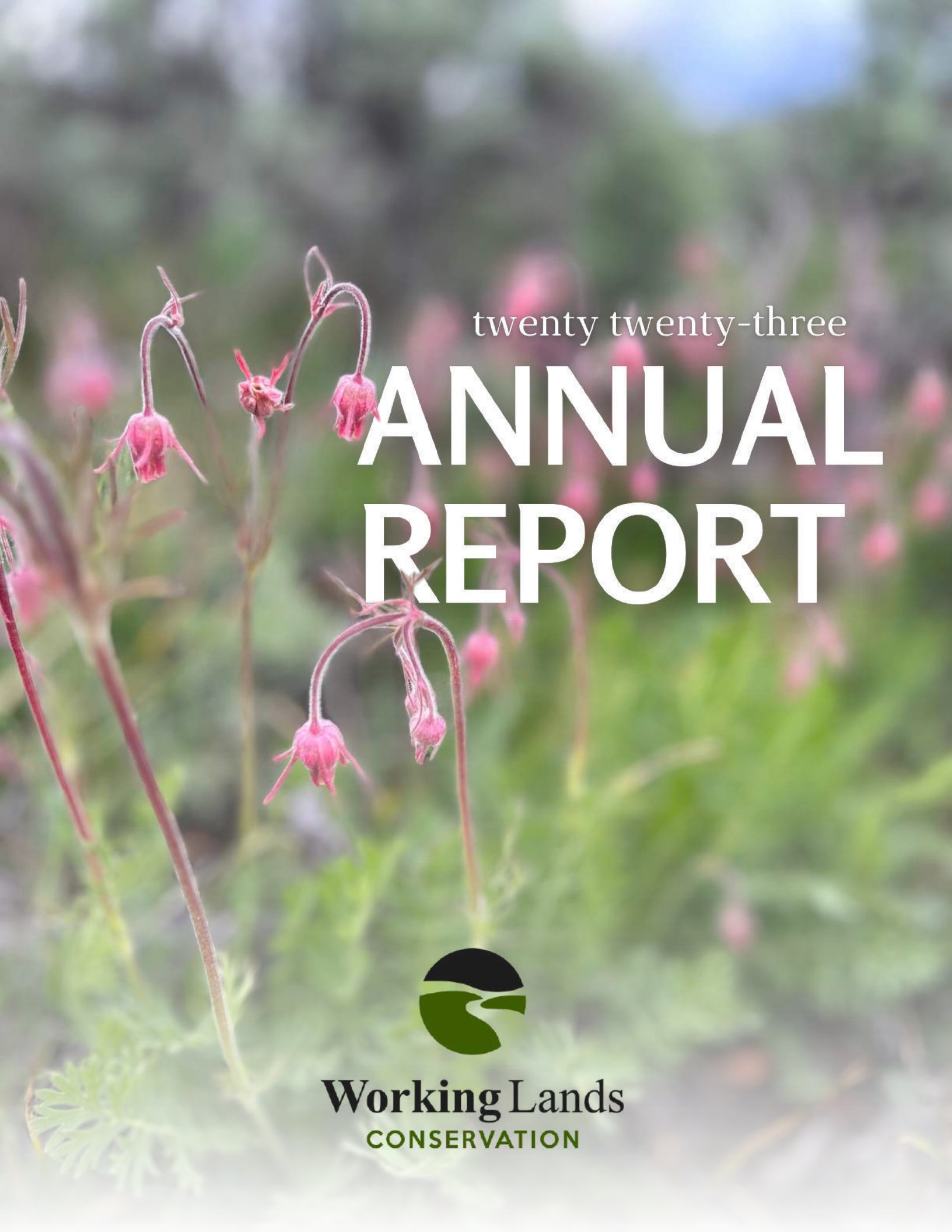

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# ANNUAL REPORT

Working Lands
CONSERVATION

# A message from our founder

## *As we reflect on the past year,*

I am proud of Working Lands Conservation's continued journey of stewarding working rangelands. Together with our partners, we have cultivated a community where science thrives within collaborative partnerships. Through our collective efforts, we have made meaningful strides toward a more resilient future.

In 2023, we continued our work in Utah through the Three Creeks Allotment Consolidation Project. We have embarked on an ambitious journey to gather comprehensive data on vegetation, soils, and water quality. This effort, following the implementation of an innovative grazing system developed by local ranchers alongside federal and state agencies, has begun to weave a compelling story of watershed-scale rangeland recovery. The initial results are promising, showcasing a thriving landscape thanks to innovative stewardship practices.

Our passion for collaborative stewardship led us to New Mexico, where we have begun collecting vital soil health and carbon data across vast landscapes. This expansion was made possible through the strength of our partnerships, which span a similarly diverse array of stakeholders. These collaborations have fueled our growth and fostered a vibrant culture of knowledge-sharing and mutual respect, laying the foundation to confront the complex challenges facing our rangelands with innovative and durable solutions.

The past year has seen us take significant strides in enhancing our scientific capabilities. Initiating our state-of-the-art laboratory buildout  will allow us to push the boundaries of science and practice in rangeland stewardship. Our work, deeply rooted in the relationships we've nurtured with those who call these landscapes home, continues to propel us towards our mission.

As we look ahead into 2024, our sights are set on expanding our scientific endeavors and deepening the partnerships that have been so crucial to our success.  Together with our many partners, we will continue to highlight the invaluable benefits landscapes provide for people and nature and champion working rangelands. Our journey is just beginning- we invite you to join us as part of the next chapter of our story.

**Kris Hulvey**

Founder and Chief Scientist

At **Working Lands Conservation**, we empower the stewardship of working lands by bringing science to collaborative partnerships.

# we envision LANDSCAPES...

where the environmental conditions and economic value of working lands increase from the implementation of new and innovative land stewardship practices.

This value is returned to communities through
***Successful*** and sustainable livestock operations
***Knowledge*** of their stewardship improving ecosystem services
***Provision*** of a secure legacy for future generations

This value is returned to society through
***Secure*** regional food systems
***Healthy*** and productive ecosystems
***Connection*** with landscapes

***AS SCIENTISTS***
we use our expertise in experimental design and monitoring to answer pressing questions about the ecology of working lands.

***AS COLLABORATORS***
we communicate our scientific findings to inform management that support livelihoods and conserve our natural resources.

# Our Team

## *Staff*

**Dr. Kris Hulvey**
Founder and Chief Scientist

**Dr. Megan K. Nasto**
Research Scientist

**Katie Siesel**
Outreach Coordinator

## *2023 Field Technicians*

(Left to Right)

**Anthony Villalobos**
Field Technician

**Paige Lewis**
Soils Crew Lead

**Taylor Jacobson**
Field Technician

# Current Projects

1 **Rangeland Monitoring**
*Three Creeks Grazing Project*

2 **Soil Health**
*Three Creeks Grazing Project*

3 **Ecosystem Services**
*Three Creeks Grazing Project*

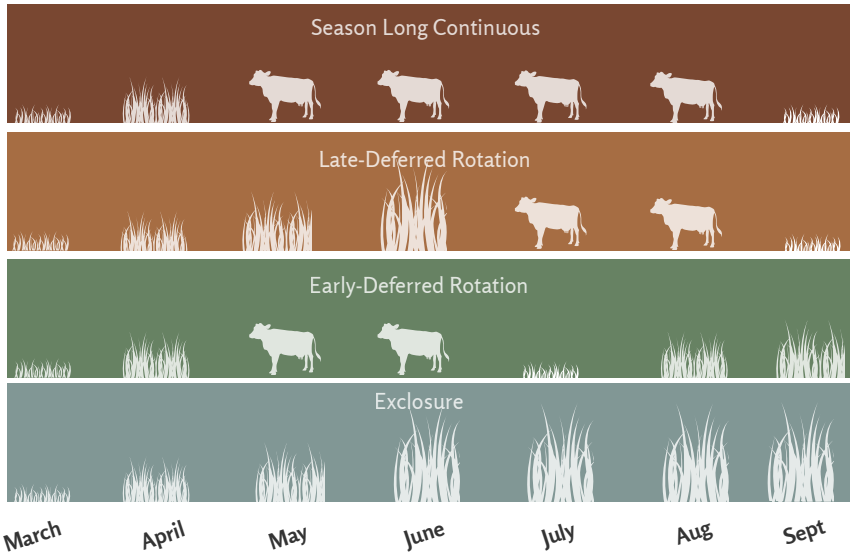
4 **Rangeland Enhancement**
*New Mexico Grazing Project*

