



**CALIFORNIA STATE SCIENCE FAIR  
2015 PROJECT SUMMARY**

<b>Name(s)</b> <b>Hannah M. Crousore</b>	<b>Project Number</b> <b>J1106</b>
<b>Project Title</b> <b>Investigating Lichen Recovery in the Burned Coastal Sage Scrub Community</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> I chose to study the effects of the May 2014 fires on the lichen of the Coastal Sage Scrub Community in Northern San Diego County. Lichens are sensitive to air quality. I wanted to find out if there was a specific species of lichen that resurfaced most quickly after a fire, as well as which lichen species had survived the fire, if any. I also wanted to see if there was a difference in the population of lichen in relation to proximity to the burned area. The fires personally affected me, and it was a great concern of mine to determine which lichen species remained.</p> <p><b>Methods/Materials</b> Each time I encountered lichen, I filled out a lichen log form which I created documenting the air temperature and humidity measurements, weather of that day, soil pH, lumens, and moisture levels, the distance to the nearest roadway or highway, the distance to the burned area, the width, color, and texture of the lichen thallus, the surface on which the lichen was encountered, and the common and scientific name of the lichen that I found.</p> <p><b>Results</b> At the first burned area, I found two sample of crustose lichen, one sample of foliose lichen, and one uncategorized sample of lichen. At the second location, I found six samples of crustose, five samples of foliose, and one uncategorized sample of lichen. At the third trail, I found twelve samples of crustose and three samples of foliose. At the final location, a restricted burned area to which I got access, I encountered five samples of crustose lichen and one uncategorized sample of lichen. 94.6% of the lichen that I documented were found on tree bark, and only 5.4% of lichen were found on the ground. 67.6% of the lichens that I encountered were crustose, 24.3% of the lichens were foliose, 0% of the lichen were fruticose, and 8.1% of the lichens observed were uncategorized. As a control, I had observed two of these regions for lichen before the fire.</p> <p><b>Conclusions/Discussion</b> Comparing this year to my control studies of the same areas, twelve species of lichen could no longer be found and five species reappeared. The most common lichen now were Common Greenshield (Flavoparmelia caperata), Fluffy Dust Lichen (Lepraria lobificans), and Common Goldspeck Lichen (Candelariella vitellina).</p>	
<b>Summary Statement</b> My project studied the effects of the May 2014 Southern California fires on lichen of the Coastal Sage Scrub Community.	
<b>Help Received</b> Access to burned areas was granted by the City of Carlsbad.	