



CHANGE

ON THE

RANGE

SOCIETY FOR RANGE MANAGEMENT

- SPARKS NEVADA 2024 -

2024 PRESENTING SPONSORS



Thank you!

TABLE OF CONTENTS

PRESIDENT'S WELCOME.....	4
PLANNING COMMITTEE WELCOME.....	5
DIRECTORY.....	6
REGISTRATION INFORMATION.....	7
SPONSORS.....	8
MAPS.....	10
SCHEDULE AT-A-GLANCE.....	12
TRADE SHOW DETAILS.....	14
LIST OF EXHIBITORS.....	15
POSTER SESSIONS.....	17
SOCIAL EVENTS.....	26
YOUNG PROFESSIONAL & STUDENT EVENTS.....	28
TOURS.....	30
AWARDS.....	34
PLENARY.....	37
FULL SCHEDULE.....	44
- SATURDAY, JANUARY 28.....	44
- SUNDAY, JANUARY 28.....	44
- MONDAY, JANUARY 29.....	47
- TUESDAY, JANUARY 30.....	85
- WEDNESDAY, JANUARY 31.....	123
- THURSDAY, FEBRUARY 1.....	157



WELCOME TO SPARKS, NEVADA FROM THE SRM PRESIDENT!

Welcome to the 2024 Annual Meeting of the Society for Range Management!

In many ways, our annual meeting is like a homecoming or family reunion. We have now moved from our 75th Year Diamond Jubilee and into a time of looking toward our 100th anniversary. Many things have changed since that first meeting in Salt Lake City, 1948, but the comradery, collegiality, and sense of purpose regarding our Mission has remained as a solid bulwark for our profession.

Given this time continuum, “Change on the Range” is more than the appropriate theme for this year’s meeting. The process of change requires us to contemplate how rangelands change ecologically, how societal demands and uses vacillate, and how economies and management strategies must adapt to accommodate these changes. After all, rangeland management is a science and an art. The art aspect is sometimes overlooked or given a lesser role however, it is no less important than the science, especially when set in a global context in which SRM stands solid.

Our meeting will include workshops, symposia, Campfire, and Ignite sessions that crossover global challenges, disciplinary expertise, and time. We will learn to better communicate the complexities we deal with everyday as a profession, to governments, teachers, policy makers, students, media outlets, and people that may or may not physically use rangelands. Rangelands and their management are infinitely complex and challenging across the globe.

As we continue our trek towards the International Year of Rangelands and Pastoralists in 2026, know that SRM has stepped into a leadership role. Our Annual Meeting will once again incorporate significant resources into international outreach and participation through both in-person and virtual conduits.

The Nevada Section and Parent Society staff have put together imaginative and futuristic Plenary Sessions; and the topics for concurrent sessions, workshops, and other presentations are extremely creative. Please come and join us in Sparks or through the virtual portal! There are many exciting things happening with SRM, come be a part of it all as we see it through...this “Change on the Range!”

See you in Sparks or by Streaming!

- Dr. Barry Perryman

Society for Range Management



WELCOME FROM THE PLANNING COMMITTEE

On behalf of the Nevada Section 2024 Planning Committee, we welcome you to Sparks, Nevada. We are excited to have put together what we believe will be an outstanding conference! This year’s Our section choose the theme Change on the Range, to reflect the diversity of people working across rangelands and need for new approaches, idea sharing, and continued collaboration with industries, partners, cultures, and land managers. We believe this year’s meeting will provide attendees with regional and subject matter interpretations of what this theme means to them and THEIR rangelands. This year’s program offers something for everyone as the response for submitted sessions, abstracts, and posters was truly remarkable. The committee and SRM would like to thank everyone who took the time to be a part of the 2024 SRM annual meeting. We hope that you enjoy the meeting, tradeshow, tours, and social events.

-2024 Nevada Planning Committee





BOARD OF DIRECTORS

2021-2023

Delane Atcitty

Indian Nations Conservation Alliance, Executive Director

Dr. John A. Taylor

Chair, North Australian Beef Research Council Brisbane, Qld Australia

2022-2024

Tip Hudson

Rangeland & livestock management specialist
Washington State University Extension, Professor

Dr. Leslie Roche

Associate Professor of Cooperative Extension
University of California, Davis

2023-2025

Dr. Chuck Butterfield

Senior Ecologist, Y2 Consultants

Julie Elliott

Retired NRCS

2024-2026

Dr. Kevin Sedivec

Extension Range Specialist and Director Central Grasslands REC, North Dakota State University

Dr. Mark Thorne

State Range Extension Specialist
Kamuela Extension Office

SRM STAFF

Jess Peterson, Executive Vice President | evp@rangelands.org

Kelly Fogarty, Senior Director Operations | operations@rangelands.org

Mary Jo Foley-Birrenkott, Director of Membership & Outreach | srmoutreach@rangelands.org

Lia Biondo, Director of Policy & Federal Affairs | policy@rangelands.org

Kayla Walker, Director of Programs | programs@rangelands.org

Maggie Tupper, Director of Office Services | maggie@rangelands.org

Kristen Robertson, Director of Finance | accounting@rangelands.org

Chris Lapine, Director of Membership Services | clapine@allenpress.com

Ryan Wingenter, Director of IT | ryan@premiertech.us

SRM OFFICERS

PRESIDENT

Dr. Barry Perryman

Professor of Rangeland Ecology & Management
University of Nevada-Reno

1ST VICE PRESIDENT

Karen R. Hickman

Professor and Director, Environmental Science Program
Director of Undergraduate Research, Honors, and Academic Assessment
Ferguson College of Agriculture
Oklahoma State University

2ND VICE PRESIDENT

Dr. Jeff Goodwin

Director for the Texas A&M Center for Grazinglands and Ranch Management
College Station, Texas

REGISTRATION

Registration will be located on the Main Meeting Floor (2nd Floor) in the area marked "Foyer" during the below dates and times.

Also located in the Registration area will be tables with information on the following:

- SRM Merchandise for Sale
- Young Professional's Conclave: Wild Rag Sales
- Sparks/Reno Information
- Diversity & Inclusion Committee

REGISTRATION HOURS:

SUNDAY, JANUARY 28TH | 7:00AM-5PM

MONDAY, JANUARY 29TH | 7:00AM-6PM

TUESDAY, JANUARY 30TH | 7:00AM-6:00PM

WEDNESDAY, JANUARY 31ST | 7:00AM-1PM



**2024 SRM ANNUAL MEETING
SPONSORS**

PRESENTING SPONSORS

USDA NRCS
USDA USFS
DOI BLM

RANGELAND FRIEND

Corteva

RANGELAND SUPPORTER

Pawnee Butte Seeds
Synergy Resource Solutions
Agoro Carbon

TRADESHOW & WELCOME MIXER SPONSOR

Alligare, LCC

WORKSHOP SPONSORS

PRODUCER'S FORUM

Resource Concepts Inc. & Ozark Hills Insurance
Bison Pipe

**CO-LABORING IN THE WEST SYMPOSIUM/
GREET & GRAZE RECEPTION**

NatGLC, CA Rangeland Trust, CA Rangeland Conservation Coalition, Western Landowners Alliance, Holistic Management International, Cal-Pac SRM, Cobblestone Ranch, Bamert Seed Co, TX GLC

Thank you to our Rangeland Friend Sponsors!



CORTEVA™
agriscience

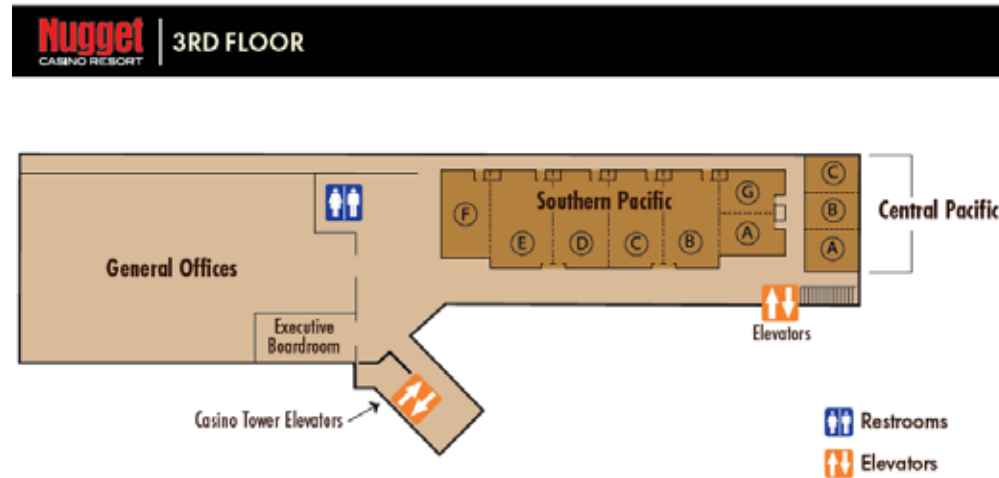
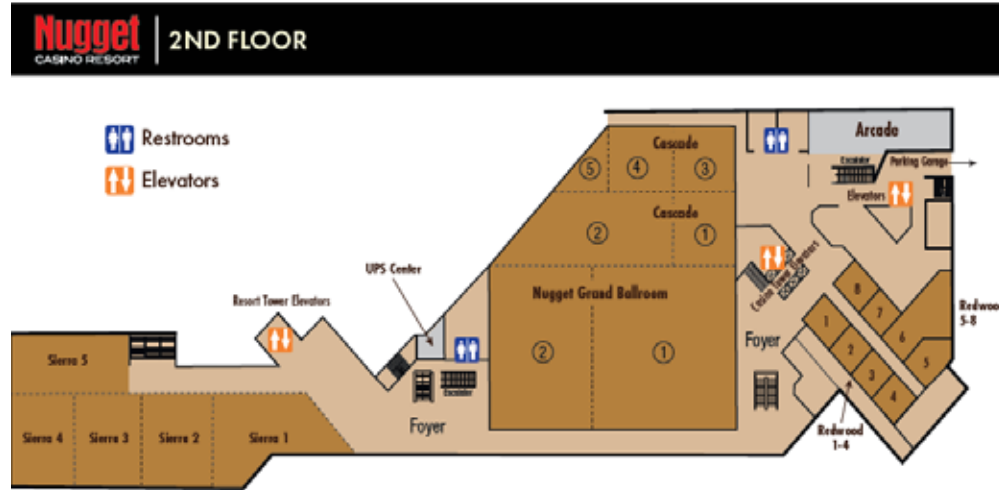
Thank you to our Rangeland Supporter Sponsors!



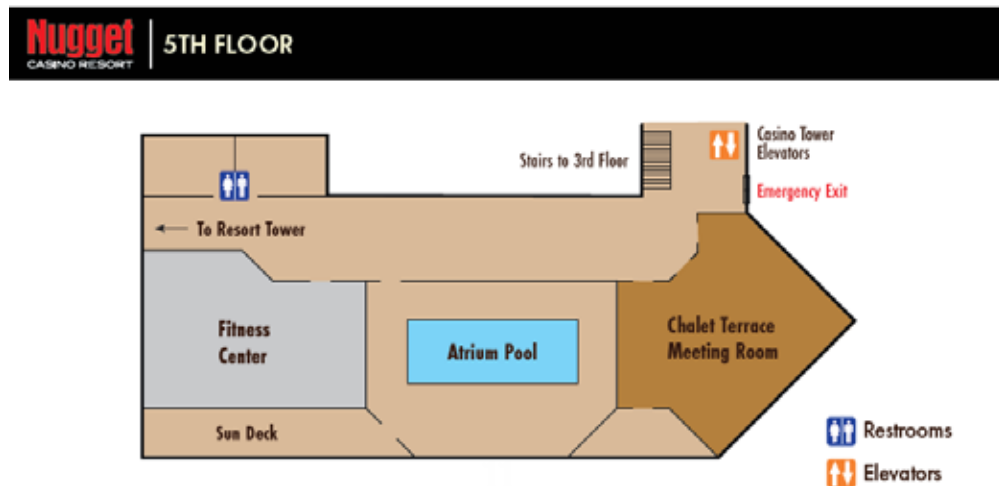
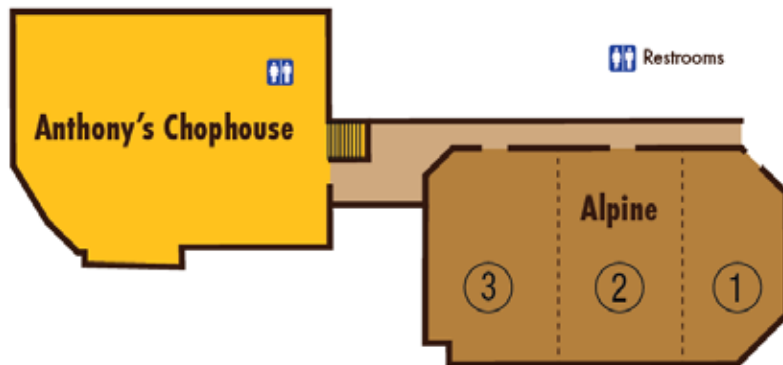
MAPS

Some helpful information:

- The Resort Tower elevator will take you directly to the 2nd floor which is where Registration, the Trade Show, Plenary Room, meeting rooms and student competition rooms are located.
- To reach the lower level and 3rd floor meeting rooms, you can access a stairwell or elevator bank located in the 2nd floor meeting space. The stairwell and elevator are located past the Cascade rooms by the Arcade.
- The 5th floor, home to the Chalet Terrace, can be reached directly from your room by the Resort Tower elevators or through the elevator bank noted above located on the 2nd floor.



Nugget CASINO RESORT | LOWER LEVEL FLOOR



SCHEDULE AT-A-GLANCE

SATURDAY, JAN. 27TH

- SRM Board of Directors Meeting

SUNDAY, JAN. 28TH

- Registration Opens: 7am-5pm
- Committee Meetings
- Trade Show Set-up: Noon-5pm
- Technical Tour 1: Markleeville Ecology Tour: Beyond Just the Range; 8:30am-1:30pm
- Social Tour 1: Virginia City and Ghost Tour: 10:30am-4pm
- Trade Show/Welcome Mixer, 5pm-8pm
- Student Conclave Business Meeting/Mixer
- Job Fair (All Day)

MONDAY, JAN. 29TH

- Registration: 7pm-5pm
- Trade Show: 8am-5pm
- Plenary: 8am-10am
- Morning Coffee break in the trade show: 10am-10:20am
- Agency Recruitment Rooms: All Day (NRCS, USFS, BLM) Symposia/Ignite/Workshops/Contributed Oral Sessions: 10:20am-Noon; 1pm-3pm; 3:20pm-5pm
- Past President's Lunch
- YPC and Student Conclave Joint Business Lunch
- Lunch on your own, Noon-1pm
- Afternoon Coffee Break in the trade show: 3pm-3:20pm
- URME Exam
- Social Tour 2: Local Brew Tour: 4pm-7:30pm
- Rangeland Cup: 3pm-6pm
- Poster Session: 5pm-6:30pm
- Trivia Night: 6pm-8pm

TUESDAY, JAN. 30TH

- Registration: 7am-6pm
- Trade Show: 8am-5pm
- Plenary: 8am-10am
- Morning Break: 10am-10:20am

- Plant ID Contest
- HSYF Paper Presentations
- Agency Recruitment Rooms: All Day (NRCS, USFS, BLM)
- Technical Tour 2: Frey Ranches: Rambling River Ranches; 8:30am-1:30pm
- Social Tour 3: Donner, Truckee and North Lake Tahoe Tour: 9am-4pm
- Symposia/Workshops/Contributed Oral Sessions: 10:20am-Noon; 1pm-3pm; 3:20pm-5pm
- Lunch on your own: Noon-1pm
- SRM Business Lunch (Paid ticketed event for lunch; no cost if not purchasing lunch)
- Afternoon Break: 3pm-3:20pm
- Poster Session: 5pm-6:30pm
- Bridging the Gap: 4:30pm-6:30pm
- Agency and University Socials
- Live Music/Dance: 8pm-11pm
- Chad Bushnell

WEDNESDAY, JAN. 31ST

- Registration: 7am-1pm
- Morning in the Trade Show: Bloody Mary Bar and Coffee: 8am-10am
- Trade Show: Ends at Noon
- Producer's Forum: 10am-3pm
- Technical Tour 3: Wild Horse and Burro Management: 8:30am-1:30pm (Will be back in time for Awards!)
- Social Tour 4: Reno City Highlights: 3:30pm-5:30pm
- Agency Recruitment Rooms: All Day (NRCS, USFS, BLM)
- Symposia/Ignite/Workshops/Contributed Oral Sessions: 10am-Noon; 1pm-3pm
- Campfire: 1pm-3pm
- Lunch on your own: Noon-1pm
- Afternoon Coffee Break Outside Grand Ballroom 1: 3pm-3:30pm
- Student and Honor Awards: 3:30pm-6pm

THURSDAY, FEBRUARY 1ST

- SRM Board of Directors Meeting: 7:30am-11am



TRADE SHOW

Come visit all that the Trade Show has to offer this year, located in the Grand Ballroom 2 and Cascade 2 rooms, right next to Registration.

Included in the Trade Show: our fantastic line-up of exhibitors (see the next page for a full list); Poster Session #1 and #2, Monday and Tuesday, 5pm-6:30pm respectively; the Endowment Silent Auction; Daily Coffee Breaks at 10am/3pm Monday and Tuesday; and a Bloody Mary bar on Wednesday to finish out the meeting!

Concessions are available Monday-Wednesday for purchase in the Trade Show. 7am-9am: Breakfast Items; 11am-1pm: Lunch Items.

SUNDAY, JANUARY 28TH

5-8PM.....Welcome Mixer and Trade Show Social
5PM.....Endowment Silent Auction Opens

MONDAY, JANUARY 29TH

8AM.....Trade Show Opens
10AM.....Coffee Break
3PM.....Coffee Breal
5-6:30PM.....Poster Session #1

TUESDAY, JANUARY 30TH

8AM.....Trade Show Opens
10AM.....Coffee Break
3PM.....Coffee Break
3-6PM.....Rangeland Cup
4PM.....Bidding Ends at the Endowment Fund Silent Auction
5-6:30PM.....Poster Session #2

WEDNESDAY, JANUARY 31ST

8-10AM.....Bloody Mary Bar and Coffee

Come spend the last morning of the meeting in the Trade Show and start the day off right before heading to your first session!

12PM.....All items must be picked up from the Endowment Fund Silent Auction

LIST OF EXHIBITORS

COME VISIT OUR EXHIBITORS AT THIS YEAR'S TRADE SHOW!

***Booth assignments posted at the entrance to the Trade Show*

- 2025 SRM Annual Meeting
- Agoro Carbon
- Ag-Renewal Inc
- Agriculture, Veterinary & Range Science Dept., University Nevada, Reno
- Bison Pipe & Supply, LLC
- BLM
- BLM Plant Conservation & Restoration Program
- Easy Fence LLC
- Enriched Ag
- Envu Range and Pasture
- Gallagher NA
- Giant Rubber Water Tanks
- Granite Seed & Erosion Control
- Great Basin Fire Science Exchange
- Great Plains Fire Science Exchange
- Great Plains Restoration Solutions Inc.
- Holistic Management International
- IYRP/IRC
- Leading Edge
- Merck
- National Grazing Lands Coalition
- Nevada Division of Forestry Nursery and Seedbank
- Nevada Sagebrush Ecosystem Program
- NRCS
- Open Range Consulting
- Ozark Hills Insurance
- Pawnee Buttes Seed Inc
- RainDrop Impact
- Range Club at the University of Idaho
- Southern Plains Climate Hub
- Southwest Beef CAP / NMSU-ANRS
- Spoonfest *Artisan
- Stevenson Intermountain Seed
- The Interactive Wild Horse Experience
- The Rangelands Partnership
- Traux Company
- Truckee Meadows Candle *Artisan
- University of Idaho Rangeland Center
- University of Montana O'Connor Center for the Rocky Mountain West
- University of Nevada, Reno Extension - Mineral County
- University of Nevada, Reno Range Club Booth
- USDA Agricultural Research Service
- USDA Poisonous Plant Research Laboratory
- USDA-Agricultural Research Service / Great Basin Rangelands Research Unit
- USFS
- USFS Recruitment #1
- USFS Recruitment #2
- USFWS/Partners for Fish and Wildlife
- Walker River Family Farm *Artisan
- Western Landowners Alliance
- Western SARE (Sustainable Agriculture Research & Education)
- Working Lands Conservation



FOREST SERVICE CAREERS

**REAL JOBS
REAL IMPACT**

Make a difference in your community and help steward and conserve the Nation's forests and grasslands.

AVAILABLE POSITIONS

Get your resume ready! We are hiring recent graduates and students for range management and natural resources opportunities across the Nation.

Positions include:

- Rangeland Management Specialist
- Range Technician
- Range Intern
- Soil Scientist
- Hydrologist
- Rangeland Manager (B-appoint development program)
- Botanist
- Geologist
- Archeologist
- Ecologist

JOIN US

Connect with USDA Forest Service recruiters during the

**2024 Society of Range Management
Annual Meeting & Conference**

January 28-February 2, 2024
Sparks, NV

Applicants do not need to attend event to apply for positions.

HOW TO APPLY

Apply on USAJOBS.gov

January 24-February 21, 2024

Scan the QR code below for more information about current opportunities. Here's how to apply:

1. **Create** a profile on USAJOBS.gov.
2. **Upload** or create a resume.
3. **Search** for jobs in USAJOBS. You can filter searches by job type or agency.
4. **Review** the job announcement.
5. **APPLY!**

More information

Scan the QR code or visit fs.usda.gov/working-with-us/careers to check out our interactive jobs map and sign up for updates on additional career opportunities.



USDA is an equal opportunity provider, employer, and lender.



POSTER SESSION #1

MONDAY, JANUARY 29TH

5PM-6:30PM; LOCATED IN THE TRADE SHOW

The format below indicates the following: Poster Number, Author, Title of Poster

1: Tolibjon Mukimov

The State of Animal Husbandry in the Alat District of the Bukara Region and the Factors Hindering its Development

2: Mark Thorne

A Decision Support Tool for Grass Finish Beef Production in Hawaii

3: Parker Witt

Effects of Soil Quality on Rangeland Forage Growth and Nutrition Without Reliance on Underground Storage Mechanisms

4: Jessica Dudak

Effect of protein supplementation on growth of sheep consuming two different forages

5: Carlos Morales-Nieto

Relationship of photosynthetic efficiency, stomatal characterization and forage production in populations of sideoats grama

6: Hailey Wilmer

"Table Mountain has a story to tell": Multi-species interactions characterize summer range sheep systems in the Centennial Mountains of Idaho, US

7: Diego Avilés

Evaluation of Herd Instinct Tags on Cattle Behavior in the Trans-Pecos Region of Texas

8: James Bolyard

The impact of long-term stocking rates on soil moisture content and drought resilience

9: Zach Johnson

Influences of a High Stocking Rate During Different Growing Season Periods on Plant Community Composition of Smooth Brome (Bromus inermis) Dominated Rangeland

10: Trace Stauble

Patch Mow Grazing: Another Way to Achieve Rangeland Heterogeneity?

11: Mark Thorne

Diet Composition of Goats Grazing Subtropical Rangeland in Hawaii Varied by Season

12: Justin Clarke

Avian Nesting Communities and Survival in a Heterogeneity-based Rotational Grazing System

13: Sabela Vasquez-Rey

Impact of Livestock Grazing Intensity on Avian Taxonomic and Functional Diversity in Montane Riparian Meadows in California's Federal Public Lands

14: Amanda Norton

Songbird abundance across grazed pastures on a sagebrush steppe ranch

15: Larry Kempton

Cattle Resource Selection on Late Fall Sagebrush Steppe Habitat in Idaho, United States

16: William J Price

Dormant season grazing has no impact on community diversity compared to grazing exclusion

17: Timm Gergeni

Infrastructure Development at the University of Wyoming's McGuire Research Ranch: Rangeland Grazing Innovations in High Elevation Sagebrush

18: Danny Eastburn

Managing Restored Perennial Grasslands with Fire and Grazing

19: Hailey Wilmer

Fire and long-term seasonal grazing impacts on insect gall diversity in sagebrush ecosystems in Southeast Idaho, USA

20: Hadley Dotts

Rangeland resiliency and plant community dynamics in response to three stocking rates over 34 years.

21: Barbara Rodrigues

Near Infrared Spectroscopy: A non-invasive approach for estimating methane emissions in grazing livestock

22: Amber Dalke

What are you saying? Building a communication roadmap to effectively share rangeland knowledge

23: Reanna Santos

Principles vs. Practices: Redirecting the Narrative in Rangeland Management

24: Bob Gillaspay

Ecological Resistance and Resilience Part A - Making Ecological Resistance and Resilience on Rangelands More Readily Available

25: Bob Gillaspay

Ecological Resistance and Resilience Part B – Management Interpretations and Reports – Information to help answer specific questions

26: Vanessa Schroeder

Applying Threat-Based Land Management to Promote Resilience in Mesic And Upland Areas in Sagebrush Ecosystems

27: Pedro Martinez

Evaluating the sensitivity of ecological site identification in national monitoring programs

28: Nathan Redecker

Data management tools to support standardized monitoring

29: Mitch Stephenson

Implementing Collaborative Adaptive Management Research at the UNL Barta Brother Ranch

30: Jeremy Schallner

A framework for establishing data-informed benchmarks

31: Alison Ainsworth

Great Basin Cooperative Ecosystem Studies Unit: Connecting Federal Land Managers, Students, and the Best Available Science

32: Darrell Smith

The Alberta Feral Horse Management Framework: an example of collaborative management

33: Wade Lieurance

Quantifying Wild Horse Body Condition: A Methodological Investigation Using Game Cameras and Observer Bias Corrections



34: Stacy Lynn

Developing a Free Roaming Horse and Burro Ecology and Management K-12 Curriculum

35: Kimberly Tanguma

Linking Soil Moisture with Photosynthetic Activity with Very High-Resolution Imagery

36: Madison Hughes

Creation of Surface Fuels Photoload Series Pilot Study

37: Jennifer Muscha

Estimation of herbaceous biomass using machine learning and Sentinel 2 imagery in Northern Mixed Grass Prairie

38: Mike Anderson

Mapping baseline vegetative characteristics at the Arapahoe wildlife refuge

39: Jack Alexander

Empowering Land Managers through Multispectral Imagery and Vegetation Monitoring in Rural El Salvador

40: Haley Moon

Mapping soil geochemistry to improve reclamation potential using sUAS (drones)

41: Lindsey Stone

Predictive Mapping of the Moss Component of Biological Soil Crusts

42: Jesus A. Prieto-Amparan

Land Use/Land-Cover Changes in the Transboundary Rio Grande Basin through NALCMS (2010-2020)

43: Clayton Marlow

Archaeology and rangeland ecology: Management recommendations for Rosebud Battlefield State Park regarding historic archaeological preservation, conifer encroachment, plant community shift, and fire risk

44: Robin Tausch

Thirty Years of Vegetation Changes in a Relict Bunchgrass Dominated Ecosystem, Virginia Mountains, Western Nevada: A Repeat Photography Based Climate Change Viewpoint.

45: Kory Kolis

Utilizing Assessment, Inventory, and Monitoring (AIM) Data to Investigate Sagebrush Shape Trends Across the Landscape

46: Jesus A. Prieto-Amparan

Vegetation monitoring in a Grasslands Ecological Significant Regions at spatial and temporal scales, in northern Mexico

47: Merilynn Schantz

Seasonal climate forecasting to estimate plant production in late-seral sagebrush-steppe plant communities

48: Daniel R Schlaepfer

Understanding future ecological drought in rangelands

49: Samuel Valliere

Using COMET-Farm to determine greenhouse gas emissions and evaluate conservation practices on an eastern Oregon ranch.

50: Kyle Palmquist

Understanding the effects of climate change and disturbance on rangeland plant communities

51: Leslie Roche

Can “stacking” grassland management practices enhance ecosystem services and climate-resilience?

POSTER SESSION #2

MONDAY, JANUARY 30TH

5PM-6:30PM; LOCATED IN THE TRADE SHOW

The format below indicates the following: Poster Number, Author, Title of Poster

1: David Lile

Assessment and Comparison of Virtual Fence and GPS Ear Tag Technologies for Rangeland Cattle Grazing

2: Kyle Pfaffenberger

Harnessing Virtual Fencing Technology for Conservation and Improved Rangeland Management



3: Hope de Avila

Salient Visual and Audio Warning Cues for Use in Virtual Fence Systems

4: Daniel J Ramirez

DEVELOPING A VIRTUAL FENCING SYSTEM FOR LARGE AREAS IN SOUTH TEXAS

5: Emma Macon

Sustainable Weight of Ear-borne Devices on Cows

6: Alexander Stosich

Propagation and Establishment of *Penstemon albomarginatus*, a Threatened Plant of the Mojave Desert

7: Javier Ochoa-Espinoza

Ordination, diversity of species and soil of the semi-desert grassland in southeastern Coahuila, Mexico

8: Esben Kjaer

Thatchy Business: The Role of Thatch in Inhibiting Native Plant Germination

9: Melissa Burrell

Using arbuscular mycorrhizal fungi to help establish and increase vigor of plants in degraded soils

10: Kerry Byrne

Hidden beneath our feet: can the soil seed bank be used for restoration across a gradient of cheatgrass invasion in sheep-grazed sagebrush steppe?

11: Jonathan Spiess

Floral resources in the Centennial Mountains: Exploring the effects of elevation and seasonality on phenology and abundance

12: Raechel Hunsaker

Effects of grass species and soil types on early successional forb species

13: Javier Ochoa-Espinoza

Assessing the Effectiveness of Brush Management in Central Coahuila, Mexico

14: Javier Ochoa-Espinoza

Using Fire to Restore Natural Habitats in Northern Coahuila, Mexico

15: Rebecca Burson

Effects of Fire Frequency on the Monoterpene Content of Redberry Juniper

16: Lan Xu

Spatial Variation in Eastern Redcedar (*Juniperus virginiana* L.) Seed Predation in Eastern Central South Dakota

17: Kristina Ramsey

Relationship between Tree Vigor and Structural Characteristics in Pinyon-Juniper Woodland

18: Cole Lysgaard

Pinyon-juniper woodland type classification to inform resilience management

19: Jessica Michalski

Chuck and Koreen Anderson 2022 Excellence in Range Management Award Winner South Dakota Area IV

20: Juan Manuel

Martinez Reyna Heading Towards the Fiftieth Anniversary (1974-2024): Antonio Narro University's Range Plant Identification Team

21: Lauren Porensky

The role of rangeland stewardship in sustaining rangeland ecosystem services

22: Spencer Good

Scratching the surface of species used in Utah's seed-based restoration scene

23: McKenna Delton

Comparing seedling functional traits of bluebunch wheatgrass (*Pseudoroegneria spicata*) plant materials originating from three ecoregions

24: Mallory Hinton

Exploring soil-plant relationships to inform seed selection for rangeland restoration

25: Miranda Meehan

Using Inherent Soil and Climate Properties to Rate Reclamation Suitability of North Dakota Soils

26: Morgan Doran

Strategizing rangeland seeding based on landscape position



27: Martin Genova

Investigating the Influence of Repeated Plantings and Seeding Rate on Post-Fire Restoration Success in Sagebrush Steppe

28: Melissa Landeen

Great Basin Research Center and Seed Warehouse: Operational Overview and Updates

29: Lia Qin Ryan Ossanna

Weedy plant response to variable precipitation following restoration seeding in the Southwest US

30: Mitch Greer

Evaluation of Wyoming Sagebrush (*Artemisia tridentata* subsp. *wyomingensis*) Tubling Plantings Post Wildfire: Effort to Restore Greater Sage Grouse Habitat

31: Erin Jacoway

Breaking Dormancy and Increasing Restoration Success of Native Forbs Using Gibberellic Acid Seed Coatings

32: Graham Holton

Evaluating the Effects of In Situ Ruminant Fermentation on the Seeds of Rangeland Species with Seed Coatings

33: Charlie Clements

Effective Restoration Efforts following the Martin Fire

34: Jacob Phillips

The Effects of Herbicide Weed Control and Perennial Grass Establishment on Soil Nitrate (NO₃-) in Arid Great Basin Habitats

35: Miranda Mueller

Herbicide Management of *Bromus tectorum* (L.) in the Nebraska Panhandle

36: Cole Barber

Comparing field to remotely-sensed estimates of annual grass cover in Indaziflam treated areas

37: Walter Fick

Evaluation of Herbicides for Saltcedar Control on the Cimarron National Grassland

38: Clint Stonecipher

Herbicide control of Geyer's larkspur (*Delphinium geyeri*)

39: Morgan Robinson

Investigating Methods of Control for Spotted Knapweed in the Lac du Bois Protected Area

40: Adam Soames

Down and Dirty with the Knottiest Weeds

41: Bailey Coffelt

Impact of Snowpack Manipulations on Kentucky Bluegrass.

42: Jennifer Ellis

The Impact Variability Has on Knotweed Rhizome Viability

43: Benjamin Menapace

Validating thresholds of valley confinement on low order prairie streams

44: Andrew Britton

Evaluating the effect of conservation actions to improve Lahontan cut-throat trout (LCT) habitat in northern Nevada streams managed by the BLM.

45: Kirby Lau

Beyond the Pellet: A Trial of Trail Cameras for Quantifying Habitat Use by Greater Sage-Grouse (*Centrocercus urophasianus*)

46: Erica Sarro Gustilo

Bumble bees and flowering plants in Montana Rangelands

47: Kaitlyn Preszler

Not just a pretty face: the importance of forbs for cattle nutrition in South Dakota

48: Katherine Pearson

Nutritive Value Dynamics and Strategic Supplementation of White-tailed Deer Browse Species in the Southern Cross Timbers and Prairies of Texas

49: Sabrina Claeys

Partnerships to improve grazing management and wildlife habitat in Minnesota

50: Hailey Wilmer

Against common sense: Co-producing prairie dog research for rangeland conservation and livelihoods



SOCIAL EVENTS

SUNDAY EVENING SOCIAL EVENTS

- 5-6PM.....Student Conclave Mixer
 Room: Chalet Terrace
 Trade Show & Welcome Mixer
 Room: Grand Ballroom 2 & Cascade 2

MONDAY SOCIAL EVENTS

- Noon-1pm.....Past President's Lunch
 Location: Oyster Bar Restaurant
- 11:30AM-1PM.....Student Conclave and YPC Business Lunch
 Room: Chalet Terrace
- 5-7PM.....Young Professional's Social
 Room: Chalet Terrace
- 5-7:30PM.....Greet & Graze
 Room: Sierra I
- 6-8PM.....Rangelands Trivia Night
 Room: Game On Restaurant located on the main Casino Floor
Description: All are welcome to join in on an evening of trivia focused on rangelands! A small menu of appetizers options will be available to order from (pay on your own) as well as a full bar for any alcohol and non-alcoholic drinks (pay on your own).
- 6:30-8:30PM.....Rangelands Music and Poetry Gathering
 Room: Cascade I
Description: Join old friends and make new ones at the SRM music and poetry gathering. We'll share songs, poems, and stories from working rangelands around the world. All instruments and styles are welcome!

TUESDAY EVENING SOCIAL EVENTS

- 4:30-6:30PM.....Bridging the Gap
 Room: Sierra I
Description: The Young Professionals Conclave, in conjunction with Student Conclave, is excited to host the sixth annual Bridging the Gap mentorship event at the SRM 2024 annual meeting.

The objective of this mentorship event is to build more connections between the student/young professional membership of SRM and established professionals. Mentees and mentors will participate in a semi-structured activity to facilitate discussion and networking, with the intent of helping mentees navigate career opportunities in rangeland science and management.

Students and young professionals looking for a job, internship, grad position or career advice will not want to miss this event!

We have modified our program based on participant feedback and have new resources available to strengthen networking opportunities between mentees and mentors. Join us for drinks, appetizers, raffle prizes and conversation at the 2024 annual meeting!

- 5-8:00PM.....UNR & Nevada Section Social
 Room: Sierra 2
- 5:30-7:30PM.....Department of Natural Resource Management, SDSU
 Room: Southern Pacific B
- 5:30-7:30PM.....International Mountain Section/Montana State
 University Social
 Room: Southern Pacific D
- 6-8:00PM.....USDA ARS Family Meeting
 Room: Cascade 5
- 6-8:00PM.....USDA USFS Family Meeting
 Room: Cascade 3
- 6-8:00PM.....USDA NRCS Family Meeting
 Room: Cascade I
- 6-8:00PM.....DOI BLM Family Meeting
 Room: Cascade 4
- 6-8:00PM.....Utah State University, Wildland Resources – Alumni
 Room: Southern Pacific A&G
- 6-8:00PM.....University of Arizona Alumni Social
 Room: Southern Pacific C
- 6-8:00PM.....University of Wyoming Social
 Room: Southern Pacific E
- 6-8:00PM.....Cal Poly Humboldt University Alumni Social
 Room: Southern Pacific F



- 6-8:00PM.....Forest & Rangeland Stewardship, CSU
Room: Sierra 3
- 6-8:00PM.....Idaho Section Social
Room: Redwood: 7
- 6-8:00PM.....Texas A&M University Social
Room: Redwood 8
- 8-11PM.....Dance and Live Music!
Room: Grand Ballroom I

*Overview: Join us for a fun night of dancing and great music provided by Chad Bushnell! Visit Chad's page to learn more about this great artist:
<https://www.chadbushnell.com/>*

WEDNESDAY SOCIAL EVENTS

- 8-10AM..... Bloody Mary Bar in the Trade Show
Overview: Join us for our last morning in the Trade Show by grabbing a cup of coffee and/or a Bloody Mary (cash bar) and mingling with all of our fantastic exhibitors!
- 3:30-6PM.....SRM Student and Honor Awards
Room: Grand Ballroom I
Overview: Join us as we recognize all of our outstanding student competitors and Honor awardees!
- 6-8PM.....SRM Wild Women of Range
Location: Game On Restaurant (located on Main Casino Floor)

YOUNG PROFESSIONAL & STUDENT EVENTS

Please refer to official program and schedule for room assignments, times and full technical session list

SUNDAY, JAN. 28TH

- 9AM-5PM.....Job Fair
- 8AM-11PM.....High School Youth Forum Home Room
- 6AM-11:30PM.....Student Plant ID Study Room
- ALL DAY.....Participate in one of the many SRM Committee meetings!
See the full schedule for list of Committees and room assignments and times.
- 5-6PM.....Student Conclave Mixer
- 5-8PM.....Welcome Mixer & Trade Show Social

MONDAY, JAN. 29TH

- 8-5PM.....Trade Show
- All Day.....Agency Recruitment Rooms
- 8-11AM.....URME Exam
- 7AM-10PM.....Student Plant ID Study Room
- 9AM-5PM.....Undergraduate Extemporaneous Speaking Contest
- 11:30AM-1PM.....Student Conclave and YPC Business Lunch
- 1-3PM.....Session of Note: What's the 411 on Reviewing Scientific Papers
- 3:20-5PM.....Young Producer's Symposium: For the Next Five Years
High School Youth Forum Tour and Professional Interaction Dinner
- 3-6PM.....Rangeland Cup
- 5-6:30PM.....Poster Session #1
- 5-6:30PM.....Young Professional's Social
- 6:30-8:30PM.....Rangelands Music and Poetry Gathering
- 6-8PM.....Trivia Night

TUESDAY, JAN. 30TH

- 8AM-Noon.....Plant ID Contest
- 8AM-5PM.....Trade Show
- All Day.....Agency Recruitment Rooms
- 8AM-5PM.....HSYF Paper Presentations
SRM Business Meeting Lunch
(Purchase a lunch ticket or sit-in and listen at no charge)
- 4:30-6:30PM.....Bridging the Gap
- 5-6:30PM.....Poster Session #2
- 6-8PM.....University Socials and Agency Family Meetings
(see schedule for all socials)
- 8-11PM.....Dance/Live Music

WEDNESDAY, JAN. 31ST

- 7AM-11PM.....HSYF Home Room
- 8AM-Noon.....Trade Show
- All Day.....Agency Recruitment Rooms:
- 8:30AM-1:30PM.....Technical Tour 3: Wild Horse and Burro Management
**Will be back in time for awards!
- 3:30-6PM.....Honor and Student Awards
- 6-8PM.....Wild Women of Range



TOURS

All tour participants should meet for their tour 20 minutes ahead of the start time posted to load the buses, which will be located at the East Entrance, behind the Horseshoe Bar, on Victorian Plaza Cir.

Markleeville Ecology Tour – *Beyond Just the Range*

SUNDAY, JANUARY 28TH, 8:30 AM – 1:30 PM

8:30AM.....Depart. This half-day tour will travel south along the eastern Sierras through Carson City, NV and to Markleeville, CA within the Carson Ranger District of the Humboldt-Toiyabe National Forest. Lunch will be provided. Please wear warm clothing and boots or shoes appropriate for winter conditions.

9:15AM.....Jacks Valley. The first stop of this tour will take participants to Jacks Valley outside of Carson City where Tracy Shane (UNR), Lecturer/PhD Candidate and head of the Drone Rangers, will discuss using drones for vegetation monitoring and provide a demonstration. During this tour stop participants will tour a portion of a 4-year long fine fuels targeted grazing project. Mechanical fuels reduction has also been completed in this wildland-urban interface. The tour will focus on how drones and LiDAR can be used to make estimates of vegetation characteristics. Planning considerations for incorporating drone-based photogrammetry into vegetation sampling methodologies will be discussed, as well as a brief overview of the post-processing requirements. If weather conditions allow, one or more types of drones will be used for real-time demonstrations.

11:15AM...Tamarack fire site in Markleeville, CA. The tour group will head south to visit the Tamarack fire which burned approximately 68,000 acres across Alpine County, California and Douglas County, Nevada in 2021. The group will stop outside the town of Markleeville, CA, located off Highway 89. Annabelle Monti (Forester, USFS) will speak about pre-fire vegetation management in the area, as well as post-fire recovery and restoration efforts. Mary Young (Markleeville Water Company) and Wes Mosley (Alpine Watershed Group) will also speak to restoration projects implemented in the area, as the main water source for the town of Markleeville was significantly impacted by the fire.

Frey Ranches: *Rambling River Ranches and Frey Ranch Distillery*

TUESDAY, JANUARY 30TH, 8:30 AM – 1:30 PM

8:30AM.....Depart. Fallon, NV is an agricultural hub on the far west end of The Loneliest Road in America (a.k.a. US Highway 50). This half-day tour

presents an opportunity to learn about the area through the eyes of the Frey family, long-time local ranchers and agricultural stewards of the land. Lunch will be provided. Please wear warm clothing and boots or shoes appropriate for winter conditions.

9:30AM.....Rambling River Ranches. The first stop of this tour will take participants to Rambling River Ranches outside of Fallon, NV, where the Frey family has been ranching for five generations. Embracing new and innovative techniques, Joe Frey strives to elevate family farming and ranching practices with an emphasis on soil health and sustainability. Joe will speak about his family history, regenerative agricultural practices, diversified range management, and the challenges of farming in the Great Basin.

11:00AM.....Frey Ranch Distillery. Next stop, whiskey! Grown, mashed, malted, distilled, matured, and bottled in Fallon. The tour group will travel to Frey Ranch Distillery, one of the few distilleries worldwide to sustainably grow 100% of their grains onsite at their 1,500-acre farm. The group will tour the distillery to learn about the family's 165 years of farming and distilling techniques. An optional complimentary whiskey tasting will be offered for a true ground-to-glass experience.

Wild Horse and Burro Management

WEDNESDAY, JANUARY 31ST, 8:30 AM – 1:30 PM

8:30AM.....Depart. This half-day tour provides the opportunity for participants to learn about wild horse and burro (WHB) management in Nevada. Lunch will be provided. Please wear warm clothing and boots or shoes appropriate for winter conditions.

9:15AM.....Palomino Valley National Wild Horse and Burro Center. The tour group will travel north of the Reno/Sparks area to visit the Palomino Valley WHB Center, the largest BLM preparation and adoption facility in the country. The group will learn about gatherings, off-range processing facilities and pastures, and the preparation process for adoption. There are 83 herd management areas (HMAs) across 15.6 million acres in Nevada managed by the BLM, with a combined appropriate management level (AML) of 12,811 animals.

11:30AM.....WHB Impacted Field Site. The second stop of this tour will be at a WHB impacted riparian field site. Sherm Swanson, rangeland and riparian scientist and UNR Cooperative Extension educator, will discuss WHB management, the associated ecological implications, and interagency efforts across Nevada to address the issue.



Virginia City Ghost Tour

SUNDAY, JANUARY 28TH, 10:30 AM – 3:30 PM

Established in 1859, Virginia City became the richest mining town in the world.

Today's Virginia City is remarkably the same as it was during its heyday with wooden sidewalks, restored mansions, "Old West" saloons, the Piper Opera

House and mine tours. Guests will be transported from Reno to beautiful Virginia City, with a Convention Activities guide to narrate and point out interesting sights along the way. This rip-roarin' town had a booming population and exciting reputation. It created millionaires and desperadoes, actors and authors, and beautiful Victorian mansions built by the mine-owners. Here guests will have the chance to visit the town's most haunted building and enjoy a tour inside.

Then you can take a stroll on the wooden sidewalks to browse through the many original saloons, gambling halls, and antique shops or visit old Victorian mansions, museums, and churches. You may want to meander down to Grandma's Fudge for something to satisfy a sweet tooth before re-boarding the bus for the return trip to Reno. Lunch will be provided.

Tour Highlights: Historic Virginia City, Virginia Truckee Railroad, Geiger Grade, Mackay Mansion, Washoe Club, Pipers Opera House

Local Brew Tour

MONDAY, JANUARY 29TH, 4:00 PM – 7:30 PM

Guests will be transported from the Nugget Casino to Black Rabbit Mead where they will be immersed in the world of mead. They will have a chance to meet the owners, learn about their trade, and taste test different steps of the brewing process and the final product. Then it is off to Lead Dog, one of the homebrewers of Reno. Guests will have a chance to pick out their favorite drink from the menu and enjoy each other's company. Finally, a short walk over to Ferino Distillery allows guests to step into the world of Cinnamon. The Ferino Tour offers a vast tasting of products made on site and allows guests to see the process and story of how this all came to be. Ending the tour with a custom drink, this adventure never disappoints.

Tour Highlights: Tours of two different types of breweries, tastings, custom cocktails

Donner, Truckee, and North Lake Tahoe Tour

TUESDAY, JANUARY 30TH, 9:00 AM – 4:00 PM

Take a relaxing ride up to the edge of the Sierra Nevada, stopping at the famous Donner Party Memorial where you have a chance to stretch your legs and learn of their adventure. Afterwards, take a short ride to downtown Truckee, where guests will be on their own for an early lunch and some shopping in this quaint town. The Convention Activities guide will have recommendations for lunch if needed. As we head toward Lake Tahoe, North America's largest alpine lake, your guide will narrate and point out interesting sights along the way. There will be short stops along the shores of Lake Tahoe to enjoy taking pictures and looking at the scenery. Kings Beach and other key attractions will surely be a highlight. The tour ends as we wind up and over the pass and back to the Nugget in Sparks. (Tour is subject to weather and road conditions).

Tour Highlights: Donner Summit, Donner Memorial, Downtown Truckee, North Lake Tahoe Photo Stops, North Lake Overview, Mt. Rose Pass.

Reno City Highlights

WEDNESDAY, JANUARY 31ST, 3:30 – 5:00 PM

Some say Reno is where it all began. Quickie divorces, legalized gambling, access to untold wealth and riches. This tour takes a colorful drive around the Biggest Little City in the World to see and admire these icons of our ever-changing society. Meander by the old ranches and see just how much the city of Reno has grown. Gander a look down on the city from Windy Hill, it's a breathtaking view so don't forget your camera. Then continue along the pathways of Reno admiring the various architectural styles from the bungalows to extravagant homes. History will come alive as a stop is made to see the Whispering Giant and the Sensory Gardens at Idle-wild Park. Taking in the sights as we travel along the Truckee River, we make our way back with a short stop at the University of Nevada to see and hear about its history. And don't forget a photo opportunity under Reno's world-famous arch. This all-around tour gives you a sense of what Reno has to offer and the history behind it.

Tour Highlights: Windy Hill Overlook, Reno Arch, University of Nevada Reno, Sleeping Giant, Idlewild Park



2024 SRM HONOR AWARDS

Join us Wednesday, January 31st from 3:30pm-6pm as we acknowledge and celebrate the SRM Honor Awardees. See below for a list of honorees and join us as we celebrate all these remarkable individuals and their accomplishments in the field or rangeland management.



Dr. Karen Launchbaugh
Frederick G. Renner
Award



Bob McCann
W.R. Chapline Land
Stewardship Award



Dr. Derek Bailey
Sustained Lifetime
Achievement Award



Dr. Brandon Bestelmeyer
W.R. Chapline
Research Award



Dr. Jeanne Chambers
Sustained Lifetime
Achievement Award



Dr. Patricia Johnson
Sustained Lifetime
Achievement Award



Dr. Clinton Stonecipher
Outstanding Achievement
Award for Research



Brenda Simpson
Outstanding Achievement
Award for Land
Stewardship



Dr. Jameson Brennan
Outstanding Young Range
Professional Award



Dr. Rory O'Connor
Outstanding Young Range
Professional Award



Matthew Shapero
Outstanding Young Range
Professional Award



Alex Orozco
YPC Outstanding Early
Career Award

ADDITIONAL SRM AWARDS



James A. Linebaugh
Distinguished Service Award
presented by the
SRM Board of Directors



Frank and Sims Price Ranch
New Award
The Chuck Jarecki Rancher
Land Stewardship Award



NRCS helps America's farmers, ranchers and forest landowners conserve soil, water, air and other natural resources while ensuring the land's productivity.

View open positions at: www.usajobs.gov



NRCS proudly supports the Society for Range Management (SRM) Annual Meeting

To learn more about NRCS, please visit us at: www.nrcs.usda.gov



PLENARY SESSIONS

Overview of the 2024 SRM Annual Meeting Plenary Sessions

The 2024 plenary sessions will be panel discussions among a group of young rangelands professionals and a group of experienced rangeland professionals of diverse backgrounds on the Annual Meeting theme, "Change on the Range". These will be live interviews for The Art of Range Podcast hosted by Tip Hudson (<https://artofrange.com/>), recorded for later release. Tip will roundtable interview each group of 4-5 individuals about what change on the range means to them.

MONDAY, JANUARY 29TH

- 8:00AM.....SRM President Barry Perryman: Introductory Remarks
- 8:05AM...Official Entrance: Color Guard, Flag Presentation, and Drum Circle
- 8:15AM.....Welcome from Nevada Governor Joe Lombardo
- 8:25AM.....Young Rangeland Professionals/Students Podcast: "What does Change on the Range Mean to You" with Tip Hudson

Panelists:

- Melissa Lackore
- Kaelie Pena
- Josh Tashiro
- Katherine Haile
- Paige Stanley

9:45AM.....Closing remarks: SRM President Barry Perryman

PANELIST BIOS

MELISSA LACKORE

Melissa Lackore is a recent December graduate from the University of Nevada-Reno Rangeland Ecology and Management program. During her time at UNR, she has worked in different labs on campus, maintained a high grade point average, was the UNR Range Club president, SRM Student Conclave Vice-President, and the UNR Rodeo Team secretary. She also has operated her own custom leather business for several years and recently began building saddles.

KAELIE PENA

Born in Northeastern California, a member of the Susanville Indian Rancheria and of Maidu, Pit River, and Washoe decent, Kaelie earned a bachelor's degree in Rangeland Resource Science from Humboldt State University and is currently working on a master's degree in Environmental Science through University of Idaho. She started her career as a Pathways Intern with the U.S. Forest Service 2016 after being hired during an SRM Annual Meeting Hiring event. After interning for two summers, Kaelie converted to a permanent Rangeland Management Specialist position on the Bridgeport Ranger District of the Humboldt-Toiyabe National Forest and is currently on the Salmon-Cobalt Ranger District of the Salmon-Challis National Forest where she's been for 3 years. Aside from her professional work, Kaelie has been a very active member of SRM since her first meeting as a student in 2015. She has served in leadership positions with Student Conclave and Young Professionals Conclave, was awarded the SRM 'Young Professional Conclave Outstanding Early Career' Award in 2022, has been active in the Cal-Pac, Nevada, and Idaho Sections, served as an Idaho Section BOD representative, has participated in several Society committees, and is the incoming Membership Committee Chair. Kaelie is passionate about rangelands and specifically about outreach/education and collaborative management associated with all things rangelands.

JOSH TASHIRO

"Originally from the northeastern edge of Denver but with a family history in farming (a city kid), I naturally steered down the agricultural path. Through the aid of family and friends, I had the opportunity to spend my youth in the mountains of Colorado helping on working cattle ranches and on the western plains of Kansas helping with wheat harvests. My experiences led me to attend Colorado State University, where I earned a BS in Rangeland Ecology with a concentration in Range and Forest Management in 2011. This led me to my career with NRCS in Colorado, where I have worked for a handful of different field offices and various projects throughout the state. In my current position, I coordinate NRCS Colorado's National Resources Inventory program and train

employees in rangeland ecology related topics. In the fall of 2019, I was able to start my own agricultural journey grazing sheep on irrigated pasture. Since then, I have gone into business with my fiancé acquiring some rangeland and cattle that we operate. Nearly all of the land is leased from BLM, private landowners, and the Colorado State Land Board."

KATHERINE HAILE

"Coming from family land in central Texas, I attended Sul Ross State University in Alpine and graduated with a bachelor's degree in Sustainable Ranch Management and Ag Business. I went on to earn a master's from Oklahoma State University in Natural Resource Ecology and Management. For my thesis project, I studied the effects of patch burning on cattle grazing distribution and forage quality. During my degrees, I worked as a range technician for a summer with the USDA Agricultural Resource Service and as a cattle management intern for Deseret Cattle and Citrus in Florida for a semester. Currently, I am a Range Monitoring Specialist for Simplot Land and Livestock in the Intermountain West region where I evaluate rangeland health on Simplot BLM and Forest Service grazing allotments. For the past two years, I have served as the SRM Young Professionals Conclave treasurer and vice president, respectively. I will be the incoming Young Professionals Conclave (YPC) President after the 2024 Annual Meeting."

PAIGE STANLEY

"I'm a rangeland soil biogeochemist working to understand how grazing management influences ecosystem and soil processes governing soil carbon sequestration and stabilization. With a B.S. in Biology and Economics (Georgia College), M.S. in Animal Science (Michigan State University), PhD in Environmental Science (University of California, Berkeley), and Postdoc in Soil and Crop Science (Colorado State University), I leverage my interdisciplinary background to approach my research through a combined lens of soil biogeochemistry, rangeland ecology, rancher sociology/social science, animal science, and plant ecophysiology. Core to my work is centering ranchers throughout the research process to ensure my work is equitable, informed, and applicable to working land-



scapes as social-ecological systems. Though understanding soil carbon outcomes from grazing management is the main pillar of my research, I also work on synergistic projects to optimize soil carbon measurement and monitoring methods on heterogeneous rangeland systems, understand drivers and barriers to ranchers' adoption of adaptive grazing methods, and drive science-informed policy for more resilient rangelands in the face of climate change.”

TUESDAY, JANUARY 30TH

8:00AM.....Introductory Remarks; Meghan Brown, 2024 Planning Committee Co-Chair

8:05AM.....ARS Welcome

8:15AM....Experienced Professionals Podcast: “What does Change on the Range Mean to You” with Tip Hudson

Panelists:

- Agency: John Ruhs
- Producer: James Stuart
- NGO: Liz Munn
- Academia: Annie Overland

9:45AM.....Closing remarks: Meghan Brown, 2024 Planning Committee Co-Chair

PANELIST BIOS

JOHN RUHS

John is retired from a thirty-plus year career with the Bureau of Land Management (BLM). His career included working in a variety of positions including Rangeland Management Specialist, Fire Management Officer, Wild Horse and Burro Specialist, and numerous leadership positions. John worked in multiple locations throughout the United States (ID, OR, WY, NV, CO, DC, VA, WI) and ended his career as the State Director for Idaho BLM. In addition to working for the BLM, John spent time in the Marine Corp, farmed and ranched for many years and worked as a

farrier. Currently, John is a licensed real estate agent in Idaho. John is a graduate of Treasure Valley Community College in Ontario, Oregon and the University of Idaho in Moscow, Idaho. He has also been a member of the Society of Range Management for over 30 years.

JAMES STUART

James Stuart’s passion for nature and ranching was sparked at an early age while growing up in an agricultural valley in southeastern Idaho. He and his wife Kendra have raised their three children on ranches from Montana to Florida. He is dedicated to using stockmanship, ecological, behavioral, and financial principles as tools to manage landscapes, help people, produce food and fiber, all the while sustaining the ranching traditions and heritage they love. James earned a bachelor’s degree in rangeland resource management from Utah State University and a master’s degree from the King Ranch Institute for Ranch Management. He owns and operates Stewardship Ranching LLC and is the newly hired ranch manager at Nevada Gold Mines.

LIZ MUNN

In over eight years with TNC, Liz has managed several complex projects at the intersection of mining, agriculture, and conservation. These include TNC’s engagement with Barrick/Nevada Gold Mines for a sage-grouse mitigation project, and an innovative public-lands grazing project on the Winecup Gamble Ranch. Liz is passionate about finding science-based solutions that work for both people and nature. She received a B.A. from Whitman College and a M.S. from the University of Michigan, where she studied collaborative resource management planning.

ANNIE OVERLAND

“I am a rangeland and riparian ecologist. In addition, I farm and ranch in Southeastern Colorado as part of our 7th generation ranching operation. I am the regional range specialist for the Eastern Plains of Colorado and own and operate a consulting business focused on rangeland health. I’m fascinated by soil/plant interactions and associated relationships with animal nutrition.”





Get Your
Federal
Resume Ready



Connect with Bureau of Land Management at our booth at the SRM Conference

This is a prime opportunity for those passionate about conserving natural landscapes and wildlife to find a rewarding career path at BLM.

What's Waiting for You at Our Booth:

- Diverse Opportunities: Learn about immediate openings for Rangeland Management Specialists, Wildlife Biologists, Natural Resource Specialists and many other occupations.
- Meet Our Team: Engage with experienced BLM employees who can share insights and stories about their careers. Our team is eager to meet aspiring professionals and guide them through the variety of career paths available. Understand the tangible impact of our work on the environment and communities.

- Take-home materials: Collect brochures and detailed job descriptions to help you understand the roles and benefits of joining BLM.

- Incentives: Recruitment, Relocation or Student Loan Repayment may be authorized to eligible selectees. If eligible and qualified, you may be offered an incentive.

- Seminars: Sign up for helpful in-person seminars on navigating the USAJOBS website to be held throughout the SRM conference. Learn about the benefits offered to federal employees.

Why Build a Career with BLM?

- Impactful Work: Every position at BLM contributes to the stewardship of America's public lands and resources, ensuring they remain beneficial to all.

- Professional Growth: With training, mentorship, and a range of projects, BLM is committed to the continuous development of our team members.

- Community and Lifestyle: Join a workforce that values collaboration, diversity, and work-life balance. Enjoy the benefits of living and working in environments that offer adventure and tranquility.

- We understand that not everyone can join us at the SRM Conference. Therefore, we encourage interested candidates to visit USAJOBS to explore and apply for available positions online. Look for Bureau of Land Management listings to find a role that matches your skills and passion.



- 1 PM-3PM.....REM STEERING COMMITTEE
Room: Alpine 2
- 3PM-5PM.....PUBLICATIONS STANDING COMMITTEE
Room: Alpine 2
- 1 PM-4PM.....PPAC
Room: Alpine 1
- 2PM-4PM.....PROGRAM ACCREDITATION COMMITTEE
Room: Southern Pacific A&G
- 3PM-5PM.....TARGETED GRAZING COMMITTEE
Room: Southern Pacific C
- 3PM-5PM.....DIVERSITY & INCLUSION COMMITTEE
Room: Southern Pacific D
- 3PM-5PM.....NATIVE AMERICAN RANGELAND
ADVISORY COMMITTEE (NARAC)
Room: Southern Pacific B
- 4PM-5PM.....AWARDS COMMITTEE
Room: Southern Pacific A & G
- 4PM-5PM.....LIVESTOCK FORAGING BEHAVIOR COMMITTEE
Room: Southern Pacific F
- 4PM-5PM.....GLC COMMITTEE
Room: Alpine 1
- 5PM-6PM.....STUDENT CONCLAVE MIXER
Room: Cascade 1
- 5PM-6PM.....EXTENSION MEETING: RENEWABLE
RESOURCES EXTENSION ACT (RREA)
Room: Cascade 3

*Description: Extension meeting to provide input as it relates to rangeland and
wildlife management for the renewal of the Renewable Resources Extension Act
(RREA) and what are the priorities. We will provide some refreshments.*
- 5PM-8PM.....TRADE SHOW OPENS/ENDOWMENT FUND
SILENT AUCTION BEGINS
- 5PM-8PM:.....WELCOME RECEPTION & WELCOME MIXER
Room: Grand Ballroom 2 & Cascade 2

TOURS

4PM-7:30PM.....SOCIAL TOUR 2: LOCAL BREW TOUR

MEETING SCHEDULE

7AM-8AM.....2024 PLANNING COMMITTEE ROOM
Room: Redwood 1

7AM-6PM.....REGISTRATION OPEN

8:00AM - 10:00AM

8AM-5PM.....TRADE SHOW

8AM-10AM.....PLENARY
Room: Grand Ballroom 1

8AM-11AM.....URME EXAM
Sierra 4 & 5

8AM-10PM.....STUDENT PLANT ID STUDY ROOM
Room: Sierra 3

8AM-5PM.....AGENCY RECRUITMENT #1 NRCS
Room: Redwood 3

8AM-5PM.....AGENCY RECRUITMENT #2 USFS
Room: Redwood 2

8AM-5PM.....AGENCY RECRUITMENT #3 BLM
Room: Redwood 5

8AM-6PM.....LEADERSHIP TASK FORCE ROOM
Room: Central Pacific

8AM-11PM.....HSYF HOME ROOM
Room: Redwood 6

*HSYF Tour: All Day, Offsite *HSYF Professional Interaction Dinner, Offsite

10AM.....COFFEE BREAK IN THE TRADE SHOW



10:20AM – 12:00PM

10:20AM-5PM.....UNDERGRADUATE EXTEMPORANEOUS SPEAKING
CONTEST: ROOM A
Room: Redwood 7

10:20AM-5PM.....UNDERGRADUATE EXTEMPORANEOUS SPEAKING
CONTEST: ROOM B
Room: Redwood 8

SYMPOSIA:

NEVADA DEPARTMENT OF WILDLIFE RESTORATION

Organizer: Moira Kolada
Room: Cascade 3

10:20AM.....Mark Freese: Nevada Department of Wildlife Habitat
Restoration Projects: a state agency
management perspective

10:40AM.....Matt Glenn
Pre-Emergent Herbicide Strategies to Restore Crucial Wildlife Habitat:
Lessons Learned

11AM.....Brittany Allen
Seeding and Seedling Planting Strategies by Nevada Department of
Wildlife to Rehabilitate and Restore Functional Habitat for Wildlife

11:20AM.....Moira Kolada
Pinyon Juniper Treatments Designed with Wildlife In Mind

11:40AM.....Tori Cernoch
Nevada Department of Wildlife’s Adventures in Spring Protection –
What We’re Doing and Why

12:00pm: Lee Davis
Monitoring, Planning, and Where We Go From Here

MONDAY, JANUARY 29TH

SYMPOSIA:

CO-LABORING IN THE WEST: STEWARDSHIP
ECONOMIES AND RANGELAND CONSERVATION

Sponsors: NatGLC, CA Rangeland Trust, CA Rangeland Conservation Coalition,
Western Landowners Alliance, Holistic Management International, Cal-Pac
SRM, Cobblestone Ranch, Bamert Seed Co, TX GLC

Organizer: Breanna Owens, Jared Talley, Kris Hulvey, Zach Altman
Room: Southern Pacific C

Session Overview: Communities and landscapes are in constant flux and flow. How do we hold the tension of old and new; public and private; production and consumption; art and science; what we know and have yet to learn? Patty Limerick offered, “When someone figures out how to countermand and set right the disconnect between production and consumption, everyone who wants the best for the West and the nation must write that person a thank you note.” Rather than an individual, groups of people are working along perpendicular pathways in communities all across the West diligently and thoughtfully co-laboring (collaborating) to advance economically viable rangeland stewardship. These are their stories.

10:20AM.....Jared Talley, Boise State and Bre Owens, NatGLC
Introducing the conversation - co-laboring in the West

10:40AM.....John Austel, 4J Horse and Livestock Co. and Lynn
Huntsinger, UC Berkeley
Grazing and monitoring for ecosystem health on Rancho Jamul

11:00AM.....Merrill Beyeler, Beyeler Ranches and Daniel Bertram, ID
Office of Species Conservation
Practice and economics of ranching and salmon recovery in Salmon, ID

11:20AM.....Group Discussion – facilitated audience discussion on topics
covered, along with continued Q & A with panelists

SESSION WILL CONTINUE FROM 1PM-3PM

MONDAY, JANUARY 29TH



**SYMPOSIA:
WILD EQUINE SCIENCE ROUNDUP**

Organizer: Eric Thacker
Room: Sierra 2

Session Overview: An update on Free Roaming Equine Science; Sponsored by the Free-Roaming Equine Ecosystem Sustainability Network (FREES)

10:20AM.....Niki Frey
Public values shape public trust of wild horse management.

10:40AM.....Kate Schoenecker
Domestication history influences potential horse competition with wildlife.

11:00AM.....Jake Hennig
Resource selection and occurrence overlap between feral horses, greater sage-grouse, and pronghorn in cold-arid-steppe.

11:20AM.....Derek Scasta
Feral horse cause-specific mortality relative to mustering (gathering) and individual demographic attributes in the USA.

11:40AM.....Eric Thacker
Distribution of competition potential between native ungulates and free roaming equids on western rangelands.

NOON.....BREAK FOR LUNCH

1PM.....SESSIONS RESUME

MONDAY, JANUARY 29TH

WORKSHOP:

0454 PROGRESS, PROPOSALS, PASSAGES

Organizer: Susan Edinger Marshall, Marc Horney
Room: Alpine 1

Session Overview: Following the 2023 0454 workshop we will highlight progress made, including: annual reporting profession, innovative educational offerings to fill gaps among existing professionals, agency futuring, and other advances. We will discuss proposals to smooth the path for new and transitional 0454 personnel. This will include changes in human resources transparency and hiring practices, plus studies to understand recruitment, retention, equity, and job satisfaction issues. The final sub-session titled passages will be future-focused; exploring common ground with leadership initiatives, youth education and outreach, and taking advantage of rising interest in Rangeland Management with the upcoming International Year of Rangeland and Pastoralists.

PROGRESS

10:20-10:30AM.....Susan Marshall, Gilbert Jackson
Introductions, review of past progress

10:30-10:40AM.....Patti Novak-Echenique and Theresa Becchetti
Preview “Educating the Next Generation”

10:40-11:10AM.....Tamzen Stringham
Beyond the brick and mortar - 0454 education

PROPOSALS

11:10-11:20AM.....Gilbert Jackson
Annual Report Card/Infographic - Mock up and information available

11:20-11:30AM.....Gilbert Jackson, Miles Ritch
Employment Development/Ways to hire

MONDAY, JANUARY 29TH



PASSAGES

11:30-11:45AM.....Activity -Ask participants - Why did you hire on, why did you stay, why did you leave (“Asking for a friend”)

11:45-12:00PM.....Report back

WORKSHOP: STOCK-SMART: DYNAMIC STOCKING RATE DECISION SUPPORT FOR THE 21ST CENTURY

Organizer: Tip Hudson, Aaron Whittemore, Sonia Hall
Room: Alpine 2

***PARTICIPANTS SHOULD BRING A COMPUTER TO WORK WITH STOCK-SMART DURING THE SESSION.*

Session Overview: *Good grazing avoids over-harvest through appropriate stocking and adaptive management. How many animals for how long remains a primary management decision: too many animals for too long can impair grazed natural ecosystems. The known unknown variable in most rangeland landscapes is vegetation quantity accessible to domestic herbivores. Underestimating the influence of terrain and water on animal distribution can dramatically overestimate available forage. Stock-Smart allows land managers to fine-tune available forage by user-defined distance to water and slope steepness, yielding an ecologically responsible starting stocking rate. This session offers a scientific overview and hands-on training in this new decision support tool.*

- Tip Hudson & Sonia Hall (WSU): Why do we need another decision support tool? Intended uses and applications for Stock-Smart
- Matt Reeves (USFS scientist): Deep dive on data. What is the Rangeland Production Monitoring Service (RPMS) and how is it different from other annual net primary production (ANPP) remote-sensed products?
- Matt King (U of Arizona programmer): What's in the black box? Geographic information system calculations integrating vegetation production data and user-defined terrain use factors.
- Case study: Iric Burden (USFS), Adaptive grazing management using RPMS on the Kaibab Plateau
- Case study: Jeff Burnham (Washington Dept. Fish & Wildlife), using Stock-Smart to achieve wildlife management objectives on state land
- Tip Hudson: Coached, hands-on training session. Speakers will instruct participants in accessing Stock-Smart, setting up an account, and inputting details to explore

stocking rates for a real situation (either the participant's own operation, or a use case for which speakers have stocking history data available). Participants will be able to relate the Stock-Smart outputs to the speakers' presentations, as well as to compare them to their own knowledge of the situation they are exploring. They will also be instructed to develop some scenarios they are interested in exploring, such as water development or adding virtual fences. Given the easy-to-use nature of the Stock-Smart interface, this training should provide the basic training that will prepare participants for using the tool on their own in the future.

CONTRIBUTED ORAL SESSION: RANGELAND MONITORING

Room: Southern Pacific A & G

10:20AM.....Jason Cox

Utah's range trend vegetation monitoring: Using landscape scale monitoring to inform wildlife and habitat management

10:40AM.....Leah Dreesmann

A statistical approach to quantifying sources of variability in vegetation monitoring data

11:00AM.....Loreen Allphin

Monitoring of long-term grazing paddocks in cold, salt desert shrub communities on the experimental range, Utah, USA.

11:20AM.....Rheinhardt Scholtz

Monitoring early warning signals to Resist-Accept-Direct (RAD) grassland collapse

11:40AM.....John Scasta

Refinement of the Robel pole for rangeland grazing applications: insights from diverse applications



CONTRIBUTED ORAL SESSION: MAPPING

Room: Cascade I

10:20AM.....Sujan Parajuli
Prototyping sentinel-2 data to develop 10-m NDVI-based exotic annual grass maps in Snake River Basin using machine learning

10:40AM.....Shane Green
Integrating concepts of ecological sites, state-and-transition models, rangeland health, and NRCS conservation planning

11:00AM.....Lucas Phipps
Quantitative assessment of vegetative states and thresholds in the Wyoming Sagebrush plant community in Nevada

11:20AM.....Felix Ratcliff
Developing ecological sites to guide grazing on San Diego County conserved lands

11:40AM.....Sean Kearney (Recorded presentation)
Mapping standing biomass from satellite imagery in heterogeneous rangelands: Updates from a sagebrush-grassland ecotone

CONTRIBUTED ORAL SESSION: GLOBAL PRODUCER

Room: Southern Pacific B

10:20AM.....Nicolas Caram
The role of grasslands and rangelands in global beef production

10:40AM.....Mohammed N. Sawalhah
Effects of pandemic lockdown on Jordan rangelands Vegetation

11:00AM.....Luci Lu
Land tenure security determinants and trade-offs:A hypothetical game

11:20AM.....Tunga Ulambaya
Testing a multifunctionality framework for Mongolian mountain forest steppe grazing systems: Enhancing wellbeing for humans and wildlife

11:40AM.....Tolib Mukimov
Prevention of pasture degradation under climate change by mobilizing plant resources Salsola Paletziana LITV

**CONTRIBUTED ORAL SESSION:
PROGRAM COMMUNICATIONS (SESSION 1 OF 2)**

Room: Southern Pacific E

10:20AM.....Michelle Jeffries
Accessible adaptive management:An introduction to the Land Treatment Exploration tool

10:40AM.....Devii Rao
An updated California rangeland decision assistance tool:The CRSA

11:00AM.....Cali Roth
A decision support tool for rangeland grazing planning and management

11:20AM.....Krista Ehlert
Leveraging producer scientists to inform a decision-support tool for real-time management in extensive rangeland systems

MONDAY, JANUARY 29TH

MONDAY, JANUARY 29TH



**CONTRIBUTED ORAL SESSION:
WOODY PLANT ENCROACHMENT**

Room: Southern Pacific D

- 10:20AM.....Scott Morford
Mapping tree encroachment impacts to ecosystem services: biome-scale insights from remote sensing & ML
- 10:40AM.....Samantha Cady
Rangeland vulnerability to tree encroachment in the Great Plains and Western United States
- 1:00AM.....Craig Carr
Conifer in-growth and expansion in the western US:A regional evaluation with implications to sustainable beef cattle production.

- 11:20AM.....Landon Neumann
Eastern red cedar encroachment creates cooler microclimates and increased soil carbon and infiltration
- 11:40AM.....Sydney Noble
Possible hysteresis in a woody dominated state grazed by bison

CONTRIBUTED ORAL SESSION: HISTORICAL

Room: Cascade 5

- 10:20AM.....Gregg Simonds
Alexander Von Humboldt- The invention of nature
- 10:40AM.....Hailey Wilmer
Lost seasonal ranges reshape transhumant adaptive capacity:Thirty-five years at the US Sheep Experiment Station

- 11:00.....Karin Sonnen
Nunivak Island Then and Now; a review of 10 permanent vegetation monitoring locations through the last 32 years on this Alaska Bering Sea Island, home to herds of muskoxen and reindeer.

- 11:20AM.....Kierstin Acuna
Effects of a reintroduced herbivore on native and exotic vegetation in a grassland community over the past 25 years

- 11:40AM.....Eric Sant
Assessing change using historic ~1m imagery

MONDAY, JANUARY 29TH

- NOON-1PM.....LUNCH BREAK
LUNCH CONCESSIONS AVAILABLE FOR PURCHASE IN THE TRADE SHOW
ROOM SIERRA 1 IS SET WITH ROUND TABLES TO ENJOY YOUR LUNCH AND CHAT WITH FELLOW ATTENDEES OR TAKE IN THE TRADE SHOW AND VISIT WITH OUR EXHIBITORS!

- 11:30AM-1PM.....STUDENT CONCLAVE AND YPC BUSINESS LUNCH
Room: Chalet Terrace (5th Floor)

- NOON-1PM.....PAST PRESIDENT'S LUNCH
Location: Oyster Bar Restaurant

1:00PM – 3:00PM

**SYMPOSIA: USDA RESEARCH
ORGANIZER: CHARLIE CLEMENTS**

Room: Southern Pacific A & G

MONDAY, JANUARY 29TH

MONDAY, JANUARY 29TH



Session Overview: The USDA, Agricultural Research Service, Great Basin Rangelands Research Unit (GBRRU) has been conducting research in Great Basin environments for more than a half century. This symposium will present an array of research covering a number of topics including post-fire rehabilitation, soil erosion, effects of pinyon-juniper woodland encroachment, and mechanical and chemical control of cheatgrass for rangeland rehabilitation practices. Scientist and research technicians from the USDA-ARS Reno, Nevada Unit will present some of their most current research projects covering a diversity of rangeland issues.

1:00PM..Introduction/Moderator Jeremy Drew (Principle Resource Concepts Inc./CARET; College Agricultural Research and Extension Team)

1:05PM.....Pete Vadas, USDA-ARS National Program Leader
 “Overview of rangeland research in the USDA-ARS and the role of ARS Office of National Programs”

1:15PM.....Duane Coombs, Big Springs Ranch
 “The Need for Agricultural Research on Great Basin Rangelands”

1:30PM.....Keirith Snyder, Ecologist USDA-ARS-GBRRU
 “The effects of pinyon and juniper on components of the water budget: how much water do trees use?”

1:45PM.....Kirk Tonkel, Biological Science Technician USDA-ARS-GBRRU
 “The Arthropods Inhabiting Juniper Berries in the Western US and Their Role in Seed Mortality”

2:00PM.....Harry Quicke Regional Stewardship Manager; ENVU
 “The Importance of Agriculture Research in Invasive Annual Grass Control”

2:15PM.....Charlie Clements Rangeland Scientist USDA-ARS-GBRRU
 “The Use of Pre-emergent Herbicides in Cheatgrass Control and Rehabilitation”

2:30PM.....Dan Harmon, Agricultural Research Technician
 USDA-ARS-GBRRU
 “The Importance of Plant Material Testing on Great Basin Rangelands”

2:45-3:00PM.....Moderator Jeremy Drew
 Panel Discussion

**SYMPOSIA:
 CLIMATE ADAPTATION STRATEGIES FOR CONSERVATION OF RANCHING AND RANGELANDS OF THE GREAT PLAINS AND SOUTHWEST**
 Organizer: Andres Cibils, Mr. Skye Aney, Dr. Jean Steiner
 Room: Southern Pacific C

Session Overview: Current and predicted climate change trends in the Great Plains and Southwest call for novel approaches to managing rangeland and ranching. Researchers, extension specialists, and educators working on two large USDA NIFA-funded Coordinated Agriculture Projects, The Prairie Project and the Sustainable Southwest Beef CAP will address a set of broadly-shared stakeholder questions about conservation of rangelands in the face of climate change. Speakers from each team will provide paired perspectives on challenges and climate adaptation solutions associated with stakeholder concerns about woody plant encroachment, fire, and grazing in the Great Plains and the Southwest.

1:00- 1:10.....Jean Steiner and Andres Cibils
 Opening remarks – Welcome Setting the Stage

1:10 – 1:25.....Emile Elias, USDA Southwest Climate Hub and Fifth National Climate Assessment team
 Climate change in the Great Plains and Southwest: syntheses, trends, and projections

1:25 – 1:40.....Christine Miller Hesed, North Central Climate Science Adaptation Center (virtual)



Questions of importance to the conservation of North Central grasslands of the United States in a Changing Climate

Paired science-informed perspectives from the Great Plains and Southwest

1:40 – 2:10.....Brandon Bestelmeyer, USDA ARS Jornada Experimental Range and Dirac Twidwell, University of Nebraska

How will climate change impact woody plant encroachment and how will the effectiveness of current efforts to manage woody encroachment change?

