

# RANCH MANAGEMENT

## ARCHULETA COUNTY, COLORADO

### INTERNSHIP GOALS

- 1) Learn day-to-day aspects of ranch operations.
- 2) Assess natural resource issues and develop solutions.
- 3) Gain awareness of management limitations.
- 4) Understand stakeholder values and how they affect management decisions.

### WHAT YOU DID

**Weed Management-** I was responsible for weekly weed management. This primarily consisted of spraying herbicide on infested areas, with the main targeted species being thistle and mullein.

**Irrigation-** Pastures and hayfields were flood irrigated, and I was responsible for proper water management on a rotating schedule.

**Day-to-day Maintenance-** Maintenance ranged widely and consisted of: clearing roads of debris, fixing fence, servicing culverts, maintaining irrigation ditches and waterways, etc.

**Hospitality-** Keeping the ranch facilities in pristine condition and providing any necessary service was essential for meeting owner expectations.

### HOW DOES THIS APPLY TO YOUR EDUCATION

As a student pursuing a Natural Resource Management degree, the ability to take aspects learned in the classroom and apply them to a real world environment was extremely valuable. Seeing natural resource problems first hand and having a part in providing the adaptive management solutions to address them emphasizes the value of having a balanced and well rounded education.

### PROJECT OVERVIEW

Aspen regeneration in the west has become a topic of some concern, with herbivory from ungulates as a probable driving force. To investigate this theory, I performed a study that tested herbivory impacts on young aspen and compared these impacts between a medium aged forest and a spruce salvage cut. Using belt transects and taking measurements from aspen stems, I was able to calculate the percentage of stems being browsed, and the density of stems throughout the two test areas (the results can be found in Table 1. below). I found that herbivory in the previous two years in both test areas were nearly identical in terms of the percent of stems being browsed, but herbivory percentages were vastly different through August of 2020. Based on the previous years results, this can likely be explained by the fact that ungulates will continue to browse throughout the coming months. When looking at stem density, stems per hectare numbers were far greater in the medium aged forest. Though these results did show some differences in the impacts of ungulate browsing on young aspen, further testing on a larger scale would be highly beneficial to gain a deeper understanding into this question.

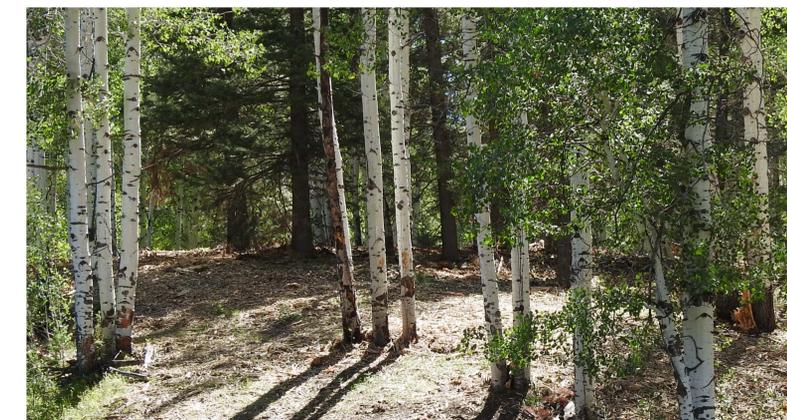
TABLE 1.

Spruce Cut Transect 1		Spruce Cut Transect 2	
avg height	12.3571429	avg height	15.5555556
st dev	5.63880903	st dev	5.33647706
live stems	42	live stems	54
live per ha	840	live per ha	1800
b 2020	93%	b 2020	93%
b 2018-19	100%	b 2018-19	100%
Forest Transect 1		Forest Transect 2	
avg height	17.2058824	avg height	13.7272727
st dev	6.8701348	st dev	7.04127442
live stems	34	live stems	33
live per ha	1511	live per ha	2200
b 2020	66%	b 2020	36%
b 2018-19	100%	b 2018-19	100%

### WHAT YOU LEARNED

This internship was a great learning opportunity that only increased my desire to pursue a career in ranch management. The role that private lands play in the conservation of natural resources is far greater than I had previously understood, and it is pivotal that we use the right adaptive management tools to maintain them. Throughout this experience, I learned the many tools a manager can use in order to benefit the land. One of the most interesting things that I was able to participate in was the forestry for fire mitigation operations. Using fire models to determine areas of increased risk and using that information to make informed decisions for thinning operations (Figure 1.) was a lesson in how the advancement of science and technology is benefiting the land. I look forward to learning more about the management tools and techniques available to land managers as I continue my education.

FIGURE 1.



### NEXT STEPS

I plan to continue my education by enrolling in CSU's Master of Natural Resources Stewardship Program. It is my goal to pursue a career in ranch management and I believe that a balance of education and hands on experience will get me there.