



# SRM 2019

## MINNEAPOLIS

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# MEETING SPONSORS

## PRESENTING SPONSOR



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# WELCOME

On behalf of the Society for Range Management and our 2019 Annual Meeting Planning Committee, welcome to Minneapolis, Minnesota for the 72nd SRM Annual Meeting, Technical Training and Trade Show! This year's theme, "Gateway to the Prairie," exemplifies so many things in SRM. SRM is the gateway to rangeland science and the transformational application of that science and is an important avenue for all interested in rangelands to discuss, dialogue, and network on topics that are important currently and into the future.

I don't need to peruse our annual meeting schedules anymore, I know what is in store for me. I will find a suite of student programs from high school to graduate school. I will find technical sessions and symposia that are of interest to a wide variety of rangeland managers. Educators and scientists from private, public, and universities will be on-hand to share their new findings, guide their junior representatives, and gain reciprocal knowledge from their colleagues. Field tours and social events will highlight the ecology and involve us in the local culture of Minnesota, and our Trade Show will showcase international products and practices. New careers will be launched at the same time current careers are developed. We will even have a solid representation of retired rangeland enthusiasts who continue to come to give back to their discipline, imbibe in the social side of our profession, and to plain old have fun with past, present, and future friends.

We are reminded all too often how intriguing life is and, at the same time, how fragile it is. I encourage each of you to immerse yourselves in each and every day of the meeting and take full advantage of every opportunity to expand your life horizons. Each of us has a unique, personal connection to rangelands and the privilege we call life. This week presents a rare opportunity for you to engage your fellow attendees to exchange traditional and local knowledge, research-based findings, and contribute your own story and diversity of what rangelands mean to you; both professionally and personally. I look forward to seeing you at the 2019 SRM Annual Meeting. Have a great time and an even greater meeting!

Barry Irving  
President, 2018  
Society for Range Management

# WELCOME TO MINNEAPOLIS

## “GATEWAY TO THE PRAIRIE”

On behalf of the North Central Section, welcome to the Society for Range Management's 72nd Annual Meeting in Minneapolis, MN. We hope that you enjoy your stay and take time to tour the city and the numerous entertainment/sightseeing options available.

We also hope that you enjoy the SRM annual meeting! We have many great symposia, workshops, and technical sessions planned at the event that will cover a broad spectrum of rangeland management topics for both land managers and producers. Our theme this year is “Gateway to the Prairie”, which is very fitting for the landscape as several biomes come together in Minnesota, including the prairies that once stretched far out to the west.

This meeting has been a collaborative effort between the North Central and Northern Great Plains Sections. I want to give a special thanks to those from both sections who have stepped up in the planning process. Collectively, we have worked very hard to provide a high-quality event for all of those attending, including students, educators, land managers, producers, and everyone in between. I also want to thank everyone that is attending the meeting.

Enjoy the Annual Meeting as well as the Minneapolis/St. Paul area. Welcome to the 72nd Society for Range Management Annual Meeting!

Jeff Duchene  
Planning Committee co-chair.  
North Central Section,  
Society for Range Management

# IMPORTANT INFORMATION

Throughout the program, Minneapolis Convention Center will be “MCC”

## Attendify App

The 2019 SRM Planning Committee encourages you to download the SRM 2019 – 72nd Annual Meeting App. This *free* App has several features to make your Annual Meeting a pleasure. The app contains the meeting schedule, facility maps, Minneapolis maps, announcements and more. Visit either Google Play (Android) or the Apple App Store (iPhone) to download. Search in either store for “**2019 SRM 72nd Annual Meeting**”.

Download the app and you will be off and running with all the information you need for the meeting as well as interacting with other event attendees. If you have questions, please visit the meeting office in L100E Lower Level of the Minneapolis Convention Center.

## Finding Your Way Around

The MCC will host registration, symposiums, workshops, forums, oral technical sessions, poster sessions and the trade show. All the other events are split between the host hotel, the Hilton, and the convention center with information on time and locations in the following lists. There are maps in the back of the printed program and in the meeting app to help you plan.

An information board will be on the Lower Level of the MCC. Information on current meeting news not found in the meeting app can be posted, with permission of the planning committee, (room L100E) along with lost and found.

## Student Competition

Student competitors are recognized throughout the program as:

<sup>1</sup> = Master’s competitors

<sup>2</sup> = PhD competitors

# IMPORTANT INFORMATION

## **Travel**

There are a few options to get from the airport to the Hilton Minneapolis. The Super Shuttle is \$16/person each way and will pick-up and drop-off. To book the Super Shuttle, visit [www.supershuttle.com](http://www.supershuttle.com). The Light Rail transportation via Blue Line pick-up at both airport terminals and will bring guests to the Nicolette Mall Station, located five blocks from the hotel. This is \$2/person each way. Other means of transportation include taxi (estimated \$45-\$50), Uber (estimated \$35), and Lyft.

## **Speaker Preparation**

The speaker preparation room is M101A, MCC, available on Monday and Tuesday.

## **Certified Professional in Rangeland Management (CPRM) Exam**

The CPRM Exam will be held Tuesday, from 1-5pm, in M101C, MCC. A study session will be available on Tuesday from 8-11:30am in M101B, MCC.

## **Dining**

Lunch is available inside the Convention Center at several locations. The Hilton has lunch options as well.

There are many dining options in the vicinity of the Convention Center which are listed in the meeting app or by downloading the Skyways app (link is in the app).



# ENDOWMENT FUND SILENT AUCTION

The Endowment Fund Development Committee requests your participation in the 2019 Silent Auction, located in the Trade Show. Your participation will continue to help grow the SRM Endowment Fund. As the Endowment Fund grows, it contributes greater amounts to SRM's programs and operations. The 2019 goal is to raise \$5,000 by auctioning items that SRM members contribute. So, come to the auction and take something home to commemorate the 2019 Annual Meeting. Bid high and bid often!

The Silent Auction will run from the opening of the Trade Show on Monday at 8am until Tuesday at 1pm. All items must be picked up on Tuesday by 5pm – **no exceptions**. For information on the silent auction contact: Clarke McClung, [cmclung@bresnan.net](mailto:cmclung@bresnan.net) or call 307-751-7846.

## SRM BUSINESS LUNCHEON

Join SRM President Barry Irving, SRM staff, executive officers, board of directors, and your fellow members for lunch on Wednesday, February 13, 12-2:15pm in the lower level of the MCC. An overview of the Society in the past year will be provided.

## SRM AWARDS PROGRAM

Please join us Wednesday, February 13 2:30-5:00pm in the lower level of the Minneapolis Convention Center to recognize the SRM honor awardees, academic awardees, and student competitors for their accomplishments and contributions to the Society for Range Management and rangelands!

The Frederick G. Renner Award and W.R. Chapline Research Award will be presented during the lunch. Please join us in congratulating these deserving individuals for the contributions to SRM and rangelands.

**Frederick G. Renner Award:** Dr. Joel R. Brown  
**W.R. Chapline Research Award:** Dr. Steven R. Archer

## SPECIAL EVENTS AND ENTERTAINMENT

**Weed Crimes** by Nadia Mori MSc, PAg, BFA  
**Monday, 7-8:30pm, MCC L100ABCHJI**

“Weed Crimes” is a 40 minute entertainment based educational one-woman show. The Weed Crime detective will need your help in solving some ghastly crimes while Farmer Bob and Sue desperately want your advice on integrated weed management. Of course the story would not be complete without the stars of the shows: the weeds! Over the top storytelling, audience involvement and hand puppets are all fair game in this hilarious approach to raising awareness around noxious weeds!

Nadia Mori is a Saskatchewan based Range Management Extension Specialist and Actor. Combining her passion for keeping pastures healthy and noxious weed free with her deep desire to act and entertain, she has experimented with different forms of teaching land managers on the importance of weed management. Her latest creation is the one-woman show “Weed Crimes”. Recent acting credits include boom (Fire in the Hole Productions), Cabaret, The Illusion, Les Belles Soeurs (Greystone Theater), With Glowing Hearts (Obiz Productions) and Sextet I & II (Write in the Kisser Productions). Nadia is also an Audible audiobook producer and narrator. She holds a Master of Science in Rangeland Management as well as a Bachelor of Fine Arts in acting. If you are curious about her work, follow her on Twitter @TheNadiaMori.

The show will be preceded by a video “Roots That Bind Us” by the Carter County Conservation District (Montana). The video is Carter County’s story about change on the landscape as told through long standing producers.

## WILD WOMEN OF RANGE

**Wednesday 6-8pm,**  
Brit’s Pub, 1110 Nicollet Mall.  
Students, professionals, and ranchers  
(*especially women*) are all welcome to attend.

# DANCE

## THE LAST REVEL



**Tuesday, 8pm**

**Hilton Hotel, 3rd floor, Salon E, F, G**

From the storied music scene of the Upper Midwest comes the cutting edge front porch Americana soundscapes of The Last Revel. This powerfully talented collective of songwriters from Minneapolis, Minnesota so naturally blends the genres of Folk, Old Time String-Band and Rock to create a sound that is as equally original as it is timeless. Drawing influence from their salt of the earth Midwest ethos the band's songs are roots in the characteristic that has made that region the heartbeat of America.

The Last Revel utilizes their multi-instrumental abilities to bring the full spectrum of modern Americana to life with lush arraignments of three-part vocal harmonies, acoustic and electric guitars, upright bass, fiddle, and 5-string banjo to consistently support impassioned performances of their honest and heartfelt songwriting.

With their third full length album, Hazard & Fate, The Last Revel further demonstrates their ability to create rich and delicately textured recorded material with a modern "tip of the hat" to the storied history of American folk music.

# YPC ACTIVITIES

The Young Professionals Conclave (YPC) provides opportunities to build relationships between students, graduate students, young professionals and long-time members. Members are seniors in an undergraduate program, graduate students and/or are in their first 5 years in the job field. Come by our booth at the Annual Meeting to ask questions and to purchase our wild rags. All proceeds from the wildrags go to support the YPC Travel Scholarships.

## **The YPC Business Meeting**

**Tuesday, 10am-12pm, M100B, MCC**

This meeting is open to anyone who is interested in getting involved in YPC. At the meeting, attendees can learn more about group functions and available leadership roles. At the business meeting, new officer positions will be filled, and ideas will be discussed to further develop YPC.

## **Range Runners Fun Run**

**Monday, 5:30pm, Loring Park**

Come stretch your legs at the 3rd annual YPC Range Runners Fun Run. The 5k course is centered around the beautiful Loring Park. All proceeds from the event will help support the YPC Travel Scholarships. Get out for an enjoyable evening run with friends and family! If you haven't signed up for the run during pre-registration, the cost of the event is \$30 for students and YPC members, and \$40 for regular SRM members (t-shirts are not guaranteed for those who did not pre-register).

## **Bridging the Gap**

**Tuesday, 4-6:00pm, Salon EFG, Hilton Hotel**

The YPC and Student Conclave officer team are excited to host the 2nd Annual Bridging the Gap evening social and activity. Bridging the Gap is a facilitated, one-on-one or small group discussion between "mentors" (established professionals) and "mentees" (young professionals/students). The objective of this event is to build more connections between the student membership of SRM and involved professionals, and to get more young professionals invested in SRM at the beginning of their careers.

# **UNDERGRADUATE STUDENT ACTIVITIES**

## **Free NEPA Training for Students**

**Sunday, 7-9pm, L100F, Lower Level MCC**

Dr. Christina Hargiss will be putting on a free 2-hour NEPA training session for students. Dr. Hargiss will introduce students to the National Environmental Policy Act process and explain why knowledge of NEPA is essential for students who anticipate that they will be working for or with the federal government. At the end of the training, and if students have registered, a certificate of completion will be emailed to the student. Students who want to compete for these jobs should have some demonstrated training in NEPA, which this training will provide. Students can register on site. This training is free to all and is open to all.

## **Plant ID Study Room**

**Sunday, Monday 6am-12am**

**Tuesday 6am-12pm**

**Symphony I, II in Hilton Hotel**

A study room for students to study range plant specimens to prepare for the Plant ID contest.

## **Student Employment Fair & Workshop**

**Sunday, (fair) 8-5pm Salon B, C, (workshop)  
1-5pm Salon A in Hilton Hotel**

This free event matches prospective employers with educated and enthusiastic job seekers in a fun, professional and rewarding setting. The Employment Fair contains job announcements from various state and federal agencies as well as private companies. Find a career!

## **Student Conclave and Mixer**

**Sunday, 5-8pm, Conrad B, Hilton Hotel**

All undergraduate students who attend the Annual SRM meeting belong to the Student Conclave. Students are encouraged to attend the opening mixer/meeting on Sunday night. Registration for some student events will be available at this mixer. Students should also plan to attend the student conclave business meeting and luncheon on Tuesday at noon in the Lower Level of the MCC Rooms L100A-C, H-J.

# **UNDERGRADUATE STUDENT ACTIVITIES**

## **Undergraduate Range Management Exam (URME)**

**Monday, 8am-12pm,**

**Marquette III-VIII Hilton Hotel**

Undergraduate teams will compete to test their knowledge and understanding of range management and ecology. The top 5 scoring individuals and teams are recognized at the Awards Ceremony. Students and universities can register for this event at the Student Conclave Mixer/Meeting on Sunday night.

## **Undergraduate Extemporaneous Speaking Contest**

**Monday, 8am-5pm, M100I, M100J MCC**

Undergraduates can compete in an extemporaneous public speaking contest. Each student will select one of three provided topics related to range management. They will have 2.5 hours to develop a 5-7 minute presentation on that topic. Students can use any resources available at the SRM meeting to develop their speech, including people, displays and presentations. Everyone is invited to attend these presentations. Top students are recognized at the Awards Ceremony. Students can register for this contest Sunday night during the Student Conclave Mixer and from 8am-12pm Monday morning in front of room M100J at the MCC.

## **Plant ID Contest**

**Tuesday, 8am-2:30pm,**

**Marquette III-VIII Hilton Hotel**

This is a time-honored tradition of SRM. Students will test their skills by identifying plants from a list of 200 important range plants. Awards will be given to top teams and top individuals. SRM members are encouraged to view the Plant ID Exam, displayed after the contest is complete, to test and renew their own plant ID skills. Students can register for this contest Sunday night during the Student Conclave Mixer.

