



Colorado Science and Engineering Fair

2025 Individual Project Abstract Form

Please print 2 copies of the completed form. Sign both copies, keep 1 for your notebook and submit 1 copy to your Regional Fair Director with your other paperwork.

Title of Project: The Effect of Fire Mitigation on Avian Biodiversity as Measured through Bioacoustics

Finalist's Name: Lauren Erickson

School and City: Evergreen Senior High School, Evergreen

Sponsor's Name: Stephanie Seevers

Category: Earth & Environmental Sciences

Division: Senior (grades 9 - 12)

Abstract (250 words or less):

My project focused on the effect of fire mitigation on avian biodiversity as measured through bioacoustics, to ultimately understand forest health. It was inspired by the controversy that occurred after mitigation was done to Alderfer/Three Sisters Open Space (near my high school). To understand this effect, I recorded bird calls with two Song Meter Micro 2 Devices, and analyzed this data using Raven Lite software. One recording device was placed in a location that had been mitigated, while the other was placed in a location that had not (both within the Jefferson County Open Space Alderfer/Three Sisters). I recorded in eight total locations (four mitigated and four non mitigated). I recorded from one hour before sunrise to two hours after sunrise, and analyzed a one minute sample from each ten minute segment (meaning 18 recordings a day). I found species richness by tracking the number of different species I heard in each sample, and then calculated Shannon diversity (which combines species richness and species evenness). I also used a t-test to understand the significance of my results. These results showed that there was no statistically significant difference in avian biodiversity between mitigated and non mitigated locations, meaning that fire mitigation does not have a positive or negative impact on forest health.

I hereby certify that the above statements are correct and the information provided in the Abstract is the result of one year's research. I also attest that the above properly reflects my own work.

Finalist's Signature:

Date:

In addition, all students must complete the ISEF Student Checklist (1A), Research Plan, Approval Form (1B), and Checklist for Adult Sponsor (1), and any other ISEF forms required for this type of project. See the International Rules and Guidelines for form requirements. Return COPIES of all of these forms to your Regional Fair Director with you Finalist Verification/Permission Form. **A signed copy of this form must be included in your notebook.**