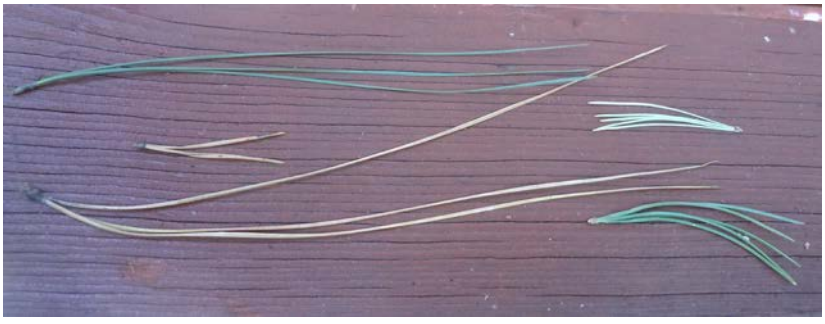
Identifying Pine Trees

by Kathi Joye

John Muir referred to the Sugar Pine tree as the "King of Conifers," most likely because, in general, they are the tallest of the pines; however, Sugar Pines are just one of a collection of stately pines indigenous to the Sierra Nevada. Our varied forests also include Lodgepole, Gray, Ponderosa, Jeffrey, Whitebark and Western White Pines, all members of the *Pinus* genus (true pines). Though these trees are an inherent part of our everyday environment, and perhaps even our own natural garden landscapes, many of us are unaware of some of their unique characteristics and how to differentiate these pine species.

Pine species grow at different elevations and climates, so their location can be helpful in identifying them. Gray Pines are more predominant in the foothills and can grow in poor, serpentine soils. Ponderosa Pines have a large western Sierra slope range, but are more prolific at mid-elevations (3500-6000ft), particularly in areas with more light. Ponderosa Pines are the most drought-tolerant of the conifers, yet with the increased densities of our forests and decreased amounts of light, they are being replaced by conifer species that are not very drought-tolerant, thus compounding the problem of high fire-risk forests.

Sugar Pines are also found at mid-elevations (4000-7500ft), whereas Jeffrey, Lodgepole and Western White Pines prefer higher elevations and are more plentiful at ranges between 6000 or 7000ft to tree-line. Whitebark Pines are typically found at and above 8500ft., such as in areas near Sonora Pass.



Another way to identify pines is by the number of needles entwined in each bundle, as well as the average length of the needles. Pines have been divided into 2 groups: white and yellow pines. Pines described as white pines have needles bundled in groups of five, and include Sugar, Whitebark and Western White Pines. Needle length is 2-4 inches for Sugar and Western White Pines, but half that size for Whitebark Pines. Yellow pines have needles bundled in groups of 2 (Lodgepole Pines) or 3 (Gray, Ponderosa & Jeffrey Pines). Ponderosa and Jeffrey Pines have needles 5-10 inches long, whereas the needles on Lodgepoles are only 1-3 inches long.

The size and shape of pine cones is another of the key characteristics to differentiate the pine species. White pines have cones with no prickles whereas yellow pines do have prickles on the end of the cone scales. Sugar pine cones are the longest with thick, straight scales whereas Western White pine cones are smaller with scales that are thin and curve upwards.

The Whitebark pine cones are a brilliant purple-red color and are unique in that they remain on the tree until they are opened and dislodged by nutcrackers (a mutualistic relationship). Lodgepole cones are small (1-2 inches), egg-shaped with a good sized prickle and only open after high temperatures melt the resin holding the cone closed. Ponderosa cones are larger (3-5 inches), and have straight prickles whereas Jeffrey cones are larger still (5-12”) with prickles that curve in, leading to the saying, "Gentle Jeffrey and Prickly Ponderosa." Gray pine cones are heavy with huge spikes on them.

Whether pines are a part of your landscaping at home or part of the forested areas around your Tuolumne community, take a moment to inspect pine cones and needle bundles, consider location then try to tell which pine is which.

Kathi Joye is a Master Gardener who spends time tending her garden, as well as raising guide dogs for the blind.