# **UNDERGRADUATE STUDENT ACTIVITIES**

## **Rangeland Cup**

**Tuesday, 8am-6pm**

### **MCC, Lower Level Exhibit Hall**

This competition involves a team approach to problem solving. It promotes critical thinking and cooperative and collaborative work on topics relevant to rangeland science and management. Teams present their solutions during a poster session. Everyone is invited to view the posters and discuss the projects with team members. Top posters are recognized at the Awards Ceremony. Come visit these posters on Tuesday from 3-6pm in the Trade Show Area

## **Student Conclave Business Meeting and Luncheon**

**Tuesday, Noon, Lower Level of the MCC  
L100A-C, H-J**

## **Undergraduate Paper Session on Title**

**Wednesday, 8am-12pm, M100F MCC**

Undergraduate students give oral presentations on research projects or papers to the SRM membership. Everyone at the Annual Meeting is invited to attend the presentations.

**THANK YOU TO OUR SPONSORS**

**The Samuel Roberts Noble Foundation**

**Texas Grazing Land Coalition**

# TOURS

Be prepared for snow and cold conditions. Tours will meet at the north end of the MCC on the 2nd avenue south side (west). Participants will be contacted with the exact information on when and where to meet.

## **Technical Tours:**

**Bell Museum | Sunday, 2/10, 12-3:30pm**

The Bell Museum has exceptional scientific collections of more than 1.2 million specimens. Mammals, birds, fishes, plants, mollusks and insects provide opportunities for research and learning. In addition to the largest collection documenting Minnesota's biodiversity, it also has significant collections from around the globe that serve as a resource for the international scientific community. The tour begins with a planetarium show and a guided tour to follow.

**Eagle Center | Thursday, 2/14, 9am-4pm**

The National Eagle Center is a world-class interpretive center located on the banks of the Mississippi River in Wabasha, MN home to non-releasable bald and golden eagles. At center, you can experience these magnificent creatures up close. The tour includes lunch.

**Targeted Grazing in Minnesota | Thursday, 2/14, 9am-4pm**

This tour will demonstrate how grazing has been used as a land management tool in Minnesota. We will tour projects that have used cattle and goats to provide disturbance to restore and maintain prairie and oak savannah ecosystems.

## **Social, Companion Tours & Other Events:**

**Ice Fishing on Lake Minnetonka | Sunday, 2/10, 1-4pm**

An afternoon of fishing on Lake Minnetonka just outside of Minneapolis. The tour includes a guide, warming house, bait, and equipment. Fishing license is separate. Dress appropriately. Ice Fishing Warriors Inc. will provide the service.

**Brewery Tour | Tuesday, 2/12, 4-8pm**

Take a brewery tour of one of the downtown Minneapolis breweries and visit another brewery for tasting. Start at one brewery and end at another with an opportunity for dinner.



# TRADE SHOW

Please take time to visit the 2019 SRM Trade Show. We strongly encourage you to take advantage of this opportunity to share information and exchange ideas on exciting new products and services provided by companies and organizations. The quality and variety of exhibits this year is exceptional and includes several exhibitors that are new to SRM. Feel free to ask questions, gather information, and explore the diversity of products and organizations participating in the Trade Show. Please tell them “Thank You” for supporting SRM and range management.

**Location:** MCC, Exhibit Hall

## TRADE SHOW SCHEDULE

Event	Time
<b>Sunday, 2/10   Booth Setup</b>	12-5pm
<b>Monday, 2/11   Exhibit Hall Open</b>	8am-8pm
<b>Poster Session Social</b>	4-6pm
<b>Trade Show Mixer</b>	6-8pm
<b>Tuesday, 2/12   Exhibit Hall Open</b>	8am-6pm
<b>Poster Session Social</b>	4-6pm
<b>Exhibit Tear Down</b>	6-11pm

THANK YOU MINNESOTA NATIVE  
LANDSCAPES FOR SPONSORING THE  
SRM 2019 TRADE SHOW!

# PLENARY SESSION

**Monday, February 11, 2019**

Room: L100ABCHIJ

Facilitator, Kevin Sedivec,  
NDSU Extension

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**8:00    Flag ceremony**

173 Airborne Color Guard

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**8:15    Welcome Message**

Mark Hayek, North Central Section

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**8:25    Native American Rangelands  
Special Presentation**

Over 55 million acres are in federal trust for Native American tribes, but recent increased interest in tribal management of these resources highlights the role and privilege of the SRM to partner with tribal governments and tribal students to assist them with this effort. We will present important points about Native American rangelands that every SRM member should know

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**8:50    Aldo Leopold's Journey: Range  
Management and a Land Ethic**

Stanley Temple, Beers-Bascom  
Professor Emeritus in Conservation in  
the Department of Forest and Wildlife  
Ecology at the University of Wisconsin-Madison.

For 32 years Stanley held the academic position once occupied by Aldo Leopold. He is currently a Senior Fellow with the Aldo Leopold Foundation. He has received special recognitions for his contributions to ecology and conservation from the Society for Conservation Biology, The Wildlife Society, the Wisconsin Society for Ornithology, the American Ornithologists' Union, the Explorer's Club, the Wildlife Conservation Society, the American

Association for the Advancement of Science and the Wisconsin Academy of Sciences, Arts and Letters. He has been President of the Society for Conservation Biology and Chairman of the Board of The Nature Conservancy in Wisconsin.

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**9:30 Resilience, Non-Stationarity and Thresholds in Rangeland**

Craig Allen, U.S. Geological Survey – Nebraska Cooperative Fish and Wildlife Unit

Craig is currently the leader of the U.S. Geological Survey - Nebraska Cooperative Fish and Wildlife Unit. Dr. Allen received his Ph.D. in Wildlife Ecology and Conservation from the University of Florida in 1997, a MS in Wildlife Science in 1993, from Texas Tech University and a B.S. in Biology from the University of Wisconsin–Green Bay in 1989. He held a post-doc position in Zoology at the University of Florida working with C.S. Holling on investigations of the relationships between diversity and resilience, and variability and scale breaks in biological and other systems.

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**10:20 Break**

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**10:30 Announcement of the SRM Top Awards**

Barry Irving, SRM President

Frederick G. Renner Award  
W.R. Chapline Research Award

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**10:40 Theodore Roosevelt and the  
Open Range**

Clay Jenkinson

Clay is a humanities scholar, a writer, award winning historical performer and the voice of his alter-ego Thomas Jefferson on the weekly radio program “The Thomas Jefferson Hour”. Clay is the principal consultant of the Theodore Roosevelt Center at Dickinson State University, and for The Theodore Roosevelt Presidential Library Foundation, and travels extensively as a historical performer of such characters as Thomas Jefferson and Theodore Roosevelt, among others. He lives in Bismarck, ND.

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**11:30 Adjourn**

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# SCHEDULE AT-A-GLANCE

THROUGHOUT CONFERENCE	
<b>Registration</b>	<b>MCC-Lower Level Lobby</b>
<b>Annual Meeting Office</b>	<b>MCC- L100E</b>
<b>Speaker Prep. Room</b>	<b>MCC - M101A Monday and Tuesday</b>
<b>Plant ID Study Room</b>	<b>Sunday, Monday 6am-midnight, Tuesday 6am-12pm, Symphony I, II in Hilton Hotel</b>

**\*Use the schedule at-a-glance to quickly find the day and time of an event. More information can be found within the program.**

SATURDAY	
<b>12:00pm-5:00pm</b>	<b>Registration MCC - Lower Level Lobby</b>
SUNDAY	
<b>7:00am-7:00pm</b>	<b>Registration MCC- Lower Level Lobby</b>
<b>1:00pm-4:30pm</b>	<b>Symp: RTEC MCC – L100D</b>
<b>8:00am-5:00pm</b>	<b>Employment Fair Hilton – Salon B,C</b>
<b>1:00pm-5pm</b>	<b>Student Employment Workshop Hilton – Salon A</b>
<b>5:00pm-8:00pm</b>	<b>Student Conclave and Mixer Hilton – Conrad B</b>
<b>7:00pm-9:00pm</b>	<b>NEPA Training MCC – L100F</b>
MONDAY	
<b>8:00am-11:30am</b>	<b>Plenary Session MCC- L100ABCHJI</b>

<b>8:00am-12:00pm</b>	<b>URME</b> Hilton Marquette III-VIII
<b>8:00am-5:00pm</b>	<b>Undergraduate Extemp Speaking Contest</b> MCC – M100I or J
<b>12:00-2:00</b>	<b>Past Presidents and 50+ year Member Lunch</b> Hilton Board Room 3
<b>1:00pm-3:00pm</b>	<b>Tech. Session: Riparian Ecosystem/Water</b> MCC-M100B
<b>1:00pm-4:00pm</b>	<b>Tech. Session: Invasive Species Management and Monitoring I</b> MCC – M100A
<b>1:00pm-5:00pm</b>	<b>Tech. Session: Vegetation Management and Restoration I</b> MCC – M100C
<b>1:00pm-5:00pm</b>	<b>Tech. Session: Fire Ecology and Management</b> MCC – M100E
<b>1:00pm-5:00pm</b>	<b>Tech. Session: Grazing Ecology and Management I</b> MCC – M100D
<b>1:00pm-5:00pm</b>	<b>Tech. Session: Inventory, Monitoring, and Assessment</b> MCC – M100F
<b>1:00pm-5:00pm</b>	<b>Tech. Session: Rangeland Ecology</b> MCC – M100G
<b>1:00pm-5:00pm</b>	<b>Symp: New Geospatial Technologies for Monitoring Rangelands: What Kind of Questions Can We Ask Now?</b> MCC – M100H
<b>1:00pm-5:00pm</b>	<b>Symp: Friend or Foe: Introduced Forage Species in Native Range</b> MCC – L100D

<b>1:00pm-5:00pm</b>	<b>Symp: Adaptive Management of a Novel Ecosystem: Kentucky Bluegrass Invaded Rangeland Response to Prescribed Fire and Grazing</b> MCC – L100G
<b>1:00pm-5:00pm</b>	<b>Symp: Approaches to Evaluating Foraging Behavior of Free-Ranging Livestock</b> MCC – L100F
<b>8:00am-6:00pm</b>	<b>Poster Session I</b> MCC – Lower Level Exhibit Hall, presenters in attendance 5-6 pm
<b>5:00pm-8:00pm</b>	<b>Trade Show Mixer</b> MCC – Lower Level Exhibit Hall
<b>5:30pm</b>	<b>Range Runners Fun Run</b> Loring Park
<b>7:00pm-8:30pm</b>	<b>Weed Crimes by Nadia Mori</b> MCC – L100ABCHJI
<b>TUESDAY</b>	
<b>7:00am-12:00pm</b>	<b>High School Youth Forum Paper Presentations</b> MCC – L100F
<b>8:00am-2:30pm</b>	<b>Plant ID Contest</b> Hilton – Marquette III-VIII
<b>8:00am-11:40am</b>	<b>Tech. Session: Vegetation Management and Restoration II</b> MCC – M100C
<b>8:30am-11:30am</b>	<b>Producers Forum</b> MCC – L100G
<b>8:30am-11:30am</b>	<b>Symp: Unpacking the Equilibrium-Nonequilibrium Ecology Debate: Lessons Learned and Future Perspectives</b> MCC – M100A

<b>8:00am-12:00pm</b>	<b>Symp: Adaptive Rangeland Management through a Better Understanding of Plant Responses to Drought: Scaling Ecophysiological Responses to Sustain Future Landscapes</b> MCC – L100D
<b>8:00am-11:30am</b>	<b>Symp: Harnessing Technology to Improve Conservation Effectiveness on Western Working Lands</b> MCC – M100G
<b>8am-10:00am</b>	<b>Forum: Making Rangeland Education &amp; Careers Accessible for Native American Youth: How Can We Do Better?</b> MCC – M100I
<b>10:20am-12:00pm</b>	<b>Forum: The Important Role of SRM Sections as Conduits for Increasing Diversity and Cultivating Inclusivity in the National SRM</b> MCC – M100I
<b>8:00am-12:00pm</b>	<b>Symp: Improving Reclamation Success on Western Public Lands</b> MCC – M100F
<b>8:00am-11:30am</b>	<b>Symp: Conservation and Monitoring of Native Pollinators</b> MCC – M100E
<b>8:00am-11:30am</b>	<b>Workshop: A Rangeland Production and Phenology Monitoring Service</b> MCC – M100J
<b>8:00am-11:30am</b>	<b>Symp: What Do We Know About Trigger Points in Rangeland Plants Impacted by Drought?</b> MCC – M100D



<b>8:00am-10:30am</b>	<b>Symp: Returning Grazing Animals to a Minnesota Prairie System: Politics, Science, and Beyond</b> MCC – M100H
<b>10:00am-12:00pm</b>	<b>YPC Business Meeting</b> MCC – M100B
<b>12:00pm-2:00pm</b>	<b>Student Conclave Luncheon and Business Meeting</b> MCC – L100ABCHJI
<b>1:00pm-7:00pm</b>	<b>High School Youth Forum Paper Presentations</b> MCC – L100F
<b>1:00pm-5:00pm</b>	<b>Tech. Session: Grazing Ecology and Management II</b> MCC – M100A
<b>1:00pm-4:30pm</b>	<b>Producers Forum</b> MCC – L100G
<b>1:00pm-4:00pm</b>	<b>Symp: What Do We Know About Trigger Points in Rangeland Plants Impacted by Drought?</b> MCC – M100D
<b>1:00pm-4:30pm</b>	<b>Symp: Conservation and Monitoring of Native Pollinators</b> MCC – M100E
<b>1:00pm-4:30pm</b>	<b>Symp: The Proof Is in the Pudding: Showcasing Diverse Perspectives on Success and Failure in Rangeland Reclamation and Restoration</b> MCC – M100F
<b>1:00pm-4:30pm</b>	<b>Workshop: Great Writing, Great Review: The Art and Science of Successful Publication</b> MCC – M100H

<b>1:00pm-4:30pm</b>	<b>Workshop: Ranchers' and Researchers' Guide to Cattle Grazing Behavior Technology Workshop</b> MCC – M100J
<b>1:00pm-4:30pm</b>	<b>Workshop: Making SRM More Inclusive</b> MCC – M100I
<b>1:00pm-4:30pm</b>	<b>Symp: Grassland Restoration/Reconstruction: Lessons Learned from Practice and Research</b> MCC – M100C
<b>8:00am-6:00pm</b>	<b>Poster Session II and Rangeland Cup</b> MCC – Lower Level Exhibit Hall, presenters in attendance 5-6 pm
<b>4:00pm-6:00pm</b>	<b>Bridging the Gap</b> Hilton – Salon EFG
<b>8:00pm-12:00am</b>	<b>Dance: The Last Revel</b> Hilton - 3rd floor, Salon EFG
<b>WEDNESDAY</b>	
<b>8:00am-12:00pm</b>	<b>Undergraduate Paper Session on Title</b> MCC – M100F
<b>8:00am-10:40am</b>	<b>Tech. Session: Grazing, Wildlife and Rangeland Interactions</b> MCC –M100A
<b>10:40am-11:20am</b>	<b>Tech. Session: Wildlife Habitat and Management</b> MCC – M100A
<b>8:20am-10:20am</b>	<b>Tech. Session: Invasive Species Management and Monitoring II</b> MCC – M100B
<b>8:00am-11:40am</b>	<b>Tech. Session: Rangeland Social Science</b> MCC – M100C

<b>8:00am-11:00am</b>	<b>Tech. Session: Remote Sensing and Technology</b> MCC – M100D
<b>9:00am-4:00pm</b>	<b>Workshop: Sustainable Farmers Association</b> MCC – L100F
<b>8:00am-11:40am</b>	<b>Workshop: Rapid Assessment Tools for Measuring Ecosystem Properties in Rangelands</b> MCC – M100J
<b>8:00am-11:40am</b>	<b>Symp: Using Genetic Selection as a Tool for Managing Livestock Distribution</b> MCC – M100E
<b>8:00am-11:00am</b>	<b>Forum: The Conflict of Privately-Owned Stockwater on Federally Administered Lands</b> MCC – M100I
<b>8:00am-11:40am</b>	<b>Symp: Using State and Transition Models to Organize Restoration Information</b> MCC – M100G
<b>12:00pm-2:15pm</b>	<b>Business Luncheon</b> MCC – L100ABCDGHIJ
<b>2:30pm-5:00pm</b>	<b>Award Ceremony</b> MCC – L100ABCDGHIJ
<b>6:00pm – 8:00pm</b>	<b>Wild Women of Range</b> Brit's Pub, 1110 Nicollet Mall



HERBICIDE

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# DAY 1

## PROGRAM

### **Workshop Rangeland Technology and Equipment Council (RTEC)**

Room: L100D

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**1:00 Energy and Environmental Law, Why  
the Controversy** Jeremy Duehr

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**1:45 Rules and Regulation Requirements  
into SWPPP Program Delivery**  
Jennifer Hildebrand

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**2:30 Break**

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**2:45 Implementing the SWPPP for Turbine  
and Solar Farm Construction**  
Dwayne Stenlund

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**3:30 Soil Preparation and Seeding  
Methods for Perennial Vegetation,  
and Compatible Operations and  
Maintenance in Diverse Landscapes**  
Joe Schaffer

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**4:15 Seeding Equipment on a Large Scale**  
Steve Monsom

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**4:25 Q&A: Panel Discussion**

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## Symposium New Geospatial Technologies for Monitoring Rangelands: What Kind of Questions Can We Ask Now?

Room: M100H

+ Sponsored by +  
GIS/Remote Sensing Committee

Monday

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| <b>1:00</b> | <b>Geospatial Analyses to Improve Rangeland Vegetation Inventory of the Uintah and Ouray Indian Reservation</b> Scott Zimmer |
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| <b>1:20</b> | <b>Quick Carbon: Tools for Tomorrow, Today</b> Jeff Goodwin |
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| <b>1:40</b> | <b>Using Geospatial Technologies to Optimize Brush Management on a South Texas Rangeland</b> Candace Weeda |
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| <b>2:00</b> | <b>Continuous Satellite Derived Estimates of Annual Production on US Rangelands</b> Matt Reeves |
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| <b>2:20</b> | <b>Break</b> |
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| <b>2:40</b> | <b>Using GPS Collars and Daily NDVI Images to Assess Grazing Spatial Dynamics</b> Chase Walther |
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| <b>3:00</b> | <b>Improving Analytics for Forage and Livestock Risk Management Using Remote Sensing, Simulation Models, and Forecasting</b> Jay Angerer |
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| <b>3:20</b> | <b>Aboveground Biomass Estimation from Unmanned Aerial Vehicles in Rangelands</b> Alexandria DiMaggio |
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| <b>3:40</b> | <b>Advanced UAS Operations: What's In Store for Range Management</b> Michael Komp |
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| <b>4:00</b> | <b>Panel</b> |
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**Symposium**  
**Friend or Foe: Introduced Forage Species**  
**in Native Range**  
Room: L100D  
**+ Sponsored by +**  
**Dow Agrosiences and SRM Invasive**  
**Species Committee**

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**1:00 Warm-season Grass Invaders and Introduction** Daniel (Chad) Cummings

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**1:20 Challenges of Old-world Bluestems** Karen Hickman

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**1:40 Old World Bluestems in the New World: Not Your Usual Bluestems** Keith Harmony

---

**2:00 Managing Invasive Cool-Season Grasses with Grazing, Fire, and Herbicides in the Eastern Tallgrass Prairie** Edward.J. Raynor

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**2:20 Break**

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**2:40 History and Legacies of Crested Wheatgrass Seedings on Rangelands in the Intermountain West** Lesley Morris

---

**3:00 Can Native Plant Communities Be Restored in Great Basin Crested Wheatgrass Seedings?** Mike Pellant

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**3:20 What Role Do Plant Communities Have in Shaping Our Responses to Cool-Season Invasive Grasses?** John Hendrickson

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**3:40 Identifying Smooth Brome Elongation Using the Correlation of Mean Stage Count and Accumulated Growing Degree Days** Lisa Preister

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**4:00 Utilization and Beef Cattle Production on Pastures of Fertilized Smooth Brome grass and Smooth Bromgrass/ Legume Mixtures** Walter Schacht

Monday

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**Symposium**  
**Adaptive Management of a Novel**  
**Ecosystem: Kentucky Bluegrass Invaded**  
**Rangeland Response to Prescribed Fire**  
**and Grazing**

Room: L100G

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- 1:00 Summary of Prescribed Burning/  
Grazing Impacts on Kentucky  
Bluegrass in Kansas** Walter Fick
- 
- 1:20 Soil Hydrologic Function Associated  
with Kentucky Bluegrass Thatch and  
its Removal** Caley Gasch
- 
- 1:40 Heterogeneous Forage Quality  
Determines Livestock Use When  
Implementing Patch Burn-grazing  
on Kentucky Bluegrass-invaded  
Rangeland** Micayla Lakey
- 
- 2:00 Land Management Strategies to  
Reduce Invasive Cool-Season Grass  
in the Northern Great Plains**  
Ryan Limb
- 
- 2:20 Break**
- 
- 2:40 Reducing Kentucky Bluegrass Cover  
Increases Rangeland Biodiversity  
Across Multiple Trophic Levels**  
Katherine Kral
- 
- 3:00 Targeted Grazing of Kentucky  
Bluegrass as a Restoration Practice**  
John Hendrickson
- 
- 3:20 Factors Influencing Prescribed Fire  
Application in North Dakota  
Rangelands** Cayla Bendel
- 
- 3:40 Finding a Way: Getting Prescribed  
Fire on the Ground** Carol Baldwin
- 
- 4:00 Q&A: Panel Discussion**



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**Symposium**  
**Approaches to Evaluating Foraging**  
**Behavior of Free-Ranging Livestock**

Room: L100F

**+ Sponsored by +**  
**SRM Livestock Foraging Behavior**  
**Committee**

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**1:00 Analytical Approaches to Studying**  
**Resource Selection and Movement**  
**Patterns of Free-ranging Herbivores**  
Ryan Nielson

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**1:20 Challenges of Livestock Behavioral**  
**Research: Examples from Western**  
**US and East Africa** Patrick Clark

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**1:40 How Many Collars Do We Really**  
**Need to Understand Grazing Distri-**  
**bution of Cattle Herds?** Colt Knight

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**2:00 Quantifying Topographic Influences**  
**on Cattle Grazing Distribution (Even**  
**When its Not Steep or Rugged)**  
David Augustine

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**2:20 Break**

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**2:40 Approaches to Analyzing Terrain Use**  
**by Livestock in Relation to Watering**  
**Locations** Derek Bailey

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**3:00 Trials and Tribulations of Quantify-**  
**ing Hotspots of Cattle Use in Large**  
**Desert Pastures** Sheri Spiegel

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**3:20 Using Step-Selection Functions to**  
**Understand Free-roaming Horse**  
**Selection for Dynamic Resources**  
Jacob Hennig<sup>2</sup>

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**3:40 The Effects of Time Since Fire On**  
**Cattle Use and Foraging Behavior in**  
**a Subtropical Grassland** Britt Smith

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Monday

**4:00 The Promise and Challenges of Agent-Based Modeling of Livestock Foraging Behavior** Kevin Jablonski<sup>2</sup>

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**Fire Ecology and Management**  
Room: M100E

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**1:00 Re-sprouting Shrub Encroachment in the Tallgrass Prairie: Assessing Various Prescribed Fire and Mechanical Management Strategies**  
Michael W. Bartmess<sup>1</sup>

**1:20 How Does Patch-Burn Grazing Affect Forage Production, Plant Diversity, And Carbon Dynamics in Subtropical Humid Grasslands?**  
Elizabeth H. Boughton

**1:40 Responding to Climate Impacts on Rangeland Systems: A Collaborative Partnership between the USDA Agricultural Research Service, USDA Climate Hubs, and Society for Range Management** David Brown

**2:00 Phased Post-Fire Rehabilitation Effects on Plant Community and Soil Characteristics in the Great Basin**  
Camie M. Dencker

**2:40 Characterizing Large Wildfire Patterns in the Great Plains**  
Victoria M. Donovan<sup>2</sup>

**3:00 Seeded Plant Community Dynamics in Space and Time after Wildfire in Sagebrush Steppe** Beth A. Newingham

**3:20 The Impact of Wildfire on the Rangeland Soil Seedbank on the Central Coast of California**  
Matthew W. Shapero

**3:40 Effects of Fire Exclusion on Vegetation in Fire-managed Rangeland of the Edwards Plateau**  
Heath D. Starns

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**4:00 Landscape Evaluation of a Managed Disturbance Regime: A Case Study Texas Coastal Prairie Rangeland**  
Phillip S. Steigerwald<sup>2</sup>

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**4:20 Disturbance Severity and Type Shapes Sagebrush Community Resilience and Resistance to Invasion** David J. Wood

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**Grazing Ecology and Management I**  
Room: M100D

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**1:00 Comparison of Grazing Behavior of Ranged Raramuri Criollo Cows, Heifers and Steers During Five Seasons** Flavie Audoin<sup>2</sup>

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**1:20 Classifying Livestock Grazing Behavior With the Use of a Low Cost GPS and Accelerometer**  
Jameson R. Brennan<sup>2</sup>

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**1:40 Heavy Winter Patch Grazing as an Alternative to Fire on the Northern Great Plains**  
Jameson R. Brennan<sup>2</sup>

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**2:00 A Forage Quality Calendar of Ventenata (*Ventenata dubia*): Insights into Grazing Potential** Claudia Ingham

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**2:40 The Impacts of Grazing Removal on the Kelso Creek Monkeyflower**  
Julie Finzel

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**3:00 A Tool For Projecting Rangeland Vegetation Response to Management And Climate** Paulette L. Ford

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**3:20 Mesquite Has Its Uses: Moving from Eradication to Beneficial Management** Tracy Hruska

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**3:40 Managing Grazing in Riparian Areas to Maintain Multiple Rangeland Ecosystem Services** Kristin B. Hulvey

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**4:00 North Dakota Soil Recovery Program: Innovative Northern Great Plains Program Aims to Accelerate Adoption of Forage and Soil Enhancing Grazing** Marshall Johnson

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**4:20 Grazing Phenology of Migratory Geese is more Impactful than Early Green-Up in Coastal Alaska**  
A. Joshua Leffler

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**4:40 A Conceptual Framework for the Adoption of Intensive Grazing Management Strategies**  
Jenna M. Likins<sup>2</sup>

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**Invasive Species Management and Monitoring I**

Room: M100A

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**1:00 Spatiotemporal Patterns of Cheat-grass (*Bromus tectorum*) Die-off in Northern Nevada** Joseph R. Brehm

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**1:40 Incipient Tree Invasions Signal Heightened Vulnerability of an "Uninvadable" Grassland Region**  
Dillon T. Fogarty<sup>2</sup>

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**2:00 Soil Nutrient and Microbial Response to Kentucky Bluegrass Invasion and Land Management Techniques**  
Leslie M. Gerhard<sup>1</sup>

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**2:40 MezaVue for Pricklypear Control and Oak Tolerance when applied by Ground and Aerial Broadcast**  
James R. Jackson

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**3:00 Understanding the Hydrology of Kentucky Bluegrass Dominated Rangelands in the Northern Great Plains** Sayjro K. Nouwakpo

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**3:20 Will Prescribed Fire Exacerbate or Constrain *Venttenata dubia* in the Pacific Northwest Bunchgrass Prairie?** Luke W. Ridder

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**3:40 Potential Long-term Cheatgrass Seedling Reduction with Indaziflam in Sagebrush-grassland Communities in Sublette County, WY US**  
Jake Courkamp

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**Inventory, Monitoring,  
and Assessment**

Room: M100F

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**1:00 Immersive Co-Production to Inform Ranch Management in the Gunnison Valley, CO US** Jake Courkamp

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**1:20 Using AIM Data to Inform Wild Horse & Burro Management Decisions**  
Amanda L. Gearhart

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**1:40 Climate and Edaphic Factors Influence Ecological Integrity of Prairies in the Northern Great Plains**  
Todd Grant

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**2:00 Risk Management using Computer Models and Community Based Rangeland Monitoring**  
Kyle R. Hogrefe<sup>2</sup>

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**2:40 Rethinking Ecological Monitoring, Boundaries, and Conservation Goals in an Era of Global Change**  
Caleb P. Roberts<sup>2</sup>

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**3:00 Standardized Landscape Scale Vegetation Monitoring Using Multi-Spectral Imaging: A New Approach to Adaptive Management**  
Kyle W. Schumacher<sup>1</sup>

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**3:20 Tending the Tallgrass Prairie: An Adaptive Management Case Study**  
Sara Vacek

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**3:40 Multicriteria Decision Analysis and GIS to Prioritize Grasslands Areas in Chihuahua, Mexico** Federico Villarreal Guerrero

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Monday

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- 4:00 Monitoring and Assessment:  
Evaluating Reclamation Success of  
Surface Coal Mine Reconstructed  
Rangelands** Edward Vasquez
- 
- 4:20 Status of Range Grasses and  
Seasonal Availability from the Thal  
Desert, Punjab, Pakistan**  
Rahmatullah Qureshi
- 

**Rangeland Ecology**  
Room: M100G

- 
- 1:00 Effects of Fire, Drought, and Soil  
Fertility on Herbaceous  
Communities in a Semi-Arid  
Savanna** Heather J. Hannusch<sup>1</sup>
- 
- 1:20 Projections of Climate-Induced Land  
Cover Change in the U.S. Great  
Plains** Toni Klemm
- 
- 1:40 Long-Term Trends in Perennial Grass  
Production, Precipitation and  
Temperature in the Chihuahuan  
Desert** Matthew M. McIntosh<sup>2</sup>
- 
- 2:00 Spatially Explicit State and  
Transition Model Maps for  
Landscape Scale Management and  
Restoration** Lucas A. Phipps
- 
- 2:40 Projected Drought Effects on Ashe  
Juniper Populations Inferred From  
Remote Measurements of Tree  
Canopies** Wayne Polley
- 
- 3:00 Soil Factors Affecting Density of  
Agave lechuguillain the Northern  
Chihuahuan Desert, Mexico**  
David E. Prado-Tarango<sup>2</sup>
- 
- 3:20 Establishment of Select Native  
Legumes of the Canadian Prairies**  
Shanna M. Quilichini<sup>1</sup>
- 

Monday

**3:40 Stocking Density Effect on Above-ground Plant Production and Soil Properties on Nebraska Sandhills Meadow** Aaron J. Shropshire

**4:00 Climate Change Impacts on Soil Microclimate and Seed Germination Timing in the Sagebrush Steppe** Tyson Terry<sup>1</sup>

**4:20 The Great American Bison Diet Survey: A Continental-Scale Analysis** Tamarah Jorns

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### **Riparian Ecosystems/Water**

Room: M100B

**1:00 Riparian Grazing Case Studies - Results from Sixteen Years of Monitoring** Theresa Becchetti

**1:20 Considerations for Riparian Complex Ecological Site Description Development** Miranda Meehan

**1:40 The Effects of Flash Grazing on Water Quality in a Riparian Stream** Laura M. Rubeck<sup>1</sup>

**2:00 Germination Thresholds of Riparian Graminoid Species in Response to MgSO<sub>4</sub> Induced Salinity** Casey R. Wallace<sup>1</sup>

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### **Vegetation Management and Restoration I**

Room: M100C

**1:00 Fine Fuels Management at the Landscape Scale: A Collaborative Model in the Northern Great Basin** Sergio A. Arispe

**1:20 Activated Carbon Pods and Pre-Emergent Herbicide: A New Option for Annual Grass-Invaded Ecosystems?** Danielle Clenet

- 
- 1:40 GF-3850 – A New Herbicide for Noxious and Invasive Weed Management** Daniel C. Cummings
- 
- 2:00 Increasing Sector Adoption of AC Saltlander Green Wheatgrass**  
Bill Houston
- 
- 2:40 Rangeland Improvement: Evaluating the Productivity of Clover Varieties Across Diverse California Rangelands** Fadzayi E. Mashiri
- 
- 3:00 Assessing the Long-Term Water and Vegetation Response to Western Juniper Removal and Recovery**  
Carlos G. Ochoa
- 
- 3:20 Restoring Sagebrush in the Great Basin: Lessons Learned from the Sage-Success Project** David S. Pilliod
- 
- 3:40 Using Biodiverse Seed Mixes to Buffer against Plant Establishment Failures During Ecological Restoration** Matt Rinella
- 
- 4:00 Effectiveness of Mechanical Cutting Versus Prescribed Fire as Means of Controlling Juniper Expansion in Sagebrush-steppe** Kirk Davies
- 
- 4:20 The Purple Plague: Effects of Two Years of Grazing Post Fire on Purple Threeawn** Justin P. Roemer<sup>1</sup>



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**Producers Forum and SRM Grazing Lands  
Coalition Committee  
Putting Science on the Ground**

Room: L100G

**+ Sponsored by +  
SRM Grazing Lands  
Coalition Committee Redd Fund, South  
Dakota SARE, and National  
Grazing Land Coalition**

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Putting Science on the Ground – The Producer’s Forum will consist of a full day of symposia and panel discussions featuring producers and land manager’s experiences of “Putting Science on the Ground”. Targeted Grazing and Conservation Grazing will be the primary themes, with presentations focusing on various ways that graziers use livestock to manipulate plant communities for desired outcomes. This forum will also shed light on a topic that is often ignored...navigating the personal and business aspects of contract grazing. The presenters at this forum have gathered the experiences they will be sharing from a “boots on the ground” approach, learning from trial and error in real world settings. In the Upper Midwest, Targeted Grazing and Conservation Grazing are gaining acceptance as more landowners realize the benefits of these practices. We are excited to bring you this diverse group of experienced individuals who will help us understand how they have been successful in managing land, livestock, and people.

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**8:30 Introduction and Overview of the  
Producer’s Forum**

Forum Facilitator – John Hendrickson,  
USDA-ARS – Mandan, ND

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**8:35 National GLC: Empowering and  
Impacting Grazing Land Managers**

Rob Cook, Noble Research Institute –  
Ardmore, OK

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**8:50 Targeted and Conservation Grazing:  
Exploring Two Grazing Management  
Concepts**

Beth Reynolds, Cal Poly State  
University – San Luis Obispo, CA

**9:20 Good Grass/Bad Grass: Cool Season  
Invasive Grass Management**

Kenny Miller - Fort Rice, ND

**10:00**

**Break**

**10:20 Perspectives from the Hiring Agent  
and Grazing Practitioner: Relation-  
ships that Work**

JB Bright, USFWS – Morris, MN

**Symposium  
Unpacking the Equilibrium-  
Nonequilibrium Ecology Debate: Lessons  
Learned and  
Future Perspectives**

Room: M100A

**8:30 Debate Development, Current Status  
and Lessons Learned**

David D. Briske

**9:10 Lessons Learned: Scale and  
Functional Heterogeneity are  
Foundational Concepts**

Sam D. Fuhlendorf

**10:00 Break**

**10:20 Beyond the Range Ecology Debate:  
Embracing the Human Component of  
Rangeland Systems**

D. Layne Coppock

**11:00 Perspectives for Future Rangeland  
Stewardship Panel**

Tuesday

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**Symposium**  
**Adaptive Rangeland Management**  
**through a Better Understanding of Plant**  
**Responses to Drought:**  
**Scaling Ecophysiological Responses to**  
**Sustain Future Landscapes**  
Room: L100D

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**8:00 Learning from the Past: Identifying the Historical Significance of Plant Functional Research on Rangeland Management** Troy Ocheltree

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**8:20 Physiological And Microanatomical Responses To Extreme Drought In Andropogon Gerardii** Seton Bachle<sup>2</sup>

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**8:40 How Do Grasses Do That? Linking Anatomical Structure to Freezing and Drought Tolerance in C3 Grasses** Dan Spitzer

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**9:00 Using Ecophysiology to Draw Inference into Grassland Ecosystems Management** Jesse Nippert

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**9:20 Physiological Responses to Elevated CO<sub>2</sub> and Drought in Encroaching Woody Species** Rory O'Connor

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**9:40 Drought and Belowground Buds: Potential Impacts on Perennial Grass Bud Production, Quality, and Mortality** Jacqueline Ott

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**10:00 Break**

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**10:20 Ecological Impacts of Drought Depends on Seasonal Timing in a Semi-Arid Rangeland** David Hoover

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**Tuesday**

- 10:40 Drought, Plant Adaptation, and Restoration in Sagebrush-Steppe Rangelands** Matthew Germino
- 11:00 Plant Traits Predict Precipitation Sensitivity of Species and Communities in Semi-Arid Shortgrass Prairie** Kevin Wilcox
- 11:20 Rangeland DRYnamics: Past and Future Ecological Drought in Western U.S. Rangelands** John Bradford
- 11:40 Looking to the Future: How Can Plant Functional Research Save the World!** Ocheltree and O'Connor

Tuesday

Symposium

### Harnessing Technology to Improve Conservation Effectiveness on Western Working Lands

Room: M100G

+ Sponsored by +

**NRCS Working Lands for Wildlife and Sage Grouse Initiative**

- 8:00 Rangeland Analysis Platform: New Technology Revolutionizes Rangeland Monitoring** Brady Allred & Matthew Jones
- 8:20 AIM and Shoot: Delivering and Sharing Range Data Quickly** Colin M. Dovichin
- 8:40 Optimizing Productivity Models for Enhanced Rangeland Monitoring** Nathaniel P. Robinson
- 9:00 Monitoring, Evaluating, and Targeting Rangeland Conservation through Advanced Riparian Sensitivity Mapping** Nicholas L. Silverman
- 9:20 Large Scale Resilience Planning** Dirac Twidwell

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**9:40 Mapping Cross-Scale Transitions in Rangelands** Daniel Uden

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**10:00 Break**

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**10:20 Synchronizing Conservation to Seasonal Wetland Hydrology and Waterbird Migration in Semi-Arid Landscapes** Patrick Donnelly

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**10:40 Conifer Management in Context: Prioritizing Tree Removal Projects for Sagebrush and Woodland Obligates** Jason Tack

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**11:00 Quantifying Restoration Across the Sage Steppe: Mapping Conifer Cover, Removal Efforts, and Fire** Jason Reinhardt

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**Forum**

**Making Rangeland Education & Careers Accessible for Native American Youth: How Can We Do Better?**

Room: M100I

**+ Sponsored by +**

**SRM Diversity Task Force and Native American Rangeland Advisory Committee & and Intertribal Agriculture Council**

8:00am - 10:00am

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This session will be facilitated by Native American Rangeland Advisory Committee members who will work with Native American students groups to discuss roadmaps for range management career paths, and also help them identify barriers that hinder their access to natural resource academic programs and the workforce.

Tuesday

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## Forum

### **The Important Role of SRM Sections as Conduits for Increasing Diversity and Cultivating Inclusivity in the National SRM**

Room: M100I

10:20am – 12:00pm

**+ Sponsored by +**

**SRM Diversity Task Force & Intertribal  
Agriculture Council**

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SRM Sections can be some of the most appropriate facilitators for increasing diversity and cultivating an environment of inclusivity. In this session, we will identify challenge areas, listen to success stories, and get input from students on areas that need improvement. Our objective is to work with SRM section representatives, under-represented groups of students, and academic faculty to develop recommendations for outreach and recruitment strategies for SRM Sections.

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## Symposium

### **Improving Reclamation Success on Western Public Lands**

Room: M100F

**+ Sponsored by +**

**Restoration and Reclamation Committee**

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**8:00 Improving Reclamation Success on  
Western Public Lands** Gordon Toevs

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**8:20 Improvements in Disturbance and  
Reclamation Tracking**  
Janna Simonsen

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**8:40 One Steppe: Efforts from Multiple  
Stakeholders in Wyoming to Stream-  
line Disturbance, Reclamation, and  
Conservation Efforts** Mike Curran<sup>2</sup>

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**9:00 Monitoring Restoration Outcomes  
in the Southwestern U.S. to Improve  
Future Treatments** Seth Munson

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**9:20 Using Organic Amendments to Restore Soil and Improve Vegetation Production on Abandoned Mine Lands** Deborah Page-Dumrose

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**9:40 Soil Health Is Crucial to Successful Restoration of Oil and Gas Well Pads** Peter Stahl

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**10:00 Break**

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**10:15 Using Raster Soil Maps to Inform Oil and Gas Reclamation** Travis Nauman

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**10:35 Using Remote Sensing to Model Recovery of Sagebrush Following Oil and Gas Extraction** Adrian Monroe

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**10:55 Monitoring Vegetation Changes on Abandoned Energy Development Sites Using Time-Series Remote Sensing** Miguel Villarreal

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**11:15 Smart Energy Development: Tools to Inform Planning, Development, and Reclamation** Steve Hanser

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**Symposium  
Conservation and Monitoring of Native Pollinators**

Room: M100E

**+ Sponsored by +  
Wildlife Habitat Committee**

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**8:00 Conserving North Dakota's Native Pollinators: From Planning to Action** Elisha Mueller

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**8:20 Habitat Management: One Path for Dakota Skipper Recovery** Andrew Horton

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**8:40 Integrated Monarch Monitoring Program: Evaluating Habitat and Use by Monarchs to Guide Conservation** Alison Cariveau

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**9:00 Tracking Monarch Butterflies with Radio Telemetry** Kelsey Fisher

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**9:20 Determining Spatial and Temporal Distributions of Grassland Butterflies through Statewide Monitoring**  
Adrienne Antonsen<sup>1</sup>

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**9:40 Statewide Monitoring of Bee Communities Across North Dakota**  
Chyna Pei<sup>2</sup>

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**10:00 Break**

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**10:20 A Landscape Approach to Pollinator Conservation** Jaymi LeBrun

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**10:40 Native Bee and Honey Bee Patch Occupancy in the Great Plains: Evidence of Resource Partitioning?**  
Clint Otto

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**11:00 The Role Of Agricultural Land Cover In Shaping Bee Communities In Restored Prairies** Ian Lane



**CORTEVA<sup>TM</sup>**  
agriscience

Agriculture Division of DowDuPont



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**Workshop**  
**A Rangeland Production and Phenology**  
**Monitoring Service**

Room: M100J  
8:00 am – 11:30 am

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In this session we describe two new services available for managers and producers. These services include an assessment of annual production and phenology for US rangelands. Users will be able to query the datasets for their pastures, Ecological Sites, allotments, or other areas of interest. The annual production database from the Rangeland Productivity Monitoring Service (RPMS) will enable users to learn a lot about areas under their management because the estimates span from 1984 to present, seamlessly and consistently, for all coterminous US rangelands. Trends, inter-annual variability, and recovery after drought and wildfire can all be quantified with these services. This new service will help risk inform risk management strategies and enable better allotment management plans for federally managed rangelands. The data can be found publically at: <https://www.lankstonconsulting.com/data-warehouse> and elsewhere.

Tuesday

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**Symposium**  
**What Do We Know About Trigger Points**  
**in Rangeland Plants Impacted by**  
**Drought?**

Room: M100D  
**+ Sponsored By +**  
**North Plains Climate Hub and Rangeland**  
**Resources and Systems Research Unit**  
**(RRSRU)**

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**8:00 Welcome and Introduction**  
Kevin Sedivec

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**8:05 Predicting Forage Production in**  
**South Dakota: Important Trigger**  
**Dates for Drought Management**  
Alexander Smart

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**8:45 Long-term Wyoming, USA Precipitation-Biomass Relationships and Cattle Gains as Triggers for Drought Decision Making** John Scasta

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**9:25 Using Trigger Points to Manage Livestock Grazing on Rangeland During Drought In the Northern Plains** Kevin Sedivec

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**10:00 Break**

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**10:20 Drought Effects, Early Detection, and Management Interactions in Montana Rangelands** Lance Vermeire

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**11:00 How Much Grass Will I Have This Summer?** Jeff Mosley

Tuesday



**ELSEVIER**

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**Symposium**  
**Returning Grazing Animals to a**  
**Minnesota Prairie System: Politics,**  
**Science, and Beyond**

Room: M100H  
8:00 am – 10:00 am

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Attendees in this session will hear from a host of individuals involved in the process of returning livestock to the Chippewa Prairie in southwest Minnesota. Chippewa Prairie is highly regarded as one of Minnesota's prairie gems. Historically privately owned, the majority of the Chippewa Prairie complex is owned and managed through a decades-old partnership of The Nature Conservancy and the MN Department of Natural Resources, among other organizations. In addition, many high-quality peripheral tracts remain in private ownership. Presenters will discuss the process, politics, science, implementation, and associated monitoring related to the reintroduction of livestock to this 4,000 acre-plus grassland through a modified patch burn-grazing system. Additionally, we will discuss issues of project goals, sponsor/donor expectations, neighborhood partnerships, public access, local politics, perceptions, infrastructure (fence and water) challenges, legalities, and associated monitoring of the project in relation to vegetation and wildlife.

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**Vegetation Management**  
**and Restoration II**

Room: M100C

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**8:00 Indaziflam Effects on Seed Production for Established Perennial Grasses**

Beth Fowers

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**8:20 GF-3850 – A New Herbicide for Use in Rangeland, Pastures, and Other Non-Crop Sites** Byron Sleugh

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**8:40 Targeted Fungicide Seed Coatings Improve Seedling Recruitment**  
Travis G. Sowards<sup>2</sup>

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**9:00 Phenotypic and Genetic Variability of Blue Grama (*Bouteloua gracilis*) Populations from Northern Mexico**  
Federico Villarreal Guerrero

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**9:20 Inducing Phenotypic and Genetic Variability Through Gamma Irradiation in Lehmann Lovegrass (*Eragrostis lehmanniana*)**  
Federico Villarreal Guerrero

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**9:40 Demography of an Encroaching Shrub in Response to Fire and Herbivory in Tallgrass Prairie** Emily R. Wedel<sup>1</sup>

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**10:20 The Future of Pinyon-Juniper Woodlands in the Great Basin: Expansion, Decline, or Structural Transformation?** Peter J. Weisberg

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**10:40 Teosinte: A Novel Weed for Animal Feeding and Producing High Yielding Resistant Maize Varieties**  
Sunita Sanjyal<sup>2</sup>

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**11:00 Improving Seeding Success in the Sagebrush Steppe with Seed Priming and Deep Furrow Plantings**  
Rhett M. Anderson<sup>1</sup>

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**11:20 The Ecological Benefits of Grazing Prairie** Steve L. Thomforde

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**Producers Forum and SRM Grazing Lands  
Coalition Committee  
Putting Science on the Ground**  
Room: L100G  
**+ Sponsored By +**  
**SRM Grazing Lands Coalition Commit-  
tee, Redd Fund, South Dakota SARE, and  
National Grazing Land Coalition**

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Focus will be on targeted grazing, manage-  
ment of invasive cool-season grasses, and  
developing relationships between grazers  
and managers that have a regional empha-  
sis

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**1:00 Minnesota Native Landscapes  
Conservation Grazing: An Integrated  
Approach to Land Management**  
Jake Janski

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**1:30 Big Appetites and Sharp Hooves:  
Oak Savannah and Wetland  
Restoration on Sherburne National  
Wildlife Refuge** Cody Carlstrom

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**2:00 The Urban Cowboy: A Business  
Model for Vegetation Management**  
Jake Langeslag

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**2:20 Break**

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**2:40 Making Pastures More Productive  
with Leafy Spurge** Ron Hanson

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**3:30 Bringing Home the Bacon: Control-  
ling Buckthorn with Hogs** Jake Pettit

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**4:00 Practitioner’s Panel Q&A**  
John Hendrickson

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Tuesday

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**Symposium**  
**What Do We Know About Trigger Points**  
**in Rangeland Plants Impacted by**  
**Drought?**

Room: M100D

**+ Sponsored By +**  
**North Plains Climate Hub and Rangeland**  
**Resources and Systems Research Unit**  
**(RRSRU)**

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**1:00 Dos and Don'ts of Drought (Climate Change) Workshops** Retta Bruegger

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**Influence of Precipitation on Plant Production at Different Topographic Positions in the Nebraska Sandhills**  
**1:40 Mitchell Stephenson**

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**2:20 Break**

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**2:40 The Timing of Livestock Producers' Drought Management Decisions during the 2016 Northern Great Plains Drought** Tonya Haigh

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**3:30 Group Discussion**

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**Symposium**  
**Conservation and Monitoring**  
**of Native Pollinators**

Room: M100E

**+ Sponsored By +**  
**Wildlife Habitat Committee**

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**1:00 Spatial Targeting and Seed Mix Design: Decision Modeling to Support Pollinator Conservation**  
Eric Lonsdorf

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**1:20 Harvesting Effects on Wild Bee Communities in Bioenergy Grasslands Depend on Nesting Guild**  
Brian Spiesman

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**1:40 Restoration Management Influences Functional Composition Change in a Native Bee Community of Restored Tallgrass Prairie**  
Bethanne Bruninga-Socular

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**2:00 Grazer Type Impacts Flower and Pollinator Abundance in Former CRP Fields Managed With Patch-Burn Grazing** Jasmine Cutter<sup>1</sup>

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**2:20 Break**

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**2:40 Fire and Grazing Alters Flower Phenology and Resource Use by Bumblebees** Cameron Duquette

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**3:00 Estimates of Butterfly Density in Mixed-Grass Prairie with a Restored Disturbance Regimes**  
Brooke Karasch<sup>1</sup>

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**3:20 The Revery Alone Won't do: The Response of Bee Communities to Fire and Grazing in Prairies**  
Patrick Pennarola

---

**3:40 If You Want Something to Die, Make it be Still: Pyric-herbivory Promotes Pollinator Diversity** Shelly Wiggam

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**4:00 It Depends on Goals: Fire and Grazing Are Both Needed for Prairie Butterfly Management** Julia Leone<sup>2</sup>

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### **Symposium**

**The Proof Is in the Pudding: Showcasing Diverse Perspectives on Success and Failure in Rangeland Reclamation and Restoration**

Room: M100F

**+ Sponsored By +**

**Restoration and Reclamation Committee**

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**1:00 The Restore New Mexico Collaborative Monitoring Program: The Action and the Science** Leticia Lister

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- 1:40 Propagation of Great Basin Native Annual Forbs for Restoration**  
Tara de Queiroz
- 
- 2:40 Using Ecological Site Descriptions and State and Transition Models to Inform Native Plant Restoration Strategies** Michael White
- 
- 3:20 Improving the Establishment of Pollinator Mixes on Semi-arid Conservation Reserve Program Lands** Noe Marymor
- 
- 4:00 Evening the Playing Field for Reclamation Evaluation on Colorado Rangelands** Sean DiStefano
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**Workshop**  
**Great Writing, Great Review: The Art and Science of Successful Publication**  
**Scientific Writing Session (Part 1)**  
 Room: M100H

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- 1:00 Introduction: Why you Should be Here** Rebecca Ozeran
- 
- 1:05 Strong scientific writing: Panel Perspectives and Discussion**  
Rebecca Ozeran
- 
- Asking the Right Question**  
David Briske
- 
- Writing Testable Hypotheses**  
Stephanie Larson
- 
- Making Your Case in the Introduction**  
Bret E. Olson
- 
- Appropriate Study Design and Analysis** María E. Fernández-Giménez
- 
- 1:50 Interactive: Visualize Results in Panelist-Led Groups** Rebecca Ozeran
- 
- 2:20 Writing a Killer Discussion**  
David Briske
- 
- 2:35 Debrief/Conclude** Rebecca Ozeran
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**2:50**

**Break**

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**Peer Review Session (Part 2)**

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**3:00** **Intro: Why You Should Be Here**  
Rebecca Ozeran

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**3:05** **Effective Peer Review: Panel Perspectives and Discussion**  
Rebecca Ozeran

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**Why We Review** Roger L. Sheley

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**To Review, or Not to Review: An Ethical Question (among others)**  
Lynn Huntsinger

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**Commitment to Reviewing**  
Karen Hickman

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**Making Your Review Useful**  
Jeremy J. James

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**3:50** **Dig Deeper into the Details: A Peer-Review Checklist** Roger Sheley

---

**4:20** **Interactive: Review a Manuscript in Panelist-Led Groups**  
Rebecca Ozeran

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**4:50** **Debrief/Conclude**  
Rebecca Ozeran and Panel

Tuesday

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**Workshop**  
**Ranchers' and Researchers' Guide to**  
**Cattle Grazing Behavior Technology**

Room: M100J

**+ Sponsored By +**  
**SRM Livestock Foraging Behavior**  
**Committee**

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\*\*\*All participants need to pay for materials used in the workshop. You can pay for the materials by going to this site:

<https://extension.umaine.edu/register/product/ranchers-and-researchers-guide-to-cattle-grazing-behavior-technology-workshop/>

\*Participants can pay for the materials the day of the workshop.

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**1:00 Constructing and Deploying GPS Collars and Processing Data to Inform Ranch Management**  
Colt W. Knight

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**2:20 Break**

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**2:40 GIS tools and GPS data: A Rancher's Perspective** Sean Cunningham

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**3:00 Mobile Action i-gotU GPS Collar Data Processing & Visualization Using R**  
Sergio Arispe

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**3:45 Monitoring Daily Livestock Foraging Activity With Accelerometers: Calibration, Formula Discovery, and Final Data Processing** Jamie Brennan

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Tuesday

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**Workshop**  
**Making SRM More Inclusive**

Room: M1001

1:00pm – 4:30pm

**+ Sponsored By +**  
**SRM Diversity Task Force**

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The SRM BOD has identified a need to make our Society a more inclusive place. The first interaction with SRM that prospective members have is frequently the Annual Meeting. As with any large public gathering, our premiere event is a chance to showcase how passionate we are about the profession of rangeland management and a great opportunity to share that enthusiasm with prospective new members. This training workshop will be facilitated by the USDA Civil Right Office and will focus on improving communication in a workplace environment. The course will be open to all SRM members, and can be used by federal employees to meet training objectives.

