

## **RECENT AGE ESTIMATES OF LARGE, OLD GIANT SEQUOIA (2D)**

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They are loved for their beauty and majestic nature and admired for their great size and longevity; however, giant sequoias (*Sequoiadendron giganteum*) are still a mystery in many ways. We know that they are old- we say they have been around for centuries, even millennia. But confident estimates of age remain elusive because of sampling difficulties. We attempted to find more confident figures in seven groves across Giant Sequoia National Monument and near Whitaker's Forest by collecting core samples and refining existing age extrapolation equations. This study was done as component of another project looking at the degree to which large, old giant sequoia respond to a gradient of disturbance severity. All study trees for the release study were aged. The study area consisted of 7 groves within Giant Sequoia National Monument in two ranger districts, Hume Lake and Western Divide. Study trees selected from each grove had various measurements taken including diameter, bark thickness, and height to core. Each tree was cored one or two times with a 24" increment bore at as close to breast height as possible. Cores were allowed to dry, mounted, and sanded. Using the core data and tree data we estimated ages from 41 cores. Results showed the age range to be extremely wide- from 271 to 2458 years. In general, ages tended to vary less within grove than over the entire study area. Confidence intervals will be applied to these figures according to previous estimates that have validated the extrapolation equations. These ranges in age will go on to be used in the overall study to say with some degree of certainty the age at which giant sequoia are still releasing. These age estimates also gave insight into the visible appearance of sequoia relative to age. We found that while there may be physical differences between the very oldest and very youngest sequoias (i.e. a thousand years difference) in general it is very difficult to use physical appearance or tree size as an indicator of age. The figures generated from this study are still only rough estimates, which will always be limited by sampling difficulty in these very large trees. But given a 2000 year old tree, an age estimate that is 2 centuries off is still within 10% and can be critical information for further research and management related to giant sequoia that incorporate the time scales over which they persist.

Key words: Giant sequoia, age estimation