



GATEWAY FROM HOME

Pinecone Diversity

Pine trees are closely related to some of the earliest plants on the planet! Pines and their relatives have cones that hold their seeds – not flowers, like other plants, and each pine species has its own special cones. When their seeds drop from the cones, they either sprout into new trees, or become food for birds and small mammals.

How many of these California pinecones can you recognize? Bring this guide on a hike, or collect pinecones (where allowed) to bring home and identify!

You can also use the iNaturalist app to record and identify the pinecones you find, and [turn empty pinecones into birdfeeders!](#)



Pine **needles** come in bundles called “**fascicles**.” The number of needles in each bundle is different for different pine species.



Each woody **scale** on a pinecone contains two seeds, released when the cone is mature, which can take years! Scales also often have a pokey **prickle** on the end, to help protect the developing seeds from any hungry animals before the seeds are ready.



Knobcone pine – *Pinus attenuata*

Knobcone pine trees grow mainly in the coast ranges of California. Their needles are in bundles of 3, and the cones are **3-6” long**. The cones get their names from **knobby bumps** that you can find on one side.



Western white pine – *Pinus monticola*

These trees grow throughout the Pacific Northwest and in the Sierra Nevada mountains. You can recognize it by its bark, which breaks into squares on older trees. The needles are in bundles of 5, and the **long, thin, curvey cones** grow up to **12” long**. The **cone scales are thin**, and sometimes the **curve upwards** on the ends.



Sugar pine – *Pinus lambertiana*

These are the tallest of all the pine trees, and they also have the **longest cones!** There are 5 needles in a bundle, and the **cones can reach up to almost 20”** after taking two years to mature. They grow throughout the mountains of the western North America.





Lodgepole pine – *Pinus contorta*

The lodgepole pine grows throughout the mountains of western North America. Its needles are in bundles of 2, and it has very special **small, egg-shaped cones**. These cones are *serotinous*, which means they **only open after exposure to fire**.



Whitebark pine - *Pinus albicaulis*

The whitebark pine grows throughout the higher elevations of western North America. You can recognize it by the thin white lines on the needles, grouped in bundles of 5, and the closed cones. Unlike many other pine species, these cones remain closed when they are on the tree, even once they've matured.



Foxtail pine - *Pinus balfouriana*

This special pine species is *endemic* to California, which means it only grows in this state. It is found in the California northern Coast Range, and the southern Sierra Nevada. Its needles are in bundles of 5 and curve upward. The cones are **purplish when they're young**, and grow to be **reddish-brown and 4" long**, when they produce a sappy amber substance.





Coulter pine – *Pinus coulteri*

The Coulter pine, or big-cone pine, grows mainly in southern California and has the **biggest cones** of all the pines. They reach **16” long**, and are wider than the 20” sugar pine cones. The trees are nicknamed “**widowmakers**” because of the large, dropping cones. The needles are in 6-12” long bundles of 5.



Jeffrey pine – *Pinus jeffreyi*

These trees grow mainly in California, but also extend into southern Oregon, western Nevada, and northern Mexico. The needles are in bundles of 3, and the cones reach 12”. It is nicknamed “gentle Jeffrey” because the cones are less prickly than other pines (like the Ponderosa, which looks very similar).



Bristlecone pine – *Pinus longaeva*

Bristlecone pines are some of the longest living organisms on the planet. Some trees in the Ancient Bristlecone Pine Forest are older than 4000 years! They are located in California, Nevada, and Colorado.

Their needles, in bundles of 5, cover branches that resemble bottlebrushes. The cones can reach 4” long, and the developing cones are purple with curved prickles at the ends of the scales.





Ponderosa pine – *Pinus ponderosa*

Ponderosa pine trees are well-known by the **vanilla or butterscotch scent** of their bark. These sweet-smelling trees are found throughout western North America. Their enormous trunks can reach 4' across, and they have 3 needles in a bundle. The cones are **egg-shaped**, reach **5" long**, and have a **stiff prickle** on the end of each scale.



Gray pine – *Pinus sabiniana*

The gray pine, or foothill pine, is native to California and Oregon, and grows in the California valley and foothills – lower than most other pine species. It has 3 needles in a bundle, and its large, heavy cones have big spikes on the end of each scale.



Male cones

All the other cones above are female cones that contain the seeds that will grow into new trees. Pine trees also have male cones. In these cones, each scale holds pollen, allows the seeds to form in the female cone after *wind pollination* happens. These male cones are much smaller, and are sometimes located higher on the tree than female cones.

