Whitebark pine

Whitebark pine (*Pinus albicaulis*) is arguably Oregon's quintessential timberline tree. This five-needle pine grows under the harshest of environmental conditions, frequently as a low, twisted, "krummholz" shrub, a small twisted tree, or a clump of trees so close they appear as one. People often admire whitebarks more when they are dead and become twisted silver-gray "ghost" trees than when they are alive and healthy.

In 1855, John S. Newberry, a botanist on the Williamson expedition, collected the type specimen of the whitebark pine in the Cascade Mountains at about 44 degrees north latitude. In 1863, George Engelmann, a St. Louis physician and botanist and the man the Engelmann spruce honors, named the whitebark pine *Pinus albi* (= white) *caulis* (= stem). The tree is also known as white pine or scrub pine.

Whitebark pine grows in scattered populations at high elevations in the Coast and Rocky mountains of western Canada; in the Cascade Mountains through Washington, Oregon, and California; in the Klamath Mountains; and in the Sierra Nevada Range. The trees can also be found in the high mountains of northeast Oregon, on several Nevada mountain ranges, and in the Rocky Mountains of Idaho, western Montana, and northwest Wyoming. It is easy to see whitebark pine in Oregon at the rim of Crater Lake.

Whitebark pines live at high elevations under harsh, cold, windy conditions. They are totally dependent on a bird, Clark's Nutcracker, for reproduction. The tree produces large nutrient-rich, wingless seeds that the large, black-and-white, crow-like birds collect and cache. The Nutcrackers break into ripe cones, fill their throat pouches with seed, and store them somewhere for future use. Not all cached seed are used, and those uneaten often germinate singly or in clusters and survive. This accounts for some trees having multiple stems as adults. In the Rocky Mountains, red squirrels also collect the cones and hoard them in large numbers. Most of those cones are found by grizzly and black bears, which gorge themselves on the high-calorie food in preparation for winter.

The Oregon champion whitebark pine, which is 72 feet tall and nearly 6 feet in diameter, grows in the Eagle Cap Wilderness of the Wallowa-Whitman National Forest of northeastern Oregon. The national champion, near Custer, Idaho, is 65 feet tall and a little over 7 feet in diameter. Trees can be perhaps a thousand years old.

Native Americans used whitebark pine seeds for food, but it has no commercial timber value. The tree has great esthetic value, however, and it plays an important ecological role in stabilizing soil and providing food and habitat for wildlife.

Unfortunately, this five-needle pine suffers from the same survival problems as its relatives, sugar pine and western white pine. Whitebark pine is susceptible to that alien pine-killer, white pine blister rust, and attack by the native mountain pine beetles. It is also susceptible to lack of fire: years of fire suppression have allowed sub alpine fir and other shade-tolerant species to out-compete whitebark pine. In addition, global climate change may alter high-elevation conditions that eliminate critical whitebark-pine habitat conditions. If current trends continue, whitebark pine may go the way of the North American horse and the California condor.

Written by Frank A. Lang

Further Reading:

"Oregon Champion Tree." *Oregon Department of Fish and Game*. http://www.odf.state.or.us/divisions/resource_policy/resource_planning/big_tree/bigtrees.asp?id=401010205

Arno, S.F. and R.P. Hammerly. *Northwest Trees: identifying and understanding our native trees.* Revised Ed. Seattle: Mountaineers, 2007.

Jensen, E.C., C.R. Ross. *Trees to Know in Oregon*. Revised Ed. Corvallis: Oregon State University Extension Service, 2005.

Moerman, D.E. *Native American Ethnobotany*. Portland, Ore.: Timber Press, 1998. p. 927.

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