



# CALIFORNIA SCIENCE & ENGINEERING FAIR 2019 PROJECT SUMMARY

<b>Name(s)</b> <b>Ruby Howard; Katherine McCormick; Helen Leslie Schafer-Dews</b>	<b>Project Number</b> <b>S0911</b>
<b>Project Title</b> <b>Soil Water Content Relative to French Broom Removal in the San Lorenzo Valley Watershed</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives</b> Our goal is to better understand the unique ecosystem that is the Santa Cruz sandhills and how they are impacted by invasive species. We hypothesize that there will be more soil water in areas where French broom has been removed.</p> <p><b>Methods</b> We compared soil moisture in three treatments: French broom standing, French broom removed, and no French broom invasion. Each treatment contained two to three soil moisture sensors. We used data loggers to record the soil moisture sensor signals. We made custom rain gauges to measure rainfall both under the cover of the trees and in the open to determine throughfall. We also compared soil texture (% sand, silt, and clay) to determine whether it could have affected soil water content. Results: Our data show that the treatments with French broom removed had the highest soil water content, intact French broom had the second highest, and finally, the area where French broom never lived had the least moisture in the soil.</p> <p><b>Results</b> Our results showed that the areas with broom removed had the highest soil moisture content, then the areas with broom, and finally the areas where broom was never present. This leads to the conclusion French broom has a large effect on the moisture reaching other species in the sandhills. Since French broom is an invasive species the removal of broom, that was tested as one of our treatments, will benefit the ecosystem in the sandhills by providing more soil moisture.</p>	
<b>Summary Statement</b> We tested the soil moisture for three different treatments relative to the growth of French broom in the Santa Cruz sandhills.	
<b>Help Received</b> Micheal Loik was instrumental in helping us resource and implement our sensors as well as recording and analyzing the data.	