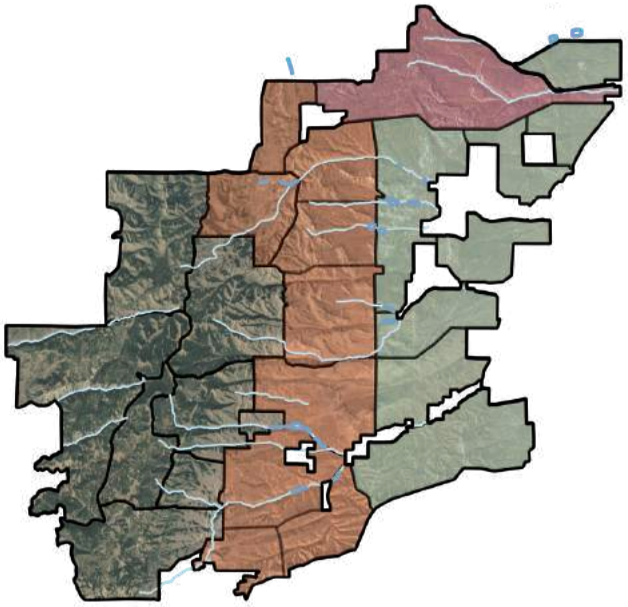

THREE CREEKS

# The Project

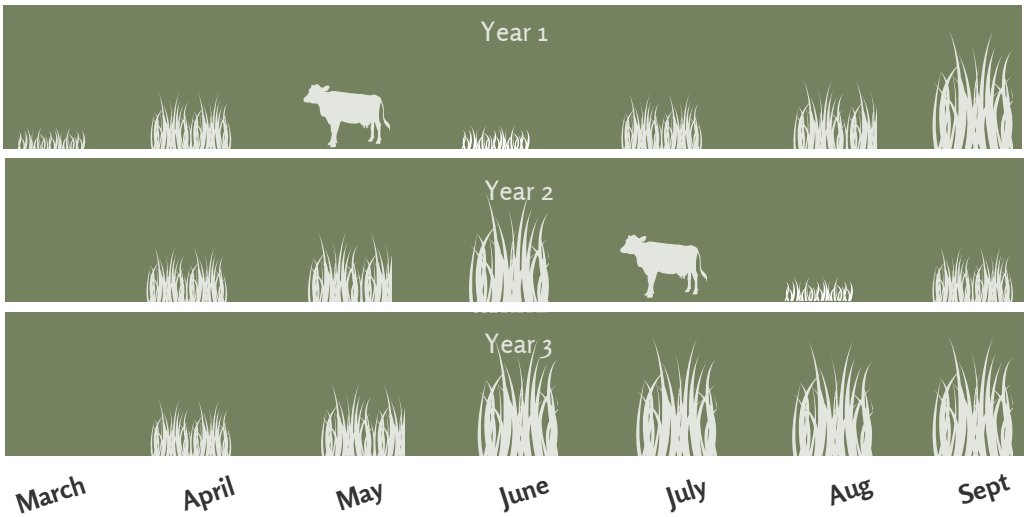
In 2001, innovative ranchers in Randolph, UT undertook a decades-long process of consolidating grazing permits and herds to transition to time-controlled grazing management. The Three Creeks Allotment Consolidation Project altered grazing in 2022 across 138,00 acres of public-private rangelands in Rich County, UT by using duration and timing to balance livestock grazing with ecosystem services.

Historical Grazing on Three Creeks



New Three Creeks Grazing System: Time Controlled




*As of 2022, all pastures are managed with Time-Controlled grazing*

# Rangeland Monitoring

## *Project Goal*

**Monitor how innovative grazing systems can enhance desirable ecosystem services**

### *Summary*

WLC began monitoring the Three Creeks rangelands in 2016 in partnership with UGIP, BLM, and NRCS to understand how grazing management can result in landscape-level ecological change. We analyze data from pastures with different historical grazing regimes to understand how the grazing legacies can impact ecosystem processes and how pastures with different histories will respond to changes in grazing management. We compare this data with that collected from a nearby private ranch that has been practicing time-controlled grazing for almost 40 years.

