The Effect of Wildfire Mitigation on Avian Biodiversity as Measured Through Bioacoustics

Erickson, Lauren (School: Evergreen Senior High School)

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.

Awards Won: