

The Trees of Tahoe

Take this primer on your next walk through the woods.

"You can't see the forest for the trees" illustrates lack of perspective. But, the reverse can also be true: a forest can hide the diversity and uniqueness of its trees.

The Tahoe Basin's range of elevations, aspects, geology and climate offer a special richness of trees, which vary widely in form and function. Learning about these trees—telling one species from another, how they've adapted to their environment, what they tell us about the places they grow—can add to our enjoyment walking among them, and deepen our appreciation of the natural world.

Naturalist John Muir wrote that recognizing the plants and animals he encountered in his travels was like greeting old friends. And Henry David Thoreau penned that he "frequently tramped eight or ten miles through the deepest snow to keep an appointment with... an old acquaintance among the pines." I've made a number of good friends in the forests of the Tahoe Basin, and I'd like to introduce them to you.

PONDEROSA PINE (*Pinus ponderosa*)

Ponderosa pines should be vaguely familiar to nearly anyone in the Tahoe Basin. The stately trees that lent their name to television's *Bonanza's* Cartwright Ranch were so dubbed for their "ponderous bulk." Growing in open groves at lower elevations, they can reach nearly 250 feet in height and 8 feet in diameter in their 500-year lifespan. The bark on their massive trunks is a distinctive cinnamon-brown to orange-yellow, but perhaps their most distinguishing (and pleasing) characteristic is that they smell like vanilla when warmed by the sun.

JEFFREY PINE (*Pinus jeffreyi*)

The Jeffrey pine, though more common, is a close cousin of the ponderosa (in fact, botanists argue if they should even be considered a separate species). The cones can be used to distinguish the trees: Jeffrey's pinecones (5 to 10 inches long) are larger than the ponderosa's (3 to 5 inches long), and their "prickles" turn inward making them easier to handle.

SUGAR PINE (*Pinus lambertiana*)

Sugar pines also figure into some of the place names in the Tahoe Basin (like the popular Ed Z'berg–Sugar Pine Point State Park). They are a tree of superlatives: the tallest and largest of all the pines, growing the longest cones (reaching 20 inches or more), and their large seeds are a favorite of many small mammals and birds. Growing at lower elevations, their commercial value as timber resulted in especially heavy logging in the nineteenth century. They produce a sweet resin that John Muir liked better than maple syrup.

WHITE FIR (*Abies concolor*)

The white fir may be the most common tree in the Tahoe Basin and favors moist soils

I think that I shall never see
 A billboard lovely as a tree.
 Perhaps, unless the billboards fall,
 I'll never see a tree at all.
 —Ogden Nash

generally found at lake level on northern and eastern slopes, and at the heads of streams. Its current dominance is due to years of fire suppression—an irony because this tree's tendency to retain its lower limbs makes it such a fire hazard.

RED FIR (*Abies magnifica*)

Larger than the white fir, the red fir, growing up to 175 feet and 5 feet in diameter, presents a classic, narrow, conical, symmetrical crown, and this "magnificent" character is reflected in its scientific name, *Abies magnifica*.

LOGEPOLE PINE (*Pinus contorta*)

This tree's name also suggests something about its character. Growing especially straight in conventional dense groves, the species' sturdy trunks were used by Native Americans to support their buildings. Although thin bark makes them particularly fire prone, many subspecies (including the Rocky Mountain but *not* the Sierra) make up for it with serotinous cones that release their seeds when exposed to heat. The Sierra lodgepole's seeds are wind dispersed and can remain viable for up to 17 years in cold storage.

WESTERN WHITE PINE (*Pinus monticola*)

Western white pine is generally a high-elevation tree (up to 10,000 feet) and is one of the most important timber trees in the United States due to its nonresinous, straight-grained wood. Like all white pines, its needles appear in bunches of five. It's a large, sometimes massive, tree, with branches starting one-third to halfway up its thick trunk. It is especially susceptible to white pine blister rust, a fungus that spends part of its lifecycle on the leaves of currant or gooseberry bushes before moving on to the white pine.

WHITEBARK PINE (*Pinus albicaulis*)

Whitebark pine is another high-elevation white pine, growing at altitudes up to 12,000 feet. In these often-exposed locations, the whitebark pine's crown is distorted by wind; most of its substantive branches cling to the leeward side of the trunk. At tree line, it often appears as *krummholz*, a German forestry term for the stunted vegetation in



(facing page) One of Tahoe's few deciduous species, the quaking aspen. (this page, clockwise from top left) Our region's diverse trees: sugar pine, Jeffrey pine, ponderosa pine and Western juniper.

