



# CALIFORNIA SCIENCE & ENGINEERING FAIR 2018 PROJECT SUMMARY

<b>Name(s)</b> <b>Pascale C.H. Fung</b>	<b>Project Number</b> <b>J1110</b>
<b>Project Title</b> <b>Comparing Plant Populations in Restored vs. Disturbed Areas at San Elijo Lagoon</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> Many plants native to the Coastal Sage Scrub plant community are being crowded out by invasive plant species that compete for space, nutrients and water. In Encinitas, the San Elijo Lagoon Conservancy is working on restoration projects to reduce the growth of invasive plants and to restore disturbed lands by planting native species. The goal of my project was to document and compare the plant populations in the restored versus disturbed areas of the San Elijo Lagoon reserve. I believed that certain invasive species might still grow in restored areas and that certain native plants might still be able to thrive within disturbed lands.</p> <p><b>Methods/Materials</b> I documented and analyzed over 150 plant samples. For my field tests, I visited the San Elijo Lagoon reserve multiple times over a three-month period from November 2017 through February 2018. I evaluated 23 quadrats and 21 transects at multiple locations near the Santa Carina Trail to document the plant species that were predominant throughout the restored versus disturbed areas. I used a meter tape to make transects of 15 meters and documented each plant in increments of 5 meters. I used a 0.5 m by 0.5 m quadrat that I divided into four sections to estimate plant percent coverage. I then computed and compared the average percentages of invasive versus native plant species that were present in the restoration area versus the disturbed lands.</p> <p><b>Results</b> Surprisingly, but happily, my results revealed no invasive plants in the six-year restoration area of the San Elijo Lagoon reserve. The most predominant natives were the California Sagebrush and Black Sage, each representing more than 25% of the plants documented there. However, in the disturbed land, three-fourths of the plants were invasive species, about half Black Mustard and the rest mostly Slender Oat. Native species comprised only a fourth of the total plants found in the disturbed lands, including only three species, Lemonade Berry, White Sage, and most predominantly California Sagebrush, which represented over 75% of the native plants documented there.</p> <p><b>Conclusions/Discussion</b> The results of my project suggest that the San Elijo Lagoon Conservancy is successful in its efforts to stop the growth of invasive plant species through rehabilitation, and indeed at least some native species, especially California Sagebrush, continue to thrive within disturbed areas of the San Elijo Lagoon reserve. 2380 characters</p>	
<b>Summary Statement</b> The goal of my project was to document and compare plant populations in restored versus restored areas of the San Elijo Lagoon reserve.	
<b>Help Received</b> My science teacher lent me some supplies. The San Elijo Lagoon Conservancy showed me how to evaluate transects and quadrats. My parents drove me to the field site. I performed the field tests independently and analyzed the results myself.	