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**Symposium**  
**Grassland Restoration/Reconstruction:**  
**Lessons Learned from Practice and**  
**Research**

Room: M100C

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**1:00 Climate Change Adaptation Planning**  
**for Restoration and Management in**  
**the Eastern Great Plains**

Susan Galatowitsch

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**1:30 When Patience Pays, and When It**  
**Does Not, in Prairie Reconstruction**

Diane Larson

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**2:00 Diversifying Seed Mixes, Incorporating**  
**Cover Crops, and Adjusting**  
**Planting Date to Establish Native**  
**Cover in Difficult Sites** Ben Geaumont

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**2:20**

**Break**

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Tuesday

- 2:40 Strategies for Diversifying Pastures to Improve Productivity and Wildlife Habitat Value** Paul Bockenstedt
- 3:00 Restoration on the Edge, What's Working for Establishing and Managing Wet Prairie Plant Diversity** Dan Shaw
- 3:20 Applying Native Prairie Lessons to Prairie Reconstructions** Cami Dixon
- 3:40 Policy and Practice for Sourcing Seed in Grassland Restoration: How are People Defining Local?** Marissa Ahlering
- 4:00 Back To The Future: Management For Sustainable Great Plains Grasslands** Lora Perkins
- 4:20 Wrap-up**

Tuesday

Grazing Ecology and Management II

Room: M100A

- 1:00 Moderating Stocking Rate Stabilizes Forage Availability More Than Patch-Burning in Low-Stature Grassland** Devan McGranahan
- 1:20 Clipping Reduces Geyer Larkspur Aboveground Mass and Toxicity** Paul J. Meiman
- 1:40 Development of a Multidimensional Metric to Assess Terrain Use of Rangeland Cattle** Tatjana Mercado<sup>1</sup>
- 2:00 Movement and Cow-Calf Proximity Patterns of Raramuri Criollo Vs. Angus-Crossbred Nursing Cows Grazing Chihuahuan Desert Rangeland in Summer** Shelemia Nyamuryekunge<sup>2</sup>

- 
- 2:40 Does the Signature of Sea Surface Temperature Anomalies Influence Livestock Production in the Western Great Plains?** Edward J. Raynor
- 
- 3:00 Potential of Accelerometers to Monitor Cattle Behavior and Welfare** Colin T. Tobin<sup>2</sup>
- 
- 3:20 Continuous Season-Long and Rotational Grazing Systems in Northern Colorado: Economic Returns over Variable Costs** Jessica L. Windh<sup>1</sup>
- 
- 3:40 Continuous Season-Long and Rotational Grazing Systems in Northern Colorado: An Economic Cost Analysis** Jessica L. Windh<sup>1</sup>
- 
- 4:00 Promoting Vegetation Heterogeneity with Alternative Grazing Strategies to Improve Ecosystem Services** Luke W. Zilverberg<sup>1</sup>
- 
- 4:20 A Diminishing Unique Traditional Practices of Rangeland Resources Management in the Himalayan Kingdom of Bhutan** Jigme Wangdi
- 
- 4:40 Water Induced Soil Erosion Problems and Management in Jicarilla Apache Range Lands** Bir Thapa

## Workshop Sustainable Farmers Association of Minnesota - Integrating Managed Grazing for Soil Health

Room: L100F

**+ Sponsored By +**  
**Sustainable Farming Association,  
Minnesota Dairy Initiative, Minnesota  
Sustainable Agriculture Research and  
Education (SARE)**

Water quality and its relationship to agriculture is a highly charged issue in the Midwest. Addressing soil health, or soil function, is at the root of water quality issues. Livestock integration via adaptive managed grazing is a key principle to improve soil health. Agronomic systems focused on soil health have demonstrated a positive impact to farm and ranch productivity and profitability. This workshop will explore livestock integration through adaptive managed grazing of complex annuals ("cover crops") or perennials to build soil aggregate structure. A panel of Minnesota producers will share their experiences and observations. Adaptive grazing of polycultures creates tremendous opportunity in the current agricultural climate to build farm and ranch profitability while addressing soil loss, water quality and grassland species habitat.

Wednesday

**9:00 Introduction and Welcome**  
Theresa Keaveny

**9:10 Soil Health Principles** Kent Solberg

**10:15 Break**

**10:30 Adaptive Grazing for Soil Health**  
Allen Williams

**12:00 Lunch on your own**

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**1:00 Producer Panel Moderated by  
Kent Solberg**

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**2:30 Break**

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**2:45 Grazing Dairies and Cover Crops  
Brad Hines**

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**3:45 Conclude**

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**Workshop**  
**Rapid Assessment Tools for Measuring  
Ecosystem Properties in Rangelands**  
Room: M100J

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**8:00 Rapid Soil and Ecological Site Identification and Vegetation Monitoring  
Using the LandPKS App**  
Jeffery Herrick

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**8:20 Open-Access Geospatial Tools for  
Land Management on Google Earth  
Engine** Charlie Bettigole

---

**8:40 Using COMET-Farm™ and COMET-  
Planner™ to Assess Potential  
Greenhouse Gas Reductions in  
Livestock Management**  
Matthew Stermer

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**9:00 Quick Carbon: Rapid, Landscape-  
Scale Soil Carbon Assessment**  
Daniel Kane

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**9:40 Making Technology Work for You  
- Apps, Drones, and Satellites that  
Actually Work** Christine Su

---

**10:00 Break**

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**10:20 Interactive Workshop with  
Presenters and Tools**

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Wednesday

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**Symposium**  
**Using Genetic Selection as a Tool for**  
**Managing Livestock Distribution**

Room: M100E

**+ Sponsored By +**  
**SRM Animal Behavior Committee**

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- 8:00 What Is the Basis for Grazing Distribution: Nature Vs. Nurture?**  
Larry Howery
- 
- 8:20 Selection for Grazing Distribution, Difficulties and Opportunities**  
Derek Bailey
- 
- 8:40 Use of Genetic Markers to Study and Potentially Improve Grazing Distribution of Beef Cattle** Milt Thomas
- 
- 9:10 Development Of Genetic Selection Programs For Grazing Distribution**  
Scott Speidel
- 
- 9:40 Can Genetic Selection for Grazing Distribution Become a Reality? - Discussion** Derek Bailey
- 
- 10:00 Break**
- 
- 10:20 Will Selection for Grazing Distribution Cause Problems With Rangeland Livestock Production?** Colt Knight
- 
- 10:50 Alternatives to Improve Grazing Distribution, Supplement Placement and Herding** Mitchell Stephenson
- 
- 11:20 Wrap Up**

Wednesday



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## Forum

### **The Conflict of Privately-Owned Stockwater on Federally Administered Lands**

Presentations with discussion by Dave Duquette and Ramona Hage Morrison

Room: M100I

8:00am - 11:00am

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## Symposium

### **Using State and Transition Models to Organize Restoration Information**

Room: M100G

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**8:00 Introduction**

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**8:10 Threat-Based State and Transition Models for Managing Rangeland in Dysfunctional Ecosystems**  
Chad Boyd

---

**8:30 Novel Approaches to Restore Degraded Grasslands in Canyons and Arches National Parks**  
Mike Duniway

---

**8:50 Incorporating Region-Wide Outcomes of Pinyon-Juniper Reduction Treatments into Generalized STMs for Sagebrush Ecosystems** Kevin Gunnell

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**9:10 Variable Restoration Success: Analyzing Trends to Inform Active Management in Drylands**  
Nacy Shackelford

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**9:30 Questions**

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**9:40 Break**

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**10:00 Using STMs to Inform and Assess the Restoration of Ecological Processes on Rangelands Affected by Energy Development** David Toledo

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Wednesday

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**10:20 The Role of State-and-Transition Models in Prioritizing Conservation and Restoration Actions**  
Jeanne Chambers

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**10:40 Using Assessment, Inventory and Monitoring Data for Adaptive Management of Northern New Mexico Rangelands**  
Alexander Laurence-Traynor

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**11:00 Q&A, Discussion**

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**Grazing, Wildlife and Rangeland Interactions**  
Room: M100A

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**8:00 Free-Roaming Horses in Montane Riparian Areas of Arizona: Determining Use of Forage Resources?**  
Andrew M. Antaya

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**8:20 How Many Prairie Dogs Are Too Many? One Bird's Perspective**  
Courtney J. Duchardt<sup>2</sup>

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**8:40 Habitat Variables across Multiple Scales Influence Female Sharp-Tailed Grouse Brood Habitat Selection and Brood Survival in a National Grassland Grazed by Livestock** Daniel L. Graham

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**9:00 Effects of Single-Season, High-Stocking Rate, Short-Duration Grazing on Texas Wintergrass (*Nassella leucotricha*)**  
Katherine E. Hood<sup>1</sup>

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**9:20 Audubon's Conservation Ranching Program: How Markets Are Driving Landscape Scale Conservation in the Northern Great Plains** Joshua Lefers

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**9:40 Mediating Science and Culture:  
Prey Behavior and Predation  
Theory Informs a Land Management  
Paradigm for Reducing Large  
Carnivore-Livestock Conflict**  
Timmothy J. Kaminski

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**10:20 Determining Appropriate Utilization  
Measurements for Multiscale Spatial  
Analysis of Wildlife-Livestock  
Interactions in Southern Idaho**  
Alexander Laurence-Traynor

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**Wildlife Habitat and Management**  
Room: M100A

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**10:40 Across Scales, Pronghorn Select  
Sagebrush and Avoid Fences, and  
Avoid Anthropogenic Features in  
Winter** Jeffrey L. Beck

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**11:00 Influence of Grassland Management  
Systems on Fine-Scale Distribution  
of Lesser Prairie-Chickens and Their  
Habitat** Christopher K. Gulick<sup>1</sup>

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**11:20 Investigating Factors that Influence  
Northern Bobwhite Chick Survival**  
Veronica A. Urbanczyk<sup>1</sup>

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**Invasive Species Management  
and Monitoring II**  
Room: M100B

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**8:20 Gamma Radiation on Natal Grass  
[*Melinis repens*(Willd.) Zizka], Ger-  
moplasm to Induce Nutritional  
Content Variability**  
Federico Villarreal Guerrero

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**8:40 Impacts of Simulated Trampling on  
Regrowth of Yellow Flag Iris (*Iris  
pseudacorus* L.)** Alex L. Stoneburner<sup>1</sup>

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**9:00 Restoring Cheatgrass Invaded Areas  
with Herbicide and Activated Carbon**  
Tyson Terry<sup>1</sup>

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**9:20 Needles in a Haystack: Identifying Thresholds in Annual Grass-Dominated Rangelands** Clay W. Wood

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**9:40 Medusahead: A Potential Livestock Forage on Rangelands?**  
Casey Spackman<sup>2</sup>

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**Rangeland Social Science**

Room: M100C

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**8:00 Are Community Rules or Formal Tenure More Effective to Achieve Sustainable Grazing in Mongolia?**  
Ginger Allington

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**8:20 The Landscape of North American Rangeland Social Science: A Systematic Map** Jasmine E. Bruno<sup>2</sup>

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**8:40 Intensity of Perception and the Influence on Information Acceptance Related to Prescribed Fires**  
Lars Coleman<sup>1</sup>

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**9:00 Decision-Making on Privately-Owned Grasslands: Stocking Rate, Non-Native Grasses, and Changing Perceptions Toward Conservation**  
Jaime J. Coon<sup>2</sup>

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**9:20 Social-Ecological Assessment of Production Interventions for an Agro-pastoral System in Northern Namibia** D. Layne Coppock

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**9:40 Heuristics and Fire: Decision-Making Processes and Prescribed Fire Implementation in the Southern Great Plains** J. Kelly Hoffman<sup>2</sup>

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**10:20 Rangeland Conservation Requires Profitable Ranching Operations**  
Devii R. Rao

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**10:40 A Policy Analysis of Outcome-Based Approaches to Managing Idaho's Rangelands** Katherine Wollstein<sup>2</sup>

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**11:00 Constitutionalism, Institutional Protection of Traditional Grazing Rights in Sub-Saharan Africa: The Missing Case for Uganda** Kikonyogo N. Kivumbi

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**11:20 Identifying Landowner Tipping Points for Ecological Transformation in the Southern Great Plains**  
Kiandra Rajala<sup>1</sup>

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**Remote Sensing and Technology**

Room: M100D

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**8:00 AIM and Shoot: Delivering and Sharing Range Data Quickly** Colin M. Dovichin

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**8:20 Modeling Land Resource Units to Inform ESD Development in Central California's Coast Range** Dave Evans

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**8:40 Exploring Utilities of Spectral Diversity for Representing Plant Diversity and its Spatial Pattern**  
Xavier A. Jaime

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**9:00 Developing a Tool to Monitor Drought Impacts on Semi-arid U.S. Grasslands: Nebraska Sandhills Case Study** Marketa Podebradska<sup>2</sup>

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**9:20 Seamless In Season Forage Projections: A Component of the Rangeland Productivity Monitoring Service** Matt Reeves

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**9:40 Characterization and Monitoring of Shrubland Components in the Western U.S. Back to 1984, Climate Drivers** Matthew B. Rigge

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Wednesday

# POSTER SESSION A

AUTHORS PRESENT FROM 5-6PM

- 1    **Understory Vegetation and Soil Moisture Response to Thinning Piñón-Juniper Woodlands**  
Yasser M. Almalki<sup>2</sup>
- 2    **Facilitating Cheatgrass (*Bromus tectorum*) Fuels Reduction: What Defines a Resistant Plant Community**  
Charlie Clements
- 3    **Floristic Richness of a Grassland in Southeast Coahuila, Mexico**  
Juan A. Encina Domínguez
- 4    **Juniper Recovery Following Initial Restoration With Extreme Fire**  
Caitlin de Vries
- 5    **Effects of Huisache and Honey Mesquite Canopy Cover on Soil Nutrients** Christopher S. Miller<sup>2</sup>
- 6    **Comparison of Grazing Behavior of Ranged Raramuri Criollo Steers During Pre-Monsoon and Monsoon Seasons** Flavie Audoin<sup>2</sup>
- 7    **The Changing Relation Between Precipitation and Rangeland Grazing Capacity in a Warmer Southwest**  
Andrés F. Cibils
- 8    **Texas Wintergrass Growth and Seed Production Responses to Grazing**  
Caitlyn Cooper
- 9    **Cattle Grazing and Forb Production for White-tailed Deer Can Be Compatible** Dillan J. Drabek<sup>1</sup>
- 10   **Wild Horse Walkabout: A Journey of Collaborative Discovery**  
Amanda L. Gearhart
- 11   **Using AIM Data to Tailor ESDs for IIRH on Sage-Grouse Habitat in Southern Idaho** Dominika Lepak
- 12   **Relationship Between Canopy Cover and Forage Nutritive Value in Texas Coastal Prairies** Courtney E. Jasik<sup>1</sup>

