



**CALIFORNIA STATE SCIENCE FAIR  
2011 PROJECT SUMMARY**

<b>Name(s)</b> <b>Triston Pigg; Owen Reiss</b>	<b>Project Number</b> <b>J1123</b>
<b>Project Title</b> <b>Effects of Native Dune Flora on Mammalian Diversity</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> Our objective is to determine whether abundance of native floral species, and/or floral diversity (Simpson's diversity index), has a significant correlation with mammal signs (tracks, burrows, etc.) per square meter.</p> <p><b>Methods/Materials</b> Three six by twelve meter plots were flagged at three sample sites on three different beaches, ranging in native species dominance, determined by conducting preliminary surveys. Six randomly-selected quadrats (meter square plot divisions) were surveyed for floral basal coverage as well as quantity; the entire plot was surveyed for mammal signs using a mammal field guide.</p> <p><b>Results</b> Native species abundance had a significant negative correlation with mammal signs per square meter. Overall plot basal coverage had a significant positive correlation with mammal sign quantity.</p> <p><b>Conclusions/Discussion</b> Our conclusion is that mammal species, esp. small mice-like mammals, need high grasses (e.g. <i>Ammophila arenaria</i>) to survive; these high grasses are often invasive, accounting for the positive correlation between invasive species abundance and mammal sign quantity. Without adequate shelter, the large population of small mammals are hunted by larger predators (e.g. birds), reducing the population of mammals.</p>	
<b>Summary Statement</b> We investigated dune habitats to see if native (vs. introduced) plants affected mammal populations.	
<b>Help Received</b> Dad lent me an ecology textbook; Parents drove us around to beaches	