Tahoe Plants and Trees

White Bark Pine – Pinus albicaulis

By: Dave Long, UCCE Master Gardeners of Lake Tahoe

The White Bark Pine is found at high elevations in the Tahoe basin, often near the timber line. The tree is often stunted, with multiple trunks or found in clumps of several trees in very close proximity. The tree is encountered on exposed slopes having generally poor soils. In favored areas the tree can grow to over 60 feet, though most are less than half that height, and when found at the tree line are more prostrate than erect, giving the tree one of its common names, creeping pine.

The White Bark Pine, is a member of the five needle pines (suborder *Strobus*) that include other Tahoe native trees – the Western White Pine (*P. monticola*) and Sugar Pine (P. *lambertiana*). The White Bark Pine is most closely related to the Limber Pine (*P.flexilis*) which is not found in the Tahoe Basin. The stout needles of the White Bark Pine are about two inches in length. The bark of the tree is a fine textured light grey coloration. The branches are short in length. The seed bearing cones are 2-3 inches in length and are a dark purple when immature. The cones do not open when on the tree but open soon after they drop or are removed from the tree (often by the closely associated Clark's Nutcracker). The pollen cones are a bright dark red. Seed cones are held towards the stem tips.

Details The tree's contorted look, matches its environment, being the highest found pine tree in the Tahoe basin, and may remind one of another gnarled tree, the Bristlecone Pine (also a 5 needled pine). Like the Bristlecone Pine, and others in the *Stobus* suborder, the White Bark Pine can live for many centuries, with individual trees reported to be over 1000 years old.

The tree often is found in dense clumps or groves, or it looks like an individual tree may have multiple trunks. This appearance is due in part to the seed caching activities of the Clark's Nutcracker, who harvests cones from the tree, and removes the seeds as the cone opens. A throat sack allows the bird to hold up to 30 seeds at a time. Seeds not eaten are cached in rock cracks on exposed slopes where they can be accessed later in the season. Forgotten seed caches are often the source of the close packed groves.

Of Interest: The UCCE Master Gardeners of Lake Tahoe recently did a workshop that included give-a-way of gooseberry plants *(Ribes* spp.). As part of workshop participants were asked not to plant the gooseberry within 100 yards of any 5 needled pine trees due to possible concerns with the non-native disease of white pine blister rust (WPBR). WPBR is a rust type disease causing fungus (*Cronartium ribicola*) is native to central Asia, where the endemic pines have significant resistance to the disease. The disease was spread to Western Europe in the mid 1800's and to the Americas around 1900 on contaminated nursery stock. Tahoe's white pines include the Sugar Pine, Western White Pine and the White Bark Pine, all of which are susceptible to WPBR. The disease is slow in progressing once established, affecting the tips of the stems initially and progressing further through the tree until the vascular tissue is affected and the tree dies. For large trees like the sugar pine death can take 30 years or more from initial infection. However since the branch tips are first affected the tree's ability to produce seed cones ceases. An infected tree is weakened

and is susceptible to secondary infections and attack by insects. WPBR itself is interesting as the rust has a complex life cycle producing two types of spores, based on the host. The spores produced from an infected tree cannot infect other trees, but only species of *Ribes* (currents and gooseberries). Similarly the spores produced on infected *Ribes* plants can only infect the five needled pine trees.

Identifying and replanting seedlings from WPBR resistant individual trees has been the most recent approach to disease treatment and prevention. Similarly planting resistant WPBR *Ribes* is another way to break the cycle of infection. Earlier efforts at eradication of native *Ribes* plants proved ineffective and have slowly been stopped by most states though there are local exceptions where planting and cultivation of currents and gooseberries are prohibited.

An issue with Tahoe's White Bark Pines is that to date no confirmed resistant trees have been identified, so replanting has not been an option. Work with White Bark Pines in other reaches of their range has been slow with results mixed on WPBR resistance. As a consequence the species is being considered for listing as threatened or endangered.

(Clark's Nutcracker on White Bark Pine- Doris Bingo Image)

(National Park Service Image)

References:

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