1 in. long, 4 sided, with sharp tip. Bark in plate-like layers, relatively thin, reddish on protected side of tree, otherwise gray. Female cones 1 in. to 2 in. long with very papery scales, tan to reddish, mostly clustered in upper third of tree. Thick forest of tall trees with narrow crowns and a dark green color. Upper forest margins ragged and fragmented into wind-sculpted tree islands. Dense understory with immature spruces and firs usually abundant.
Subalpine Fir 	<i>Abies lasiocarpa</i> Subalpine 9000 ft.-12000 ft. (2700 m.-3600 m.)	Crown often narrower, more spine-like than Engelmann spruce; foliage extremely dense. Height to approximately 80 ft., trunk diameter to 28 in. Needles attached singly to twig, flat, with rounded tips and soft to the touch; often arc upward so that the tips point skyward. Bark typically thin, smooth, and silvery, with horizontal markings; shallow, vertical furrows common on older bark.
Limber Pine 	<i>Pinus flexilis</i> Subalpine 7000 ft.-11000 ft. (2340 m.-3450 m.)	Gnarled and twisted in windy sites; in more protected areas, crown broad, symmetrical and often flat-topped. Typically a small tree, 15 ft. to 30 ft. tall, with a trunk diameter to 18 in.; trees frequently with multiple trunks. Older bark gray and platelike; thin and smooth on younger branches, often with pinkish color at windy sites. Needles 1 in. to 2 in. long in bundles of four or five. Female cones large, often several inches long with thick, woody scales; cones bear seeds approximately 3/8 in. long in fall.

Several other non-evergreen species are found in shrub or small tree form along streams and moist hillsides. The more common ones are:

Balsam poplar <i>Populus balsamifera</i>	Thinleaf Alder <i>Alnus tenuifolia</i>	Willow <i>Salix amygdaloides</i>	Rocky Mountain Maple <i>Acer glabrum</i>
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