



**CALIFORNIA STATE SCIENCE FAIR
2011 PROJECT SUMMARY**

Name(s) Christine Chen	Project Number S2201
Project Title Assessing Polioptila californica Population In Differing Artemisia californica Habitats	
Abstract Objectives/Goals This purpose of this project was to study the bird population in varying habitats. Specifically, this project assesses the population of Polioptila californica (California gnatcatcher) in a sub-optimal newly restored Artemisia californica (California sagebrush) habitat versus that of a mature Artemisia californica habitat. I hypothesized that California gnatcatcher population would be greater in a mature California sagebrush habitat compared to a newly restored, California sagebrush habitat. Methods/Materials To test my hypothesis I conducted bird surveys, in which I counted the number of birds at a two different reserves in Palos Verdes, CA; the mature habitat, Vincente Bluffs reserve and the newly restored habitat, Three Sisters reserve. These surveys were conducted between October 2010 and February 2011. All the surveys at each site were conducted at two stations in the morning, and exactly 10 minutes long, where all visible, and audible birds were counted and recorded. During each survey at both locations, only birds within a 75 meter radius of the station were recorded down during each 10 minute interval. I also collected measurements of the California sagebrush at both sites to assess the optimization of each habitat. Since the bird and plant data collected had a non-normal distribution, I used a Mann-Whitney rank sum test to statistically compare the maturity of both reserves, and California gnatcatcher population at both reserves Results From the Mann-Whitney rank sum test conducted, for both the California gnatcatcher and the California sagebrush data sets, the median values between the two reserves for both sets of data was greater than would be expected by chance and therefore has a significant statistical difference ($P < 0.001$) This statistical result demonstrates that the Vincente Bluffs reserve is more mature than the Three Sisters reserve. The results also represent that the California gnatcatcher population is significantly higher at the Vincente Bluffs preserve (mature habitat). Conclusions/Discussion Both parts of the statistical analysis prove my hypothesis that the population of California gnatcatcher population is greater in a mature California sagebrush habitat in comparison to a newly restored, California sagebrush habitat. These results also demonstrate the importance of restoration efforts of the California sagebrush habitat as they are vital for the California gnatcatcher population.	
Summary Statement The purpose of the project is to assess Polioptila californica (California Gnatcatcher) population in varying Artemisia californica (California Sagebrush) habitats	
Help Received Conducted research at land reserves created by the Palos Verdes Peninsula Land Conservancy and Ann Dalkey of the conservancy mentored me	