



**CALIFORNIA STATE SCIENCE FAIR  
2014 PROJECT SUMMARY**

<b>Name(s)</b> <b>Hunter D. Davis</b>	<b>Project Number</b> <b>J1904</b>
<b>Project Title</b> <b>Give Me Room to Grow: How Spacing Affects Tree Growth</b>	
<b>Abstract</b> <b>Objectives/Goals</b> People seem to like big trees. On public lands people like to see big trees in the forest; while on private lands, the owners want to see their trees get bigger faster so they can harvest them. My science fair project last year looked at how precipitation effected diameter growth of trees. This year I went another step farther to see how spacing effected the diameter growth. My hypothesis is that a tree's diameter growth will decrease if there are a lot of trees tightly spaced together in an area because they will have smaller crowns and there will be less sunlight reaching the crowns. <b>Methods/Materials</b> I established 12 random 1/50 acre plots in Douglas-fir and ponderosa pine stands. On each plot I measured the diameter of each tree using a diameter tape and recorded the species of each tree. I bored sample trees to determine the age of the stand. <b>Results</b> More trees equal less growth. I found on the plots I measured that the trees with smaller diameters were in tightly spaced stands. As the trees per acre decreased the trees diameter increased. In the plots averaging less than 200 trees per acre the average diameter was 14.3 inches. Plots with 200-300 trees per acre the average diameter was 11.5 inches. In plots with 300 or more trees per acre the average diameter was 8.8 inches. <b>Conclusions/Discussion</b> I found that fewer trees per acre results in bigger diameters and the more trees per acre results in smaller diameters. The trees with space between them do not have to compete for sunlight. While the bottom branches on the trees with no space are competing to get sunlight.  My hypothesis that a tree's diameter growth will decrease if there are a lot of tightly spaced trees in an area because they will have smaller crowns and there is less sunlight the crowns was proven correct.  This project would help me if I was planting trees, and I wanted them to have a bigger diameter, I would know to spread the trees farther apart from each other. In stands with older or larger trees I also now know that if some of the trees are removed, it will allow the remaining trees to grow to a larger diameter faster.  Last year my project was to find if rainfall effected the diameter growth of trees. I found that the wet years did not have much of an effect while the dry years did have a small affect. Based on the results from my	
<b>Summary Statement</b> My project is about how spacing effects the diameter growth of trees.	
<b>Help Received</b> My father helped me with the data collection and analysis and my mother helped me with the backboard.	