

SRM 2020 Denver: Symposium/Workshops/Ignite Sessions

**Wednesday AM (10:00 am to Noon)**

Session 25	Plaza A-C	<b>Has Scientific Communication Failed the Art of Range Management? (Symposium)</b>
Session 26	Windows	<b>Vulnerability of Beef Cattle Production to Ecological and Socio-Economic Challenges of Future Climates (Symposium)</b>
Session 27	Plaza F	<b>Researchers and Practitioners Integrating Knowledge to Restore and Reclaim Rangelands and Riparian Areas (Symposium)</b>
Session 28	Silver	<b>Stakeholder Engagement: Who, When, Why, and How (Workshop)</b>
Session 29	Governors 14	<b>Shared Monitoring, Shared Stewardship (Ignite)</b>
Session 30	Governors 15	<b>Targeted Livestock Grazing to Reduce Fine Fuels in the Great Basin (Symposium)</b>

“Not everything that counts can be counted, and not everything that can be counted, counts”

-Albert Einstein

When does science become art? We often refer to the “Art and Science of Range Management’ but how often do we acknowledge the “art” or the “artist?” In today’s world of ever-expanding technology and engineering, many aspects of the “art” of natural resource and land management are being overshadowed by a desire for predictability driven decision processes. The desire to be “right,” or better yet, to not be “wrong,” weighs heavily on the decision-maker and ultimately can lead to inaction for fear of getting the science wrong. Science and management theory have become a driver for many decision-makers in their efforts to minimize potential negative impacts of decisions made, and in the realm of natural resources, command and control are sought over managed ecosystems. Management decisions must be made every day in the world of land management and are nearly always made with less than perfect and far less than complete knowledge. Those tasked with the responsibility of stewarding the lands they manage are confronted with challenges that require a decision in the present that may have long-term implications, both to the operation as well as across a broad array of society. Added to the basic operational challenges of land management, the impacts of social, political, ecological and economic drivers confront the land manager with a complexity of scenarios that cannot be addressed through traditional scientific methodologies. In addressing these facts, the Society for Range Management recognized that rangeland management is the “art and science” of deploying management decisions on the landscapes. Whereas, academic endeavors rightfully focus on the “science,” the practitioner remains the ultimate decision-maker in the rangeland management system, the “artist” if you will, integrating both “art” and “science” into the decision-making process. In many ways, land management is truly a creative endeavor with the managers creativity producing the art of the management process. Science favors one “right” answer, while the artist may create many scenarios on the landscape, utilizing the science but considering all the other drivers mentioned above. The Sub-Plenary and accompanying Symposium will focus on inputs from the ranching community as to needs for communicating science to action and will address/challenge the need for new means of communication that brings the science closer to action. To paraphrase a belief of Dr. John “Chip” Merrill “...as land managers, if the focus is on dealing with problems then we will continue dealing with problems. If the focus is on our desired objectives and we visualize what it takes to achieve that objective, then we can get it done.” “Communicating” science into action in the 21st century is a challenge that will require changes in “WHY” we communicate.

Jenny Pluhar and Frank Price, involving a “Conversation with H.L. Bentley, Special Agent in Charge of Grass, Abilene, Texas Field Station, 1898.” This session will be "Facebook Live" and interactive.

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Cattle producers have historically had to contend with climate variability, but an increase in the variability of future climates may exceed the existing adaptive capacity. Drought reduces forage availability, increases operating costs, and reduces profits as a result of supplemental feeding, loss of animal condition, and destocking-restocking cycles. Wet years challenge the ability of beef producers to convert high forage production into profits without the purchase of additional livestock. Consequently, increasing climate variability presents a serious challenge to the economic viability of beef cattle production and it defines a major knowledge gap for the region.

This symposium will explore the vulnerability of beef cattle production to future climates in the Northern, Central and Southern Great Plains. We will emphasize (1) the response of beef cattle production to recent droughts (1980s and 2010s), (2) trends in forage production throughout the 21<sup>st</sup> century, (3) the impact of future climate variability and change on economic viability of beef cattle production, and (4) the ability of beef producers to adapt to future climates to maintain economically viable operations.