### *We Measure*

| | | | |
|---|---|---|---|
| Vegetation Production and Recovery | Water Quality and Discharge | Erosion Potential | Greater Sage Grouse Habitat Quality |

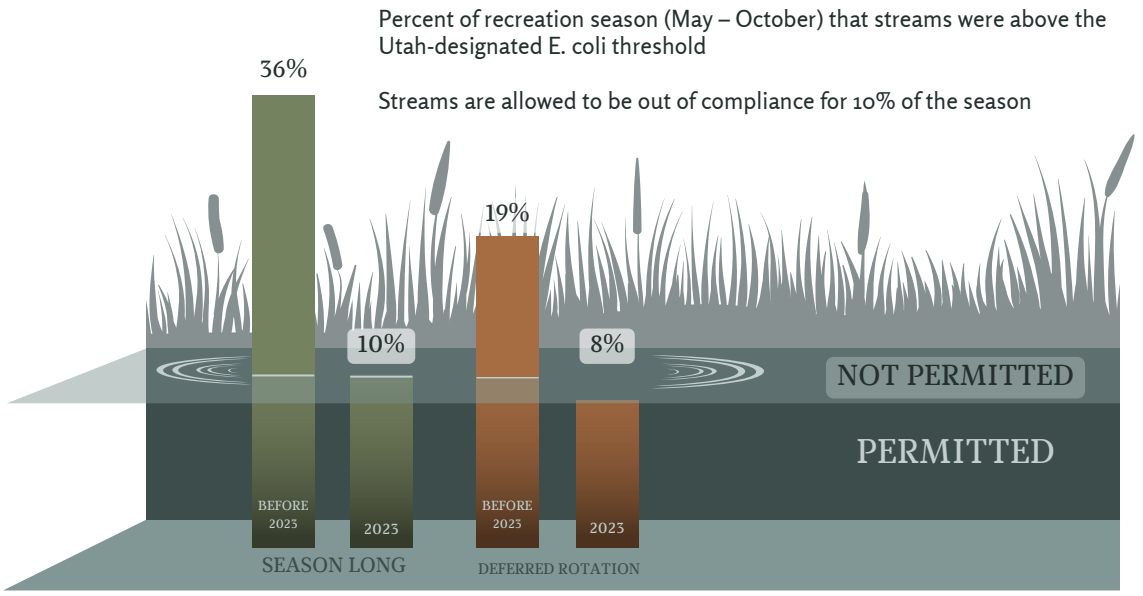
### *Partners*

Three Creeks Grazing, LLC
Utah Grazing Improvement Program (UGIP)
Bureau of Land Management (BLM)- Salt Lake Field Office
Natural Resource Conservation Service (NRCS)- Price Field Office
USDA National Institute of Food and Agriculture

- Western Sustainable Agriculture Research and Education
- Agriculture and Food Research Initiative

# 2023 Updates

## E. COLI COMPLIENCE




In 2023,

**ALL STREAMS**

were in compliance

Streams increased time in complience by

**13%** in deferred pastures

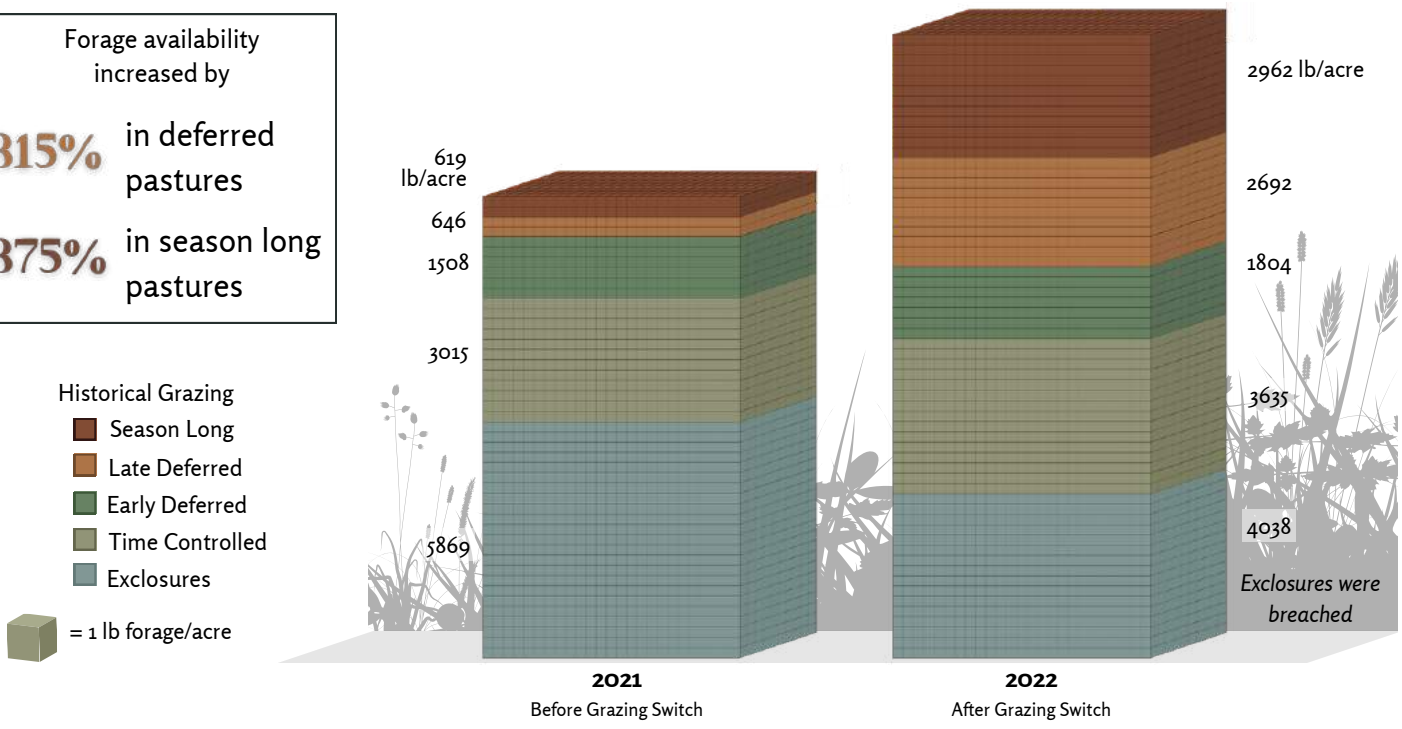
**40%** in season long pastures

## STREAMSIDE FORAGE PRODUCTION

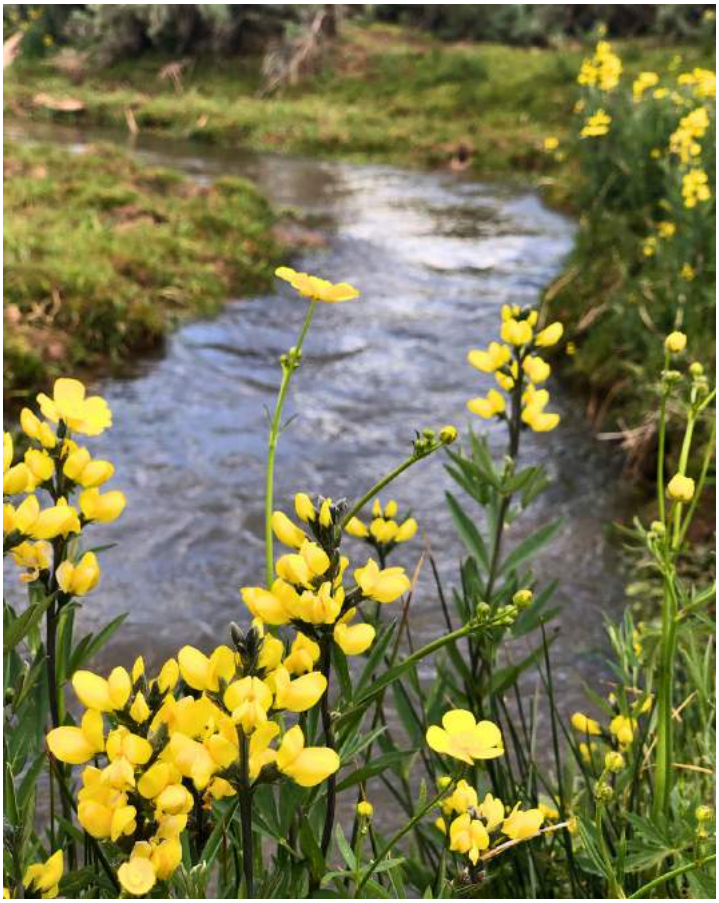
Forage availability increased by

**315%** in deferred pastures

**375%** in season long pastures



# Ecosystem Services



## *Project Goal*

***Determine the economic value of ecosystem services gained from the Three Creeks Grazing Project***

### *Summary*

An assessment of the costs and benefits of adopting innovative grazing management can help stakeholders recognize where barriers exist, and develop ways to reduce them. Such an assessment may also highlight factors vital to the implementation of innovative public land projects. Working Lands Conservation is working with partners implementing the Three Creeks Grazing Project to highlight incentives that make the cost-benefit ratio of innovation adoption attractive to all stakeholders, as well as to identify factors likely to constrain the adoption of novel grazing solutions. By linking the costs of altering the current grazing system with gains in environmental quality, WLC will help determine the value of cost-share programs that support ranchers when they adopt innovative management on public lands aimed at achieving ecological objectives.

# Soil Health and Carbon Storage

## *Project Goal*

**Quantify the potential for soil health to recover and carbon storage to increase under innovative grazing systems**

### *Summary*

We are gaining a better understanding of the links between cattle grazing and soil processes to inform production and management goals on rangelands. Few studies examine factors like grazing timing, duration, and intensity on key soil health indicators. Additionally, there is a need to investigate how grazing systems across large landscapes affect soil carbon accumulation. Our partners will use this data to support adaptive management across Three Creeks and address barriers to rancher participation in carbon markets.

## *We Measure*

- Infiltration Rate
- Structural Stability
- Microbial Biomass
- Organic Carbon
- Bioavailable Nitrogen
- Water Holding Capacity
- Microbial Respiration

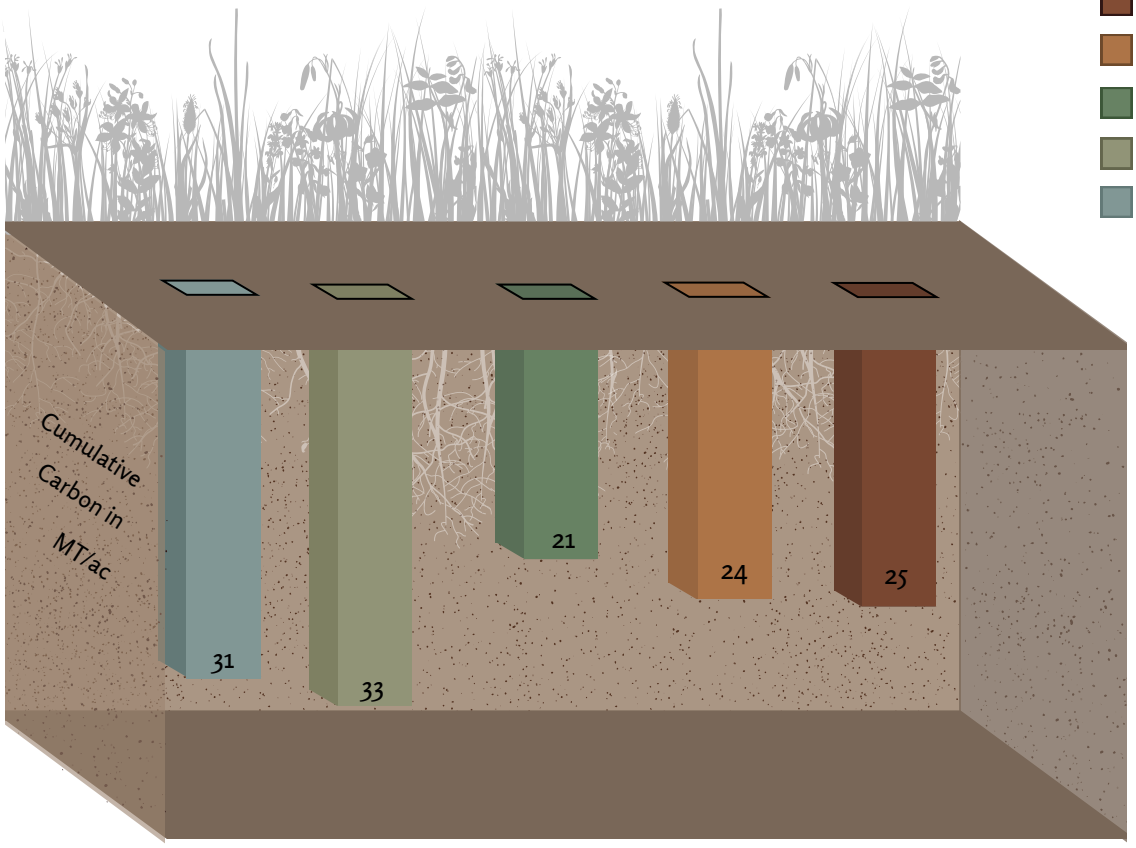
## *Partners*

Three Creeks Grazing, LLC
Utah Grazing Improvement Program (UGIP)
Bureau of Land Management (BLM)- Salt Lake Field Office
Natural Resource Conservation Service (NRCS)- Price Field Office
Nevada Soil Ecology Lab
Paul Grossel- Utah State University
USDA National Institute of Food and Agriculture

