

## The Applegate watershed has an extraordinary diversity of conifers

BY SUZIE SAVOIE

Each year as the winter solstice and holidays draw near, conifer imagery and symbolism become pronounced and emblematic of the season in winter wreaths, Christmas trees, ornaments, and garlands. The winter enchantment brought about by conifers is a good time to explore conifer diversity in the Applegate watershed.

The Klamath-Siskiyou Mountains, well known for their incredible biodiversity, contain more conifer species than any other temperate forest in North America—35 species. The Applegate watershed alone contains 22 conifer species as a result of the region's unique geology, steep topography, pronounced microclimates, dramatic elevation gradients, and millions of years of undisturbed evolution.

From the prostrate-growing ground cover called common juniper (*Juniperus communis*) to the massive, 10-foot-diameter incense cedars (*Calocedrus decurrens*), conifers in the Applegate are as varied as the tapestry of habitat on the landscape.

At low elevations, the Applegate watershed supports a mixture of moist Douglas fir and tanoak habitats on Slate Creek, Cheney Creek, and Williams Creek, where a cool, coastal-influenced environment is maintained through abundant rain, relatively productive soils, and winter fog. These forests support Port Orford-cedar (*Chamaecyparis lawsoniana*), a beautiful, drooping cedar with bluish foliage and layered, silvery bark. Port Orford-cedar is endemic to the Klamath-Siskiyou Mountains. In the Applegate, the Williams Creek population is at the eastern edge of the prevailing Port Orford-cedar range in Oregon.

The low-elevation forests in the foothills of the Applegate and east of Murphy receive far less rainfall. These dry habitats support the westernmost stands of western juniper (*Juniperus occidentalis*) in the Siskiyou Mountains. Western juniper has

a prevailing range that extends across the juniper steppe and high-desert country to the east. On dry, exposed sites up the Little Applegate River and in the Dakubetede Roadless Area, groves of old-growth juniper grow among oak woodlands, dry grasslands, and stately ponderosa pines. The westernmost population of western juniper in the Siskiyou Mountains consists of a few trees on a west-facing slope in the Wellington Wildlands, above Humbug Creek.

In the 1930s, botanist Oliver Mathews documented gray pine (*Pinus sabiniana*) populations near Ruch. Other small populations were found in the Rogue Valley near White City and Gold Hill. Currently, a single mature gray pine still grows in a small, grassy clearing at the edge of the Little Grayback Roadless Area in the Upper Applegate, creating one of the northernmost populations of gray pine, a tree found abundantly in California.

At higher elevations in the Applegate, on the Siskiyou Crest and above 5,000 feet, forests are dominated by true fir species, including white fir (*Abies concolor*) and a confusing series of naturally occurring hybrid populations of Shasta red fir (*Abies magnifica* var. *shastensis*) and red fir (*Abies magnifica*), which are common in the Sierra Nevada and southern Cascades, and noble fir (*Abies procera*), which is more common to the north in the Cascade Mountains. The resulting blend of genetic diversity has created unusual hybrids with characteristics of numerous species that are hard to differentiate.

Also inhabiting the higher elevations of the Applegate Siskiyou are the region's most ancient conifer species, holdouts that survived in ice-free areas in the Siskiyou during the Little Ice Age and represent temperate forests that were once widespread some 65 million years ago.

The iconic Brewer's spruce (*Picea breweriana*) and Port Orford-cedar are



Winter conifers on the Siskiyou Crest at the headwaters of the Little Applegate River. Photo: Luke Ruediger.

two of these paleoendemics, remaining only in the Klamath-Siskiyou Mountains. Some conifer species that grew alongside Brewer's spruce and Port Orford-cedar 65 million years ago still reach their southern limit in the Siskiyou Mountains today. These species include trees common far north of the Siskiyou, such as Alaska yellow-cedar (*Callitropsis nootkatensis*) and Pacific silver fir (*Abies amabilis*). They can be found in the high country of the Applegate in the Red Buttes Wilderness, the Kangaroo Roadless Area, and the Condrey Mountain Roadless Area and near Whisky Peak.