The maintenance of economically sustainable beef cattle production may require the collaboration of agricultural research institutions, the beef cattle industry, and local, state, and national governments. Effective contingency planning to sustain beef cattle production has major implications beyond the nation's beef supply by maintaining intact grazing lands and the diverse ecosystem services that are derived from them.

**Speakers:**

- (1) David Briske, Texas A&M University – Retrospective Assessment of Beef Cattle Dynamics to Climate Variability the Past 40 Years
- (2) Toni Klemm, Texas A&M University – Future Climate and Forage Projections: Implications for Beef Cattle Numbers and Distribution
- (3) John Ritten, University of Wyoming – An Economics Assessment of Beef Cattle Vulnerability to Future Climates
- (4) Amber Campbell, Kansas State University – Assessment of the Adaptive Capacity of Beef Cattle Producers to Future Climates

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Reclamation and restoration efforts on rangelands are often fueled by collaborations between researchers and practitioners, but the integrated knowledge created by these interdisciplinary teams is poorly represented in the scientific literature and in the SRM community. The SRM Reclamation and Restoration (R&R) Committee proposes to build on SRM's capacity by exploring partnerships between science and management in reclamation and restoration on rangelands, including riparian areas.

We propose to continue the stimulating discussion begun at the 2019 Annual Meeting, at the symposium "The Proof is in the Pudding: Showcasing Diverse Perspectives on Success and Failure in Rangeland Reclamation and Restoration." R&R Committee members in attendance in 2019 expressed the need to continue the discussion and learn more about best practices in science-management partnerships in reclamation and restoration. Accordingly, we have secured three pairs of speakers to present on such partnerships, with each pair containing a researcher and a "practitioner" -- with the latter being widely defined. Each pair of speakers will have 25 minutes to illuminate what has worked and what has not in their collaborative project, similarities and differences between research and management perspectives, and the opportunities and challenges experienced in two-way transfers of knowledge between researchers and practitioners. Remaining time will be dedicated to group discussion among speakers and audience participants, including members of the R&R and Watershed/Riparian committees.

Nancy Shackelford, University of Victoria, British Columbia; \*Dr. Katharine Suding, University of Colorado Boulder; Dr. Rebecca Hufft, Denver Botanic Gardens; \*Larry Vickerman, Denver Botanic Gardens Chatfield Farms. *Rangeland restoration for multiple audiences, from local results to global implications.*

Justin Hossfeld, Sunlight Ranch Company; Shannon Clark, Colorado State University. *Lessons from research and application in restoring native rangelands from annual grass invasion using Indaziflam herbicide.*

Sam Lossing, Smith Creek Ranch; Tamzen K. Stringham, Ph.D., University of Nevada. *Dalton Meadow Restoration: Intersection of Science, Management and Education.*

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This two-hour workshop will introduce SRM 2020 attendees to purposes and processes of stakeholder engagement *outside the NEPA process*. Engagement with stakeholders can be useful for rangeland managers in a number of contexts, e.g.,

- identifying opportunities for collaboration,
- prioritizing efforts to address management challenges,
- understanding citizen perceptions of those challenges,
- gauging public perspectives on alternative management strategies that will be the subject of subsequent NEPA efforts.

Likewise, for range researchers, stakeholder engagement is a cornerstone of translational science, useful for identification of researchable problems or soliciting assistance with study design, implementation (i.e., citizen science), interpretation of results, and dissemination of findings. Yet principles of stakeholder engagement are not typically taught in university courses. This workshop will help attendees identify when stakeholder engagement can be useful, gain practice at stakeholder identification, and collaboratively identify best practices for effective engagement.

The workshop will combine presentations with hands-on activities and discussion. After an introductory presentation on the potential purposes of stakeholder engagement in rangeland management and situations where it must be most effective (“when” and “why”), attendees will work in small groups to identify which stakeholders and subject matter experts could best inform a real-world situation (“who”). Following report-out from that exercise, the second half of the workshop will focus on the “how,” combining discussion with a real-time quiz game to identify effective stakeholder engagement practices that foster efficient use of time as well as beneficial social learning processes and outcomes.

