CALIFORNIA SCIENCE & ENGINEERING FAIR
2018 PROJECT SUMMARY

Name(s)

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Project Number

38399

Project Title

How Does Tidal Wetland Restoration in the Humboldt Bay Area Affect Bird Diversity and Occurrence?

Abstract

Objectives/Goals

Northern California#s Humboldt Bay tidal marshlands represent a sensitive environment damaged by extensive urbanization, diking, and other human practices. The objective of this project was to analyze how different approaches to restoration of tidal sloughs around the bay affected the occurrence birds which utilize that habitat.

Methods/Materials

Five different locations around the bay which represented varying levels of restoration were chosen and surveyed with an observation-based protocol, which involved travelling a distance of 0.5 kilometers while recording all species observed. Behaviors and locations were noted when applicable to increase accuracy of data.

Results

Results were complex but overall the most varied wetland habitat containing both mudflats and tidal sloughs attracted the most diversity in birds. Drier land created by diking attracted many insectivorous species but did not provide suitable habitat for wetland species. Where previous salt marsh environment had undergone construction and urbanization, very few native species were present, and were replaced by invasive Eurasian species.

Conclusions/Discussion

These results indicate what types of restoration may be most effective at restoring suitable habitat for bird species in the Humboldt Bay region. Reintroduction of tidal sloughs as well as salt marsh to previously drained land provides for the most diversity in native bird species. Damage to wetland environments in the forms of cattle-grazing and urbanization lowers diversity and negatively impact marshland bird species. This study could provide insight into how restoration of coastal Californian wetland can be targeted to benefit endangered avian species.

Summary Statement

This project studied what occurrence of bird species can indicate about damage and restoration of tidal wetlands.

Help Received

I received help from a member of the U.S. Fish and Wildlife when drawing conclusions about which species to prioritize, and was advised throughout the process by my natural history teacher. Otherwise I conducted this project independently.