

Honors Post-Enrichment Report

Researching Song Sparrows on the Channel Islands



Fig 1: View from the top of a ridge on Santa Cruz Island

This past Spring Break I had the incredible opportunity to travel to the Channel Islands in California to observe and collect data from song sparrows on the islands. My research journey began early my freshman year. Since then, I have been working with a graduate student who is studying morphological and physiological differences in song sparrows living across a climate gradient. Last year I started my own project under that general topic. My specific focus is how variations in climate influence feather morphology in song sparrows. The Channel Islands are the perfect location to examine the influence of climate because they fall on a distinct climate gradient. There are three main islands that my lab collects data on—Santa Cruz, Santa Rosa, and San Miguel. Santa Cruz is the closest to the California coast and has the warmest and driest climate. San Miguel, on the other hand, is farther from the mainland and is the wettest and windiest. The climate on Santa Rosa falls as an intermediate between the two extremes and can be used as a point of comparison. The overarching goal of the research being conducted for these projects is to successfully reintroduce song sparrows to Santa Barbara Island, another of the Channel Islands, where song sparrows were extirpated decades ago. The birds are species of Special Concern, so in order to determine a reintroduction program there must be significant research done first.

The majority of my research occurs in the lab measuring feathers collected over past field seasons. This Spring Break research trip allowed me to travel to California and observe the sparrows that I am studying in their native habitat. I only had time to go to Santa Cruz, but now I have a much better idea of the ecosystem the sparrows live in. The island is very unique and isolated. The only vehicles are those used by the small research teams on the island. There is a small field station and a few cabins for researchers. Other parts of the island are owned by the National Parks Service and the US Navy. There is no cell signal and Wi-Fi is only available at the field station.

While on the island, I worked with two graduate student teams—one studying song sparrows and the other studying island scrub jays. I spent the days hiking around the island and



Figure 2: The Central Valley on Santa Cruz where I collected most of my behavioral observations.

recording behavior observations of song sparrows. I would detail their location, activity, and a physical description. Additionally, I would record the temperature, weather, and any other important notes. This information was used to supplement my lab work examining feather barb and barbule density, as well as the proportion of different structures within the feather itself. During the evenings, I would go out with the song sparrow research team and help catch birds in mist nets which were then banded, measured,

and had blood and feathers taken for future lab analysis. We then conducted physiological experiments with the birds overnight and released them early the next morning.

This experience was my first time doing field work and I gained a much better appreciation for what goes on out in the field prior the lab work and data analysis. It was unique being on Santa Cruz because it is very remote so I felt fully immersed in the environment. I got to observe the birds without human involvement and see how they interacted with other species in the area. Having the opportunity to be involved in field work was something I had been interested in since I started my research. I am considering the pursuit of a graduate degree and this experience let me get a glimpse of a key part of engaging in research in the field of animal biology. I now have a better understanding of the system I am studying and have found more inspiration to continue researching feather morphology changes related to climate.