

ADAPTIVE MANAGEMENT PLANNING AND IMPLEMENTATION ON ROBERTS RANCH LARIMER COUNTY

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PROJECT BACKGROUND

Roberts Ranch is a 16,931-acre ranch located in Larimer County, Colorado. Robert O. Roberts founded the original homestead in 1874. The land is now held in a foundation trust, and a conservation easement ensures that the land remains in agricultural use in perpetuity.

For many years, cattle were grazed continuously on the ranch, meaning that they grazed in an unrestricted manner with no time for recovery of forage plant species. In 2021, management began implementing regenerative grazing strategies and contracted a rangeland monitoring company to document trends in ecological health indicators such as soil cover, plant diversity, and biomass. The goal of the change is to improve the health of the land and thus reap the social, ecological and economic benefits of conscientious land use.

The Roberts Ranch internship was conceived in order to assist the grazing manager, Abe Ott, in creating and implementing the 2022 grazing plan and allow the intern to learn about ranching, rotational grazing, animal management, and rangeland ecology.



View from the highest point on Roberts Ranch

INTERNSHIP GOALS

- Understand primary factors that contribute to decision-making when grazing beef cattle
- Learn to develop and implement a rotational grazing plan
- Increase knowledge of rangeland ecology, especially in the areas of accurate identification of flora and fauna and indicators of rangeland health
- Engage with people in the ranching community and consider rancher perspectives on animal health management and sustainable grazing
- Develop low-stress stockmanship skills
- Get hands-on experience moving cattle, building permanent and temporary (electric) fences and estimating the quantity of forage available in pastures

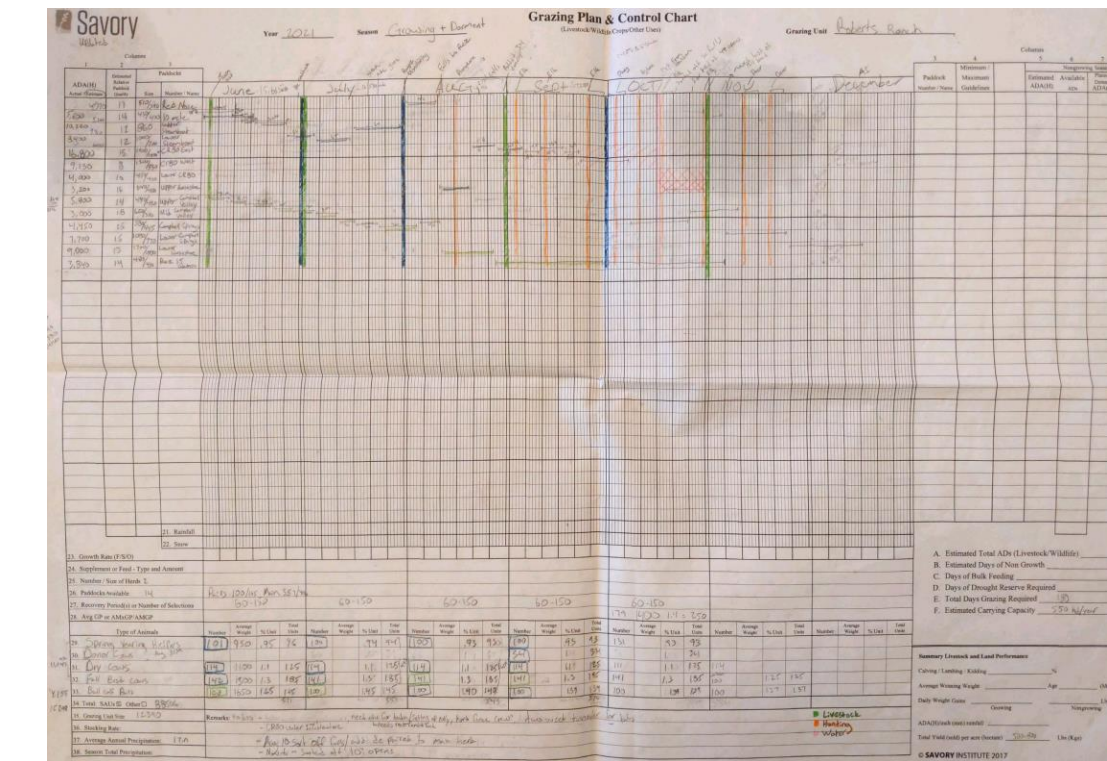
APPLICATION

As a student of veterinary medicine interested in mixed animal practice and population health, part of my job will be to assist clients in making animal management decisions that will keep their animals healthy and their business profitable. Good relationships and intentional communication are cornerstones of effective veterinary preventive medicine.