- Western Sustainable Agriculture Research and Education
- Agriculture and Food Research Initiative

# 2023 Updates

Cumulative streamside carbon (0-30cm) among varying historical grazing treatments.




*1 metric ton (MT) of soil carbon = 3 MT of atmospheric $CO_2$*

**Comparing Three Creeks to the time-controlled private ranch, Three Creeks has the possibility to increase soil carbon by:**

**57%** in early deferred pastures

**36%** in late deferred pastures

**32%** in season long pastures


New Mexico
Rangeland Enhancement

# NM Soil Health

## *Project Goal*

***Balance grazing that supports local livelihoods with the management of quality habitat for pronghorn and Lesser-Prairie Chicken and healthy soils that can potentially increase carbon sequestration.***

### *Summary*

WLC joined a collaborative partnership of local ranchers, nonprofit organizations, and state and federal agencies to inform adaptive land management in Roswell, NM. To understand how cattle grazing can benefit soil health, soil carbon sequestration, and habitat for pronghorn and the endangered prairie chicken, the team is assessing existing grazing practices as well as historical shrub treatments, collecting baseline soil health and carbon information, and mapping local vegetation. WLC is serving as the Technical Advisor for soil sampling and analysis. This includes landscape stratification and training, and leading a local soil collection team of Tatum, NM high school students. Once soil data has been collected, the WLC team will analyze samples in the lab, share results with land managers, and participate in discussions about ongoing rangeland management.

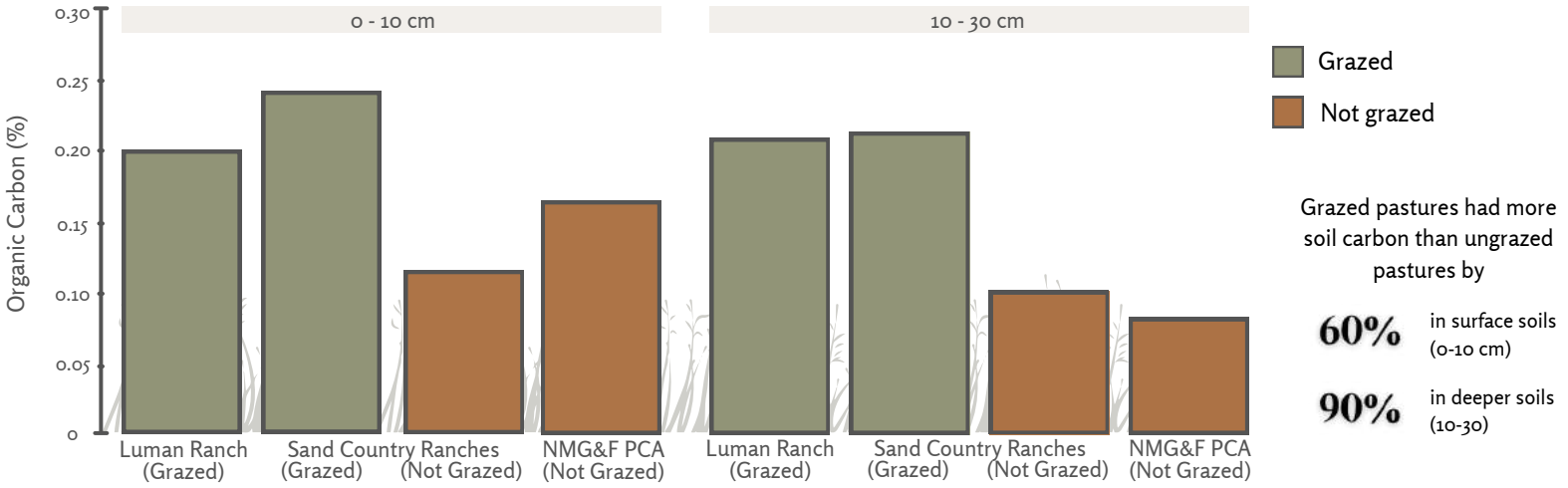
## *Partners*

Local Ranchers and Private Landowners
Western Landowners Alliance
New Mexico State Lands Office
New Mexico Department of Game and Fish
Bureau of Land Management- Roswell Field Office
Natural Resource Conservation Service

