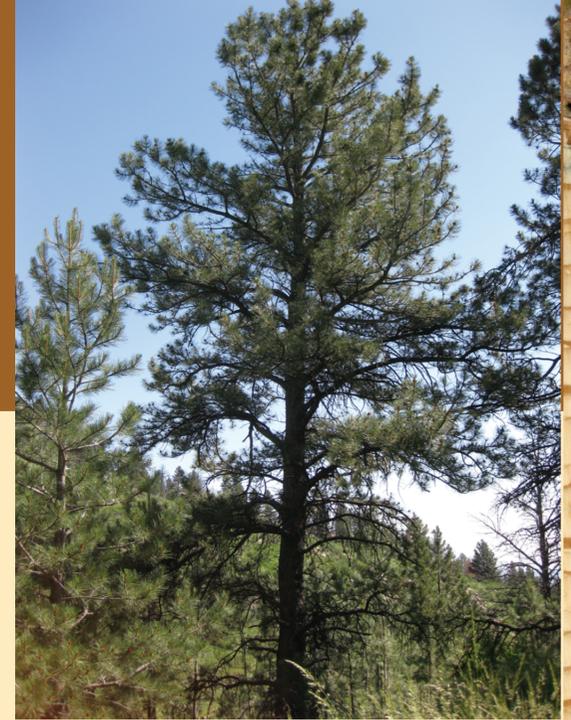


Student Science in the Park

What They are Learning

Does it hurt the trees to take cores?

Students sample trees in June; a time when Ponderosa Pines produce a lot of sap. The borer produces a 6 mm diameter hole that passes through the cambium to the tree's pith. Sap and resin quickly fill the hole within a couple of days leaving little evidence of the coring. The resin and sap seal the wound preventing insects and fungi from entering the tree. In addition, the coring tools are cleaned between uses. Each year, we revisit the previously cored trees to check their overall health. We are very confident that this study is not harming the trees.



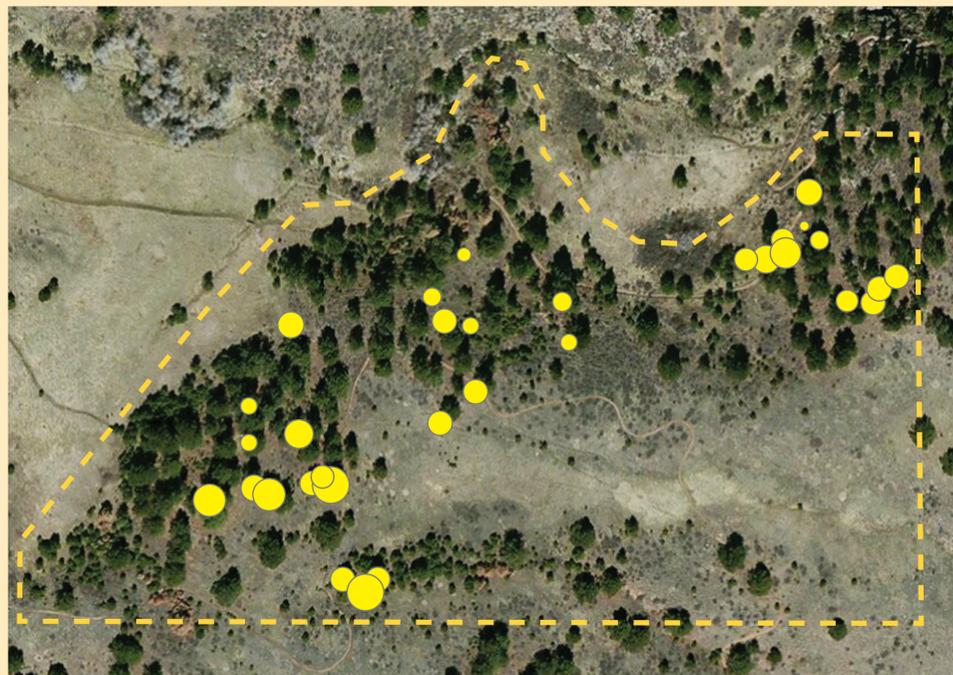
Ponderosa Pines are well-adapted to surface fire and drought

Mapping the Forest

By color coding the dots on a map with the age of the tree, we can see how the age of the forest varies depending on location. It is important to realize that the map is only useful in determining where the oldest trees are located. We do not core very young trees that have diameters of less than 20 cm.

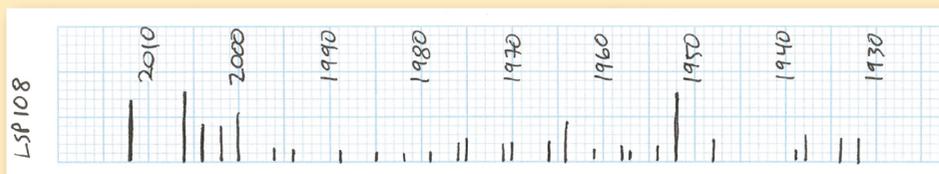
The scarcity of old trees suggests that tree density was historically much sparser than present in this area.

The oldest tree found in our study area is 170 years old and dates back to 1844!



Evidence of Drought

Water is a limiting factor for Ponderosa Pines growing along the front range. Trees growing on slopes are especially sensitive to drought conditions. The precipitation history for the location immediately around the tree is recorded in the width of the tree rings: narrow rings signify drought years and missing rings signify severe drought. Students construct 'skeleton plots' that are a quick way to identify unusually dry years. Each ring width is compared to three rings to the left and three rings to the right. If the ring in question is significantly smaller, then a line is added to the skeleton plot for that year. The long lines makes it easy to see the dry years on a skeleton plot.



Skeleton plot for core #LSP108. Longer lines represent narrow rings. This tree experienced drought in 1952, 2008, and 2012.

Fire Scars

While teaching students, dendrochronologist Laurie Huckaby discovered a stump that dates back to 1519. It looks like it was cut with a manual two-handle saw. The sap wood has eroded away, so we do not know when it was cut, but most likely during the pioneer days. Between 1531 and 1748, the stump records a fire scar every 17 years on average. This is in stark contrast to the cores that the students analyzed from more recent trees where there a few to no fire scars reflecting the public policy of fire suppression.



False Rings

In September of 1971, there was an unusually early snowfall. This event is recorded as a "false ring" where the tree began to put on latewood when it should have been still putting on earlywood.



Insect Damage

Mountain Pine Beetles and other boring insects can damage or kill a tree. Dead trees are very difficult to take core samples from and so far, the SciTrek students have been unsuccessful in sampling a dead tree. They have found evidence of past insect damage as shown here:



The Team

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