Understanding grazing and rangeland management gives me broader perspective on the beef cow-calf business. This, along with an understanding of rancher perspectives will facilitate important conversations about animal health.

INTERNSHIP ACTIVITIES

Grazing planning – Before animals were turned out on Roberts Ranch in May, I began learning how to create a grazing plan. Each pasture that the animals would be grazed in had to be assessed. Acreage and forage estimation are important metrics that help ranchers determine how long the herd should spend in a given area. Right: 2021 grazing chart, courtesy of Abe Ott.



Grazing management – After cattle were turned out, the primary activity became building temporary pastures for two separate herds of cow-calf pairs and one herd of yearling bulls. Pastures were constructed with a combination of electric fence and barbed wire. The electric fence had to be newly set up for each pasture, while the barbed wire fencing was originally built up to 80 years ago and required repair in many places. Along with the ins and outs of setting up fence, I learned how to use animal behavior and features of the geography such as ridgelines and gullies to reduce the length of fence that had to be erected and help prevent animals from escaping the pasture. Working strategically to reduce the labor required was imperative.



Moving cattle to a new pasture.

Moving animals – Adaptive grazing requires that animals be moved whenever the goal percent-utilization of forage has been reached. This occurs more often if the animals are in small pastures. I moved cattle on foot and on a 4-wheeler, using low-stress animal handling methods. Ideally, the animals are moved when temperatures are cool and simple body language/positioning is used to show the cattle where they should go.

Rancher perspectives – Throughout the summer, I was able to connect with many in the ranching community and ask them about their perspectives on veterinarian-client relationships, methods of disease prevention for their animals and regenerative grazing.

Rangeland ecology – Throughout the summer, my mentor took opportunities to teach me about important species on Roberts Ranch. I learned about poisonous plants, the nutritional content and seasonality of dominant forages, wildlife, and the important ecological niche that dung beetles fill.



Roberts Ranch is home to many grassland bird species including vesper sparrows, which nest on the ground (*Pooecetes gramineus*).



Larkspur (*Delphinium* spp.) is most toxic before it flowers, and is highly palatable to cattle.

Blue grama (*Bouteloua gracilis*) is the most abundant grass species on Roberts Ranch.

GRAZING EXAMPLES



Left: This image shows an undergrazed area. The pasture has excessive standing dead grass and limited new growth. Bunching grasses exhibit frequent “hollow crowns”, which may be associated with reduced vigor. There is no manure to replenish soil nutrients, and biodiversity may be affected. All of these things contribute to altered productivity.

Right: This is an example of a well-grazed patch of ground on Roberts Ranch. The grass is grazed, but not to the ground (recommended stubble heights vary). There has been enough hoof-action to lay many blades down so that they provide groundcover and will be incorporated into soil. There is also some manure present, which will provide nutrients for future growth.



LESSONS LEARNED

Land – Before rotational grazing was implemented on Roberts Ranch, many over- and under-utilized areas existed. For example, animals would graze areas closest to water sources heavily while not grazing other areas at all. Rotating pastures corrected this issue by intentionally resting some pastures that were overgrazed and bringing the animals to areas of the ranch that they formerly did not graze well. Using appropriate stocking rates and constantly evaluating ground cover and utilization of forage helped determine when it was appropriate to move animals to the next pasture. Leaving a certain amount of plant matter on the ground improves ground cover and means that animal hoof-action incorporates more organic matter into the soil. Having more ground cover helps prevent loss of topsoil, and increased soil organic matter, which helps the soil hold water more effectively so that runoff/erosion is reduced and there is more water available for plant use.

Animals – Rotational grazing also benefits animals. Grazing smaller areas intensively means that cattle cannot simply select for the “tastiest” plants. Thus, they end up eating a more diverse diet, which studies show is better for ruminant health. In addition, when a herd is grazed intensively, competition means that a single animal is unlikely to consume enough of a toxic plant such as larkspur (*Delphinium* spp.) or death camas (*Toxicoscordion venenosum*) to suffer mortality. Finally, strategic timing of rotations can keep cattle out of habitat used by wildlife for breeding or rearing young at the most vital times.

People – While rotational grazing is not a silver bullet to cure all rangeland ills, it is an extremely useful tool. Used prudently, it increases rangeland productivity, and thus makes ranching operations more profitable. It also can strengthen ranchers’ stewardship of and connection to the land. What is good for animals and the land is often just as good for people.

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