CALIFORNIA STATE SCIENCE FAIR
2017 PROJECT SUMMARY

Name(s)

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Project Number

J2323

Project Title

Examining the Botanical Composition of Coastal California Gnatcatcher Habitats in Local Lagoons

Abstract

Objectives/Goals

The California Gnatcatchers# fluctuating endangerment status is a reflection of gains and losses in the struggle to save this iconic California bird from the edge of extinction. In my project, I sought to understand more deeply the specific botanical composition of this songbird#s habitat, so that I might be able to know why the California Gnatcatcher makes this at-risk plant community its home. I hypothesized that the Gnatcatcher has a preference for areas of dense, low growing shrub where it can search for berries and insects while being protected from predators. I hypothesized this habitat would consist of Coastal Sage, California Sagebrush, Laurel Sumac, Lemonade Berry, Black Sage, and Cleveland Sage due to being aromatic, dense and low-growing.

Methods/Materials

I visited eight trails at the San Elijo and San Dieguito Lagoons. I observed and documented sightings of California Gnatcatchers. I recorded weather conditions including air temperature, wind speed, and humidity. I also recorded the other birds I observed while in the field. Each time I observed the California Gnatcatcher, I documented the plants that grew within a five-meter radius.

Results

I documented Coastal Sagebrush (Artemisia californica) within the 5-meter radius at 77% of the observations, Deerweed (Acmispon glaber) 72% of the time and Cleveland Sage (Salvia clevelandii) 61% of the time. I observed California Brickellbush within a 5-meter radius at 55% of the sites, Black Sage at 50%, Lemonade Berry at 44%, and Goldenbush at 44% of the sites. I also gathered data about where the California Gnatcatchers perched. I found that 33% of the time, the California Gnatcatcher perched in Laurel Sumac (Malosma laurina). I encountered the Gnatcatcher in Coastal Sagebrush 22% of the time and Black Sage (Salvia mellifera) 11% of the time.

Conclusions/Discussion

I have learned that the birds naturally favor a microhabitat consisting of dense shrubs such as Coastal Sagebrush and Deerweed and taller plants such as Laurel Sumac. These particular plants seem to be key components of the California Gnatcatcher habitat because they offer food opportunities, shelter and protection from predators. It appears the endangered California Gnatcatcher favors habitats within the Coastal Sage Scrub Plant Community that foster dense, native scrub, where they are able to forage and perch undisturbed.

Summary Statement

In my project, I documented perching sites and habitat composition of the Coastal California Gnatcatcher in its native Coastal Sage Scrub habitat.

Help Received

My science teacher provided me with some materials such an anemometer and a hygro-thermometer. I emailed Robert Patton, a biologist who has studied the Coastal California Gnatcatcher, and discussed the birds' habits while researching for my project.