

Delaney Yehle, Dana Coe & Loren Rylander

*Assessing Goat Browsing as a Form of Wildfire Mitigation and Its Environmental Impacts*

The purpose of our investigation was to assess the efficacy of goat browsing as a wildfire mitigation tool and its environmental effects. We hypothesized that goat browsing would be an effective wildfire mitigation tool while increasing soil health and plant biodiversity. The experiment was conducted in Castle Pines, Colorado. Measurements were collected both pre and post goat treatment over six months. A total of 300 goats browsed the two experimental transects, while the control transect received no goat treatment. We measured soil health, biodiversity, and goat browsing efficacy. The data collected partially supports our hypothesis. To assess soil health, we measured nitrogen, phosphorus, potassium, pH, and organic matter. Nitrogen and soil organic matter both increased with treatment an average of 70 lb A/6 and 0.31% SOM respectively as compared to the control, while phosphorus, potassium, and pH, stayed consistent throughout all three transects. To assess biodiversity levels, we measured the number of plant and insect species, and the dominant species percentage along the transects and saw a decrease within the treatments and control. To assess wildfire mitigation efficacy, plant height to browsing was measured and showed a decrease an average of 14.8 m with goat browsing. These findings support goat browsing as a potential effective and environmentally friendly tool for wildfire mitigation and a promising start to a longitudinal study.