2:10 – 2:40.....Sam Fuhlendorf, Oklahoma State University

How will the effectiveness of current prescribed burn practices be affected by a changing climate, and how will those practices need to be altered to be more effective in a changing climate?

2:40 – 2:55.....Break

Session resumes at 2:55pm, see the agenda below in the 3:20pm-5pm time block

SYMPOSIA:

CO-LABORING IN THE WEST: STEWARDSHIP ECONOMIES AND RANGELAND CONSERVATION

Organizer: Breanna Owens, Jared Talley, Kris Hulvey, Zach Altman

Room: Southern Pacific B

CONTINUED FROM 10:20AM-NOON SESSION

Session Overview: Communities and landscapes are in constant flux and flow. How do we hold the tension of old and new; public and private; production and consumption; art and science; what we know and have yet to learn? Patty Limerick offered, "When someone figures out how to countermand and set right the disconnect between production and consumption, everyone who wants the best for the West and the nation must write that person a thank you note." Rather than an individual, groups of people are working along perpendicular pathways in communities all across the West diligently and thoughtfully co-laboring (collaborating) to advance economically viable rangeland stewardship. These are their stories.



1:00.....Intros - Bre Owens

1:10.....Laurel Harkness, RVCC and Hallie Mahowald, WLA
Stewardship economies – people, place, and a sustainable return on investment

1:30.....Bill Milton, Milton Ranch and Shane Trautner, BLM Billings Field Office
Connecting community and landscape health in eastern MT

1:50.....Bret Riley, Sand Ranch and Megan Nasto, Working Lands Conservation
Data-informed adaptive management of wildlife and cow habitat in eastern NM

2:10.....Dale Lamborn, Three Creeks Grazing LLC; Taylor Payne, UT Grazing Improvement Program; and Kris Hulvey, Working Lands Conservation. Three Creeks Allotment consolidation project

2:30.....Group Discussion – facilitated audience discussion on topics covered, along with continued Q & A with panelists

SYMPOSIA:

FREE-ROAMING EQUINE SCIENCE ROUND-UP

Organizer: Eric Thacker

Room: Sierra 2

Session Overview: An update on Free Roaming Equine Science; Sponsored by the Free-Roaming Equine Ecosystem Sustainability Network (FREES)

1:00.....Sherm Swanson

Grazing Management for Livestock, Free-Roaming Horses and Burros, and Ecosystem Resilience

- 1:20.....Sarah King
Proximate factors affecting mortality or abandonment of free-roaming feral horse foals.
- 1:40.....Ursula Bechert
Fertility Control Options for Management of Free-roaming Horse Populations.
- 2:00.....Kate Schoenecker
PopEquus: demonstration of a new horse management tool.
- 2:30.....TBD
BLM Wild Equine Research Needs
- 2:45.....Panel Discussion: Science Needs and Opportunities.

**WORKSHOP:
EXPLORING POETIC INQUIRY AND MULTISPECIES
ETHNOGRAPHY: TWO CREATIVE METHODS IN
RANGELAND SOCIAL SCIENCES**
Organizer: Hailey Wilmer, Will Munger
Room: Alpine 3

Session Overview: This workshop is designed to bring managers, ranchers, students, researchers, and rangeland professionals together to explore new creative methods of understanding one another and our relationships with rangeland systems. We will focus on two emerging methods: multi-species ethnography and poetic inquiry. Multi-species ethnography describes the cultures formed by humans and other species. Poetic inquiry is an arts-based approach used to analyze and present research findings, to explore the emotional realm of rangelands, and to engage rangeland cultures and the public. Workshop attendees will have the opportunity to experiment with both methods and are encouraged to bring their own field notes, transcripts or other data to the session.

Host team: Maria Fernandez-Gimenez; Hannah Gosnell; Ethan Gordon; Matías Hargreaves Mendez; Ada Smith; Will Munger; Hailey Wilmer, with special virtual guests Natasha Fijn, Keri Brandt Off, and Andrea Pettit.



- 1:00-1:20PM.....Part 1
Introduction: Describe workshop goals, the need for new methods to understand social and social-ecological relationships through creative methods.
- 1:20-2:20PM.....Part 2
Concurrent Poetry and Multispecies Ethnography Workshops: Interactive sessions with experts in each method. Apply new analysis methods to existing data and case examples.
- 2:20-3PM.....Part 3:
Whole group discussion & wrap up: Share out and brainstorm new applications and implications.

**WORKSHOP:
CHANGING THE RANGE BY ACCESSING FREE RANGE
DATA**
Organizer: Nicole Kaplan, Holly Johnson, John Hendrickson
Room: Alpine 1

Session Overview: Rangeland data historically have been site-based with local availability through hard copy, spreadsheets, and investigator experiential knowledge. This has limited cross-site, regional and national level efforts to assess trends and trajectories of production and biophysical/ecological responses. Recent efforts have made long-term livestock production data across many sites available through the National Agricultural Library (aka Free Range Data). These efforts will change the range by facilitating cross-site analyses, calibrating, and validating models, and assessing ecosystem service trade-offs. This workshop will demonstrate how you can access these long-term livestock data and provide expertise in helping you organize, document, and publish your data.

- 1:00-1:05PM.....Bret Hess, Western Association of Agricultural Experiment Station Directors
Western Association of Agricultural Experiment Station Directors - Why long-term data can help change the range

1:05-1:15PM.....Nicole Kaplan and Holly Johnson, USDA,
 Agricultural Research Service
 How to wrangle and prepare your data for publication

1:15-1:25PM.....Kevin Sedivec, North Dakota State University
 Perspectives from a data provider

1:25-1:40PM.....Bret Taylor, USDA, Agricultural Research Service
 Are all the data there? An animal scientist’s perspective about posting
 meaningful datasets

1:40-2PM.....Drew Scott, USDA, Agricultural Research Service
 Remembering experimental design when collecting and organizing data

2-2:20PM.....Edward Raynor, Colorado State University; Olivia Hajek,
 USDA, Agricultural Research Service
 Historical aspects and re-use of the data to meet grand challenges today

2:20-2:40PM.....Nino Chkhenkeli (remote), USDA, National Agricultural
 Library
 Services supporting open science for data exploration and re-use with
 demonstration of tools

2:40-3:00PM.....Q and A for the presenters and attendees

WORKSHOP:
WHAT’S THE 411 ON REVIEWING SCIENTIFIC PAPERS
 Organizer: Rory O’Connor, Katie Wollstein, Lauren Svejcar
 Room: Alpine 2

Session Overview: Peer-review functions to advance rangeland science, ensuring that published research is valid and rigorous. Beyond this, rangeland students, professionals,

and researchers continually benefit from engaging with new research, assessing and providing feedback to other scientists, by performing peer-review for scientific journals. This workshop is for people who seek to:

- Understand the role of peer-reviewers including selection as a reviewer, roles, and responsibilities.
- Gain insight into the peer-review process, including interactive instruction on reviewing a manuscript and preparing a constructive critique.
- Engage with a panel of journal editors and experienced reviewers who can answer questions about reviewing scientific manuscripts.

1:00PM.....Katie Wollstein and Lauren Svejcar
 Why is peer review important?

1:10PM.....Rory O’Connor
 Role of peer reviewer.

1:20PM.....Process of performing peer review. – hands-on activities of
 doing a review

- How to provide critical and constructive feedback?
- Laying out a good review.
- What is a minor, major, reject/resubmit decisions?

2:10PM.....Break

2:30PM.....Round Table with speakers and facilitators

- Editors of Rangelands and Rangeland Ecology and Management will discuss the purpose of those journals.
- General Q&A about the review process and reviewing papers.

CONTRIBUTED ORAL SESSION: CLIMATE
 Room: Cascade 4

1:00PM.....Anna Maher
 A compendium of management-relevant, decision-support tools to support climate adaptation on northwest U.S. rangelands



- 1:20PM.....Maria Stahl
Protecting rangelands in a changing climate: Comparing Raramuri Criollo landscape use patterns with red Angus cattle in the Colorado Plateau
- 1:40PM.....Olivia Hajek
Assessing the production-precipitation relationship across diverse agroecosystems and climate gradients in the US
- 2:00PM.....Justin Luong
Trait mechanisms underlying secondary invasion for California rangelands during drought
- 2:20PM.....David Augustine
Does drought intensify the effects of black-tailed prairie dogs on livestock production and net revenue in semiarid rangelands?
- 2:40PM.....Magda Garboski
Assessing the influence of functional traits on drought resistance and tolerance in 10 rangeland plants

CONTRIBUTED ORAL SESSION: EDUCATION
Room: Cascade 3

- 1:00PM.....Krista Ehlert
Successes, challenges, and takeaways from developing a rangeland curriculum for middle school students in South Dakota
- 1:20PM.....James Oltjen
Rancher motivations for adopting sustainability practices and joining sustainability programs

- 1:40PM.....Sakina Dixon
Prairie project educator cohorts: A promising initiative to increase awareness of the need and strategies to protect and preserve the southern Great Plains among K-12 and college educators and students
- 2:00PM.....Stephen Bramwell
Developing a southwest Washington grazing school to support livestock production and rare habitat
- 2:20PM.....Jessalyn Bachler
Foraging in the northern Great Plains: A case study of a successful rangelands curriculum lesson for all ages
- 2:40PM.....Stephanie Bestelmeyer
Introducing K-12 students and teachers to change on the range: free hands-on lessons about sustainable beef production in the southwest

CONTRIBUTED ORAL SESSION: INVASIVES
Room: Southern Pacific D

- 1:00PM.....Esben Kjaer
Nitrogenous nightmare: Soil nutrient changes favor smooth brome invasion over Kentucky bluegrass
- 1:20PM.....John Paul Wasan
Absinthe chemical warfare: Investigating allelopathic effects on native and invasive species of the Canadian Prairies
- 1:40PM.....Katherine Hovanes
Impact of priority effects and native plant community on performance of buffelgrass (*Pennisetum ciliare*), an invasive C4 perennial bunchgrass in the southwestern United States



2:00PM.....Daniel Lauritzen
 Determining optimal livestock grazing timing for bulbous bluegrass in southeast Idaho

2:20PM.....Melissa Meyers
 Plant-soil feedbacks of Lehmann lovegrass (*Eragrostis lehmanniana*) and its effect on competition with native black grama (*Bouteloua eriopoda*)

2:40PM.....Megan Clayton
 Whitebrush (*Aloysia gratissima*) control during growing and dormant seasons in South Texas.

CONTRIBUTED ORAL SESSION: MODELING
 Room: Cascade I

1:00PM.....Sean Di Stéfano
 Tackling rangeland complexity: APEX modeling on the western Great Plains

1:20PM.....Joseph Smith
 Saving sagebrush ecosystems from exotic annual grasses: can we win by managing disturbance?

1:40PM.....David Board
 Disentangling drivers of annual grass invasion in the sagebrush biome: biophysical susceptibility vs. fire-induced conversion

2:00PM.....Sam Knuth
 Assessing fire-induced bunchgrass mortality in sagebrush rangelands: An agent-based modeling approach

2:20PM.....Micheal Clyne

Forecasting sagebrush recovery potential in the Great Basin using structured population models

2:40PM.....Jessica Windh
 Temporal heterogeneity of rangeland grasses in a simulated grazing system and the potential benefits of integrating with cropping systems: A bioeconomic analysis

CONTRIBUTED ORAL SESSION: RIPARIAN
 Room: Southern Pacific E

1:00PM.....Sawyer Reagan
 Relationships among stream morphology, riparian plant community types, and grazing management in southwest Montana

1:20PM.....Tulley Mackey
 Rangeland restoration: Mimicking beaver to improve aquatic and riparian habitat in the high desert

1:40PM.....James Bolyard
 Low-tech process-based restoration of prairie streams in western South Dakota: Preliminary results

2:00PM.....Matt Trentman
 Predicting landscape-scale susceptibility of streams to potential livestock degradation using Google Earth Engine

2:20PM.....Benjamin Sullivan
 Meadows as soil carbon hotspots in rangelands

2:40PM.....Nick Pitizzette
 Quantifying rangeland ground conditions using remote sensing in riparian areas



CONTRIBUTED ORAL SESSION:
LIVESTOCK TECHNOLOGY

Room: Cascade 5

1:00PM.....Claire Foyil

Identification of bitter sensitivity in ram lambs using phenylthiocarbamide topically applied to feed

1:20PM.....Aaron Kersh

Sheep foraging behavior and diet selection in the context of Geyer's larkspur (*Delphinium geyeri*): insights from fDNA barcoding

1:40PM.....Temitope Oloede

Pedometer-based metrics of animal behavior in relation to summer heat stress

2:00PM.....Amadeus Barto

Evaluation of a commercial rumen bolus to monitor cattle behavior and well-being on rangelands.

2:20PM.....Martín Do Carmo Corujo

Ingestive and digestive behavior of pure and crossbred beef cows grazing native subtropical grassland differing in herbage mass

2:40PM.....Esben Kjaer

Bring us a shrubbery! DNA barcoding reveals dietary preferences across rangeland management practices

MONDAY, JANUARY 29TH

MONDAY, JANUARY 29TH

3PM.....COFFEE BREAK IN THE TRADE SHOW

3:20PM – 5:00PM

SYMPOSIA: METRICS, MANAGEMENT, AND MONITORING: LINKING GRAZING MANAGEMENT, SOIL HEALTH, AND PRODUCER WELLBEING

Organizer: Ada Smith, Jeff Goodwin

Room: Cascade 1

Session Overview: Pasture and rangelands are complex social-ecological systems that require research teams to study the people and land as a unified system. The 3M (Metrics, Management, and Monitoring) project is a multidisciplinary research effort examining the linkages between grazing land management, soil health, producer wellbeing, and overarching ecosystem function. Our session includes an overview of the 3M project, presentations by module leads of preliminary findings from Years 1 and 2 of data collection, and a discussion of project themes and the "how" of data integration in a collaborative, multidisciplinary research project.

3:20-3:30PM.....Derek Scasta, Nicki Nimlos, Jeff Goodwin

Project Overview: Metrics, Management, and Monitoring

3:30-3:40PM.....Jenna Likins

A framework for defining a continuum of grazing management strategies

3:40-3:50PM.....Paige Stanley, Erica Patterson, Megan Machmuller, and Francesca Cotrufo

Soil Health Indicators and Modeling

3:50-4:00.....Alex Kuhl, Cole Kelley, Quinton Merrill, Glenn O'Neil, Andrey Guber, Jeremiah Asher

Linking Water Flux Dynamics to the Grazingland Ecosystem

MONDAY, JANUARY 29TH



- 4:00-4:10PM.....Morgan Mathisonlee
Applied Landscape Monitoring and Education
- 4:10-4:20PM.....Zekuan Dong
Producer Profitability and Financial Wellbeing
- 4:20-4:30PM.....Ada Smith
Producer Wellbeing and Resilience
- 4:30-5:00PM.....Facilitated Discussion

**SYMPOSIA:
YOUNG PRODUCER'S SYMPOSIUM: FOR THE NEXT FIVE YEARS**
Organizer: Blake Duncan
Room: Chalet Terrace

Session Overview: The Young Producers Conclave presents a symposium to talk about the current and future issues the producers and professionals of Rangeland Ecology will be facing. The symposium will bring together younger people in their respective fields to share experiences and techniques they are employing in their work. A panel discussion at the beginning of the symposium will gather peers from ecology, ranching, farming, and other disciplines and give younger producers an opportunity to share their perspectives.

- 3:20PM.....Introductions: Moderator
- 3:30PM.....Panel: Young Professionals and Producers Discussion

YOUNG PRODUCERS PANEL:

- Hay Producer- Myles Ghetto- Churchill County, NV
- Producer- Braxton Crofts- Lander, Wyoming
- Cattle Producer- Elizabeth Reikowski (ereikowski95@gmail.com)- Paicines, CA

YOUNG PROFESSIONALS PANEL:

- Professional- Economics: Blane Merkley (Blane.Merkley@usda.gov)- F.S.A. Clark, and White Pine County
- Professional- Private Enterprise : Lewis Mendive (lewis@rci-nv.com)- R.C.I. Range Conservationist
- Professional- Agency coordination: Mattie Ward (mattie.johns.555@gmail.com)- N.R.C.S. Soil Conservationist

- 4:30PM.....Technical Presentation: Dr. Chuck Butterfield
Monitoring Practices for Ranchers on the Range
- 4:55PM.....Concluding Statement

**SYMPOSIA:
COME TO THE SHOW! IYRP NORTH AMERICA FILM FESTIVAL WINNERS**
Organizer: Courtney Buchanan, Anne Gondor
Room: Cascade 3

Session Overview: Description: Come relax and enjoy viewing some films that tell stories of rangelands and the people that live and work on these lands. This symposium will feature the winning films and other selected entries from the International Year of Rangelands and Pastoralists (IYRP) North America Support Group's first Film Festival competition. Short films of 3-10 minutes are currently being solicited from amateur and professional filmmakers (students, producers, rangeland professionals and others) that tell stories of rangelands and the people that live and work on these lands. Films will be highlighted that connect personal experiences to broader issues such as sustaining biodiversity, providing ecosystem services, producing live-stock sustainably, and creating systems resilient to droughts and climate. Filmmakers of selected films will be invited to attend a 20-minute question and answer panel at the end of the session to share more information and answer audience questions.

- 3:20- 3:25PM.....Courtney Buchanan
Introduce the film festival, thank film festival team, judges, and film-makers.



3:25 – 3:35PM.....Lauren Svejcar
Discuss IYRP, inform attendees about other IYRP sessions at SRM

3:40 – 4:40PM.....Film Viewing
Show winning film in each category (professional and amateur) as well as other selected films from the submissions. Most films we have received so far are about 10 minutes in length so we plan to show 6 films.

4:40PM.....Question and answer panel with film makers:
Filmmakers not planning to attend SRM will be invited to speak at the Q and A panel virtually.

NOTE: WE WILL HAVE A LIST OF FILMS/ FILMMAKERS FOR CHOSEN FILMS AFTER FILM SELECTIONS HAVE BEEN JUDGED. SUBMISSIONS ARE DUE NOVEMBER 17TH SO WE WILL NOTIFY SRM AS SOON AS POSSIBLE WITH THE LIST OF FILMS WE PLAN TO SHOW AND CONTACT INFORMATION FOR FILM MAKERS ONCE FILMS HAVE BEEN SELECTED.

**SYMPOSIA:
CLIMATE ADAPTATION STRATEGIES FOR
CONSERVATION OF RANCHING AND RANGELANDS OF
THE GREAT PLAINS AND SOUTHWEST**
Organizer: Andres Cibils, Mr. Skye Aney, Dr. Jean Steiner
Room: Southern Pacific C

Session Overview: *Current and predicted climate change trends in the Great Plains and Southwest call for novel approaches to managing rangeland and ranching. Researchers, extension specialists, and educators working on two large USDA NIFA-funded Coordinated Agriculture Projects, The Prairie Project and the Sustainable Southwest Beef CAP will address a set of broadly-shared stakeholder questions about conservation of rangelands in the face of climate change. Speakers from each team will provide paired perspectives on challenges and climate adaptation solutions associated with stakeholder concerns about woody plant encroachment, fire, and grazing in the Great Plains and the Southwest.*

2:55 – 3:25.....Laura Goodman, Oklahoma State University and Sheri Spiegel, USDA ARS Jornada Experimental Range

What grazing management practices can help ranchers successfully adapt to climate change while also supporting healthy rangeland ecosystems?

3:25 – 3:55.....Ben Wu, Texas A&M University and Joel Brown, USDA Southwest Climate Hub
How can public understanding of rangelands and their importance increase?

3:55 – 4:25.....Morgan Treadwell, Texas A&M University and Andres Cibils, USDA Southern Plains Climate Hub
How can the accessibility of relevant science and tools be improved?

4:25 – 5:00.....Speaker Panel: Jean Steiner, Kansas State University, moderator.
Panel Discussion and Wrap Up
Take home messages and proposed solutions

**SYMPOSIA:
BALANCING THE ART AND SCIENCE OF GRAZING
MANAGEMENT**
Organizer: Kason Haby, Julie Elliot
Room: Southern Pacific D

Session Overview: *A panel discussion featuring researchers, agency/extension personnel and ranchers highlighting applicable on the ground research for your ranching operation. This session combines the art and science of range and grazing management to provide information that you can take back to the ranch and use.*

3:20 PM.....Kason Haby, Chair, Grazing Land Coalition Committee
Welcome and Introductions

3:25 PM.....Doug Tolleson, Associate Professor, Texas A&M University, Stephen Deiss, Consultant, O'Conner Ranch
Forage Quality Monitoring to Inform Grazing and Nutritional Management Decisions



4:00 PM.....Regenerative Grazing
 120,000 Acres a Day for the Next 2161 Days: Nancy Labbe, Co-Director,
 Regenerative Grazing Lands Strategy, North America Agriculture
 Program, The Nature Conservancy
 The Art: Billy Griffin, Rancher/Owner, Griffin Cattle Sales

4:35 PM.....All Speakers
 Panel Discussion

5:00 PM.....Conclude

**SYMPOSIA:
 CONTEMPORARY ECONOMIC ISSUES
 ON WESTERN RANGELAND**
 Organizer: Dr. Michael H. Taylor
 Room: Southern Pacific E

Session Overview: This session includes presentations on several contemporary economic issues on western rangelands. Presentation topics include the economics of pinyon-juniper restoration, wild horse and burro management, wildland fire fuel breaks, flexible livestock production, and the regional economic impacts of reductions in public land grazing.

John Ritten

US Beef Cattle Inventory and Operation Size Historic and Spatial Trends
 to Inform Social Sustainability and Community Security

Man-Keun Kim

Investigation of Potential Structural Change in Western States AUM
 Allotments

Thomas R. Harris

Application of Supply-Determined Social Accounting Matrix Model to
 Estimate the Economic Impacts of Reductions in Range Cattle
 Production in Elko County, Nevada



Aaron Johnston

An economic evaluation of the net benefits of fire fuel breaks in the
 Great Basin

Egan C. Cornachione

Evaluating Costs and Benefits of Rangeland Restoration: A Case Study of
 Pinyon Juniper Removal in Central Nevada

Timothy Fitzgerald

Wild Horses and Burros in Economic Perspective

**WORKSHOP:
 RENEWABLE ENERGY ON RANGELANDS – PROS AND
 CONS. WITH GOOD GRAZING MAKES CENT\$**
 Organizer: Mary Jo Foley-Birrenkott, Jack Alexander, Erika Fitzpatrick,
 Dave Voth
 Room: Sierra 2

Session Overview: Energy development has long been a factor in rangeland management. With new technology and emphasis in the Inflation Reduction Act, development of renewable energy (wind and solar) as rapidly increased. This panel will explore renewable energy from all angles that a rancher needs to know in this interactive discussion- From the ecological perspective in terms of resource and ecological health, the economic perspective and its potential impact on an operation's bottom line, the law perspective regarding contractual agreements, the management perspective and grazing implications, and an overarching view of the impact this could have on the future of ranching. Participants will also have a chance to ask questions directly of experts, ranchers who have participated in a renewable projects, renewable critics, and renewable industry experts. Come with questions and ready for real talk.

- INTROS: 20 MINUTES**
- Luke Papez – LS Power, Wind
 - Chantry Dunlap- LS Power, Solar
 - Brian Harris and Lindy Kester – Long Road Energy, Solar
 - Derick Hembd – Sixconv – PJ biochar
 - Bret Crosby – Early adopter
 - Jack Alexander – Rangeland expert
 - Anson Howard – Attorney

OPEN AUDIENCE QUESTIONS

PREPARED QUESTIONS:

- What are the realistic terms in length of these contracts?
- What are the bonding requirements?
- What does reclamation look like post project life?
- How does a project of this size effect the land surrounding?
- Access, infrastructure, land management decisions
- Can you graze around the infrastructure?
- Do you get paid even if the development is a failure?
- Is it renting the land? Leasing? Sale?
- Does this/can this interfere with other conservation programs?
- Does this open a ranch up to litigation?

WORKSHOP:

VIRTUAL FENCE WORKING GROUP

Organizer: Sarah Noelle, Logan Vandermark

Room: Alpine I

Session Overview: Join the session for need-to-know updates on virtual fence, including US Department of Agriculture programs, Bureau of Land Management and US Forest Service implementation and Virtual Fence User Guide Factsheets and Videos available on Rangelands Gateway, and insights from producers already using virtual fence. Please join us to learn and share, and think about what is needed to support successful adoption of virtual fence.

This session was organized by the Virtual Fence Working Group (VFWG) is an informal consortium among people and organizations working with virtual fence (VF) technologies to test, refine, and share information on this novel technology.

3:20PM.....Welcome & Introductions

Sarah Noelle, University of Arizona; Logan Vandermark, South Dakota State University; Tegan May & William Burnidge, The Nature Conservancy

3:30PM.....Tom Hilken, National Grazing Specialist, USDA-NRCS
NRCS Update on VF Technology

3:40PM.....Iric Burden & Joey Dahms, US Forest Service, Kaibab National Forest, Arizona; Kristy Wallner, Rangeland Management Specialist, BLM, Colorado; Dwayne Rice, US Forest Service, R2 Rocky Mountain Region, Colorado

Virtual Fencing: Public Land Management Perspective

3:55PM.....Ryan Reuter, Alayna Gerhardt, & Federica La Manna, OK State University

Cattle Stress and Behavior in Adapting to VF

4:05PM.....Andrew Antaya, University of Arizona; Michael Stauder, Oregon State University

The Virtual Fence User Guide: Set up for Success

4:25PM.....BREAK

4:30PM.....Andrew Cox, NMSU Chihuahuan Desert Rangeland Research Center; Cole & Daniel Mushrush, Mushrush Red Angus, Kansas; Mike Camblin, Camblin Livestock, Colorado; Dave Ollila, Flying "O" Sheep, South Dakota

Producer Perspectives Panel Discussion

5:15PM..... Logan Vandermark, South Dakota State University

Wrap-Up and Lessons Learned

5:20PM.....Sarah Noelle, University of Arizona
Closing remarks & Adjourn

IGNITE:

NURTURING KNOWLEDGE FROM THE RANGE: WHAT WE CAN LEARN FROM RANCHER-DRIVEN RESEARCH

Organizer: Clayton B. Marlow, Kayla Gnerer
Room: Cascade 4



Session Overview: For the past 30+ years Western Sustainable Agriculture Research and Education (Western SARE) has supported rancher-driven research on many aspects of Range Management and livestock production throughout the western US and Pacific Islands. In this session participating producers will share outcomes of their own research into improving their operation’s resiliency to climate change and market fluctuation through the use of regenerative practices. Their experiences will be augmented by the shared learning of Range Science researchers and collaborating livestock producers about how regenerative practices can also contribute to the management of wildfire risk.

