



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: Differences in Floral Quality and Ecosystem Health Between Burn Areas and Logged Clear Cuts

Finalist's Name: Laila Waldron

School and City: Nederland Highschool, Nederland

Sponsor's Name: Rea Orthner

Category: Plant Sciences

Division: Senior (grades 9 - 12)

Abstract (250 words or less):

This study aims to assess the health of Colorado's Upper Montane forests in burn areas and clear-cuts. This study will assess forest health in the Nederland region of Colorado between 8,000 and 9,000 feet in elevation. This study will compare vegetative cover, floristic quality, and the proportion of a site that is dominated by nonnative plant species. 5 randomly placed transects will be made in each treatment type. Along these transects 1) the Point intercept sampling method and 2) the species richness assessment will be performed.. The Man-Whitney t-test will be used to compare data between treatments, and the Floristic Quality Assessment Mean C-all will be used to assess differences in health between treatments. The results of the study revealed there were no significant differences in vegetative cover, number/percent coverage of native species, number/percent coverage of nonnative species, and Mean C-all values. There were significant differences in the percentage of cover in parameters such as bare soil, fallen dead, and litter. Burn areas had more bare soil and fallen dead while clear-cuts had more litter. These findings should not be used to make assertive conclusions on Colorado's upper montane forest health. The lack of difference in floristic quality and vegetative cover may suggest that local forest service managers are using forestry practices that are not negatively impacting the region's resilience and health. In future studies, more data from a diverse region of sites is needed to support this conclusion.

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.**