Organizers/Presenters: Amanda Bentley Brymer and Mark Brunson

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Standardized monitoring information is transforming land stewardship by creating a common language for translating diverse ideas about land conditions and changes. Core monitoring indicators and methodologies adopted by BLM, NRCS, and other groups provide comparable information that can be readily understood by stakeholders. When collection and analysis of this information occurs in partnership, outcomes are often improved for both the lands and communities involved. This session will showcase partnerships that are using core indicator information to achieve shared land management goals. Examples will span the variety of land uses in the Western US, including livestock grazing, land treatment effectiveness, wildlife habitat management, and energy development and reclamation. Together, these examples will demonstrate the hallmarks of successful monitoring partnerships which can be extended into new communities and resource management applications.

<b>Brandon Bestelmeyer</b> (ARS), Leticia Lister (BLM), Zoe Davidson (BLM)	Big Data, Local Science: Not an Oxymoron
<b>Tom Grant</b> (Gunnison Conservation District), Renee Rondeau (Colorado Natural Heritage Program)	Working Together to Get Work Done: Meadow and Riparian Restoration in the Gunnison Basin and Beyond
<b>Andrew Johnson</b> (BLM)	AIM after Fire: Long-Term Monitoring of Vegetation Treatments within the 2012 Rush Fire
<b>Steven Hale</b> (Utah Gas Corps), Sean diStefano (ARS)	Bridging the Gaps: Optimizing Monitoring Data from Oil and Gas Reclamation Reporting
<b>Jeff Wahlert</b> (Rancher), David Augustine (ARS)	Collaborative Adaptive Rangeland Management (CARM) in Northeast Colorado
<b>Kathryn Dyer</b> (BLM)	Addressing Flexibility through Outcome Based Grazing Authorizations
<b>Mike Pellant</b> (ret. BLM), Pat Clark (ARS)	The Use of Targeted Livestock Grazing to Reduce Fine Fuels: Monitoring a Multi-State Demonstration Program
<b>Terri Schulz</b> (TNC)	Landowner monitoring and adaptive management using the phone app, LandPKS
<b>Casey Addy</b> (BLM), Daniel Olsen (Utah DWR)	Mule Deer Migration and Habitat Selection in Utah using GPS Collar Data and Terrestrial AIM Monitoring Data
<b>Travis Nauman</b> (USGS), Mike Duniway (USGS)	Development of Ecological Site Group Descriptions and Maps for Adaptive Land Management

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Wildfires continue to increase in the Great Basin threatening flora, fauna, ecological integrity, economic well-being, and rural heritage. Fuels management projects are an important proactive approach to reduce wildfire threats that impact federal, state, tribal and private lands. There is a renewed interest in using livestock to reduce fine fuels as another tool in the fuels management toolbox. Several approaches are being implemented and evaluated by collaborative partnerships using livestock to reduce fine fuels—composed of cheatgrass, medusahead, and ventenata. The Bureau of Land Management is supporting three demonstration projects in Nevada, Idaho, and Oregon to strategically reduce fine fuels at a landscape scale using targeted grazing. Livestock permittees are using water and nutrient supplements, herding, and in some cases fencing to meeting fuels reduction objectives (generally two-inch stubble heights) by the beginning of the fire season). An intensive research project has been implemented by the Agricultural Research Service's Northwest Watershed Research Center to evaluate the effects of the grazing on fuel loads, vegetation and soils. Results have been variable in terms of meeting objectives to date given the variability of the spring growth of cheatgrass for the past two years. However, a 2018 wildfire started by lightning burned into an approximately one-mile segment of the T Lazy S targeted grazing fuel break in the Elko District and stopped along the water haul road. The other approach being investigated is using livestock to remove the invasive annual grasses thatch layer and emerging fall growth when desirable perennial plants are dormant (e.g., dormant season grazing) and less susceptible to disturbance. The goal of this livestock management strategy is to increase residual desirable plants, reduce annual grass germination and carryover fine fuel residue. Dormant season grazing studies are being conducted by the University of Nevada Reno, Oregon State University and the Agricultural Research Services Eastern Oregon Agricultural Research Center in Burns, Oregon. Initial results are promising in terms of reducing residual fine fuels and promoting recovery of desirable perennial vegetation. Both strategies will be addressed in this symposium with an emphasis on collaboration, results, lessons learned, challenges and future directions.

Sergio Arispe, Kirk Davies, Karen Launchbaugh, Pat Clark, Kathryn Dyer, Barry Perryman (tentative), April Hulet, and Mike Pellant