3:20-3:25PM.....Clayton Marlow
Speaker Introduction: Western SARE Support of Regenerative Grazing Management

3:25-3:30PM.....Kelly Hopping
Targeted Sheep Grazing to Control Invasive Species and Reduce Wildfire Risk

3:30-3:35PM.....Kerry Byrne
Seeds Underhoof: Can the Soil Seed Bank Facilitate Restoration of Sheep-Grazed, Cheatgrass Invaded Rangelands

3:35-3:40PM.....Chuck McAfee
Evaluating Forage Production and Ranching in Response to Regenerative Rotational Grazing, Southwest Colorado

3:40-3:45PM.....Jason Karl
Supporting Outcome-based Management on Private and Public Rangelands: Training Ag Professionals on Monitoring Techniques

3:45-3:50PM.....Audience Questions

IGNITE:

RESTORATION EFFECTIVENESS MONITORING: OPPORTUNITIES FOR STANDARDIZATION

Organizer: Emily Kachergis, Nika Lepak, Aleta Nafus, Sarah McCord, David Pilliod, Mike Duniway
Room: Cascade 5

Session Overview: Amidst change on the range, many restoration efforts are underway to improve rangeland ecosystem health. Restoration effectiveness monitoring enables us to evaluate and learn from restoration outcomes. Standardized monitoring programs (ex: BLM Assessment, Inventory and Monitoring and NRCS National Resource Inventory) can maximize learning by facilitating insights across boundaries and years. These programs include valuable standardized approaches for understanding restoration effectiveness. However, additional approaches will be needed to answer specific questions and empower more restoration practitioners to contribute. The goal of this ignite session is to increase awareness of available tools and explore emerging tools for standardized restoration effectiveness monitoring.

Kickoff

3:20-3:25.....Sarah McCord (ARS), David Pilliod (USGS)

The case for standardized restoration effectiveness monitoring

3:25-3:30.....Hailey Wilmer (USDA-ARS), Emily Kachergis (BLM)

Building a culture of restoration effectiveness monitoring, learning and adaptation

Restoration Practitioners; Perspectives

3:30-3:35.....Carrie-Ann Houdeshell (NRCS)

Assessing conservation practices on private and public lands (NRCS CEAP GL)

3:35-3:40.....Jake Ferguson (BLM), Doug Havlina (BLM)

Standardizing fuels and post-fire treatment effectiveness monitoring with BLM AIM – progress and next steps



3:40-3:45.....Mike Duniway (USGS), Randi Lupardus (BLM),
Janna Simonsen (BLM)

Evaluating reclamation effectiveness using quantitative benchmarks and standards

3:45-3:50.....Anna Matthews (American Bird Conservancy)

Grassland Effectiveness Monitoring (GEM): a Tiered Protocol to Determine Conservation Benefit of Implemented Management Practices on Private Lands

3:50-4:00.....Question & Answers

Promising Restoration Effectiveness Tools

4:00-4:05.....Kristina Young (USDA-ARS)

Understanding restoration outcomes across large areas using available satellite-derived map products

4:05-4:10.....Doug Shinneman (USGS)

Assessing impacts of extensive fuel break networks in the sagebrush biome: Emerging strategies to measure their effectiveness using remote sensing and field data

4:10-4:15.....Aleta Nafus (BLM) and Andrew Johnson (BLM)

Identifying Standard Plant Density Indicators and Methods for Restoration Effectiveness

4:15-4:20.....Nika Lepak (BLM)

Qualitative assessment of restoration effectiveness using Describing Indicators of Rangeland Health

4:20-4:25.....Laura Hamrick (CU), Jessica Phillips (BLM)

Empowering community-based restoration effectiveness field monitoring using LandPKS

Closing

4:25-4:30.....David Pilliod (USGS), Emily Kachergis (BLM), Sarah McCord (USDA-ARS), Aleta Nafus (BLM), Mike Duniway (USGS)

A path forward for restoration effectiveness monitoring and adaptive management in rangelands

4:30-5:00.....Questions & Answers

CONTRIBUTED ORAL SESSION: AVIAN WILDLIFE

Room: Southern Pacific B

3:20PM.....Tracey Johnson

Hayfields to habitat: restoring sagebrush breeding habitat for songbirds

3:40PM.....Katherine Travis

Navigating the fragmented thornscrub: using fine-scale movement data to assess functional responses to disturbance in a declining galliform

4:00PM.....Lauren Berry

Grassland bird occupancy responses to two new spatial early warning signals of state transitions: testing spatial variance and spatial covariance

4:20PM.....Justin Clarke

Enhancing avian territory quality with heterogeneity-based grazing regimes



4:40PM.....Caleb Roberts
 Successes, challenges, and scientific advances gleaned from
 ecoregion-scale grassland restoration in the Loess Canyons, Nebraska.

CONTRIBUTED ORAL SESSION: DATA USE

Room: Southern Pacific A & G

3:20PM.....Mike Schellenberg
 First year rancher response to Central Prairies Living Lab project

3:40PM.....Victoria Donovan
 The Prairie Project: A grass-roots effort to address literacy gaps in
 grasslands and their management in the Great Plains

4:00PM.....Jameson Brennan
 Integrating precision technology, machine learning, and animal nutrition
 models to inform grazing rotations in South Dakota

4:20PM.....Logan Megard
 The need for speed: Using Amazon Web Services to map larger areas,
 more often in less time

4:40PM.....Tolib Mukimov
 The use of efficient production technologies in desert-pasture animal
 husbandry

5PM-6:30PM.....POSTER SESSION #1
 Room: Trade Show

MONDAY EVENING SOCIAL EVENTS

5PM-7PM.....YOUNG PROFESSIONAL'S SOCIAL

Room: Chalet Terrace
 6PM-8PM.....RANGELANDS TRIVIA NIGHT
 Room: Game On Restaurant located on the main Casino Floor

Description: All are welcome to join in on an evening of trivia focused on
 rangelands! A small menu of appetizers options will be available to order
 from (pay on your own) as well as a full bar for any alcohol and non-alco-
 holic drinks (pay on your own).

6:30PM-8:30PM.....RANGELANDS MUSIC AND POETRY GATHERING

Room: Cascade I

Description: Join old friends and make new ones at the SRM music and poetry
 gathering. We'll share songs, poems, and stories from working rangelands around the
 world. All instruments and styles are welcome!

TUESDAY, JANUARY 30TH

7AM-6PM.....REGISTRATION
 Foyer on 2nd Floor

TOURS

8:30AM-1:30PM.....TECHNICAL TOUR 2: FREY RANCHES
 RAMBLING RIVER RANCH

9AM-4PM.....SOCIAL TOUR 3: DONNER, TRUCKEE AND NORTH
 LAKE TAHOE TOUR

MEETING SCHEDULE

8:00AM - 10:00AM

7AM-8AM: 2024.....PLANNING COMMITTEE
 Room: Redwood I

8AM-5PM.....TRADE SHOW

8AM-10AM.....PLENARY
 Room: Grand Ballroom I

MONDAY, JANUARY 29TH

TUESDAY, JANUARY 30TH



8:00AM-NOON.....PLANT ID CONTEST
Room: Sierra 4 & 5

10AM-6PM.....STUDENT PLANT ID COACHES ROOM
Room: Sierra 3

8AM-5PM.....AGENCY RECRUITMENT #1 NRCS
Room: Redwood 3

8AM-5PM.....AGENCY RECRUITMENT #2 USFS
Room: Redwood 2

8AM-5PM.....AGENCY RECRUITMENT #3 BLM
Room: Redwood 5

8AM-6PM.....LEADERSHIP TASK FORCE ROOM
Room: Central Pacific

8AM-11PM.....HSYF PAPER PRESENTATIONS
Room: Redwood 6

10AM.....COFFEE BREAK IN THE TRADE SHOW

10:20AM - 12:00PM

10:20AM-5PM.....RANGELAND TECHNICAL TRANSFER ALLIANCE
Room: Redwood 8

Overview: Members are invited from the Sagebrush Technical Transfer Partnership, Great Plains Grasslands Extension Partnership, and Invasive Annual Grass Tech Transfer Partnership to attend the Rangeland Technical Transfer Summit. The Summit is intended to connect technical transfer efforts in the sagebrush and Great Plains biomes for general awareness of related efforts, idea sharing, and collaboration.



**SYMPOSIA:
THE HUMAN DIMENSIONS OF RANGELAND
MANAGEMENT: A REVIEW AND KNOWLEDGE GAPS**

Organizer: Urs Kreuter
Room: Southern Pacific A & G

Session Overview: The herbaceous layer of rangelands is the basis for many ecosystem services that support human livelihoods and wellbeing. Over utilization and mismanagement of rangelands have globally led to degradation of the herbaceous layer and associated ecosystem services. While this has prompted substantial inquiry about rangeland ecology, research to identify factors affecting landowner adoption of ecologically sound rangeland management practices has been more limited. The purpose of this symposium is to present research conducted during the last quarter century about key aspects of the human dimensions of rangeland utilization in the USA, and to identify knowledge gaps for future research.

10:20-10:40.....Urs Kreuter and Lynn Huntsinger

A brief overview of human dimensions research in rangeland management during the last quarter century

10:40-11:00.....Dianne Stroman and Chali Simpson

Woody plant expansion in the Southern Great Plains: Landowner perspectives about current and desired woody plant prevalence

11:00-11:20.....David Toledo, Kiandra Rajala, and Mike Sorice

Landowner perceptions of invasive grasses in the northern Great Plains of the US

11:20-11:40.....Mike Sorice, Kiandra Rajala, Bryan L. Brown, Vanessa A Masterson, Samuel D Fuhlendorf

Relationship with the land as a foundation for ecosystem stewardship

11:40-12:00.....Carissa Wonkka

Legal and regulatory barriers and opportunities for using prescribed fire

12:00-1:00.....LUNCH BREAK: Session Resume at 1pm

**SYMPOSIA:
WOMEN MAKING A CHANGE IN RANGE PART I**

Organizer: Lesley R. Morris; SRM Diversity and Inclusion Committee:
Devyn Orr, Julie Larson, Devii Rao
Room: Southern Pacific E

Session Overview: *The Women Change Range Symposium is an all-day session in three parts with the intention highlighting the important ways that women, as a diverse group in the past and present, perceive and interact with land, break barriers, promote sustainability, and create change on our rangelands. It provides time to come together to listen one another's stories and learn from other's experiences. The symposium aims to create connections and build a collective momentum to be a force for change for women in range.*

10:20AM.....Lesley Morris

With the Mrs:Wives as collaborators in early range science

10:40AM.....María E. Fernández-Giménez

“Women pastoralists as tradition-keepers and change-agents: Lessons from Spain, Morocco and Mongolia

11:00AM.....Nitya Ghotge

Change begins with women: IYRP and the IYRP gender working group an introduction

11:20AM.....María Turiño, Ainhoa López and Paula Jarque

Ganaderas en Red (GER):A network of herdswomen in Spain

11:40AM.....Kris Stewart

The history and future trajectory of northern Nevada’s oldest single family run ranching operation: Stewart’s Ninety-Six Ranch”

Noon-1pm.....Lunch Break; Part II begins at 1pm

TUESDAY, JANUARY 30TH

**SYMPOSIA:
“CHANGE ON THE RANGE” 6TH BUD WILLIAMS
MEMORIAL STOCKMANSHIP SYMPOSIUM COMBINING
NEW PARADIGMS WITH OLD METHODS**

Organizer: Dave Voth, Chris Schachtschneider, Kent Reeves
Room: Sierra 2

Session Overview: *Since 2015 there have been five Stockmanship Symposia at SRM Annual Meetings (2015, 2016, 2018, 2020, 2022). The value of Stockmanship as a critical tool for range management has been demonstrated at previous symposia. This Sixth Symposium for the 2024 SRM AM builds on past symposia and looks at change on the range from stockmanship, and the increased diversity within stockmanship practices and practitioners.*

This symposium brings together cattle, sheep and goat producers, researchers, and educators for three interactive panel discussions using Stockmanship. These are listed below. We build on the success and participant input from previous Stockmanship Symposia: with panelists discussing changes in the diversity of practitioners regarding age, gender, practices, and sexuality. The diversity of methods with dog use (herding and guardian); horses; ATVs; characteristics of low stress moves; interpreting behavior and signs of livestock health. Practitioners will discuss what experiences they have teaching Stockmanship to diverse audiences; and working within changing communities across rural and urbanizing landscapes.

10:20-11AM.....Introduction to Stockmanship (Low-Stress-Livestock-Handling) – Introduction of the Bud Williams Principles for practicing Stockmanship.

11am-Noon.....Brittany ‘Cole’ Bush and Dan Macon
Small Ruminants; Moderators - Discussion with invited participants to discuss changes practicing Stockmanship with small ruminants (sheep and goats) with invited participants. Open forum.

INVITED PARTICIPANTS

- Derek W. Bailey, Ph.D. – Professor of Range Science; New Mexico State University – Las Cruces, New Mexico
- Matt Barnes – Rangeland Scientist and Wildlife Conservationist; Shining Horizons Land Management, LLC and Northern Rockies Conservation Cooperative
- Dylan Boeken (Shepherdess Land and Livestock/Boekhouse Hearth & Hus-

TUESDAY, JANUARY 30TH



bandry)- Project Manager; Lead Shepherd, Founder/Owner of Boekhouse

- Retta Bruegger – Regional Extension Specialist – Western Region Range Management; CSU Extension – Grand Junction, Colorado
- Brittany “Cole” Bush – Shepherdess, Rancher, Advocate, Entrepreneur, and Educator; Shepherdess Land & Livestock Company – Ojai, California <https://shepherdesslandl.co/> <http://brittanycolebush.co/>
- Aaron Gilliam (Formerly Sweetgrass Grazing/Grounded L&L)- Shepherd, sheep grazing outfit owner; cattle and grazing manager
- Whit Hibbard, Ph.D. – Educator & Rancher; Publisher of Stockmanship Journal; Sieben Livestock Company – Adel, Montana
- Dan Macon – Educator & Rancher; County Director Livestock and Natural Resources Advisor UCCE, Placer & Nevada Counties – Auburn, California
- Ryan Morgan (Morgan Livestock)- Cattleman and Savory Ecological Outcome Verifier
- Byron Palmer (Gounded Land and Livestock)- CEO/Founder
- Kent Reeves – Range & Wildlife Conservationist, Arriero, and Western Photographer;The Soil Carbon Coalition (Rancher to Rancher Network) – Lone, California
- Chris Schachtschneider - Lightning S Livestock Solutions
- Martha Skelley (Paicines Ranch)- Farm & Livestock Manager
- Emmie Sperandeo- Western culture storyteller/social media influencer who has traveled around the West working with various operations; horse training, rider
- Paigelynn Trotter- Shepherd, project manager, grazing & livestock manager
- David M.Voth – Ranch Manager & Range Conservationist; Nevada Gold Mines – Elko, Nevada

SYMPOSIA:

CHANGE ON THE FEDERAL RANGE

Organizer: Dr. Susan Charnley, Gilbert Jackson

Room: Southern Pacific C

Session Overview: *Some 40 percent of western rangelands occur on federal lands, most of them managed by the U.S. Forest Service and Bureau of Land Management. Recognizing the need to adapt to climate change impacts on rangeland resources, wildfire, invasive plants, and other social-ecological stressors, these agencies are working to increase flexibility in their rangeland management programs to support adaptive grazing management by grazing permittees. This symposium provides an overview of policy changes currently being considered by both agencies towards this end, as well as research examining different strategies for increasing the adaptive capacity of grazing management on federal rangelands.*

10:20.....Chuck Oliver and Gilbert Jackson

CHANG-ing the way we steward RANGE-lands – the U.S. Forest Service Rangeland Management Program Futuring Process

10:40.....Dr. Susan Charnley

Strategies for Adapting to Climate Change on U.S. Forest Service Grazing Allotments

11:00.....Dr. Briana Swette

Using Behavioral Science to Understand the Potential of Targeted Grazing as an Adaptive Land Management Tool on U.S. Forest Service Lands

11:20.....Marlo Draper

How BLM is Working to Update Policies Responding to Changing Resource Conditions and Innovative Land Management Strategies Ensuring Healthy Landscapes

11:40.....Dr. Katie Wollstein

Institutional Work in the Pursuit of Adaptive Rangeland Management on BLM Lands

WORKSHOP:

SEEDING MORE BROADLY: EXPLORING INFORMATION-SHARING TO INCREASE THE USE OF DIVERSE NATIVE PLANT SPECIES IN RESTORATION

Organizer: Tara Bishop, Akasha Faist, Kristina Young

Room: Alpine I

Session Overview: *Increasing plant diversity and ecosystem resilience through restoration is essential to maintaining the services that rangelands provide. However, seeding efforts often use just a few native plant species, reducing the potential for biodiverse outcomes. While there are many reasons for this, one solvable reason is the lack of easily accessible information about the many plant species available.*



At this workshop, we will 1. Explore new interactive native plant tools 2. Identify applications for these tools 3. Workshop & discuss additional information needs and missing resources related to native rangeland plant restoration. Participants will walk away with ideas and strategies to fill information needs that may help increase restoration success.

- 10:20-10:30AM.....Tara Bishop,Akasha Faist
Welcome
- 10:30-10:40AM.....Danielle Neumann, Danielle Bilyeu
Colorado Seed Tool
- 10:40-10:50AM.....Kristina Young
Arizona and Utah Seed Tool
- 10:50-11:00AM.....Kevin Gunnell
Information needs, management perspectives
- 11:00-11:15AM.....Panel Q & A
- 11:15-12:00PM.....Breakout discussions

**WORKSHOP:
EDUCATING THE NEXT GENERATION**
Organizer:Theresa Becchetti, Patti Novak-Echenique
Room:Alpine 2

Session Overview: Join us to learn how people are sparking interest in range management for the next generation of Range Managers and how you can get involved to bring opportunities to your area. We will have examples of Range Camps, K-12 curriculum, and FFA competitions currently happening. With the International Year of Rangelands and Pastoralist (IYRP) around the corner, we would love to find creative ways all of us can increase rangeland exposure at the K-12 level by either expanding the reach of current material, create pieces that are missing, or through creation of a Rangeland Ecology book SRM members create. Come prepared to learn, brainstorm and have fun!

- 10:20-10:25.....Patti Novak-Echenique,Theresa Becchetti
Introduction
- 10:25-10:40.....Gretchen Hyde, Director; Idaho Rangeland
Resources Commission
IROAM: Delivering Rangeland Education to Students
- 10:40-10:55.....Christina Restaino,Assistant Professor,
University of Nevada- Reno Extension
Living with Fire Wildfire Science,A High School Curriculum
- 10:55-11:10.....Angie Arredondo, M.S., Manager of Education,
Outreach, and Curation; Rob and Bessie Welder Wildlife Foundation
Rangelands:A Conservation Education Guide
- 11:10-11:25.....Theresa Becchetti, Farm Advisor, University of California
Cooperative Extension
40 years of Range Camp, a Look at California’s Range Camp
- 11:25-11:40.....Ethan Mower, Park Supervisor; Nevada Division of
State Parks
63 years of Nevada Youth Range Camp: success and improvement.
- 11:40-12:00.....Tamzen Stringham, Professor, University of Nevada-Reno;
Patti Novak-Echenique, Rangeland
Management Specialist, BLM-NV Educational
Opportunities at State FFA Conventions



CONTRIBUTED ORAL SESSION: FERAL HORSES

Room: Cascade 3

10:20AM.....Matt Reeves

Spatially explicit capacity assessments support rangeland NEPA

10:40AM.....Courtney Buchanan

Seasonal and geographic differences in diets of feral horses among BLM herd management areas

11:00AM.....Megan Milligan

Free-roaming horses exceeding appropriate management levels affect multiple vital rates in greater sage-grouse

11:20AM.....Steven Peterson

Resource selection patterns by free-roaming horses within the Great Basin

11:40AM.....Kalen Taylor

Mustang Camp: Promoting healthy rangelands through youth education

**CONTRIBUTED ORAL SESSION: IMAGING I
(SESSION 1 OF 2)**

Room: Cascade 4

10:20AM.....Erika Peirce

What is truth? Comparing different rangeland biomass estimation methods to inform remote sensing products

10:40AM.....Dave Atkins

Comparison of remote sensing platforms for non-destructive estimation of herbaceous biomass.

11:00AM.....David Rowley

Shifting mosaics indicate grassland fragmentation and disconnection throughout the Texas Gulf landscape

11:20AM.....Trenton Benedict

Differentiating cheatgrass and medusahead phenological characteristics in western United States rangelands

11:40AM.....Brittany Castle

A comparison of manual and point of view camera observations of sheep grazing behavior and diet selection

**CONTRIBUTED ORAL SESSION: PROGRAM
COMMUNICATIONS 2 (SESSION 2 OF 2)**

Room: Cascade 5

10:20AM.....Sarah Carter

Synthesizing science for decision makers to help bridge the gap between rangeland science and management on public lands

10:40AM.....Sam Jordan

Developing BLM national landscape conservation system science plans: Planning for land managers, scientists, and stakeholders

11:00AM.....OPEN

11:20AM.....Hondo Brisbin

Development of a riparian State and Transition Model to enhance predictability of low gradient stream dynamics in the Great Basin region based upon management and disturbance regimes

TUESDAY, JANUARY 30TH

TUESDAY, JANUARY 30TH



11:40AM.....Mathew Rigge
Rangeland condition monitoring assessment and projection (RCMAP):
Tracking fractional rangeland component cover over a 38-year
time-series using Landsat

**CONTRIBUTED ORAL SESSION: RESTORATION I
(SESSION 1 OF 2)**

Room: Cascade I

10:20AM.....Lauren Svejcar
Establishing a precision restoration approach using novel technologies
across a heterogeneous landscape

10:40AM.....Sara Barga
Selecting seed for restoration: exploring relationships between source
climate and population-level variation in germination

11:00AM.....Dan Harmon
Hedge betting seed mixes: Reducing the risk of failure

11:20AM.....Francis Kilkenny
Seeding evaluation and experimental design strategies (SEEDS)
partnership to increase learning from post-fire restoration in sagebrush
shrublands: Concept and first steps

11:40AM.....Gregor Siegmund
Synthesizing knowledge about the environmental drivers of plant
regeneration to support restoration seeding

NOON-1PM.....LUNCH BREAK

**LUNCH CONCESSIONS AVAILABLE FOR PURCHASE
IN THE TRADE SHOW**

**ROOM SIERRA 1 IS SET WITH ROUND TABLES TO ENJOY YOUR LUNCH
AND CHAT WITH FELLOW ATTENDEES OR TAKE IN THE TRADE SHOW
AND VISIT WITH OUR EXHIBITORS!**

NOON-1:30PM.....SRM BUSINESS MEETING LUNCH
Room: Chalet Terrace (5th Floor)

Overview: Come hear from SRM Staff and Officers on SRM's activities over the
past year. The annual budget will be discussed, a Year in Review video will be pre-
sented, a look ahead to the 2025 Annual Meeting, and official President's Address
from current SRM President Barry Perryman.

TUESDAY, JANUARY 30TH

1:00PM – 3:00PM

1:00-5PM.....CPRM EXAM
Room: Redwood 7

**SYMPOSIA:
THE HUMAN DIMENSIONS OF RANGELAND
MANAGEMENT: A REVIEW AND KNOWLEDGE GAPS**

Organizer: Urs Kreuter
Room: Southern Pacific A & G

SYMPOSIA RESUMES FROM 10:20AM-NOON SESSION

Session Overview: The herbaceous layer of rangelands is the basis for many eco-
system services that support human livelihoods and wellbeing. Over utilization and
mismanagement of rangelands have globally led to degradation of the herbaceous
layer and associated ecosystem services. While this has prompted substantial inquiry
about rangeland ecology, research to identify factors affecting landowner adoption
of ecologically sound rangeland management practices has been more limited. The
purpose of this symposium is to present research conducted during the last quarter

TUESDAY, JANUARY 30TH

TUESDAY, JANUARY 30TH



century about key aspects of the human dimensions of rangeland utilization in the USA, and to identify knowledge gaps for future research.

1:00-1:20.....Tong Wang and Urs Kreuter
Ranch characteristics, management outcomes, and rancher perspectives:
A comparison of different grazing management practices

1:20-1:40.....Jenna Likins, Urs Kreuter, and Jason Sawyer
Composite indices of grazing intensity and adaptive management to
define alternative grazing management systems more clearly

1:40-2:00.....David Matarrita-Cascante
(David.Matarrita@ag.tamu.edu), Jacob Lucero, Cinthy Veintimilla, Morgan
Treadwell, William Fox, and Douglas Tolleson
Leveraging social science research to advance contemporary rangeland
management: Understanding the “new faces” of range managers.

2:00-2:20.....Hailey Wilmer, Alison M. Meadow, Amanda Bentley Brymer,
Stephanie Russo, Daniel B. Ferguson, Ibrahim Garba, Christina Greene,
Gigi Owen, Dannele E. Peck
Ethical principles for research partnership and transdisciplinary natural
resource management science

2:20-2:40.....Dirac Twidwell, David Toledo, Carissa Wonkka
Knowledge gaps and future research

2:40-3:00.....Discussion

SYMPOSIA:
WOMEN MAKING A CHANGE IN RANGE PART II
Organizer: Lesley R. Morris, Dr. Beth Newingham
Room: Southern Pacific E

SESSION RESUMES FROM PART I (10:20AM-NOON)

Session Overview: The Women Change Range Symposium is an all-day session in three parts with the intention highlighting the important ways that women, as a diverse group in the past and present, perceive and interact with land, break barriers, promote sustainability, and create change on our rangelands. It provides time to come together to listen one another's stories and learn from other's experiences. The symposium aims to create connections and build a collective momentum to be a force for change for women in range.

