

EXPLORE...

Pocket Nature

Whitebark Pine Trees

A Few Basics: Whitebark pine trees live in high alpine environments, close to timberline. The harsh cold and wind in which most whitebark pine grow acts to slow their growth, though they can live many hundreds of years -- the oldest whitebark pine on record is 1275 years old! Whitebark pine are recognizable by their spreading branches and wide,



High-alpine whitebark pine

round crown - quite different from the Christmas-tree shape of the subalpine fir that shares their habitat.

Whitebark Pine Seeds: Unlike most other pine trees, the whitebark pine seeds do not fall out of the cone to be dispersed by the wind. Instead, the whitebark pine depends on animals, especially the Clark's nutcracker bird, to harvest the seeds. The nutcracker fills a special pouch in its mouth with seeds and then bur-



Clark's nutcracker

ies the seeds as food storage for winter. The seeds that the nutcracker does not come eat during the winter have the chance to germinate and grow.



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Threats: Whitebark pine face several growing threats. The non-native fungal disease, white pine blister rust, can infect trees, creating rust-colored blisters on the branches. The native mountain pine beetle is also a threat, burrowing under the tree's bark and disrupting the flow of nutrients. In 2004, more than 700,000 whitebark pine trees in the Greater Yellowstone Ecosystem were killed by mountain pine beetles. Fire is another threat but, fortunately, whitebark pine are well equipped to deal with fire, gaining protection because of a thick bark, deep root system, and thin crown. Thanks to the Clark's nutcracker, the whitebark pine seeds can be dispersed up to 10 times farther than the wind-dispersed seeds of the subalpine fir and spruce. This helps to recolonize burned areas.

Quick Facts:

- The tree rings of the whitebark pine are studied to find out about the changing climate over hundreds of years, providing clues about temperature, precipitation, and past fire events.

- Yellowstone grizzly bears will get 1/4 to 2/3 of their summer energy intake from whitebark pine seeds!

- Clark's nutcrackers can fit up to 150 seeds into their pouch for transporting.

- One nutcracker can bury from 32,000 to 98,000 seeds in one year!

- Whitebark pine seeds remain viable for 12 months or more, providing long-term food storage and a chance for new trees to grow from uneaten seeds.



Visible tree rings

Questions?

**Find answers on the Big Sky Institute website:
bsi.montana.edu**