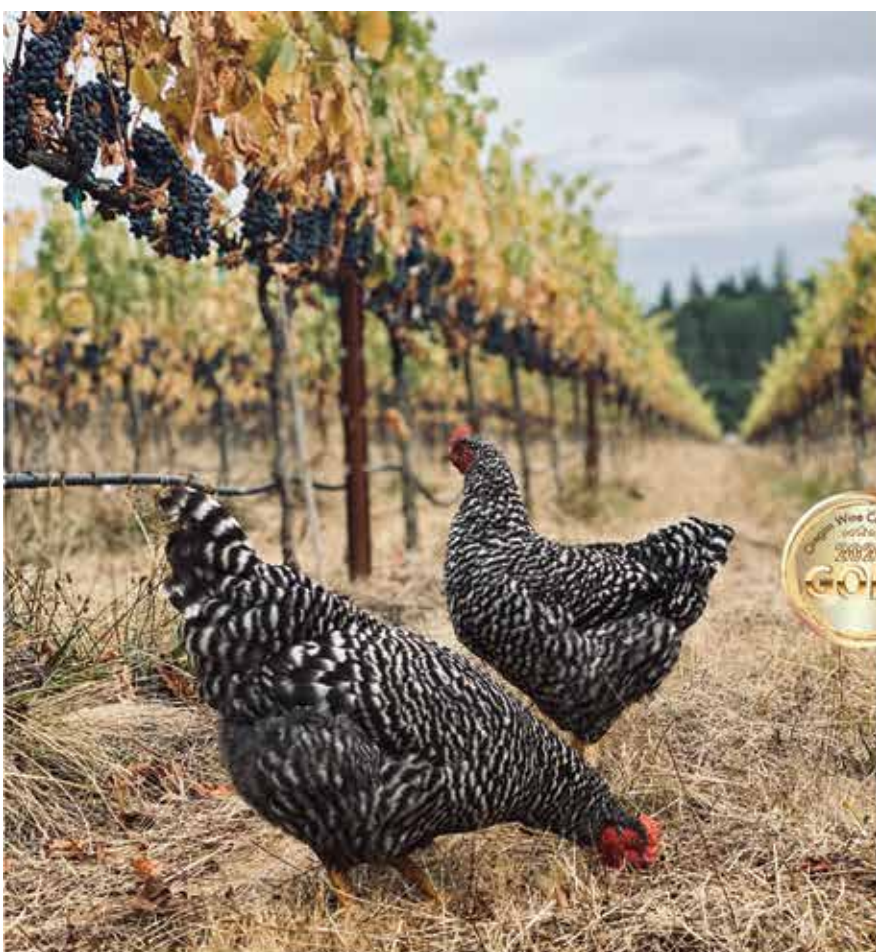
### Rarest conifer

The rarest conifer in the Applegate is Baker's cypress (*Hesperocyparis bakeri*). Baker's cypress has the northernmost range of any cypress in North America. It is also a paleoendemic species and is only found in 11 distinct populations worldwide. Of those 11 populations, eight are in the Klamath-Siskiyou, and only one of these populations is in the Applegate: in the Kangaroo Roadless Area on the Sturgis Fork of Carberry Creek, near Miller Lake, Steve's Peak, and Iron Mountain.

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### Applegate Conifer Species

- Pacific silver fir - *Abies amabilis*
- White fir - *Abies concolor*
- Red fir - *Abies magnifica*
- Shasta red fir - *Abies magnifica* var. *shastensis*
- Noble fir - *Abies procera*
- Incense-cedar - *Calocedrus decurrens*
- Port Orford-cedar - *Chamaecyparis lawsoniana*
- Alaska yellow-cedar - *Callitropsis nootkatensis*
- Baker's cypress - *Hesperocyparis bakeri*
- Common juniper - *Juniperus communis*
- Western juniper - *Juniperus occidentalis*
- Brewer's spruce - *Picea breweriana*
- Knobcone pine - *Pinus attenuata*
- Lodgepole pine - *Pinus contorta* ssp. *murrayana*
- Jeffrey pine - *Pinus jeffreyi*
- Sugar pine - *Pinus lambertiana*
- Western white pine - *Pinus monticola*
- Ponderosa pine - *Pinus ponderosa*
- Gray pine - *Pinus sabiniana*
- Douglas fir - *Pseudotsuga menziesii*
- Pacific yew - *Taxus brevifolia*
- Mountain hemlock - *Tsuga mertensiana*



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