1:00.....Brianna Merrill
The shared and the unique: Experiences of an Indigenous woman in
range

1:20.....Cheryl Shippentower
The First Foods Management Approach: Women's Foods and Range
Management

1:40.....Jennifer Hickman
Post wildfire recovery as it relates to Indian country and Tribes

2:00.....Jamie Dahl
Change on the range: Perspectives from women in the Society for Range
Management (SRM)

2:20.....Krista Ehlert
Women's safety on the range: Considerations for change

2:40.....Jessica Eck
Navigating interviews: Generalized and women specific guidance
Women Changing Range: Part III

Workshop: Agents of change: stories of the past, present, and future from women on the range [Diversity & Inclusion Forum]; taking place from 3:20pm-5pm in same room.

TUESDAY, JANUARY 30TH

TUESDAY, JANUARY 30TH



**SYMPOSIA:
 “CHANGE ON THE RANGE” 6TH BUD WILLIAMS
 MEMORIAL STOCKMANSHIP SYMPOSIUM COMBINING
 NEW PARADIGMS WITH OLD METHODS**

**Organizer: Dave Voth, Chris Schachtschneider, Kent Reeves
 Room: Sierra 2**

SYMPOSIA RESUMES FROM 10:20AM-NOON SESSION

Session Overview: Since 2015 there have been five Stockmanship Symposia at SRM Annual Meetings (2015, 2016, 2018, 2020, 2022). The value of Stockmanship as a critical tool for range management has been demonstrated at previous symposia. This Sixth Symposium for the 2024 SRM AM builds on past symposia and looks at change on the range from stockmanship, and the increased diversity within stockmanship practices and practitioners.

This symposium brings together cattle, sheep and goat producers, researchers, and educators for three interactive panel discussions using Stockmanship. These are listed below. We build on the success and participant input from previous Stockmanship Symposia: with panelists discussing changes in the diversity of practitioners regarding age, gender, practices, and sexuality. The diversity of methods with dog use (herding and guardian); horses; ATVs; characteristics of low stress moves; interpreting behavior and signs of livestock health. Practitioners will discuss what experiences they have teaching Stockmanship to diverse audiences; and working within changing communities across rural and urbanizing landscapes.

1-2PM.....Dylan Boek and Melissa Taylor

Cattle, Wildlife, and Wild Horses; Moderators - Panel discussion with stockmanship practitioners working primarily with cattle, wildlife, and wild horses. Whit Hibbard, Matt Barnes, Chris Schachtschneider Invited participants. Open Forum.

2-3PM.....Jenya Schneider and Kent Reeves

What is Changing & What Do We Need To Change; Panel discussion with invited participants discussing what is changing and what we need to change; and the role Stockmanship plays for change. Invited participants from current and past Stockmanship Symposia.

2-3PM.....Open Forum.

Invited Participants

- Derek W. Bailey, Ph.D. – Professor of Range Science; New Mexico State University – Las Cruces, New Mexico
- Matt Barnes – Rangeland Scientist and Wildlife Conservationist; Shining Horizons Land Management, LLC and Northern Rockies Conservation Cooperative
- Dylan Boeken (Shepherdess Land and Livestock/Boekhouse Hearth & Husbandry)- Project Manager; Lead Shepherd, Founder/Owner of Boekhouse
- Retta Bruegger – Regional Extension Specialist – Western Region Range Management; CSU Extension – Grand Junction, Colorado
- Brittany “Cole” Bush – Shepherdess, Rancher; Advocate, Entrepreneur; and Educator; Shepherdess Land & Livestock Company – Ojai, California <https://shepherdesslandl.co/> <http://brittanycolebush.co/>
- Aaron Gilliam (Formerly Sweetgrass Grazing/Grounded L&L)- Shepherd, sheep grazing outfit owner, cattle and grazing manager
- Whit Hibbard, Ph.D. – Educator & Rancher; Publisher of Stockmanship Journal; Sieben Livestock Company – Adel, Montana
- Dan Macon – Educator & Rancher; County Director Livestock and Natural Resources Advisor UCCE, Placer & Nevada Counties – Auburn, California
- Ryan Morgan (Morgan Livestock)- Cattleman and Savory Ecological Outcome Verifier
- Byron Palmer (Gounded Land and Livestock)- CEO/Founder
- Kent Reeves – Range & Wildlife Conservationist, Arriero, and Western Photographer; The Soil Carbon Coalition (Rancher to Rancher Network) – Lone, California
- Chris Schachtschneider - Lightning S Livestock Solutions
- Martha Skelley (Paicines Ranch)- Farm & Livestock Manager
- Emmie Sperandeo- Western culture storyteller/social media influencer who has traveled around the West working with various operations; horse training, rider
- Paigelynn Trotter- Shepherd, project manager; grazing & livestock manager
- David M.Voth – Ranch Manager & Range Conservationist; Nevada Gold Mines – Elko, Nevada

**SYMPOSIA:
 SEEDING THE FUTURE: HARNESSING NATIVE SEEDS
 FOR SUSTAINABLE RANGELAND RESTORATION**

**Organizer: Alison Agneray, Jess Kindred, Sophie Heston, Amy Wruck,
 Sara Kulpa
 Room: Southern Pacific C**

Session Overview: *This symposium will showcase the success of the Nevada*

TUESDAY, JANUARY 30TH

TUESDAY, JANUARY 30TH



Native Seed Partnership (NNSP), a coalition working together with the vision of keeping Nevada rangelands diverse and functioning by using the right seed in the right place at the right time. We will bring together a series of engaging talks from experts, researchers, practitioners, and stakeholders in land management and restoration ecology. Speakers will cover case studies, real-world projects, and the ecological benefits of using native seeds. By bringing together diverse perspectives and expertise, this symposium will enable attendees to contribute effectively to the sustainable management of these critical landscapes.

1-1:20PM.....Sarah Kulpa

The Nevada Native Seed Partnership: Steps taken to create the first state-specific seed strategy to address native seed shortages in Nevada

1:20-1:40PM.....Kevin Badik

Increasing our understanding of native seed demands and seed infrastructure in Nevada

1:40-2PM.....Shannon Swim

A new seed cleaning and storage center at UNR

1-2:20PM.....Brittany Allen

Considerations and Challenges of Native Seed Mix Design for Habitat Restoration in Nevada

2:20-2:40PM.....Russ Wilhelm and Stephen Kielius

Foundation Seed Program

2:40-3PM.....Dan McClure and Amy Wruck

Creating & Managing Your Seed Supply Chain: Collection to Nursery to Foundation Increase to Landscape-Scale Projects

SYMPOSIA:

AGRIVOLTAICS ON THE RANGE: AN INTERDISCIPLINARY TEAM INVESTIGATES HOW SOLAR ENERGY PRODUCTION AND RANCHING GO HAND-IN-HAND

Organizer: Anna Clare Monlezun

Room: Southern Pacific D

Session Overview: Photovoltaics is the most efficient and cost-effective form of renewable "clean" energy, and solar development will continue to accelerate as the world strives to meet climate goals. The need for open, sun-abundant landscapes puts the solar industry in competition for land with agriculture and threatens intact native rangeland, stimulating valid concerns about negative impacts to ecosystem services. Agrivoltaics, the co-location of photovoltaic and agricultural production systems, offers a win-win scenario. Our team is engaged in collaborative science to investigate the soil, water, plant, livestock, and microclimate dynamics in a utility scale agrivoltaic grazing system. We seek to uncover a cattle-compatible design that is "good for the land, good for the animal, and good for solar."

1-1:10PM.....Anna Clare Monlezun, PhD, Graze LLC

Background on collaborative science and project partnerships.

1:10-1:20PM.....Jordan Macknick, Lead Energy-Water-Land Analyst,

National Renewable Energy Laboratory

The state of agrivoltaics research and deployment in the United States.

1:20-1:35PM.....Nick de Vries, Chief Technology Officer, Silicon Ranch

A solar engineer's perspective and project origin story.

1:35-1:50PM.....Will Harris, Rancher, White Oak Pastures

A rancher's experience with solar sheep grazing and research partnerships.

1:50-2PM.....Taylor Bacon, PhD student with Keith Paustian, Colorado

State University

Ecosystem services and carbon dynamics on agrivoltaic grazing systems.



2-2:10PM.....Rebecca Mitchell, PhD & Rob Clement, PhD,
 Quanterra Systems
 Using Eddy Covariance to measure carbon, water, and energy flows in
 agrivoltaic grazing systems

2:10-2:20PM.....Break

2:20-3PM.....All Speaker Panel Q&A Discussion

**WORKSHOP:
 STAKEHOLDER ENGAGEMENT FOR THE
 INTERNATIONAL YEAR OF RANGELANDS AND
 PASTORALISTS (IYRP) 2026: ACTION PLANNING FOR
 SRM SECTIONS AND PARTNERS**
 Organizer: D. Layne Coppock, Lauren Svejcar
 Room: Alpine I

Session Overview: *This is the third consecutive SRM workshop devoted to the IYRP 2026. The goal of the IYRP is to promote sustainable rangeland systems worldwide (<https://iyrp.info/>). At the SRM—Boise workshop, participants discussed common challenges and intervention needs for the USA, Mexico, and Canada. For Sparks, our objective is to clarify several examples or models of action planning for use by SRM sections—as well as GO or NGO partners—that are impactful yet feasible to implement by 2026. In-person and virtual formats will integrate discussions among participants from across North America.*

There will not be formal talks. Moderators will give opening and closing remarks. Representatives of various stakeholder groups may also speak about their priority interests and concerns regarding the future of rangeland systems

**CONTRIBUTED ORAL SESSION: SAGE GROUSE I
 (SESSION 1 OF 2)**
 Room: Cascade I

1:00PM.....Codi Backen
 Greater Sage-grouse nest success is more strongly associated with
 climatic variability than vegetation productivity

1:20PM.....Shawn O’Neil
 A retrospective analysis of greater sage-grouse population and survival
 response to precipitation and drought across 5 western states,
 1985–2022

1:40PM.....Carl Lundblad
 A review and synthesis of the effects of climate on sage-grouse, indicator
 species of sagebrush ecosystem health

2:00PM.....arah Webster
 Surface mining impacts to sagebrush vegetation communities and greater
 sage-grouse populations

2:20PM.....Jeff Beck
 Population trends in non-core Greater Sage-Grouse relative to wind-en-
 ergy development in Wyoming

2:40PM.....Steven Mathews
 Effects of manipulating common raven (*Corvus corax*) breeding success
 on raven and greater sage-grouse (*Centrocercus urophasianus*) popula-
 tions in Nevada and California, USA.

CONTRIBUTED ORAL SESSION: CARBON
 Room: Cascade 4

1:00PM.....Mike Anderson
 Assessing carbon over working lands and sources of bulk density
 information

1:20PM.....David Eduardo Prado-Tarango
 Soil carbon initiative: Monitoring soil carbon on sheep and livestock
 ranches in the Western US.



- 1:40PM.....Megan Nasto
Measuring soil organic carbon as a means for promoting collaborative land stewardship by cattle ranchers and state and Federal agencies in the southern great plain grasslands of eastern New Mexico
- 2:00PM.....Brian Morra
Carbon stocks and total belowground carbon flux reflect weather and grazing use in semiarid montane meadows
- 2:20PM.....Cody Reed
Assessing carbon losses and gains in montane meadows:A comparison of methods
- 2:40PM.....Anne Blackwood
Comparing soil organic carbon between four grazing treatments

CONTRIBUTED ORAL SESSION: GRAZING

Room: Cascade I

- 1:00PM.....Curtis Drake
Assessing effects of dormant season grazing on biodiversity using line-point intercept and modified-Whitaker plot methods
- 1:20PM.....Amanda Norton
Cow foraging behavior in adaptive multi-paddock grazing on a sagebrush steppe ranch in 2023
- 1:40PM.....Ira Parsons
Cue frequency and animal behavioral response to changing virtual paddock boundaries in extensive grazing systems

- 2:00PM.....Benjamin Menapace
Impact of riparian grazing on incised prairie streams
- 2:20PM.....Kalyn Taylor
Contrasting soil health and productivity responses to long-term grazing in two semiarid rangelands
- 2:40PM.....Lennel Camuy-Velez
Soil microbiome predator-prey relationships altered by temporal grazing intensity

CONTRIBUTED ORAL SESSION: HERBICIDES

Room: Cascade 5

- 1:00PM.....Lisa Rew
Response of cheatgrass and native plant community to herbicide management over four years in high-elevation sagebrush steppe
- 1:20PM.....Ranae Sullivan
Impacts of imazapic on vegetation and soil seed banks in an annual grass-invaded Mojave Desert ecosystem during a drought
- 1:40PM.....Erik Lehnhoff
Herbicide induced vegetation dynamics across a mesquite encroachment gradient
- 2:00PM.....Sheila Taillon
Combining the effects of herbicides and fertilizers for enhanced control of leafy spurge (*Euphorbia esula*)



2:20PM.....Nic McMillan
Growing season fires and herbicide may not be the silver bullet to
Lespedeza cuneata management

2:40PM.....Kayla Johnson
Using an integrated management approach to control an invasive legume
in the tallgrass prairie

**CONTRIBUTED ORAL SESSION: IMAGING 2
(SESSION 2 OF 2)**
Room: Alpine 2

1:00PM.....Biquan Zhao
Forage biomass estimation for smooth bromegrass using drone-based
remote sensing to evaluate effects of treatments with nitrogen fertiliza-
tion and cattle nutrient supplement

1:20PM.....Tracy Shane
Drones vs. Humans: multi-temporal comparisons between UAS photo-
grammetry/spatial analysis methods and field-based vegetation measure-
ments collected by humans

1:40PM.....Micah Funk
Combining high-resolution drone imagery and satellite remote sensing
to assess rangeland pastures

2:00PM.....Ryan Blackburn
Phones and drones: Rapid assessment of plant functional types and
vegetation structure in the Mongolian steppe

2:20PM.....Jason Karl
Lens-caused relief displacement and the potential for bias in estimates of
vegetation cover from downward-looking photographs

2:40PM.....Amira Burns
CameraTrapDetectoR: Harnessing the power of deep learning to classify
camera trap images

3PM.....COFFEE BREAK IN THE TRADE SHOW

4PM.....BIDDING ENDS AT THE ENDOWMENT SILENT AUCTION

TUESDAY, JANUARY 30TH

3:20PM – 5:00PM

**SYMPOSIA:
THE NATIONAL CLIMATE ASSESSMENT AND WESTERN
RANGELANDS: WHAT CAN WE EXPECT?**
Organizer: Corrine Noel Knapp, Emily Donaldson
Room: Southern Pacific A & G

Session Overview: *The 2023 National Climate Assessment is the current au-
thoritative assessment of climate change science and impacts for the United States.
Authors from both regional (Southwest, Southern Great Plains, Northern Great
Plains) and topical (Food & Agriculture) chapters will summarize key messages from
the report and then plan for participant interaction to hear your reflections on our
findings, their relevance to rangelands in the western USA, and how you might use
the assessment in your own work. Participants will emerge with a better under-
standing of relevant findings and how they might use them in their own work.*

3:20-3:25PM.....Introduction

3:25-3:45PM.....David L. Hoover
What Can We Expect in Agriculture, Food Systems, and Rural
Communities in Rangelands?



- 3:45-4:05PM.....Dr. Corrine N. Knapp
What Can We Expect In The Northern Great Plains?
- 4:05-4:25PM.....Dr. Mark Brunson
What Can We Expect In The Southwest?
- 4:25-4:45PM.....Dr. Jean L. Steiner
What Can We Expect in the Southern Great Plains Grasslands?
- 4:45-5:00PM.....Question & Answer

**SYMPOSIA:
THE OUTCOMES OF OUTCOME BASED GRAZING, AND
THE PATH FORWARD**
Organizer: Kathryn Dyer
Room: Cascade 4

Session Overview: *Since demonstration projects for Outcome Based Grazing Authorizations (OBGA) were selected by BLM in 2018, much has been learned about how to effectively write, authorize, and implement an OBGA on BLM administered lands. Projects are located in Nevada, Idaho, Wyoming, Montana, Oregon and Colorado and address how grazing can adaptively interact with resource needs or concerns, like annual grasses, wildlife habitat requirements, and drought. Now there are outcomes to be seen and shared, as livestock operators and agency staff have effectively managed grazing adaptively, cooperatively monitored short and long term indicators, and are collaboratively tracking achievement of objectives. The BLM's continuing plans for advancing and expanding this initiative will also be discussed.*

**** 5 MINUTES HAVE BEEN BUILT IN AFTER EACH PRESENTATION TO TAKE QUESTIONS, IF THERE ARE NO QUESTIONS THE AGENDA WILL MOVE TO THE NEXT PRESENTATION, AND ALLOW FOR ADDITIONAL QUESTIONS AT THE END****

- 3:20PM.....Kathryn Dyer
The Start and Purpose of OBGA

- 3:35PM.....Cheryl Newberry and Niels Hansen
PH Livestock Company Outcomes over time
- 4:00PM.....Hunter Seim and Katie Miklejohn
Opportunities Available Through Little Snake's Outcome-based Grazing Authorization
- 4:25PM.....Adrienne Hoskins
Cooperative Monitoring: Sharing the workload to inform annual management decisions.
- 4:40PM.....Kathryn Dyer
The Path Forward for OBGA

**SYMPOSIA:
PINYON-JUNIPER ON THE RANGE: CHANGING
ECOLOGY AND MANAGEMENT**
Organizer: Adam Noel, Bob Shriver, John Bradford
Room: Southern Pacific D

Session Overview: *Pinyon-juniper woodlands are a component of rangelands in every western US state and have complex interactions with many other rangeland ecosystems. These woodlands provide ecosystem services and host enormous biodiversity, but shifting climate conditions and management regimes have altered PJ woodland distribution with consequences for neighboring biomes. This session will explore the ongoing management and research in pinyon-juniper ecosystems with an emphasis on future PJ woodland dynamics and management in the context of climate change.*

- 3:20 –3:35PM.....Doug Shinneman
Ecological Effects of Pinyon-Juniper Removal in the Western United States-A Synthesis of Scientific Research, January 2014–March 2021
- 3:35–3:50PM.....Miranda Redmond
Drought Resilience in Pinyon-Juniper Woodlands: Effects of overstory tree mortality on water availability and understory vegetation



- 3:50–4:05PM.....Elise Pletcher
Anticipating range shifts: forecasting pinyon-juniper woodland expansion in the Great Basin
- 4:05–4:20PM.....Adam Noel
How do shifting distributions of pinyon-juniper align with western U.S. management objectives?
- 4:20–4:35PM.....Ali Urza
Addressing shared concerns about pinyon-juniper ecosystems through meaningful collaboration
- 4:35–4:50PM.....Jeremy Maestas
Where trees meet the sage: Don't make rangelands pay the forest management debt

**SYMPOSIA:
LOGISTICS & FINANCIALS- ADDRESSING CHALLENGES
IN RANGELAND RECLAMATION & RESTORATION**
Organizer: Sean Di Stefano, Lauren Svejcar, Clay Wood
Room: Cascade 5

Session Overview: *This session seeks to provide actionable insights for rangeland managers to promote positive change on the range. Managers are often faced with many logistical and financial limitations to rangeland restoration. We will have presentations from a diversity of speakers about the challenges faced when restoring rangelands in the western US. Each will have 15-minutes for presentation followed by 5-minutes for questions. An interactive 20-minute discussion following the talks will encourage collaboration in exploring strategies to address logistical and financial challenges in reclamation and restoration projects. Emphasizing practical solutions, we strive to create a platform for knowledge exchange and actionable outcomes.*

- 3:20 - 3:40PM.....Crystal Emsoff
Emsoff Livestock Company's Journey to Restore and Revitalize Rangeland Post-Loyalton Fire

- 3:40 - 4:00PM.....David Lile
Plan to Project: Implementing Restoration at Relevant Scales
- 4:00 – 4:20PM.....Emily Luscombe and Nicholas Rajen
Cultivating Sustainability: Intertribal Agriculture Council's Collaborative Work on Tribal Lands and Natural Resource Restoration
- 4:20 – 4:40PM.....Colleen Faber
Navigating Reclamation and Restoration in the Oil and Gas Industry of Wyoming
- 4:40 – 5:00PM.....Interactive Discussion

**SYMPOSIA:
PUTTING PRESCRIBED/TARGETED GRAZING TO
WORK ON RANGELANDS AND FORESTS AT THE LAND-
SCAPE-LEVEL IN THE WESTERN U.S. AND BEYOND**
Organizers: Kristina Wolf; SRM Targeted Grazing Committee
Room: Southern Pacific B

Session Overview: *Join us in this symposium to explore management of prescribed grazing in range and forestlands in the Western US. Experts and practitioners from private industry, state agencies, and academic research institutions from across California, Idaho, Minnesota, and Canada will delve into the history, purpose, and goals of prescribed grazing for fuels management, emphasizing the synergy between this and other fuels reduction methods and implications for managing diverse landscapes. The symposium will be presented in four parts: 1) History of the Range Management Advisory Committee and California State Programs including Prescribed Herbivory, 2) Scientific Foundations and Applications of Prescribed Grazing, 3) In Practice Integration of Prescribed Grazing into Management Projects for Fuel Reduction, and 4) Prescribed Herbivory Beyond California. Sessions will be followed by a moderated panel discussion with the audience to encourage dialogue and exchange of ideas among speakers and attendees, providing a platform for participants to delve deeper into specific topics. Topics of discussion will include application of prescribed grazing for the reduction of fuel hazards, wildfire mitigation, community resilience, and multiple ecosystem benefits, as well as trade-offs, policy and permitting hurdles, constraints, and lessons learned. New and trending topics to*



be covered will include collaborative planning and land management by

state-certified foresters and rangeland professionals to enhance landscape-level management, with applications to private and public lands and entities; new and upcoming tools to assist graziers and agency personnel in creating, implementing, and monitoring Grazing Agreements and Grazing Management Plans; and matching graziers with grazing lands, writing applications for grazing proposals, and navigating permitting. Educational and technical resources will be provided to the audience, including where to find information, useful publications and guides, and training videos and webinars. Participants will gain practical insights into this vegetation management tool and contribute to the collective knowledge driving sustainable land management practices.

3:20-3:23PM.....Kristina Wolf
Introduction:Welcome and Goals of the Symposium

SECTION I

History of the Range Management Advisory Committee and California State Programs including Prescribed Herbivory

3:23-3:29PM.....Marc Horney
RMAC: history, function, process; how prescribed grazing became a topic of interest

3:29-3:35PM.....Cole Bush
RMAC White Paper 2015 and Update
3:35-3:41PM.....Kristina Wolf
VMP and VTP, State programs and direction

SECTION 2

Scientific Foundations and Applications of Prescribed Grazing

3:41-3:47PM.....Stephanie Larson
Prescribed grazing: history, purpose and goals

3:47-3:53PM.....Marc Horney
Fuels Management: history, purpose, and goals

3:53-3:59PM.....Kristina Wolf
Integrated Fuels Treatments: best practices and outcomes

SECTION 3:

Integration of Prescribed Grazing into Management Projects for Fuel Reduction – In Practice Case Studies

3:59-4:05PM.....Marc Horney
RMAC Efforts
4:05-4:13PM.....Stephanie Larson
UCCE and Allied Conservation Organizations

4:13-4:28PM.....Bianca Artadi Soares, Cole Bush, Matt Gabica
Service Providers: Logistics, considerations, planning, implementation, monitoring, funding, permitting, renewals, relationships

SECTION 4

Prescribed Herbivory Beyond California

4:28-4:38PM.....Lee Sexton, Kelly Anderson, Matt Gabica
Undertakings and lessons learned in western states and other regions

4:38-4:58PM.....Kristina Wolf
Moderated Panel Discussion

4:58-5pm.....Wrap-Up and Thank You

TUESDAY, JANUARY 30TH

TUESDAY, JANUARY 30TH



**WORKSHOP:
AGENTS OF CHANGE: STORIES OF THE PAST, PRESENT,
AND FUTURE FROM WOMEN ON THE RANGE [DIVERSITY & INCLUSION FORUM]**

Organizers: Devyn Orr, Julie Larson, Devii Rao, Lesley R. Morris
Room: Southern Pacific E

PART I AND II OF THE WOMEN CHANGING RANGE SYMPOSIUM TAKING PLACE FROM 10:20AM-NOON AND 1PM-3PM

Session Overview: *This is part III of The Women Changing Range Symposium. In this workshop, we will hold a moderated panel discussion among a subset of symposium speakers and several SRM leaders, with the intent to listen to one another's stories and learn from other's experiences. During this discussion, moderators will share anonymous stories submitted by SRM members, hold space for attendees to voice their ideas and perspectives, and then hear from panelists. From this discussion, we hope to synthesize both challenges and opportunities for building engagement and inclusion in range management.*

3:20PM.....Moderators: Introduction and Welcome

3:30-4:10PM.....Panelist and audience response to anonymous story and question submissions

4:10-5PM.....Panelist and audience guided Q&A discussion

PANELISTS:

- Karen Hickman; Oklahoma State University
- Karen Launchbaugh; University of Idaho
- Kris Stewart; Ninety-Six Ranch
- Krista Ehlert; South Dakota State University
- Cheryl Shippentower; Confederated Tribes of the Umatilla Indian Reservation
- Jessica Eck; Natural Resources Conservation Service, Idaho
- Jennifer Hickman; BIA - National Interagency Fire Center



**WORKSHOP:
STAKEHOLDER ENGAGEMENT FOR THE
INTERNATIONAL YEAR OF RANGELANDS AND
PASTORALISTS (IYRP) 2026: ACTION PLANNING FOR
SRM SECTIONS AND PARTNERS**

Organizer: D. Layne Coppock, Lauren Svejcar
ROOM:ALPINE I

WORKSHOP RESUMES FROM 1PM-3PM SESSION

Session Overview: *This is the third consecutive SRM workshop devoted to the IYRP 2026. The goal of the IYRP is to promote sustainable rangeland systems worldwide (<https://iyrp.info/>). At the SRM—Boise workshop, participants discussed common challenges and intervention needs for the USA, Mexico, and Canada. For Sparks, our objective is to clarify several examples or models of action planning for use by SRM sections—as well as GO or NGO partners—that are impactful yet feasible to implement by 2026. In-person and virtual formats will integrate discussions among participants from across North America.*

There will not be formal talks. Moderators will give opening and closing remarks. Representatives of various stakeholder groups may also speak about their priority interests and concerns regarding the future of rangeland systems.

