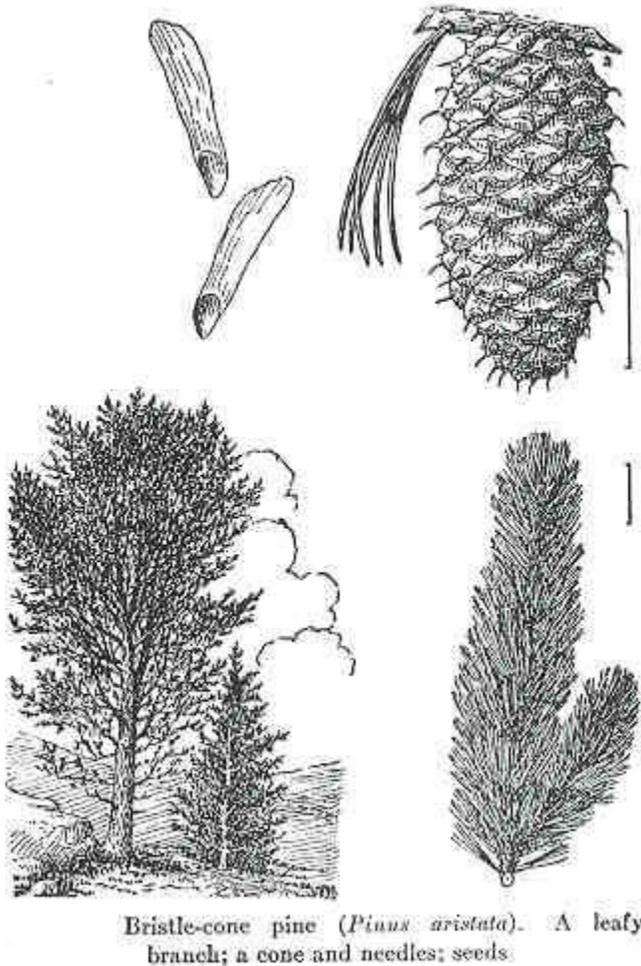


## Rocky Mountain Bristlecone Pine



The Bristlecone pine is famous as a long-lived tree, growing in exposed and harsh conditions on high mountains. Two varieties of bristlecone cone live in the lower 48 states, the Great Basin Bristlecone pine of California, Nevada and Utah, and the Rocky Mountain Bristlecone pine of Colorado, New Mexico, and Arizona.

The Rocky Mountain Bristlecone pine is found from around 7000 feet above sea level to treeline, near 11900 feet (3640 m) in central Colorado. It can survive on rocky and windy ridge-tops. The Bristlecone pine grows to large size in forest settings, and even grows in meadows on occasion. Bristlecones may be prostrate near treeline, or reach 40 feet high in a protected forest. Bristlecone pine may be mixed with Limber pine in woods up to several hundred acres, or with other trees typical of its elevation. Bristlecone and Limber pine can survive where winter winds sweep the high country free of snow, while the neighboring spruce and fir are buried several feet deep. Ancient trees have often have extensive die-back, with wind-sculpted dead limbs, and a few strips of living bark and associated branches with green foliage.

Bristlecone pine can be very long-lived. A Bristlecone five feet high may be over 500 years old. Bristlecone pines near South Park are the oldest trees in Colorado. The oldest known tree in Colorado is 2456 years old (in 2014), dating from 442 BC. It grows on a mountain along the south edge of South Park.

The oldest trees are found in arid locations with reduced precipitation, on well-drained rocky, south facing, slopes. It can grow in cool places with very little water, where it grows so slowly that the growth rings are very narrow. One of the oldest trees near South Park, over 2202 years old, has 90 annual rings per inch (35 rings per cm). The oldest trees are 2.5 feet (80 cm) across near the base, or more. The trees in this area are the oldest living Rocky Mountains Bristlecone pines, and the oldest trees in Colorado. A Bristlecone pine in California is about 4600 years old, possibly the oldest individual tree on Earth.

BP in Colorado, MAP to be added

Rocky Mountain Bristlecone range, and precipitation. From Brunstein and Yamaguchi, 1992.

## Bristlecone pine

Bristlecone pine is found south of Berthoud Pass and James Peak in Colorado but rarely if ever north of the fortieth parallel, the latitude of Boulder. Groves of Bristlecone pine are found above Manitou on Pikes Peak, and larger groves in the San Juan Forest. It is widespread around South Park. Notable groves that can be reached by car are found northwest of Alma, and on Mt. Evans. Bristlecone pine is not a common tree in Colorado, or anywhere in its range, which extends from the mountains of Colorado westwards to Arizona and southwards to near Santa Fe, New Mexico.

The Bristlecone pine - Limber pine combination can move into an area after fire removes other trees, since they are able to grow in sunny, dry, rocky, and bare ground. Once established, these stands may on occasion be superseded by Douglas fir, Aspen, Engelmann spruce, or Subalpine fir, since some protection from the wind and from the drying sun is provided for new young trees. A climax forest of another species may be established. In many cases small permanent groves of Bristlecone and Limber pine persist.

The scientific name is *Pinus aristata* Engelmann, from *arista*, "beard", referring to the bristles on the cones. [Trans. Acad. Sci. St. Louis 2:205-207.1866. Pikes Peak and high mts. of Snowy Range, 1861, 1862, Parry.] The California tree is of variety *longea*, meaning long-lived. It lacks the resin drops on the needles.

### Identifying features of Bristlecone Pine

#### Needles

Needles in bundles of five; commonly 1 to 1 1/2 inches long; curved; glossy and dark green. Some needles will be speckled with sticky whitish drops or grains of resin. The needles are close together and persist on the branches for many years, 12 to 14 years or even more, making the branches look like a long brush.

#### Cones

Cone scales are green (when immature), or gray-brown or dark brown (when mature or past maturity), and tipped with a *very slender*, short curved bristle. Cones are 2 1/2 to 3 1/2 inches long; smaller and darker than Limber pine cones. Some scales have sticky resin drops on the tips, sometimes almost a coat of resin. The seeds are very small: 2 to 3 mm long (less than 1/4 inch), with thin, pale brown, papery wings 1/4 inch long. As in all other pines, there are two seeds per cone scale. In some cases the seeds are not fertilized and the seed will not fill out, leaving only a papery wing between the scales.

#### Bark

Bark on young trees (up to 5 inch diameter) is thin, smooth, and grayish with a hint of red, or even purple or milky white.

On old trees the bark becomes red-brown, orange-brown, or dark brownish gray, and thicker (1/2 to 3/4 inch), furrowed or broken into flat ridges covered with small scales. In windy locations, gray bark on the upwind side on bare limbs may have a reddish-brown tinge.

Bristlecone and Limber pine may be confused. The Bristlecone cones have bristles on the ends of the cone scales. Bristlecone has softer, thinner, needles; 1 1/2 inches long or less, and often with white resin specks on the needles.

See Brunstein, F. Craig, and David K. Yamaguchi, "The Oldest Known Rocky Mountain Bristlecone Pines." *Arctic and Alpine Research*, vol. 24, no. 3, 1992. pp. 253-256.

Bristlecone pine



Bristlecone pine



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