

# What fire scars tell us about the past



photo credit: Lisa Machina



Low-intensity ground fires can occasionally burn through the bark of a tree and create a scar. When the tree has an exposed scar, it is susceptible to further scarring from subsequent fires. Some old stumps and trees contain many fire scars and appear as charred ridges, as shown in the pictures above. Scientists can determine the year in which a fire occurred by studying the charred section between the growth rings.

## As you walk through the forest, can you see old stumps or trees that contain fire scars?



Fire scars reveal that this northern Arizona ponderosa pine tree experienced 34 low-severity fires over 240 years. Notice that there are no fire scars on this sample after 1869 – around the time when newly introduced livestock ate away the grasses that fueled frequent fires.

Many studies of ponderosa pine fire histories have shown that these forests historically burned every 2-20 years.

In the late 1800s, Euro-American settlement disrupted these frequent fires through heavy livestock grazing, and in later years as a result of fire suppression. Thousands of acres of southwestern ponderosa pine forest have not experienced fire since the late 1800s.

While ponderosa pine forests used to be open and park-like with large old trees, more than a century of fire suppression has led to very dense forests filled with young trees. These forests are much more vulnerable to uncharacteristically severe fires, drought, insects, and disease outbreaks.

Forest managers use tree thinning and prescribed fire as tools to restore more natural forest conditions and prevent unnaturally severe wildfires.