WORKSHOP: VGS USER GROUP

Organizer: Ashley Hall Charles Perry
Room: Alpine 2

Session Overview: *The workshop will feature live demos of VGS application suite updates, including a first look at the upcoming VGS for Android operating systems. VGS for Windows now offers improved qualitative sampling with added mathematical calculations (min, max, mode, median), equation creation, and like Survey 123, sketch and photo capture are now integrated within the survey. VGS Online also has various new features added since the SRM 2023 demonstration. We invite current and prospective users to join, ask questions, explore VGS's latest functions, and learn valuable tips for optimizing data collection efforts.*

CONTRIBUTED ORAL SESSION: VIRTUAL FENCE

Room: Cascade 3

3:20PM.....Krista Ehlert

What's in a name? Virtual fencing terminology for the enhancement of research, extension, and industry applications

3:40PM.....Kaitlyn Dozler

The Influence of virtual fence cues on heart rate responses of cattle

4:00PM.....Alexandra Harland

Efficacy of virtual fencing as a tool to rotationally graze beef cattle in Western Canada.

4:20PM.....Melinda Ellison

Use of virtual fence in an upland western sagebrush steppe grazing allotment.

4:40PM.....Logan Vandermark

The significance of extension programming in promoting the adoption of virtual fencing

4:00PM.....Dakota Moberg

Changes in landscape structure after wildfire in South Texas

4:20PM.....Alison Paulson

Post-fire regeneration and severity patterns across the 2021 Tamarack fire in the eastern Sierra Nevada (USA)

4:40PM.....E.J. Bates

Grazing intensity impacts on herbaceous composition in burned sagebrush steppe

CONTRIBUTED ORAL SESSION: POLLINATORS AND SOIL BIOME

Room: Southern Pacific C

3:20PM.....OPEN

3:40PM.....Kevin Sedivec

Wildflower mineral status and nutritional value: Creating diverse rangelands benefit livestock and pollinators

4:00PM.....Robert Arkle

Forbs, pollinators, wildfire, and restoration in the Northern Great Basin

4:20PM.....OPEN

4:40PM.....Lea Condon

Biological soil crusts are most common on warmer, drier sites as defined by the resistance and resilience framework.

5:00-6:30PM.....POSTER SESSION #2

Room: Trade Show

TUESDAY, JANUARY 30TH

CONTRIBUTED ORAL SESSION: FIRE MANAGEMENT I (SESSION 1 OF 2)

Room: Cascade 1

3:20PM.....John Wendt

Trends and drivers of consumer dominance in ancient and modern North America

3:40PM.....Keith Harmony

Mixed-grass vegetation response to an extreme wildfire event

TUESDAY, JANUARY 30TH



TUESDAY EVENING SOCIAL EVENTS

4:30PM-6:30PM.....BRIDGING THE GAP
Room: Sierra 1

Description: The Young Professionals Conclave, in conjunction with Student Conclave, is excited to host the sixth annual Bridging the Gap mentorship event at the SRM 2024 annual meeting.

The objective of this mentorship event is to build more connections between the student/young professional membership of SRM and established professionals. Mentees and mentors will participate in a semi-structured activity to facilitate discussion and networking, with the intent of helping mentees navigate career opportunities in rangeland science and management.

Students and young professionals looking for a job, internship, grad position or career advice will not want to miss this event!

WE HAVE MODIFIED OUR PROGRAM BASED ON PARTICIPANT FEEDBACK, AND HAVE NEW RESOURCES AVAILABLE TO STRENGTHEN NETWORKING OPPORTUNITIES BETWEEN MENTEES AND MENTORS. JOIN US FOR DRINKS, APPETIZERS, RAFFLE PRIZES AND CONVERSATION AT THE 2024 ANNUAL MEETING!

5:30PM-7:30PM.....DEPARTMENT OF NATURAL RESOURCE
MANAGEMENT, SDSU
Room: Southern Pacific B

5:30PM-7:30PM.....INTERNATIONAL MOUNTAIN SECTION/
MONTANA STATE UNIVERSITY SOCIAL
Room: Southern Pacific D

6PM-8PM.....USDA ARS FAMILY MEETING
Room: Cascade 5

6PM-8PM.....USDA USFS FAMILY MEETING
Room: Cascade 3

6PM-8PM.....USDA NRCS FAMILY MEETING
Room: Cascade 1

6PM-8PM.....DOI BLM FAMILY MEETING
Room: Cascade 4

6:00-8:00PM.....UTAH STATE UNIVERSITY, WILDLAND
RESOURCES – ALUMNI
Room: Southern Pacific A&G

6PM-8PM.....UNIVERSITY OF ARIZONA ALUMNI SOCIAL
Room: Southern Pacific C

6PM-8PM.....UNIVERSITY OF WYOMING SOCIAL
Room: Southern Pacific E

6PM-8PM.....CAL POLY HUMBOLDT UNIVERSITY ALUMNI SOCIAL
Room: Southern Pacific F

6PM-8PM.....UNR SOCIAL
Room: Sierra 2

6PM-8PM.....FOREST & RANGELAND STEWARDSHIP, CSU
Room: Sierra 3

8-11PM.....DANCE AND LIVE MUSIC!
Room: Grand Ballroom 1

Join us for a fun night of dancing and great music provided by Chad Bushnell! Visit Chad's page to learn more about this great artist: <https://www.chadbushnell.com/>

TUESDAY, JANUARY 30TH

TUESDAY, JANUARY 30TH



FOREST SERVICE CAREERS

**REAL JOBS
REAL IMPACT**

Make a difference in your community and help steward and conserve the Nation's forests and grasslands.



AVAILABLE POSITIONS

Get your resume ready! We are hiring recent graduates and students for range management and natural resources opportunities across the Nation.

Positions include:

- Rangeland Management Specialist
- Range Technician
- Range Intern
- Soil Scientist
- Hydrologist
- Rangeland Manager (Bismuth development program)
- Botanist
- Geologist
- Archeologist
- Ecologist

JOIN US

Connect with USDA Forest Service recruiters during the

2024 Society of Range Management Annual Meeting & Conference

January 28-February 2, 2024
Sparks, NV

Applicants do not need to attend event to apply for positions.

HOW TO APPLY

Apply on USAJOBS.gov

January 24-February 21, 2024

Scan the QR code below for more information about current opportunities. Here's how to apply:

1. **Create** a profile on USAJOBS.gov.
2. **Upload** or create a resume.
3. **Search** for jobs in USAJOBS. You can filter searches by job type or agency.
4. **Review** the job announcement.
5. **APPLY!**

More information

Scan the QR code or visit fs.usda.gov/working-with-us/careers to check out our interactive jobs map and sign up for updates on additional career opportunities.



USDA is an equal opportunity provider, employer and lender.

WEDNESDAY, JANUARY 31ST

TOURS

8:30AM-1:30PM.....TECHNICAL TOUR 3: WILD HORSE AND BURRO MANAGEMENT

3:30PM-5PM.....SOCIAL TOUR 4: RENO CITY HIGHLIGHTS

MEETING SCHEDULE

7AM-1:00PM.....REGISTRATION
Foyer on the 2nd Floor

7AM-8AM.....2024 PLANNING COMMITTEE ROOM
Room: Redwood 1

8AM-5PM.....AGENCY RECRUITMENT #1 NRCS
Room: Redwood 3

8AM-5PM.....AGENCY RECRUITMENT #2 USFS
Room: Redwood 2

8AM-5PM.....AGENCY RECRUITMENT #3 BLM
Room: Redwood 5

8AM-6PM.....LEADERSHIP TASK FORCE ROOM
Room: Central Pacific

7AM-11PM.....HSYF HOME ROOM
Room: Redwood 6

WEDNESDAY MORNING SOCIAL EVENT

8-10AM.....COFFEE AND BLOODY MARY BAR
in the Trade Show

Overview: Join us for our last morning in the Trade Show by grabbing a cup of coffee and/or a Bloody Mary (cash bar) and mingling with all of our fantastic exhibitors!

WEDNESDAY, JANUARY 31ST

IGNITE:

LANDSCAPE DATA COMMONS: ENABLING A DATA ACCESS TO DATA INSIGHT PIPELINE TO SUPPORT RANGELAND MANAGEMENT AND RESEARCH

Organizers: W. Austin Rutherford, Kristina Young, Sarah McCord, Nick Webb, Jason Williams
Room: Alpine I

Session Overview: The Landscape Data Commons (LDC) is a platform that leverages rangeland monitoring datasets to enable data access to data insights. The LDC aggregates and harmonizes data across agencies and monitoring programs...

9:00 - 9:05 AM.....Kristina Young

Welcome

9:05-9:10 AM.....Sarah McCord

The Landscape Data Commons: a system for standardizing, accessing, and applying large environmental datasets for rangeland research and management

9:10-9:15 AM.....Brandon Edwards

Connecting standardized rangeland monitoring data to physically based models to support land management and research: an example using the AERO wind erosion model.

9:15-9:20 AM.....Joe Brehm

Using terradactyl to calculate indicators of ecological conditions in R

9:20-9:25 AM.....Mahmoud Saeedimoghaddam (Kia)

An Artificial Neural Network Emulator of the Rangeland Hydrology and Erosion Model

9:25-9:30 AM.....W. Austin Rutherford

Using Landscape Data Commons to assess the distribution and ecohydrological function of rangeland plant communities in the western US

9:30-9:35 AM.....Anna Knight

Developing data-driven State-and-Transition-Models at landscape scales using US federal agency monitoring datasets

9:35-9:40 AM.....Alex Traynor

A data driven approach to setting benchmarks for a BLM Land Health Assessment, a case study from Vale, OR

9:40-9:45 AM.....Carrie-Ann Houdeshell

Leveraging the Landscape Data Commons for the assessment needs of the Conservation Effects Assessment Project (CEAP) on Grazing Lands.

9:45-10AM.....Discussion/Q&A

PRODUCER'S FORUM (10AM-3PM)

Sponsored by: Bison Pipe, Resource Concepts Inc. & Ozark Hills Insurance

Organizer: Dave Voth
Room: Sierra 2

RANCHING FOR PROFIT WORKSHOP: FINDING THE PROFIT DRIVERS AND DEADWOOD IN THE RANCHING BUSINESS



Dallas Mount, Owner of Ranch Management Consultants, and Ranching for Profit Instructor, will deliver a dynamic workshop helping you see the ranch through a new lens:

- Apply business principles to your ranch
- How to identify the economic leverage points to increase profit
- Apply financial principles to your business
- Learn commonalities of profitable ranches
- The power of good grazing for a profitable ranch

SPEAKER BIO: DALLAS MOUNT

Owner of Ranch Management Consultants (RMC) home of the Ranching for Profit School and the Executive Link program. Dallas has led RMC since 2019 and worked with hundreds of ranchers across the US, Canada and Australia to position their business for economic profit and ecologic health. After working with University of Wyoming Extension for 18 years, Dallas started teaching the Ranching For Profit School in 2012 and quickly established himself as an elite instructor. Dallas and his wife Dixie, have two adult children and own and manage a grazing operation near Wheatland, WY. RMC is focused on creating profitable businesses, with healthy land and happy families.

IGNITE:

MAKING SHORT-TERM ECOLOGICAL FORECASTING WORK FOR RANGELANDS

Organizer: Gregor-Fausto Siegmund and Leland Bennion
Room: Alpine 2

Session Overview: Description: Rangelands experience extensive variability in time and space that can pose challenges for management. Short-term ecological forecasting makes predictions about ecological and ecosystem processes on timescales that could allow managers to anticipate and respond to changes. This session will focus on short-term ecological forecasts for rangeland management. The talks will survey forecasts for rangelands and reflect on challenges to making and acting on predictions about the future. To promote dialogue about the socio-ecological context of rangeland futures, we will bring together ecologists, social scientists, and practitioners to explore the scientific, social, and governance context of using forecasts for anticipatory management.”

10:00.....Gregor Siegmund, Leland Bennion

Session welcome and introduction

Forage and grazing

10:05.....Marilynn Schantz

Forecasting rangeland plant production by ecological sites; are they better than forecasts by geographical location?

10:10.....Javier Osorio Leyton and Jay P Angerer

The Predictive Livestock Early Warning System: Forecasting Forage for Drought and Livestock Management

10:15.....Julie Elliott

Anticipating Grass Production Abundance and Shortfalls with Grass-Cast

10:20.....Tonya Haigh

Improving Usefulness of Grassland Productivity Forecasts

Fire and fuels

10:25.....Joe Smith

Dynamic rangeland vegetation data can improve wildfire risk forecasting in imperiled sagebrush ecosystems

10:30.....Jeremy Maestas

Using fuels-based rangeland fire probability maps to reduce large wildfires in the Great Basin

10:35.....Katie Wollstein

Applying ecological forecasts in rangeland fire planning: Social and administrative considerations



Restoration and regeneration

- 10:40.....Michelle Jeffries and David Pilliod
Forecast tool technology transfer and applications by managers: an example from the Land Treatment Exploration Tool
- 10:45.....Leland Bennion
Sagebrush model validation for the drought forecasting module of the Land Treatment Exploration Tool
- 10:50.....Robert Shriver
The promise and perils of using remote sensing products for rangeland forecasts
- 10:55.....Stuart Hardegree
Availability and options for using North American Multi-Model Ensemble (NMME) forecasts for rangeland management applications
- 11:00.....Question and answer, and discussion with speakers

SYMPOSIA:

SAGEBRUSH BIOME CONSERVATION DESIGN PHASE 2: IMPLEMENTING HOPE WHILE MANAGING CHANGE

Organizer: Kevin Doherty
Room: Southern Pacific A & G

Session Overview: The Sagebrush Conservation Design (SCD) identifies the best remaining ecologically intact sagebrush areas. The SCD is an adaptive, biome-wide tool to identify and address landscape-level threats by supporting the strategic allocation of conservation effort and resources. These threats include invasive annual grass, wildfire, expanding conifers, and human development, all of which impact a diverse suite of land uses, values, and ecosystem services.

This symposium will present 12 new papers that further the scientific underpinnings of the SCD. The symposium will focus around 3 themes: Ecological Relevance of SEI, Geographies of Action, and Geographies of Winning

SESSION 1: ECOSYSTEM CONTEXT, RELEVANCE OF SEI

- 10:00AM.....Kevin Doherty, US Fish and Wildlife Service, Lakewood, CO
Sagebrush Conservation Design Phase 2: Implementing Hope While Managing Change
- 10:20AM.....Tina Mozelewski, Conservation Science Partners
State of the sagebrush: Conservation influences on the future of the biome
- 10:40PM.....Martin C. Holdrege, U.S. Geological Survey, Southwest Biological Science Center, Northern Arizona University, Flagstaff, Arizona
Climate change promotes declines in sagebrush habitat quality
- 11:00AM.....David Theobald, Conservation Planning Technologies, Fort Collins, CO
Declines in US sagebrush ecosystem integrity from 2001-2021 and the role of structural connectivity in understanding CSAs/GOAs robustness
- 11:20:AM.....Alexander Kumar, US Fish and Wildlife Service, Fort Collins, CO
Defend and growth the core for birds: How a biome-wide sagebrush conservation strategy benefits imperiled rangelands birds (Kumar et al) & Evaluating the Sagebrush Conservation Design Strategy Against the Performance of a Greater Sage-Grouse
- 11:40AM.....Rory O'Connor, USDA-Agricultural Research Service, Burns, OR
Managing rangeland carbon with carbon security index & An Assessment of Conservation Opportunities within Sagebrush Ecosystems of US National Parks and Wildlife Refuges

SESSION TO RESUME AT 1PM



**SYMPOSIA:
MONITORING SOIL CARBON ON THE RANGE: WHERE
IS THE SCIENCE?**

Organizer: Chris H. Wilson, Paige Stanley
Room: Sierra 3

Session Overview: Due to increased threats from climate change, there is growing effort to foster soil organic carbon (SOC) sequestration on rangelands across the planet. To incentivize management practices that can enhance SOC, a variety of carbon credit schemes have been developed. However, these approaches presuppose the ability to accurately and efficiently quantify SOC at scale across these heterogeneous ecosystems, a formidable scientific challenge. This session will bring together scientists and practitioners who work with SOC from a variety of perspectives to discuss the current state of the art, and to foster synthesis around the best way forward for research and practice.

This session will feature 5 standard length talks followed by a panel discussion moderated by the session organizers and featuring a mix of pre-prepared and audience questions.

10-10:15 AM.....Chris H. Wilson, Agronomy Department,
University of Florida
The challenge of monitoring carbon on rangelands

10:15-10:30AM.....Jonathan Sanderman, Woodwell Climate
Research Center
Multi-scale data integration for robust carbon monitoring on the range

10:30-10:45AM.....Yao Zhang, Soil Innovation Lab, Colorado State
University
Modeling the Impact of Grazing on Soil Carbon
Dynamics Using MEMS 2.0

10:45-11AM.....Yang Lin, Department of Soil, Water and
Ecosystem Sciences, University of Florida
Apparent saturation of mineral-associated organic carbon in Mollisols



11-11:05AM.....Break

11:05-11:20AM.....Jane Lucas, Cary Institute of Ecosystem Studies
What role does microbial life play in rangeland SOC management?

11:20-11:35AM.....David Schurman, Perennial Climate Inc.
Putting Science into Practice: An End-to-End Process and Toolset for
Scouting, Sampling, and Mapping Carbon Sequestration on U.S.
Rangelands

11:35am-Noon.....Panel Discussion and Q&A

**SYMPOSIA:
IMPLEMENTING CLIMATE ADAPTATIONS ON
SOUTHWESTERN RANGELANDS: INVOLVING DIVERSE
STAKE HOLDERS IN DECISION-MAKING**

Organizer: Joel Brown, Mr. Skye Aney
Room: Southern Pacific C

Session Overview: The Southwest US is a difficult place to manage rangelands, even in relatively normal years. However, the past 30 years have been exceptionally variable, including several severe drought episodes. The combination of land ownership (federal, private and state) results in diverse management objectives and can often restrict practice options. Research to support rangeland management decision-making in the Southwest has a >100 y history. The research output has been both prolific and varied-spanning disciplines in ecology, economics, sociology, and management science. The volume and diversity of this research makes it difficult for individuals (producers, advisors, public) to organize into a coherent decision-making process. The USDA SW Climate Hub has placed a strong emphasis on working with groups to better understand and organize the information to improve adaptation decisions. Climate change projections are consistent in predicting higher temperatures and increasingly erratic rainfall. The changing economics and societal expectations of land management require a reinterpretation of the existing research and integration of new findings to develop more flexible solutions to climate change challenges and delivery to a more diverse group of partners. In their 10 years of existence, the SW Climate Hub has placed an emphasis on working with groups to gain insight into information needs and to help organized existing work into a logical decision process that reaches a diverse audience. This symposium will examine

those efforts in terms of resources (time and skills) required, lessons learned, and future opportunities.

10:00-10:20AM.....Emile Elias, USDA SW Climate Hub

Changing perspectives and approaches in rangeland resilience under increasing climate variability and change: 10-year retrospective from the USDA Southwest Climate Hub

10:20-10:40AM.....Skye Aney USDA SW Climate Hub

Working with land managers via the Southwest Drought Learning Network

10:40-11:00AM.....Sheri Spiegel

Integrating adaptation into production: the Southwest Sustainable Beef Cap

11:00-11:20AM.....Sara Thompson

Working with agency staff: Climate Conversations

11:20-11:40AM.....Helena Deswood

Decision-making on Tribal Lands: the Indigenous Climate Smart Management Initiative

11:40AM-12:00PM.....Stephanie Bestelmeyer

Reaching the next generation: Asombro K-12 education

**SYMPOSIA:
SUSTAINING INDIGENOUS NATURAL RESOURCES;
RANGE THROUGHOUT INDIAN COUNTRY**

Organizer: Nick Padilla
Room: Southern Pacific D

Session Overview: *Issues in range and natural resources are not unique to any*

one tribe and the goal of the symposium is provide time for native and non-native participants to engage in conversation and information sharing of natural resource management being done throughout Indian Country. Speakers are to discuss opportunities and successes of projects that help strengthen scientific knowledge, tribal engagement, and applicable practices that managers can look into and apply on home Reservations. This promotes opportunities for Native land managers to network and in a venue not often available at local areas.

10:00-10:05AM.....Nick Padilla

Welcome/Introduction

10:05-10:35AM.....Tolani Francisco, DVM MPH

USDA Forest Service collaborative with Tribal Nations to address horses on Tribal Lands

10:35-11:05AM.....Jordan R.M. Kennedy, Ph.D.

Moving like a buffalo, building like a beaver, singing like a bird: land-based research on tribal lands for cultural and ecological preservation

11:05-11:35AM.....Gilbert Jackson, Rangeland Management Program Manager

U.S. Forest Service Rangeland Management Program Futuring –Enhancing Tribal Engagement in Rangeland Co-stewardship

10:35-12:00PM.....Nick Padilla

Panel Discussion and Questions

**SYMPOSIA:
IMPROVING EFFICIENCY OF LIVESTOCK BEHAVIOR
ANALYTICAL APPROACHES: INCORPORATING
MACHINE LEARNING INTO ANALYSIS OF
SENSOR-BASED BEHAVIOR DATA**

Organizer: EJ Raynor Jamie Brennan
Room: Southern Pacific E



Session Overview: *This symposium focuses on delivering solutions to the management and analyses of sensor-derived behavior data. This opportunity will provide an understanding of the use of AI (Artificial Intelligence) to streamline analyses of big data. Example content include “Machine Learning 101” and “Pitfalls of technology and data analysis in grazing behavior research.” Skills addressed in this experience include software and data analysis as well as data collection and management methods for on-animal sensor research. Example Code will be shared on the SRM Livestock Foraging Behavior Committee’s website.*

10:00-10:02AM.....EJ Raynor, AgNext, Colorado State University
 Session Introduction

10:02-10:20PM.....Jamie Brennan and Hector Menendez, South Dakota State University
 Machine Learning 101

10:20-10:40AM.....Jim Sprinkle, University of Idaho
 Collecting & Processing Believable Accelerometer Data for Cow Grazing Behavior

10:40-11:00AM.....Kieren McCosker, University of Queensland
 Individual Tracking of Hundreds of Cattle at a Time: Managing Big Movement Data to Assess the Impact of High Temperatures on Livestock Behavior

11:00-11:20AM.....Derek Bailey, New Mexico State University
 Unsupervised machine learning of cattle tracking data and approaches to detect illness in livestock

11:20-11:40AM.....Colin Tobin, North Dakota State University
 Pitfalls of technology and data analysis in grazing behavior research

11:40-12:00PM.....Shelemia Nyamuryekung’e, Norwegian Institute of Bioeconomy Research (NIBIO)
 Precision Livestock Management in the Internet of Things (IoT) Era (VIRTUAL)

SYMPOSIA:

“RANGE ECOLOGY AT DISEQUILIBRIUM” AT 30: WHAT HAVE WE LEARNED AND WHERE ARE WE GOING?

Organizer: Brandon Bestelmeyer and Nathan Sayre
 Room: Southern Pacific B

Session Overview: *Between 1988 and 1993, a series of landmark publications marked a turn in rangeland ecology and management for both ranching and pastoralist systems. Since then, insights from nonequilibrium (NE) ecology have attained acceptance among scientists, although application to rangelands has been uneven. Elements of the NE paradigm can be found in new management frameworks such as State-and-Transition Models and Resist-Accept-Direct, and climate change is increasing the variability of precipitation, pushing greater areas toward NE dynamics. But older, equilibrium-based assumptions continue to influence policy proposals and management prescriptions in many places. In this symposium, speakers will present on the history and future of NE concepts overseas and in the United States, and a panel will engage the audience in a discussion of the on-the-ground implications of these ideas.*

10:00-10:10AM.....Brandon Bestelmeyer, USDA-ARS Jornada Experimental Range
 Rangelands in Equilibrium or Disequilibrium: Why it Still Matters

10:10-10:30AM.....Layne Coppock, Utah State University
 Genesis of Non-Equilibrium Theory and Its Evolving Application in Varied Rangeland Situations

10:30-10:50AM.....Maria Fernández Giménez, Colorado State; Chantsallkham Jamsranjav, American Center for Mongolian Studies; Ginger Allington, Cornell University

Reflections on global application of non-equilibrium concepts in pastoral systems

10:50-11:10AM.....Jay Angerer, USDA-ARS Livestock and Range Research Laboratory
 Technological applications based on nonequilibrium concepts.



11:10-11:20AM.....Nathan Sayre, University of California, Berkeley
Summary and introduction of panelists

11:20-12:00PM.....Panel discussion/Q&A

Invited panelists:

- Ginger Allington, Cornell University
- Roy Behnke, independent pastoral development expert
- Sam Fuhlendorf, Oklahoma State University

**WORKSHOP:
PUTTING THE R IN RANGELANDS: APPLIED TOOLS FOR
DATA ANALYSIS IN R; PART I**
Organizer: Georgia Harrison, Claire Tortorelli
Room: Alpine 1

Session Overview: This two-part workshop dives into R statistical software and publicly available data for rangeland applications. Part 1 (10-12) introduces R and the tidyverse framework for cleaning, manipulating, and visualizing data. In Part 2 (1-3), essential tools including the Rangeland Analysis Platform, Climate Engine, Landscape Data Commons, and Ecosystem Dynamics Interpretive Tool and two R Packages trex and terradactyl will be explored through an applied case study. All skill levels are welcome to either or both parts of this hands-on workshop, but participants should bring a laptop with the most recent versions of R and R Studio (both free) pre-installed.

PART 1 (10-12) - WELCOME AND OVERVIEW; R 101; DATA CLEANING AND VIS IN THE TIDYVERSE; GEAR UP FOR CASE STUDY

10:00-10:30AM.....Georgia Harrison, USDA ARS

Welcome to the workshop & Getting started with R

10:30-11:00AM.....Leah Dreesmann, University of Idaho

Data manipulation and cleaning in R within the tidyverse

11:00 -11:30AM.....Claire Tortorelli, UC Davis/USFS
Data visualization in R with ggplot2

11:30-12:00PM.....Georgia, Leah and Claire
Tidyverse coding exercise; gear up for case study after lunch

WORKSHOP WILL RESUME AT 1PM

**IGNITE:
PAST, PRESENT, AND FUTURE OF THE SAGEBRUSH
STEPPE TREATMENT EVALUATION PROJECT (SAGESTEP)**
Organizer: Beth Newingham, Lisa Ellsworth, Dustin Smith
Room: Alpine 3

Session Overview: The Sagebrush Steppe Treatment Evaluation Project (SageSTEP) is a regional experiment evaluating methods for fuel reduction and ecological restoration. Fifteen years ago, we implemented treatments (prescribed fire, mechanical tree removal, and herbicide) at 19 sites either invaded by annual grasses or encroached by pinyon-juniper across the Intermountain West. We have collected annual fuel, vegetation, and climate data to understand changes in response to treatment, climate, and disturbance. We present the history of SageSTEP, recent results, and discuss future research allowing for audience feedback. Our long-term research network illustrates changes that have happened in the past fifteen years in rangeland management.