- 13 **Effects of Wild Horses on Wildlife at Springs and Riparian Zones on the Devil's Garden** Madeleine Levy<sup>1</sup>
- 14 **Grazing Management Practices in the Rangelands of Nepal** Sunita Sanjyal<sup>2</sup>
- 15 **Grazing Season of Use Effects on Sagebrush-Obligate Avian Habitat** Vanessa Schroeder
- 16 **Economic Effects of USFS Permitted Grazing Reductions due to Wild Horses on the Devil's Garden** Laura K. Snell
- 17 **Evaluation of Noninvasive Specimens to Diagnose Livestock Exposure to Poisonous Plants** Clint Stonecipher
- 18 **Wild Horse, Livestock and Wildlife Use of Lentic Meadows: Influence on Sage-grouse Conservation in Nevada** Sebastian A. Tsocanos<sup>1</sup>
- 19 **Variables Influencing the Management of Cattle Ranches of Eastern Paraguay and Eastern Uruguay** Diana Restrepo-Osorio
- 20 **Assessing Post-Fire Trajectories In Sagebrush-Steppe Ecosystems Of The Western United States** Stephen P. Boyte
- 21 **Soil Characteristics and Microbial Responses to Different Fire Intensities in a Woody Encroached Arid Savanna** Lela Z. Culpepper<sup>1</sup>
- 22 **Recovery of Interior Douglas Fir Forests One Year Post-Wildfire in Areas of Different Burn Severity** Hailey Manke
- 23 **MEGA FIRE! Collaborative Emergency Stabilization and Rehabilitation after Nevada's Largest Wildfire: The Martin Fire** Lucas A. Phipps
- 24 **Can Mowing Replace Fire in Semiarid Grassland?** Dustin Strong

- 25 **A Comparison of Two Methods to Estimate Heifer Activity Using GPS and Accelerometer Data**  
Fatima G. Continanza
- 26 **Outreach for Grass-Cast: A New Grassland Productivity Forecast for the Great Plains** Justin D. Derner
- 27 **Science for Grass-Cast: A New Grassland Productivity Forecast for The Great Plains** Justin D. Derner
- 28 **Assessing and Managing for Rangeland and Pasture Land Soil Health: Outcomes of a National Workshop** Chad R. Ellis
- 29 **Case Studies on Building Rangeland Resilience to Climate Change in The Pacific Northwest** Tipton D. Hudson
- 30 **Guide to Co-Developing Drought Preparation Plans for Livestock Grazing on Southwest National Forests** Kelsey L. Hawkes-Landreville
- 31 **Machining a Solution to Data Heavy Rangeland Research: Case Study with Camera-trap Photo Processing**  
Brandon K. Mayer
- 32 **Using Telemetry as a Landscape Analysis Tool to Assess Wild Turkey Habitat in South Texas**  
Alison R. Menefee<sup>1</sup>
- 33 **Now Available: Version 5 of Interpreting Indicators of Rangeland Health (IIRH) Technical Reference**  
Mike L. Pellant
- 34 **Spatial Interpolation Comparison of Ranch-Scale Rain Gauges to a National Rainfall Network**  
Charles Perry
- 35 **Spatial Bibliography of Rangeland Resources using ArcGIS Online**  
Steve Petersen
- 36 **Biodiversity Habitat Phone App – Which Animal and Plant Species Do Land Managers Want to Understand?**  
Terri Schulz



- 37 **Rangelands Assessment and Monitoring System (RAMS) Delivers Data for Decision Support**  
Linda A. Spencer
- 38 **Introduction to the US National Vegetation Classification (NVC)**  
Linda A. Spencer
- 39 **Communicating Ecological Data for Land Management: Lessons Learned**  
Nelson G. Stauffer
- 40 **In Pursuit of Better Rangeland Management, 3rd Edition Nevada Rangeland Monitoring Handbook**  
Sherman R. Swanson
- 41 **Application of Non-invasive Remotely-Sensed Methods to Predict Forage Quantity and Diet Quality for Grazing Cattle** Douglas R. Tolleson
- 43 **Practicing a New Natureculture of Hope for Multifunctional Rangelands: Lessons from Collaborative Adaptive Rangeland Management** Hailey Wilmer
- 44 **Dynamic Rangeland Species Composition in the APEX Model**  
Cody J. Zilverberg
- 45 **Spectral Behavior and Spectral indexes of Vegetation of Two Fragments of Natural Pastures**  
Leonardo de Moraes
- 46 **A New Institution to Promote Resilience-Based Rangeland Management in Mongolia**  
Brandon Bestelmeyer
- 47 **Aboveground Biomass Estimation from Unmanned Aerial Vehicles in Rangelands** Alexandria DiMaggio<sup>1</sup>
- 48 **Accelerating Growth of Ocelot Thornscrub Habitat** Jose G. Jr. Cortez<sup>1</sup>
- 49 **The most Important Endangered Range Plant Species and Change in Ground Cover in North Kordofan State, Sudan** Elnazeir M. Dawelbatt

- 50 **Accumulated Heat Units and Perspective of Maize Billbug Population Distribution in Eastern Gamagrass**  
Kundan Dhakal
- 51 **Management Impacts on Dynamic Soil Properties of a Pacific Northwest Bunchgrass Prairie** Katie Emerson
- 52 **Soil Health Evaluation in Three Texas Rangelands** Douglas J. Goodwin
- 53 **Tick Species Observed in Burned versus Unburned Rangeland Sites in the Edwards Plateau of Texas**  
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- 54 **Improving Rangeland Seedling Recruitment Using Fungicide Seed Coatings** Benjamin Hoose
- 55 **Tebuthiuron as a Tool to Restore Ecohydrologic Function in a Shrub-Encroached Semi-Arid Grassland**  
Justin C. Johnson<sup>1</sup>
- 56 **Evaluating Native Perennial Grass Tolerance to Indaziflam Treatments**  
Stephen Lunt
- 57 **Effect of Growing Season Burns on Forage Quality of Browse Plants in the Cross Timbers** William A. Moseley
- 58 **Hydrogel Rate and Depth: Impact on Soil Water and Seedling Establishment** Shannon V. Nelson<sup>1</sup>
- 59 **Laboratory Evaluation of Abscissic Acid and Gibberellic Acid Seed Coatings to Improve Germination Timing of Low Sagebrush**  
Janae Radke
- 60 **Variation of Seed Banks among Ecological States in the Chihuahuan Desert: Implications for Restoration**  
Kirsten B. Romig
- 61 **Does Laboratory Selection for Increased Seed Germination of Little Bluestem Improve Field Establishment?** Tim Springer

- 62 **Detection and Management of Two-Lined Spittle Bug (*Prosapia bicincta*) on Hawaii Rangelands**  
Mark Thorne
- 63 **Allometric Measurements of Honey and Western Mesquite Foliage**  
Douglas R. Tolleson
- 64 **Meadow Health and Grazing Utilization Monitoring on Public Lands**  
Grace E. Woodmansee
- 65 **Effects of Defoliation Frequency on Regrowth Potential of Clonal Non-Native Grasses** Lan Xu
- 66 **Genetic Relationships Among Different Chemotypes Of *Lupinus sulphureus*** Daniel Cook
- 67 **Methods for Improving Re-Vegetation Success in the Sagebrush Steppe using Solid Matrix Priming**  
Samuel J. Price<sup>1</sup>
- 68 **Native Perennials Are Valuable – Don't Harm Them with Overspray and Drift from Your Backpack Sprayer**  
John Lampe
- 69 **Landscape Changes, Land Management, and the Endangered American Burying Beetle in Nebraska**  
Alison K. Ludwig<sup>1</sup>
- 70 **Mapping Residual Dry Matter: Evaluating Grazing Patterns and Compliance with Vernal Pool Easement Mitigation Goals** Fadzayi E. Mashiri
- 71 **Analysis of 30+ Years of Monitoring on the Arizona Strip at the Landscape Scale, Preliminary Results**  
Elizabeth Delcamp

# POSTER SESSION B

AUTHORS PRESENT FROM 5-6PM

- 1 **Using Livestock to Regenerate Soils at Stony Creek Farm** Jeff Duchene
- 2 **The Utility of Patch Burn Grazing to Manage Large Tallgrass Prairie Reconstruction in Northwest Minnesota** Jeff Duchene
- 3 **Precision Prairie Reconstruction (PPR): 15-Year Field Study Results for Sustaining Forb Richness & Density** Jack Norland
- 4 **What's In Store? Can Plant Traits Explain Changing Rangelands, and Do Seedbanks Suggest Alternative Futures?** Julie Larson<sup>2</sup>
- 5 **Incorporating Black-Tailed Prairie Dog (*Cynomys ludovicianus* Ord) Occupation into State-and-Transition Models** Mark A. Hayek
- 6 **From Cornfield to Wetland: Progress toward Ecological Restoration in a Prairie Pothole Region Wetland Complex** Cheyenne E. Durant<sup>1</sup>
- 7 **Effects of Grazing on Reed Canary Grass Invasion on Restored Wet Meadows** Jake R. Cleys<sup>1</sup>
- 8 **Prairie Reconstruction Guide Book for North Dakota** Kristine Askerooth
- 9 **Information Is Power to Get from Seeds to Successful Prairie Every Time!** Rebecca Esser
- 10 **An Assessment of Neonicotinoid Exposure on USFWS High Diversity Grasslands in the Prairie Pothole Region** Kyle Kelsey
- 11 **Fire Behavior Associated With the Application of Prescribed Fire in the Northern Great Plains** Megan E. Zoppi<sup>1</sup>
- 12 **A Hailstorm Reduced Forage, Nesting Cover, and Floral Resources in Southwestern North Dakota Grasslands** Jonathan W. Spiess<sup>2</sup>

- 13 **Do Different Smartphone Cameras Agree About Measured Fractional Green Canopy Cover?** Corey Moffet
- 14 **LRU Development and the Creation of Abiotic Driven Ecological Site Keys** Matthew A. Morehead
- 15 **Generating Residual Dry Matter Maps with ArcMap 10** Fletch Nelson
- 16 **Natural Resource Users Law and Policy Center** Sarah Noelle
- 17 **Big Data Assist Adaptive Management of Rangeland Land Treatment Planning** David S. Pilliod
- 18 **Remotely Sensed Quantification of Ecosystem Site Potential Community Structure and Deviation in the Great Basin** Matthew B. Rigge
- 19 **Disturbance Limits Utility of Unmanned Aerial Systems for Counting Sharp-Tailed Grouse on Leks** Alexander C. Rischette<sup>1</sup>
- 20 **A Framework for Understanding Adaptive Capacity Across the Social Landscape** Michael Sorice
- 21 **Incorporating Altered States in Ecological Site Descriptions** Kenneth E. Spaeth
- 22 **Riparian Valley Bottom Delineation Model: Information for Planning, Monitoring and Assessments** Linda A. Spencer
- 23 **A Review of Theories and Methods to Advance Rangeland Social Science** Hailey Wilmer
- 24 **Navigating Rigidity Traps at the Nexus of Law, Policy, and Science to Foster Resilient Rangelands** Conor Barnes<sup>2</sup>
- 25 **Juniper Sapling Regrowth Following Targeted Grazing Treatments in Relation to Terpenoid Concentration** Yasser M. Almalki

- 26 **A Landscape Approach to Conserving Carbon Stocks in California Rangelands** Lina Aoyama<sup>1</sup>
- 27 **Re-Sprouting Shrub Encroachment in the Tallgrass Prairie: Assessing Various Prescribed Fire and Mechanical Management Strategies** Michael W. Bartmess<sup>1</sup>
- 28 **Examination of Fire and Grazing-Induced Vegetation Heterogeneity on Trophic Level Relationships – Small Mammal Diversity** Kaitlyn A. Cihoski
- 29 **Effects of Disturbance on Soil in the Northern Great Plains Grasslands** Jake A. Comer
- 30 **Mesquite Sap Flux Following Fire in a Semi-Arid Savanna** Caitlyn Cooper
- 31 **Bud Bank: A Novel Ecological and Managerial Approach to Improve Biomass Production** David G. Flanery
- 32 **The National Vegetation Classification (NVC) Has Some Communication Opportunities for Ecological Site Work** Gene A. Fults
- 33 **Analysis of Plant-Soil Microbiomes Surrounding Native and Non-Native Grasses Across a Precipitation Gradient in Kansas** Scout M. Harrison<sup>1</sup>
- 34 **Accuracy of Ground-Surface Elevation Models and Plant Biomass Estimates from UAS Imagery in Two Rangeland Plant Community Types** Jason W. Karl
- 35 **Topoedaphic Effects on *Ventenata dubia* Production in the Pacific Northwest Bunchgrass Prairie** McKaden Z. Manderbach
- 36 **Moved to Monday number 70: Mapping Residual Dry Matter: Evaluating Grazing Patterns and Compliance with Vernal Pool Easement Mitigation Goals** Fadzayi E. Mashiri

- 37 **Germination Thresholds of Grass and Crop Species in Response to NaCl and Brine Induced Salinity**  
Miranda Meehan
- 38 **Update on a Program to Strategically Reduce Fine Fuels Using Targeted Livestock Grazing** Mike L. Pellant
- 39 **Livestock Water Quality Varies across 10 Years in Eastern Montana**  
Mark K. Petersen
- 40 **Restoration Systems and Costs for Conversion of Bermudagrass to Native Grasses in the Southern Great Plains** James K. Rogers
- 41 **Shrub Recruitment in Sonoran Grasslands: Grass Utilization is of Little Consequence to Intra-seasonal Precipitation Variation**  
William A. Rutherford<sup>2</sup>
- 42 **The Effects of Prescribed Fire on Forb Cover in the Pacific Northwest Bunchgrass Prairie** Molly Rygg
- 43 **Botanical Comparison of Mesic Grasslands in North America and Brazil: Implications of Fire Dependency and Rangeland Function?**  
J. Derek Scasta
- 44 **terradaetyl: R Package for Rangeland Core Methods Data Extraction and Calculation** Sarah E. McCord
- 45 **Riparian Grazing Management versus Serial Engineering**  
Sherman R. Swanson
- 46 **Grazing Strategies Indices for Range Quality Assurance**  
Sherman R. Swanson
- 47 **Application of the Growing Degree Day Technique to Assess Grazing Cattle Diet Quality** Douglas R. Tolleson
- 48 **Impacts of Patch-Burn Grazing and Winter-Patch Grazing on Arthropod Community Heterogeneity**  
Alyssa E. Vachino

