

PROFILES IN LAND AND MANAGEMENT:  
*Adaptive Grazing on Public Lands*

# Colorado State Land Board

## *Lowry Ranch*

A former bombing range uses year-round adaptive planned grazing to fund Colorado's public schools while promoting wildlife and increasing the health of the grasslands.





## *Lowry Ranch at a glance*

### **RAINFALL**

14 inches per year, 6 in dry years

### **PROPERTY DESCRIPTION**

A mix of shortgrass prairie, mixed grass prairie and riparian zones

### **PROPERTY SIZE**

25,590 acres

### **ACRES IN GRAZING LANDS**

25,590 acres

### **PLANNED GRAZING SINCE**

2014

### **SPECIES**

600 head of angus cows

### **GRAZING SEASON**

Year-round

### **PARTNERS**

10-year contract with private grazier selected through a formal Request for Proposal process (RFP)

### **DOES THIS SAVE YOU MONEY?**

“This earns us money for the school system”

### **GRAZING PERIOD**

4–10 days in riparian zone; 12 days in upland areas

### **LENGTH OF RECOVERY**

60–90 days in the riparian zone  
120–300 days in upland areas

### **MANAGING FOR**

- Protection and enhancement of natural resources and wildlife
- Maximum forage quality while protecting the natural resources
- Improve the water cycle
- Long-term revenue for schools

This beautiful 25,000 acre ranch is just southeast of metropolitan Denver, Colorado. The ranch includes 10,000 acres of Piedmont tallgrass prairie, making it one of the largest contiguous tracts of native prairie in the state. Two ephemeral creeks cross the ranch, fostering diverse habitats of plains, riparian, and prairie grassland ecosystems. This landscape's diversity supports abundant wildlife such as pronghorn antelope and both resident and migratory birds of many species, including nesting bald eagles. Six hundred Angus cattle thrive here and co-exist with the wildlife.

The ranch is the property of the State of Colorado and is managed by the Colorado State Land Board (CSLB), which is a “constitutionally created agency that manages a \$4.3 billion endowment of assets for the intergenerational benefit of Colorado’s K–12 schoolchildren and public institutions.” On the Lowry Ranch, this agency is generating revenue and improving the land through carefully managed adaptive planned grazing. Through a partnership with The Nature Conservancy (TNC) and Holistic Management International (HMI), the CSLB developed a holistic management plan which includes wildlife goals.

## HISTORY

“Lowry Bombing and Gunnery Range” is the former name of this site, which was a practice range for military bomber pilots during WWII, and a military training site from the 1940s until 1963. During the Cold War, the area was established as a launch site for intercontinental ballistic missiles (ICBMs) in underground missile silos. In the 1990s, a land swap transferred these formerly federal lands to the State of Colorado and placed them in the care of the CSLB, which manages 2.8 million acres of state-owned lands.

During the 1990s and early 2000s, overly aggressive grazing practices contributed to the biological and structural degradation of a significant portion of the Piedmont Grasslands ecosystem, the shortgrass

prairie, and the riparian corridors on the property. After a seven-year recovery period did little to help it recover, the agency engaged consultants from TNC and the Savory Institute to develop a resource management plan that would improve the land, generate sustainable revenue, protect the rare tallgrass prairie remnant, and promote the health of the wildlife population.

## WHY GRAZING?

The CSLB grazing program is designed to mimic the wild grazers of the region that would have grazed in tight herds and continually moved to new pastures. This land is well suited for this practice and CSLB is maximizing their income on this site by using adaptive planned grazing.

Compared to typical set-stock (continuous) grazing, which usually trends toward shorter grass species, adaptive planned grazing allows plants time to recover with long rest periods. This fosters a wider variety of plant species including cool and warm season grasses and forbs as well as helping plants increase their root mass, which improves production and resilience. These practices are making visible changes at Lowry Ranch, both on the ground and in their revenue.

Since a long-term revenue stream is important for supporting the state’s education fund, sustainable revenue from long-term planning is prioritized over short-term profits.





*“We developed a grazing strategy to address a smooth brome monoculture in the riparian areas. Now that the cows are keeping the smooth brome in check, we are seeing recruitment of tall warm season grasses”*

—NICK TRAINOR, GRAZIER

## WHO GRAZES?

CSLB partners with a private grazer who was selected through a bidding process for a 10-year lease. In the bidding process, the agency is not required to choose the highest bidder; rather they look for the partner with the right mix of experience, personality, and planning to help achieve their goals. In 2014, a request for proposals was issued to recruit potential grazing partners. Notably, the RFP stipulated the use of holistic management practices.

CSLB received 18 strong proposals and selected Trainor Cattle Company, run by Nick Trainor. With support from TNC staff, Nick is implementing the grazing plan and installing water infrastructure. CSLB has also engaged consultants from HMI and the Savory Institute to support this project.