10:00AM.....Lisa Ellsworth, Beth Newingham, Jim McIver, David Pyke, Jeanne Chambers, Scott Shaff

The history of the Sagebrush Treatment Evaluation Project (SageSTEP)

10:05AM.....Steve Hanser, Jim McIver, Scott Shaff

SageSTEP experimental design and data resources

10:10AM.....Beth Newingham, Lisa Ellsworth, Dave Pyke, Scott Shaff

Results from ten years of SageSTEP data



- 10:15AM.....Dustin Smith
Lessons learned from SageSTEP from the management perspective
- 10:20AM.....Mark Brunson
Sustaining a flow of science outreach from long-term SageSTEP research
- 10:25AM.....Lisa Ellsworth, Beth Newingham, Dustin Smith
Discussion
- 10:35AM.....Claire Williams, Lisa Ellsworth, Beth Newingham, Scott Shaff
Dual disturbances in the sagebrush: What happens when fuel treatments burn?
- 10:40AM.....Brian Howard, Beth Newingham, Lisa Ellsworth, Claire Williams
Pre-fire fuel treatment effects on post-fire plant community composition
- 10:45AM.....Tyler Pelletier, Beth Newingham, Brian Howard, Brian Morra
Post-wildfire wind erosion after historic fuel treatments
- 10:50AM.....C. Jason Williams (Presenter), Fred B. Pierson, Osama Z. Al-Hamdan, S. Kossi Nouwakpo
Fuel treatment effects on hydrology and erosion processes
- 10:55AM.....David Pyke
Invasive species and climate change
- 11:00AM.....Lisa Ellsworth, Beth Newingham, Dustin Smith
Discussion
- 11:10AM....Karen Short, Jeanne Chambers, Jessi Brown, Michelle Day, Lisa Ellsworth, Matt Reeves, Julia Olszewski, Eva Strand
Using SageSTEP data to inform fuel treatment scenario planning



- 11:15.....Matt Reeves
SageSTEP data for calibration of state and transition simulation models
- 11:20AM.....Seren Bagcilar, Ben Rau, Maddy Case, Beth Newingham, Lisa Ellsworth, Rory O'Connor
Using SageSTEP soil carbon data to better understand carbon dynamics in sagebrush steppe
- 11:25AM.....Scott Allen, Abigail Sandquist, Sydney Corcoran, Andrew Felton, William Weinberg, Emily Francis, Beth Newingham
Water use responses to disturbances and treatments across the SageSTEP network
- 11:30AM.....Jonathan Dinkins, Vanessa Schroeder, Jessica Pletcher, Lisa Ellsworth, Beth Newingham, Steve Hanser
Songbird responses to fuel treatments and implications for threatened species
- 11:35AM.....Lisa Ellsworth, Beth Newingham, Dustin Smith
Discussion

CONTRIBUTED ORAL SESSION: FUELS AND GRAZING

Room: Cascade 4

- 10:00AM.....Corey Gucker
Changing fire regimes in the Great Basin USA
- 10:20AM.....Alex Stoneburner
Assessing the effectiveness of targeted grazing for managing cheatgrass (*Bromus tectorum*) in the sagebrush biome

10:40AM.....Kelly Hopping
Early indications of the potential of sheep targeted grazing as a cheat-grass and wildfire risk management tool

11:00AM.....Genoa Starrs
Large-scale impacts of cattle grazing on annual burn probability in Napa and Sonoma Counties, California

11:20AM.....Roxanne Foss
Grassland biomass thresholds critical to fire behavior and land management in California

11:40AM.....John Hendricks
Impact of burning and mob grazing on range productivity in the northern Great Plains.

**CONTRIBUTED ORAL SESSION: RESTORATION 2
(SESSION 2 OF 2)**
Room: Cascade 1

10:00AM.....Shannon Nelson
Soil amendments to improve tall wheatgrass establishment at a mine tailings impoundment

10:20AM.....Leah Prescott
Historic seed collections as a tool to understand seed mass variation in native plants

10:40AM.....Stephanie Yelenik
Restoration to stall grass-fire cycles in Hawaii

11:00AM.....Shannon Wilson
Pest status, seasonal abundance, and management of the twolined spittlebug, *Prosapia bicincta*, on Hawaii rangelands

11:20AM.....Catherine Silliman
Comparing seed emergence and seedling survival of *Krascheninnikovia lanata* (winterfat) across spatial and environmental gradients in the Great Basin and Mojave deserts

11:40AM.....Shaelyn Rainey
Effects of digestion on germination of native grasses of the Southern Great Plains

**CONTRIBUTED ORAL SESSION:
SAGEBRUSH MANAGEMENT**
Room: Cascade 5

10:00AM.....Angela Fletcher
Measuring and quantifying the ecosystem service values of conservation investments on western rangelands

10:20AM.....Daniel Eddington
Utah Watershed Restoration Initiative Partnership

10:40AM.....Beth Orning
Long-Term costs and effects of biome-wide sagebrush conservation strategies for invasive annual grasses

11:00AM.....Robert Heckman
Invasion, precipitation seasonality, and precipitation legacies impact plant production in western US rangelands

11:20AM.....Daav Sannerud
Thinning dense big sagebrush to replenish herbaceous understories: Seedling establishment



11:40AM.....Joshua Day
Drivers of big sagebrush (*Artemisia tridentata*) survival and mortality in the Colorado Plateau

CONTRIBUTED ORAL SESSION: WILDLIFE

Room: Cascade 3

10:00AM.....Marlin Dart
Linking behavioral states with movements to examine resource selection dynamics of pronghorn in the southern shortgrass prairie

10:20AM.....Laura Snell
Mitigating ranching-wildlife conflict with science and community engagement

10:40AM.....William Richardson
From juniper jungles to curl-leaf conservation: How PJ removal affects mule deer habitat

11:00AM.....Taylor Bayne
Wildlife monitoring in real time: Cellular-connected cameras with automated image classification

11:20AM.....Cody Griffin
Using accelerometers to understand resource selection and energy expenditure in Wild Turkeys: implications for land management

11:40AM.....Jacob Yetter
Breeding ecology of ring-necked pheasants in a dynamic agroecosystem

NOON: ALL ITEMS MUST BE PICKED UP FROM THE ENDOWMENT FUND SILENT AUCTION

NOON-1PM.....LUNCH BREAK

LUNCH CONCESSIONS AVAILABLE FOR PURCHASE IN THE TRADE SHOW (LAST CHANCE TO TAKE IN THE TRADE SHOW!)

ROOM SIERRA 1 IS SET WITH ROUND TABLES TO ENJOY YOUR LUNCH AND CHAT WITH FELLOW ATTENDEES OR TAKE IN THE TRADE SHOW AND VISIT WITH OUR EXHIBITORS!

WEDNESDAY, JANUARY 31ST

1:00PM – 3:00PM

**CAMPFIRE CONVERSATIONS:
A WORLD CAFÉ ABOUT TOPICS THAT MATTER TO SRM
AND RANGELANDS**

Organizer: Hailey Wilmer

Room: Sierra 1

Overview: *The Campfire Sessions are a growing SRM tradition of open dialogue about topics that matter to rangeland systems, inspired by US Forest Service's own Bob Mountain. Participants will connect with attendees from multiple backgrounds in structured round-table conversations facilitated with the World Cafe method by topic experts.*

This year's topics include:

- Rangeland Futuring with the USFS (Susan Charnley and USFS collaborators)
- Rangeland coexistence (Matt Barnes)
- Mavericks in the making: Creating space for all backgrounds in range (Courtney Duchardt, Cameron Duquette and collaborators)
- Creating a culture of adaptation in restoration (Emily Kachergis and BLM collaborators)
- Grazing after fire: research insights and gaps (Eric Winford and University of Idaho collaborators)
- What kind of information producers trust to make decisions? (Peter Vadas and ARS collaborators)



We ARE HIRING!

Start your career with NRCS and you can:

- Plan grazing systems that improve rangeland ecosystems
- Manage and protect wildlife habitat
- Help America's ranchers and farmers produce food and fiber
- Work outdoors on farms, ranches, forestland, and other Ag landscapes
- And much more!



Learn more at www.nrcs.usda.gov



- Excellent benefits
- Work life balance programs
- Competitive pay with scheduled increases
- Professional growth opportunities across the

Check Us Out
 Vacancy announcements are posted on usajobs.gov website. Application packages are completed online.

USDA is an equal opportunity employer, provider, and lender.

WEDSDAY, JANUARY 31ST

SESSION 2: GEOGRAPHIES OF ACTION AND OUTCOME EVALUATION

- 1:00PM.....David Naugle, Franke College of Forestry and Conservation, University of Missoula, MT
- Outcomes of Spatial Targeting in Sagebrush Country: A Retrospective Look at the NRCS-led Sage Grouse Initiative
- 1:20PM.....David Naugle, Franke College of Forestry and Conservation, University of Missoula, MT
- Rangeland vegetation response to conifer removal in southeastern Idaho
- 1:40PM..Geoffrey Bedrosian, US Fish and Wildlife Service, Lakewood, CO
- Cows, not plows: Using cropland conversion risk to scale-up averted loss of core sagebrush rangelands
- 2:00PM.....Jason R. Reinhardt, USDA Forest Service, Rocky Mountain Research Station, Moscow, ID

SYMPOSIA: SAGEBRUSH BIOME CONSERVATION DESIGN PHASE 2: IMPLEMENTING HOPE WHILE MANAGING CHANGE

Organizer: Kevin Doherty
 Room: Southern Pacific A & G

Session Overview: *The Sagebrush Conservation Design (SCD) identifies the best remaining ecologically intact sagebrush areas. The SCD is an adaptive, biome-wide tool to identify and address landscape-level threats by supporting the strategic allocation of conservation effort and resources. These threats include invasive annual grass, wildfire, expanding conifers, and human development, all of which impact a diverse suite of land uses, values, and ecosystem services.*

This symposium will present 12 new papers that further the scientific underpinnings of the SCD. The symposium will focus around 3 themes: Ecological Relevance of SEI, Geographies of Action, and Geographies of Winning

Using collaborative input to develop a spatial prioritization for conifer management in support of sagebrush conservation design

2:20PM.....Chad Boyd, UDSA-Agricultural Research Service, Burns, OR

A strategic and science-based framework for management of invasive annual grasses in the Sagebrush Biome

2:40PM.....Matt Cahill, The Nature Conservancy, Bend, Oregon

Refusing the Status Quo: Concluding thoughts on what it is going to take to save the sagebrush & Panel Discussion

**SYMPOSIA:
CARBON ON THE RANGE: ADDRESSING KEY
UNCERTAINTIES IN CARBON POOLS, FLUXES, AND
DRIVERS OF CHANGE.**

Organizer: Matt Germino, Toby Maxwell
Room: Cascade 3

Session Overview: Rangelands contain ~30% of the world's soil carbon, and management for soil carbon is increasing. However, carbon is "invisible" to us, and our understanding and ability to accurately measure carbon fluxes and storage are still in development relative to challenges posed by budget, scale, and efficiency requirements. This symposium will convene scientists who can offer insights on the "what, where, when, how, and why" to measure change in rangeland soil carbon storage. Presentations will cover different rangeland types and problems, including grazing, disturbances, invasion, and climate impacts that relate most to the focus of rangeland managers.

1-1:20PM.....Matt Germino

Introduction, and considerations for measurement and assessment of carbon storage in dry rangelands such as disturbed sagebrush steppe.

1:20-1:40PM.....Sasha Reed

The good, the bad, and the ugly (as well as the awesome!): improving our understanding of plant and soil contributions to successful carbon management in rangelands

1:40-2PM.....Toby Maxwell

Establishing a new standard for assessing impacts of exotic grass-fire cycle and benefits of restoration on soil carbon in semi-arid rangelands

2-2:20PM.....Paige Stanley

Ruminating on soil carbon: applying current understanding to inform grazing management

2:20-2:40PM.....Louis Provencher

Carbon Sequestration in Degraded Intermountain West Rangelands, United States

2:40-3PM.....Derek Pierson

Enhancing Soil Carbon Management: High-Resolution Estimates Using A Process-Based Model and Machine Learning

**SYMPOSIA:
RANGELAND TECHNOLOGY AND EQUIPMENT
COUNCIL (RTEC): NOVEL EQUIPMENT AND
RESTORATION METHODS IN THE WESTERN UNITED
STATES**

Organizer: Kevin Gunnell, Corey Gucker, Matthew Madsen
Room: Southern Pacific C

Session Overview: With the myriad of needs, environments, and limitations that land managers encounter, novel equipment and restoration methods are needed to address both local and landscape scale restoration work. This symposium seeks to highlight and share information on the development of new equipment and methods, or modifications to current practices, that can assist restoration practitioners in their efforts. Specific emphasis will be on work within the western United States, but can have implications beyond those areas.

1:00-1:10PM.....Bill Davidson

Landscape and Climate Transfer Distance Metrics Influence the Density of Foundational Sagebrush in Post-fire Restoration Seeding- Preliminary Findings



- 1:10-1:20PM.....Bill Davidson
 Additive Benefits of Multiple Treatment Interventions to Reestablish Foundational Shrubs are Influenced by Site Characteristics in a Post-Fire Landscape- Preliminary Findings
- 1:20-1:30PM.....Scott Jensen
 A rugged wildland transplanter for plant-based restoration
- 1:30-1:40PM.....Danny Summers
 Novel seeding equipment and modifications for landscape scale restoration efforts.
- 1:40-2PM.....Danielle Bilyeu Johnston
 Rangeland pitting for revegetation and annual weed control
- 2:00-2:10PM.....Corinne Schroeder
 Using herbicides and scalable seed technology to restore drylands: Progress after six years of adaptive research and development.
- 2:10-2:20PM.....Matthew Madsen
 Enhancing Penstemon Palmeri Seed Germination and Plant Establishment with a Slow-Release Gibberellic Acid Seed Coating
- 2:20-2:40PM.....R. Justin Derose
 Aspen regeneration response to mechanical roller felling
- 2:40-3:00PM.....Q&A and Discussion

SYMPOSIA:

**ELEVATING AND UNITING VOICES IN RANGELANDS:
 THE INTERNATIONAL YEAR OF RANGELANDS AND
 PASTORALISTS (IYRP) 2026**

Organizer: Dr. Lauren Svejcar, Ann Waters-Bayer
 Room: Southern Pacific D

Session Overview: *The goal of the IYRP is to promote sustainable rangeland systems and the livelihoods of people who live in them worldwide (<https://iyrp.info/>) connecting people and efforts from the local to global level to elevate voices that have historically gone unheard. Our objective in this symposium is to present challenges faced by different groups in the North America IYRP region and what outreach, education and policy efforts they have moving forward. We strive to provide a clear picture of how the work of diverse groups at local levels supports others globally. Both in-person and virtual formats will be used.*

- 1:00-1:20PM.....Dr. Diana Doan-Crider, Animo Partnership in Natural Resources
 How culture and history have influenced rangelands in México, and where do we go from here?
- 1:20-1:40PM.....Rogelio Maciel, ProNatura Noreste
 A Grassland Conservation Framework in Arid Northern Mexico with a Perspective on Social Conditions
- 1:40-2:00PM.....Jorge Bildo, Rancho El Ojo
 Grazing the Malpais: our experience in conservation and diversification.
- 2:00-2:20PM.....Emily Luscombe, M.Sc., Intertribal Agricultural Council
 Building bright futures through traditional knowledge and land use
- 2:20-2:40PM.....William Burnidge, The Nature Conservancy
 A theory of change for regenerative grazing lands – integrated strategies for improving outcomes for people and nature on rangelands.
- 2:40-3:00PM.....Dr. Christian Artuso, Canadian Wildlife Service
 How the grass is growing in Canada



**SYMPOSIA:
SUBALPINE FORB COMMUNITY CLASSIFICATION AND
ECOLOGICAL SITES OF WITH EMPHASIS ON THE TALL
FORB TYPE**

Organizer: R. Aaron Zobell, A. Cameron
Room: Southern Pacific E

Session Overview: *This symposium will provide a brief history of work and publications completed within the subalpine forb type with emphasis on the Tall Forb type. It will then discuss classification and ordination work recently completed at reference areas within the Bridger-Teton National Forest and published in Range Ecology and Management (REM, Volume 90, pg. 294-307). Prevalent communities of the Tall Forb type and drivers of will then be introduced. Comparisons of grazed tall forb plant communities to ungrazed plant communities will occur.*

1-1:20PM.....Chad Camp

From the Wasatch Plateau to the Present: A review of work and publications within the subalpine forb type with emphasis on Tall Forbs

1:20-1:40PM.....R. Aaron Zobell

Gradient Analysis and Classification of Tall Forb Communities in the Bridger-Teton National Forest, USA (REM, Volume 90, pg. 294-307).

1:40-2PM.....S. Goodrich

Prevalent Plant Community Types within the subalpine forb and drivers of

2-2:20PM.....A. Cameron/Dallen Smith

Subalpine forb communities, snowbeds, and pocket gophers

2:20-2:40PM.....R. Aaron Zobell

Tall Forb Plant communities of Green Knoll. How do these plant communities compare to Research Natural Areas within the Tall Forb type and in particular to the Elk Knoll Research Natural Area (RNA)?

2:40-3PM.....Dr. Spaeth/B. Jacobson

A preliminary review of grazed vs. ungrazed areas within the subalpine forb type on the Bridger-Teton National Forest

**WORKSHOP: PUTTING THE R IN RANGELANDS:
APPLIED TOOLS FOR DATA ANALYSIS IN R**

Organizer: Georgia Harrison, Claire Tortorelli
Room: Alpine I

WORKSHOP RESUMES FROM 10:20AM-NOON SESSION

Session Overview: *This two-part workshop dives into R statistical software and publicly available data for rangeland applications. Part 1 (10-12) introduces R and the tidyverse framework for cleaning, manipulating, and visualizing data. In Part 2 (1-3), essential tools including the Rangeland Analysis Platform, Climate Engine, Landscape Data Commons, and Ecosystem Dynamics Interpretive Tool and two R Packages trex and terradactyl will be explored through an applied case study. All skill levels are welcome to either or both parts of this hands-on workshop, but participants should bring a laptop with the most recent versions of R and R Studio (both free) pre-installed.*

**PART 2: WELCOME BACK; EXPLORE THE LANDSCAPE OF
RANGELAND DATA; CASE STUDY ON INDICATORS FOR WIND
EROSION WITH DROUGHT**

1:00-1:15PM.....Sarah McCord, USDA ARS

Big data opportunities on rangelands: Landscape Data Commons, Ecosystem Dynamics Interpretive Tool (EDIT), Rangeland Analysis Platform, and Climate datasets

1:15 - 1:30PM.....Joe Brehm, NMSU

Using terradactyl to calculate indicators of rangeland health and conditions in R.

1:30 - 1:45PM.....Nelson Stauffer, USDA ARS

Accessing public data with trex (Terrestrial Rangeland data Extraction)



1:45-3:00PM.....Sarah McCord and Eric Jensen, Desert Research Institute
Case study: How does drought impact wind erosion risk?

IGNITE:
WHAT'S BLOWING IN THE WIND: NEW FRONTIERS FOR RANGELAND WIND EROSION RESEARCH

Organizer: Nicholas Webb, Brandon Edwards, Beth Newingham, Brian Morra
Room: Southern Pacific B

Session Overview: Rangelands are often typified by sparse vegetation and shallow soils and, as a result, are vulnerable to wind erosion. While rangeland wind erosion can be extensive, knowledge remains limited on exactly where and when rangelands are eroding, and how patterns of wind erosion are affected by land use, management, disturbances, and ecosystem change. This session will serve as the first SRM forum to present and discuss the state-of-the-science and future research needs on rangeland wind erosion, including insights from small-scale experimental studies, coordinated research networks, regional modeling studies, and new tools to support wind erosion management.

1:00-1:05 PM.....Nicholas Webb

Welcome and objectives

1:05-1:10 PM.....Nicholas Webb

The National Wind Erosion Research Network: Insights from long-term monitoring across US rangelands

1:10- 1:15 PM.....Brian Morra

Relating post-fire plant community development to wind erosion rates

1:15-1:20 PM.....Beth Newingham

Wildfire, grazing, and wind erosion in the northern Great Basin

1:20-1:25 PM.....Ronald Treminio

Wind erosion hotspots and dust transport pathways from the Great Basin

1:25-1:30 PM.....Brandi Wheeler
Predicting threats to soil organic carbon stocks from wind erosion using BLM AIM data and AERO

1:30-1:35 PM.....Michael Duniway
Oil/gas development and dust emissions from the Colorado Plateau

1:35-1:40 PM:.....Saroj Dhital
Modeling dust on snow and influence of regional vegetation change across the southwestern US

1:40-1:45 PM.....Bo Zhou
Modeling wind erosion risk across western rangelands using LandCART and WEMO

1:45-3:00 PM.....Beth Newingham
Q&A followed by moderated discussion on research needs and new frontiers for rangeland wind erosion research

IGNITE:
CLIMATE ADAPTATION IN BIG SAGEBRUSH ECOSYSTEMS

Organizer: John Bradford, Maddy Case, Lief Wiechman
Room: Alpine 2

1:05-1:10PM.....Scott Carpenter
Tying climate change impacts on big sagebrush vegetation to management decisions: Highlights from a recent science synthesis

1:10-1:15PM.....Lundblad, Carl G., Shawn T. O'Neil, Brianne E. Brussee, Peter S. Coates, and John C. Tull
Maximizing Sage-grouse Performance and Persistence in a Semiarid Ecosystem Threatened by Climate Change



- 1:15-1:20PM.....Doug Shinneman
Challenges ahead: Adapting to changing fuel conditions and fire regimes in the sagebrush biome
- 1:20-1:25PM.....Kirk Davies
Does cattle grazing have place in adapting to climate change in the sagebrush ecosystem?
- 1:25-1:30PM.....Julie Larson
Preparing to use more diverse species in restoration (whether or not we know the weather)
- 1:30-1:35PM.....Adrian Monroe
Planning for sagebrush restoration under a changing climate with range-wide soil climate products
- 1:35-1:40PM.....Rob Massatti
Ignoring evolutionary patterns is likely to hinder climate adaptation management strategies
- 1:40-1:45PM.....Lina Aoyama
Seed provenancing for changing climates: nonlocal seeds with variable stress tolerances adapted to warmer and drier climate
- 1:45-1:50PM.....Kari Veblen
“Quality over quantity” as a climate-adaptive restoration strategy
- 1:50-1:55PM.....Cam Aldridge
A Changing Sagebrush Ecosystem: Evaluation of resilient systems in the face of climate change
- 1:55-2:00PM.....Kevin Badik
Modeling mixed with collaboration: Translating probabilistic models to

real-world decisions in the sagebrush sea

- 2:00-2:05PM.....Rory O’Connor
Managing carbon in sagebrush ecosystems
- 2:05-2:10PM.....Daniel Schlaepfer
Informing sagebrush climate adaptation strategies with projections of ecological drought, resilience, resistance & plant community structure
- 2:10-2:15PM.....Nicole DeCrappeo
Climate adaptation science and practice in the sagebrush steppe
- 2:15-2:20PM.....Marlo Draper & Justin Shirley
Climate adaptation in BLM management of sagebrush ecosystems
- 2:20-2:25PM.....Peggy Olwell
Advancing climate adaptation through the National Native Seed Strategy

**CONTRIBUTED ORAL SESSION: SAGE GROUSE 2
(SESSION 2 OF 2)**

Room: Cascade 1

- 1:00PM.....Jonathan Dinkins
Insects, forbs, and cover for greater sage-grouse across an annual grass invasion gradient
- 1:20PM.....Brienne Brussee
Sage-grouse brood-rearing habitat within the Great Basin region of Nevada and California: Observations and inference from multi-scale modeling of habitat selection and survival



1:40PM.....Peter Coates
 Integrating indices of habitat selection, survival, and space use to inform habitat management areas for greater sage-grouse in Nevada and northeastern California

2:00PM.....Cali Roth
 A decision support tool for a hierarchical population monitoring framework for greater sage-grouse

2:20PM.....Morgan Solomon
 Mesic protection and restoration: Applying a new threat-based assessment to prioritize conservation actions for an at risk sagebrush obligate

2:40pm.....Wayne Smith
 Using remote sensing to assess habitat of Gunnison sage-grouse

**CONTRIBUTED ORAL SESSION: FIRE MANAGEMENT 2
 (SESSION 2 OF 2)**
 Room: Cascade 4

1:00PM.....OPEN

1:20PM.....Austin Nash
 Do fuel breaks contribute to the spread of annual grasses in the sagebrush ecosystem?

1:40PM.....Devan McGranahan
 Resilience of grazed, semi-arid rangeland to wildfire: Soil, vegetation, and pollinator responses

2:00PM.....Michelle Day
 Optimizing fuel treatments to reduce wildfire risk to sagebrush ecosystems in the Great Basin of the western US

WEDSDAY, JANUARY 31ST



WEDSDAY, JANUARY 31ST

2:20PM.....Peter Olsoy
 Remote sensing of wildfire fuels along potential control locations with unoccupied aerial systems

2:40PM.....Jessica Brown
 Evaluating risks and guiding fuels management in a Forest Service high priority landscape

3PM.....COFFEE BREAK
 located outside entrance of Grand Ballroom I

3:30-8:00PM.....SRM HONOR AND STUDENT AWARDS
 Room: Grand Ballroom I
Overview: Join us as we recognize all of our outstanding student competitors and Honor awardees!

6PM-8PM.....SRM WILD WOMEN OF RANGE
 Location: Game On

THURSDAY, FEBRUARY 1ST

7:30AM-11AM.....SRM BOARD OF DIRECTORS MEETING
 Room: Central Pacific



NOTES:

NOTES:



Thanks for coming!

See you in Spokane in 2025!