- 49 **Switchgrass Grazing Management in an Integrated Crop Livestock System**  
Elizabeth K. Widder
- 50 **Treatment Longevity and Changes in Surface Fuel Loads after Pinyon-Juniper Mastication** Samuel S. Wozniak
- 51 **Impacts of Different Disturbances on the Performance of Clonal Plant Buffalograss** Luke W. Zilverberg<sup>1</sup>
- 52 **Vegetation GIS Data System (VGS) Tutorial Video Series** Ashley L. Hall
- 53 **Soil Carbon Under Different Grazing Practices Across the Northern Great Plains** Clare Kazanski
- 54 **Enhancement of Hay and Crops Straw Using Urea and Sodium Hydroxide, North Kordofan, Sudan**  
Elnazeir M. Dawelbatt
- 55 **Toxic Beauty: Viper's Bugloss (*Echium vulgare*)** Kaylee Littlefield
- 56 **Estimating the Economic Value of U.S. Beef Cattle Ranching Based Ecosystem Services**  
Nicolas Quintana Ashwell



# BOARD AND COMMITTEE MEETINGS

## SATURDAY

**8:00am-5:00pm SRM BOD Meeting**  
Hilton Gallery

**12:00pm-5:00pm Registration**  
Room: Lower Level Lobby

## SUNDAY

**7:00am-7:00pm Registration**  
Room: Lower Level Lobby

**8:00am-5:00pm Advisory Council Meeting**  
Room: L100G

**8:00am-1:00pm Rangeland Assess. & Mon.** Room: M100E

**8:00am-12:30pm Range Science Education Council**  
Room: L100F

**8:00am-4:00pm Nominations Committee**  
Room: M101C

**9:00am-11:00am Membership Committee**  
Room: M101A

**10:00am-12:00pm Finance Committee**  
Room: M100F

**10:00am-1:00pm CPRM Committee**  
Room: M100I

**12:00pm-5:00pm Endowment Committee**  
Room: M100F

**1:00pm-3:00pm Program Acc. Comm.**  
Room: M100I

**1:00pm-3:00pm Wildlife Habitat Comm.**  
Room: M100D

**1:00pm-3:00pm Awards Committee**  
Room: M100G

**1:00pm-4:00pm Diversity Task Force Comm.** Room: M100E

<b>1:00pm-3:00pm</b>	<b>International Affairs Comm.</b> Room: M100H
<b>1:00pm-2:00pm</b>	<b>Range Inv. Species Comm.</b> Room: M100C
<b>1:00pm-4:00pm</b>	<b>Outreach &amp; Partnerships</b> Room: L100F
<b>1:00pm-5:00pm</b>	<b>Native American Rangeland Advisory Comm.</b> Room: M100A
<b>1:00pm-5:00pm</b>	<b>CRMC Committee</b> Room: M101A
<b>2:00pm-4:00pm</b>	<b>Student Activities Mtg. #1</b> Room: M100J
<b>2:00pm-3:00pm</b>	<b>Targeted Grazing Comm.</b> Room: M100C
<b>2:00pm-5:00pm</b>	<b>Watershed/Riparian Comm.</b> Room: M101B
<b>3:00pm-5:00pm</b>	<b>GLC Committee</b> Room: M100B
<b>3:00pm-5:00pm</b>	<b>Livestock Behavior</b> Room: M100C
<b>3:00-5:00 pm</b>	<b>GIS Remote Sensing Comm</b> Room: M100D
<b>MONDAY</b>	
<b>4:00-6:00 pm</b>	<b>Policy and Public Affairs Comm.</b> Room: M100B
<b>4:00-6:00 pm</b>	<b>Great Plains Fire Effects Working Group</b> Room: M101C

## TUESDAY

**7:00-9:00 am**     **EDIT Working Group**  
Room: M100B

**8:00-11:30am**     **CPRM Study Session**  
Room: M101B

**1:00-5:00pm**     **CPRM Test**  
Room: M101C

**12:00-1:30pm**     **Livestock Foraging  
Behavior Committee  
Graduate Student Meet  
and Greet**  
Room: M100G

**3:00-5:00 pm**     **VGS Training**  
Room: M101B

**5:00-7:00pm**     **Reclamation and  
Restoration Committee**  
Room: M100E

## WEDNESDAY

**7:00-8:00 am**     **Student Activities  
Committee Meeting #2**  
Room: M100J

## THURSDAY

**7:00am-1:00pm**     **SRM Board of Directors**  
Hilton Board Room 1

# AGENCY AND UNIVERSITY MEETINGS/SOCIALS

## SUNDAY

**6:00-8:00pm NRCS Family Meeting**  
Hilton Marquette III

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**6:00-8:00pm BLM Family Meeting**  
Hilton Marquette II

---

**6:00-8:00pm ARS Family Meeting**  
Hilton Marquette IV

---

**6:00-8:00pm USFS Family Meeting**  
Hilton Marquette V

## TUESDAY

**6:00-8:00am Texas Tech Breakfast**  
Hilton Marquette VI

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**6:00-9:00pm Arizona State Social**  
Hilton Marquette III

---

**6:00-8:00pm University of Idaho**  
Hilton Marquette VI

---

**5:30-8:00pm Utah State Mixer**  
Hilton Marquette I

---

**5:00-8:00pm Oklahoma State  
University Mixer**  
Hilton Marquette II

---

**6:00-8:00pm MT State, UA, Int.  
Mt Section Mixer**  
Hilton Marquette IV

---

**5:00-8:00pm Colorado State Mixer and  
Section Social**  
Hilton Marquette V

**6:00-8:00pm Oregon State University**  
Hilton Marquette VII

# 2019 PLANNING COMMITTEE

## **Co-Chairs**

Shawn Dekeyser and Jeff Duchene

## **SRM Liaison**

Kelly Fogarty

## **Finance**

Tim Halberg

## **Program**

Jack Norland

## **Space Arrangements**

Jack Norland and Jennifer Muscha

## **Local Arrangements**

Stacey Clark

## **Tours**

Brian Pillsbury

## **Publicity**

Matt Bunker and Breana Kiser

## **Trade Show**

Shawn Dekeyser

## **Sponsorship**

Miranda Meehan

## **Producers Forum**

Tom Gervais and Jen Obrigewitch

## **Transportation**

Kelly Anderson

## **Volunteers**

Greg Keilback

## **App**

Breana Kiser

## **Student Activities**

Jen Obrigewitch and Kim Gibbs

## **Website/Printed Program**

Blayr Gourley, Open Range & Co.

# **SRM OFFICERS**

**President**, Dr. Barry Irving

**First Vice President**, Dr. Clayton Marlow

**Second Vice President**, Dr. Charles Hart

## **SRM Board of Directors**

### **Directors: 2016-2018**

Dr. Eddie Alford & Curtis Talbot

### **Directors: 2017-2019**

Dr. Karen Hickman & Jeff Goodwin

### **Directors (Incoming): 2018-2020**

Dr. María E. Fernández-Giménez &

Dr. Barry Perryman

## **SRM Staff**

**Jess Peterson, Executive Vice President**

**Vicky Trujillo, Office Services Manager**

**Kelly Fogarty, Deputy Director Operations**

**Mary Jo Foley-Birrenkott, Outreach and Membership Coordinator**

**Christine Triantos; Kristen Albers Director of Finance**

**Ryan Wingerter; SRM Tech/AV**

**Lia Biondo, SRM DC Coordinator**

**Dr. Roger Sheley, Rangeland Ecology and Management Editor-in-Chief**

**Jason Karl , Rangelands Editor-in Chief**

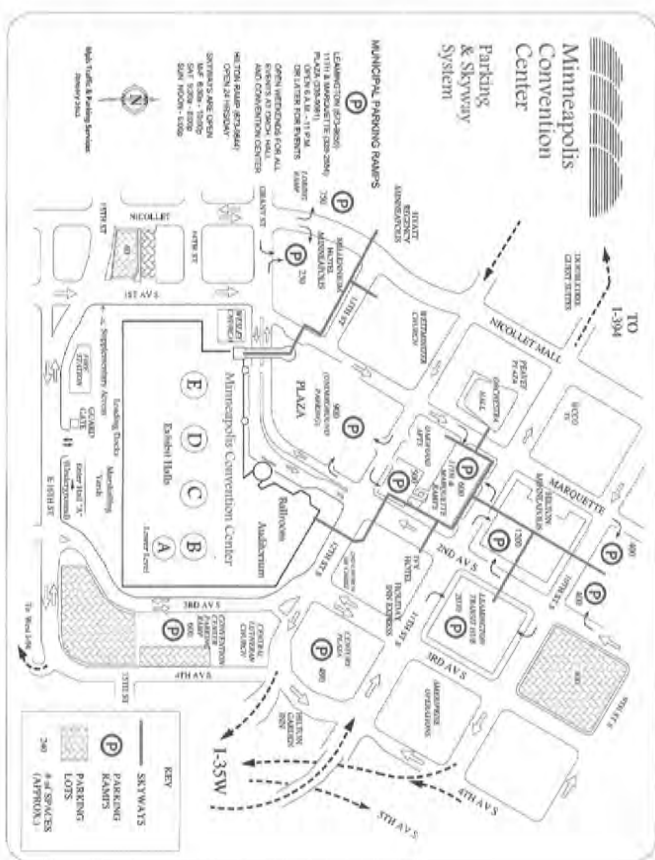
**Dr. Eva Levi, PhD, Rangelands Managing Editor**

# **CREDITS**

The 2019 logo was developed by Erin Gaugler.

## MAPS

# MINNEAPOLIS CONVENTION CENTER PARKING



# MAPS

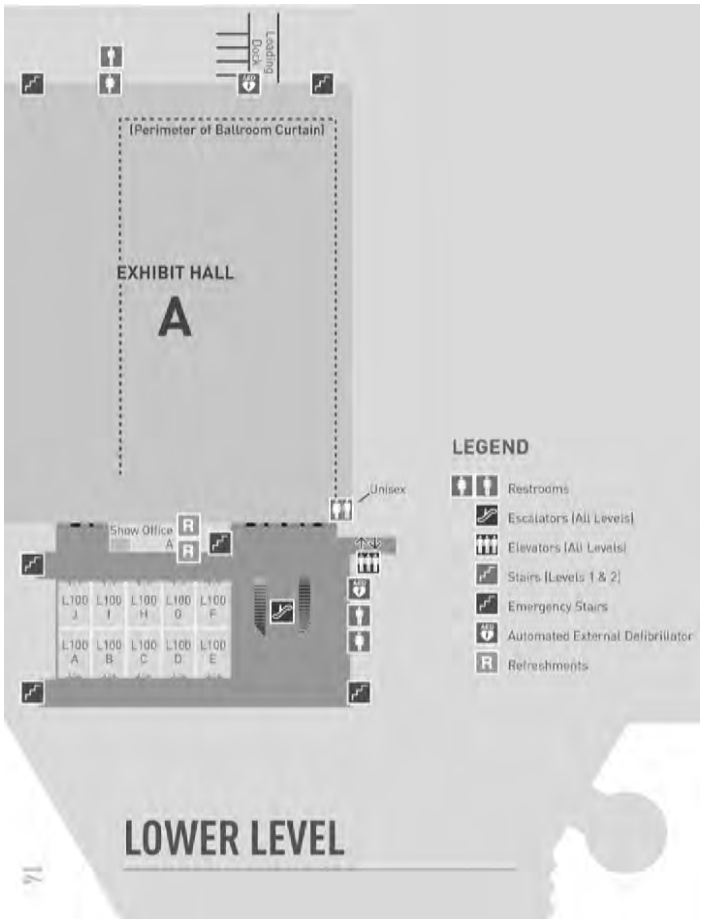
## MINNEAPOLIS CONVENTION CENTER





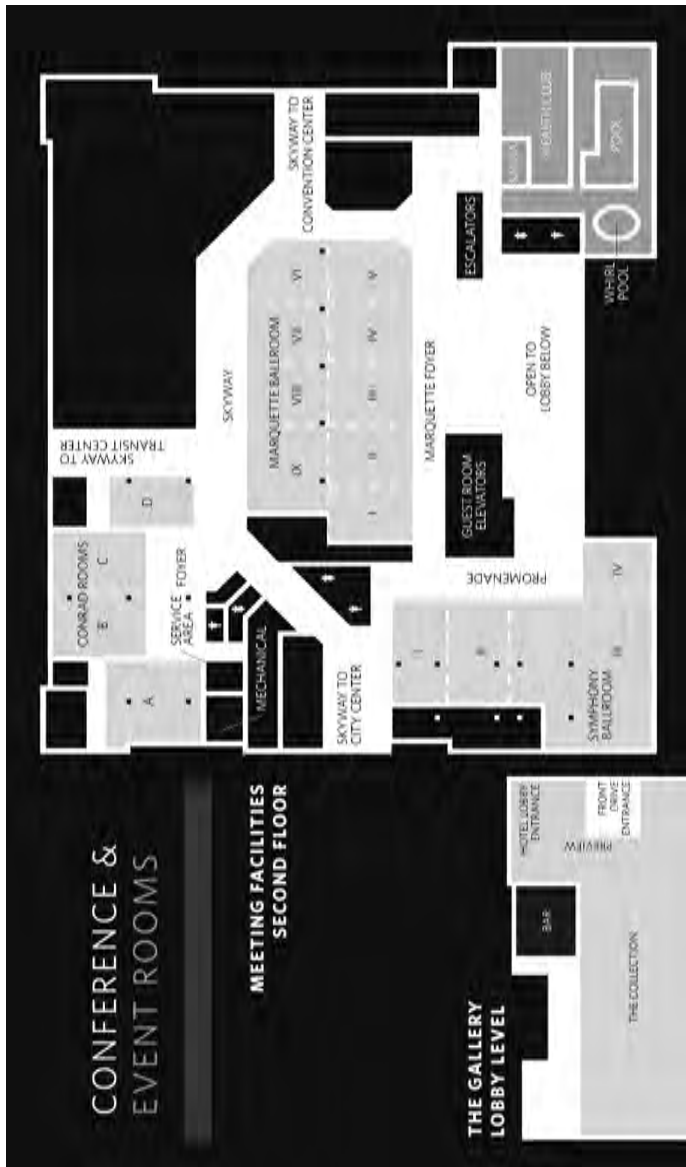
# MAPS

## MINNEAPOLIS CONVENTION CENTER



# MAPS

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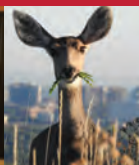
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