

Teacher's Key to Handout M17-1. A Tree's Story.

This is an example for Tree 59. For answers specific to all of the photo posters in your trunk, see the ***FireWorks Cookie Book – Low-severity Fire on the Sagehen Experimental Forest*** (in the trunk and also [here](#)).

Species: Jeffrey pine Cookie Number 59

1. How many years of history does your tree cookie cover? **1967-1742= 225 years +1 to account for both earliest & most recent rings = 226 years** (also written on poster)
2. On a separate page:
 - Sketch the outline of your tree cookie.
 - Label the sketch with the dates of the earliest and most recent growth rings.
 - Draw an arrow to each fire scar and label it with the date of the fire.
 - Calculate the number of years between each pair of fire scars. Write it in the space between each pair of arrows.
3. How many *low-severity fires* scarred your tree? **7**
4. How many *fire intervals* are recorded on your tree? **6**
5. What is the average interval between fires? **24.3 years** (If you only have 1 scar, go to the next step.)
6. Wide growth rings show years of fast tree growth, when moisture, sunlight, and nutrients were plentiful. Narrow rings show years of slow growth caused by drought, disease, injury, shading, or crowding by other trees. In what years approximately did your cookie show fast growth? **Around 1942 to 1957 (the earliest 15 years that we can see)**
In what years did it grow very slowly? **After the first fire, around 1796**
7. Were the years right after fire usually good or poor for growth? **Poor, this tree had very slow growth for most of its life**
What might be some reasons? **This answer is in general, not specific to this tree. More or less competition, damage from loss of cambium and introduction of pathogens, short-term increases in nutrient availability**
8. Did your tree record fewer fires after 1900 than before? **Yes, 5 fires occurred before the 1900s and 2 fires occurred after. However, the tree's record is also longer before 1900 (1900-1796=104) than after (1942-1900=42). Fire was slightly more frequent (mean fire interval=20 years) before 1900 than after (mean fire interval=33 years).** If so, what might be some reasons? (If your tree died before 1900, go to the next question.) **Some trees in this poster collection show far fewer fires after 1900. This may be due to fire suppression, less American Indian burning, a wetter climate, or a combination of these factors.**
9. Could a tree be damaged by lack of low-severity fire? Explain why or why not. **Yes. Competition from other trees may increase, reducing sunlight, water, and nutrients available to the tree. Ladder fuels may increase likelihood of lethal fire.**