- Las Cruces, NM Field Office
- Carlsbad, NM Field Office
- Roswell, NM Field Office
- Marfa, TX Field Office

# 2023 Updates

## Comparing grazed pastures to non-grazed pastures, grazed pastures had double the content of soil organic carbon.




### Non-Grazed Areas

Shallow
Sparse
Little root exudation

### Grazed Areas

Deep
Dense
A lot of root exudation

# Funding

## *Thank You*

*to all groups who supported our work in 2023!*

**USDA National Institute of Food and Agriculture's Foundational Program**
Award Number 2019-67019-29953
Project Accession Number 1019980.

**Bureau of Land Management Cooperative Agreement**
OMB: 4040-0006

**USDA National Institute of Food and Agriculture's Western Sustainable Agriculture Research and Education Program**
Project number SW22-942

**National Fish and Wildlife Foundation, Southern Plains Grassland Program**
Project ID: 2507.22.074067

**USDA National Institute of Food and Agriculture's Western Sustainable Agriculture Research and Education Program**
Project number SW23-948

**USDA Natural Resource Conservation Service's Grazing Lands Conservation Initiative**
Award Number NR238D43XXXXC010

# Outreach and Education

## January

**WLC Team** presented at Rich County Coordinated Resource Management (CRM) Meeting. All partners involved in research on public lands share what they are learning.
**Team** attended Utah State University's Natural Resources job fair
**Megan** headed to Missoula to learn about Mid-infrared spectroscopy with the NRCS to analyze soil carbon

## February

**WLC Team** hosted a full-day symposium at the Society for Range Management Annual Meeting on ranching and soil carbon
**Kris** presented a workshop for graduate students at Yale University

## March

**Megan** traveled to eastern New Mexico on a soil carbon sampling campaign
**WLC Team** presented initial soil carbon findings to ranchers at the Three Creeks Grazing, LLC meeting

## April

**Megan** continued her work in New Mexico leading local high school students in soil sample collections

## May

**WLC Team** presented to students at Rich High School, the local high school in Randolph, UT, about range management and the Three Creeks Grazing Project

## June

**WLC Team** started their 8th Three Creeks field season collecting data on rangeland ecosystem services

**Kris** attended a Multiple Indicator Monitoring field course in Oregon with the BLM

**Megan** was an instructor for USU Extension's Ag Teacher Range Camp

**Megan** traveled to eastern New Mexico to learn about well-managed livestock grazing from a Holistic Management International Certified Instructor

## July

**WLC Team** participated in the Rich County CRM field tour to learn with partners about public land projects in Rich County

**Megan** was interviewed in a podcast for Decode6

**Kris and Katie** attended the WLC co-sponsored Young Rancher Workshop at the Tavaputs Ranch in central Utah to provide community and education for young Utah producers

**Kris** participated in a BLM Wet Meadow Restoration course

## August

**Megan** presented initial findings from WLC's soil monitoring at The Ecological Society of America Annual Meeting

**WLC Team** gave a field tour to a representative from WLC's fiscal sponsor, Multiplier

## September

**Kris** attended a four-day workshop at the High Lonesome Ranch in CO to share information on rangeland management with managers and researchers

**Kris and Megan** traveled to Denver for the Colorado State University Soil Carbon Solutions Meeting to present on potential rangeland applications in carbon marketplaces

**Kris and Megan** represented WLC in a Three Creeks Field Tour for the Western Landowners Alliance Board of Directors

## November

**WLC Team** attended the UT SRM Annual Meeting to network and share information on rangeland management in Utah

- **Kris and Megan** presented findings from Three Creek**s**
- **Katie** displayed a poster
- **Kris** joined **Katie** on the UT SRM Board

**Kris and Megan** traveled to New Mexico for a stakeholder meeting in Roswell to collect soil samples, discuss results from 2023, and explore future management options

## December

**Kris** attended the Western SARE conference to collaborate with other innovative agriculture projects

# Photo Gallery


Working Lands
CONSERVATION
SCIENCE ROOTED IN RELATIONSHIPS