COURTESY PHOTOS

Fungi Fears

Like many of the Basin's trees, sugar, whitebark and western white pines already suffer from disease, drought, infection and infestation. Adding insult to injury, these stately conifers are being attacked by another killer: white pine blister rust.

"It is a nonnative invasive fungus that came from Eurasia," says Maria Mircheva, who, with husband John Pickett, runs the South Lake Tahoe-based Sugar Pine Foundation. She explains that blister rust was introduced to Canada in the beginning of the twentieth century, when fungi-carrying white pine seedlings from European nurseries were imported and planted. From there, blister rust began its trail of devastation, spreading down into Washington, Oregon and, in the 1930s, California.

Mircheva says that Tahoe's North and West shore trees are affected most because of the southeast direction the fungus traveled from Canada, and the higher humidity there, which the fungus likes.

"Naturally, about three to five percent of sugar pines and western white pines have a genetic resistance to the fungus," says Mircheva. "We try to find healthy trees in areas that have been infected." In the foundation's five years, the couple has identified 35 fungi-resistant sugar pines; they have found no resistant western whites or whitebarks.

"Once the tree is tested and we know it is resistant, we collect its cones every year and grow seedlings out of them," she adds. "Most of our sugar pines go to restoration projects. We've planted around 3,000 seedlings in the Angora fire area, and will plant 40,000 more this spring."

For more information on the Sugar Pine Foundation, call (650) 814-9565 or visit www.sugar-pinefoundation.org.

—Alison Bender

extreme environments (one 500-year-old specimen measured just five feet tall). At these elevations, the whitebark pine's mat-like shape offers shelter for bears, deer and even a desperate hiker; the tree's half-inch long, highly nutritious seeds are an important food source for squirrels, chipmunks and birds.

WESTERN JUNIPER (*Juniperus occidentalis*)

Western juniper (sometimes called Sierra juniper) also grows at high elevations, and these dry, rocky, exposed areas lend the tree its twisted, gnarly appearance. It bears small, bluish-black, berry-like fruits (really modified cones), and its foliage gives off a pungent, aromatic odor when crushed. Its short thick trunk is covered in distinctive cinnamon-brown, stringy bark; the wood beneath is highly durable. Western juniper thrives where few other trees can survive, and thus can live as long as 1,000 years.

QUAKING ASPEN (*Populus tremuloides*)

The quaking aspen is one of relatively few deciduous trees in the Tahoe Basin. It is easily recognized by its white (sometimes pale yellow-green) bark, its toothed, egg-shaped leaves with flat stems that flutter in the breeze and its yellow, gold and occasionally orange fall colors. Preferring wet areas, the aspen's presence suggests that surface or groundwater is nearby.

Aspen can regenerate by both seeds and "shooters." Their tiny seeds (two million of them weigh a pound!) are easily and widely distributed by the wind. Shooters spread from the roots, and though individual trees rarely live more than 150 years, root colonies may persist for thousands of years. Trees reproduced in this manner are clones of the parent tree, and some biologists have suggested that aspen colonies might therefore be considered the planet's oldest and largest living entities, approaching a million years and 17 acres.

A FRIEND INDEED

Trees can be interesting friends, indeed. Beyond aesthetics, they help us by controlling soil erosion, providing wildlife habitat, moderating the weather, improving air quality, conserving water, providing building materials and (what may be increasingly urgent) helping to neutralize excessive emissions of carbon dioxide that contribute to the threat of global climate change.

But friendship implies a reciprocal relationship. Trees do a lot for us, but are we responding in kind? Writing about the trees of the Sierra, John Muir observed, "God has cared for these trees, saved them from drought, disease, avalanches and a thousand tempests and floods. But he cannot save them from fools." **TQ**

Robert Manning is a professor of natural resources at the University of Vermont and frequent Tahoe visitor. He and his wife (and hiking partner), Martha, got up close and personal with the trees of Tahoe on their thru-hike of the Tahoe Rim Trail in 2007.



COURTESY PHOTO

John Pickett of the Sugar Pine Foundation is on a mission to keep Tahoe's trees healthy.