Their grazing plan runs counter to conventional range management as it includes frequent moves, strategic grazing of riparian zones, and the practice of leaving approximately half of the forage in each paddock uneaten. Ultimately, the ungrazed plant matter is trampled by the herd as a method for improving soil health, water cycling, and seed germination. TNC has successfully incorporated riparian pastures into adaptive grazing plans at several ranches in eastern Colorado, finding no negative impacts and often many benefits to the diversity of native perennial grasses. TNC staff stress that a full growing season recovery is essential after planned grazing of riparian zones.

## SUCCESSSES

This project has generated a huge amount of public interest and support. Four years of adaptive planned grazing has improved both forage diversity and ground cover while also supporting large wildlife populations on the ranch.

Though William Woolston of the CSLB found that local ranchers are initially skeptical about his approach, and especially the use of holistic management, over time he said “the results speak for themselves” and “production levels win fans.” When other ranchers hear about how production levels at Lowry Ranch have increased, their skepticism often disappears.

## CHALLENGES

- Six hundred cattle drink a lot of water and the wells onsite nearly ran dry. Since then, four additional wells and 20 miles of pipeline have been installed to bring water to the 60 paddocks desired for the grazing plan.
- The ranch has 26 different leases including oil and gas development, model plane flying clubs, fox hunting clubs, and surface mineral extraction. Gates get left open and management plans need to account for competing uses.
- Prairie dogs are part of the local wildlife and are a keystone species. They also present a challenge as their populations can quickly expand and impact the amount of forage available for the beef herd.

### *Advice to Other Agency Staff Considering Using Grazing:*

“Don’t be afraid to try it, but be careful in your selection of a lessee or grazing manager for the project.” —William Woolston, CSLB

“I don’t believe there is a downside.” —William Woolston, CSLB

TNC staff, Nick Trainor and William Woolston all noted that the adaptive management planning framework is a valuable tool to help multi-use sites align management with goals.

# *Benefits of adaptive grazing*



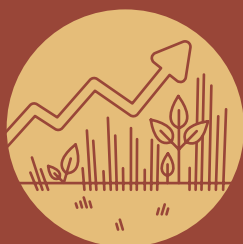
## **Increased Revenue**

CSLB is mandated to produce long-term sustainable revenue to support the Colorado Public Schools.



## **Natural Resources**

Planned grazing aligns with protecting and enhancing natural resources, including wildlife and native plants.



## **Maximize Forage Quality & Quantity**

Eight years of recovery (without grazing) didn't help this site; four years of planned grazing has improved the forage and the native plant diversity.



## **Improve the water cycle**

This site now captures and holds nearly all of the rainfall it receives. Runoff has been eliminated and the extra water has extended the grazing season by two months, allowing them to handle drought years without destocking.



## **Multi-Use**

With 60 paddocks and only two herds, this style of grazing is compatible with the multiple uses of the property.



## CHANGES & MONITORING

While this project is still relatively new and evolving, improvements have already been seen in the riparian areas and in the grasslands. Riparian areas formerly dominated by smooth brome, an invasive dominant grass, have responded quickly. After three years of intensive spring grazing, the monoculture was broken up, allowing more native species and plant diversity to flourish. In the grasslands, new species have also emerged and the bottomland fields in particular have gone from a handful of species to “an explosion” of switchgrass, prairie cordgrass, and other grassland species.

“It was shocking and such an amazing thing to see. You can definitely have an effect with grazing. The change and response that we’ve seen in riparian areas... happened much faster than we expected. [we now have] areas of switchgrass and cordgrass that are 30 feet by 50 feet—those weren’t there three years ago. I’m very confident that this land is responding.”

—WILLIAM WOOLSTON, CSLB.

Clearly, monitoring is key to be able to track the changes in a rigorous way. William cautions that change takes years and that monitoring needs to start at the very beginning. So far, three years of monitoring with 50 photo points shows how the riparian area has changed over time. “At first it was only old cottonwoods—now [after grazing] creek bottoms are full of young cottonwoods and willows,” says the grazing partner, Nick Trainor.

Much of the monitoring is conducted by TNC, whose staff established 22 fixed transect lines and collected in-depth baseline data using line-point intercept, basal gap, and visual obstruction reading (VOR) methodology, and taking care to monitor only locations within the dominant soil types of the ranch. The researchers are also using grazing utilization cages to provide a sample of ungrazed pasture plants that can be compared to grazed plants. They will revisit the sites in 2021, after five years, to measure any changes. ■



*“We’re running a herd of 600 cows year-round here—but if you go out on the ranch in summer you can’t tell if you’re on a site that has been grazed that year or not!”*

—WILLIAM WOOLSTON  
RESOURCE SPECIALIST, CSLB



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