



**CALIFORNIA STATE SCIENCE FAIR
2015 PROJECT SUMMARY**

Name(s) Samuel B. Kahn	Project Number J1112
Project Title New Growth in Coastal Sage Scrub Habitat: Comparing Burned vs. Unburned Areas	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals My project was to determine if more or fewer seedlings would grow in Coastal Sage Scrub habitat that had burned, versus areas that did not burn, and also to see if different species would grow. I plan to do my project for several years at Mission Trails Regional Park in San Diego, CA.</p> <p>Methods/Materials I used transects (lines on the ground) and quadrats (sampling areas) to investigate seedling growth in a burned and an unburned area. My transect line was 8 meters long, and each quadrat was 1 meter by 1 meter in size. I put them at the same place each time along the transect line. I went to take data once a month. I counted the number of seedlings (some seedlings were so numerous I had to estimate them), estimated the percent cover, and tried to determine the species of the seedlings in each quadrat. I also planted native seeds of my own in burned and unburned soil, to determine if there was a difference in germination.</p> <p>Results Four months after the fire there were only 71 seedlings in the burned transect, and about 950 in the unburned. Eight months after the fire, the number of seedlings in the unburned area went down to around 600, while the burned area had 112. The percent cover of new growth in the unburned area was also higher than the burned early on, though it was almost equal between the two 8 months after the fire because the plants in the burn were bigger. I was able to identify some but not all of the plants, and I saw differences between the two areas. In the burned area I saw non-natives like Black Mustard and Indian Sweetclover that were not in the unburned transect. I saw some natives in the burn area too, like Sun Cups, Artemisia, and Laurel Sumac. The unburned area had natives like Buckwheat, Artemisia, and Yarrow. The results of seed planting in different soils were inconclusive, as too few seeds germinated. I plan to do another study in the near future with a more diverse selection of seeds.</p> <p>Conclusions/Discussion My study is important for learning how Coast Sage Scrub recovers from fire, which is useful since it is an endangered habitat. My results show that fire can affect the number and type of seedlings that grow in this habitat following a burn. There were more seedlings overall in the unburned area, and fewer non-natives like Black Mustard and Indian Sweetclover. I plan to continue this study so I can see how the types of plants that grow in the different areas change over time.</p>	
Summary Statement My project investigated seedling growth in Coastal Sage Scrub following a fire, which I did by comparing burned and unburned areas.	
Help Received Ranger Chris Axtmann gave me access and helped me set up my study, my mom drove me, helped me to take data and photographs, and to make my graphs, Ranger Heidi Gutknect, Bruce Hanson, and Kyle Ince helped with seedling identification, and S&S seeds gave seeds for a new seed planting study.	