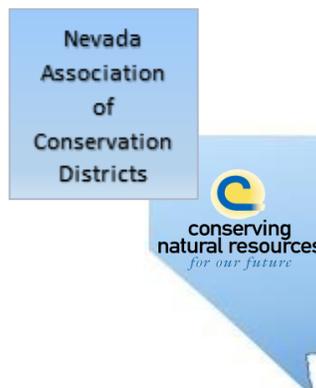


Grazing Management for Fine Fuels and Annual Grass Ranges

Exploring the Science and Strategic Plan Development

POST CONFERENCE REPORT

Presented by the Society for Range Management, Nevada Section



January 13-14th, 2015

Carson City, Nevada

Earn 7 CEUs



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The **Nevada Association of Conservation Districts (NvACD)** is a non-profit, nongovernmental organization of the 28 Conservation Districts in Nevada. NvACD's mission is to promote the conservation and management of the renewable natural resources of Nevada through Nevada Conservation Districts. The objectives of NvACD are:



1. To encourage and secure the active participation and cooperation of the cities, counties, state and federal agencies and other organizations in promoting soil and water conservation within the state.
2. To exchange information relating to the administration and operation of Conservation Districts and to effect cooperation between such districts.
3. To promote the welfare of all existing Conservation Districts and lend encouragement and assistance in the formation of additional Conservation Districts as a means of effectively advancing the program of soil and water conservation in the State.
4. To facilitate mutual loan of tools and equipment between Districts and making joint investigations and studies of value to such Districts.
5. Carrying out of such projects as may be of joint interest and mutual welfare to the Districts participating therein.
6. To provide information to member Districts on legislation needed to facilitate and support the work of Conservation Districts.
7. To participate with National Association of Conservation Districts.
8. To educate the Nevada Legislature of the benefit of Nevada Conservation Districts and their aims and programs.

<http://www.nacdnet.org/nevada/>

Mission

The mission of the Nevada Section is to foster the advancement of the science and art of managing Rangelands. Our emphasis is within the State of Nevada, but our concerns transcend state and national boundaries. The Nevada Section promotes enhancing the conservation and sustained use of natural resources and ecological services present on Rangelands, that are required to support the high standard of living expected by our Society. The Nevada Section attempts to do this by stimulating discussion and understanding of scientific and management problems and issues on public and private rangelands. The Nevada Section serves as a medium for the exchange of facts, knowledge, concepts, and ideas among Section members, and between rangeland professionals and the broader public. Our ultimate goal is to improve management on rangelands in our Section, so that natural resources desired or required throughout Society are available to all, in perpetuity.

Vision

A well-trained and highly motivated group of professionals and rangeland users working with productive, sustainable rangeland ecosystems.

<http://www.rangelands.org/nevada/>



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Grazing Management for Fine Fuels and Annual Grass Ranges

Exploring the Science and Strategic Plan Development

Presented by the Society for Range Management, Nevada Section

Perennial grasses are more resilient and resistant to permanent ecological change, especially wildfire. Grazing management for perennials has long been an important focus for Great Basin rangeland management. However, rangelands dominated by annual grasses in the Great Basin are the result of ecological thresholds being crossed. These annual grass-dominated rangelands have become prevalent in some areas of Nevada and the western US, and now are important forage resources for livestock and wildlife using those areas. These areas now burn more frequently and add to the risk of mega-fires. Grazing management designed for resource objective attainment on perennial sites continues to be applied in areas where vegetation has transitioned to annual grasses, even though no transition back to perennial vegetation is anticipated. The annual-dominated sites also contain fuels, hydrologic, and soil stability, as well as biologic reactions to climate variability that are drastically different than native or even introduced perennial grass-shrub rangelands. The Society for Range Management (SRM) – Nevada Section is attempting to provide an educational and operational forum on how grazing management can be applied to annual and perennial fine fuels while reaching a goal of sustainable desired conditions on these rangelands.

There are three basic scenarios that will be addressed by the conference speakers and management recommendations will be provided. These include:

1. Rangelands that are purely annual grasses and have clearly crossed a threshold – *How do we manage forage and fuel loads for site stability and appropriate resource objectives? How can we be more responsive with management to react to wet climatic cycles (≥ 2 years), resulting fuel loading, and subsequent fire risk/occurrence?*
2. Rangelands co-dominated by annual and perennial grasses – *How do we manage cheatgrass without increasing cheatgrass or having a negative impact on perennials on these sites? Is there a period of time to avoid grazing or to intensify management?*
3. Rangelands with minor or no amounts of annual grasses amongst a largely perennial community – *How do we manage for reduced fine fuels loads while retaining healthy perennial grass-shrub communities?*

Additional answers will be sought for general questions, such as:

- *How do we manage for drought cycles (≥ 2 years) so that growth can be harvested while recovery is protected for plant health?*
- *What are the economic realities of focused management for fuels and/or rangeland health objectives?*
- *Can these objectives be met simply with strategic grazing (unpaid) or does there need to be prescriptive or targeted (paid) grazing employed to help agencies attain resource management objectives for the range?*
- *What commitments are required by producers and agencies for prescriptive grazing planning, fulfillment, contracting, implementation monitoring and adaptive management?*
- *What are the existing barriers, challenges, and limitations to achieving success for fine fuels management with livestock?*

Grazing policies and management may need to be tailored to help managers meet locally optimized resource objectives. There may be a need to use existing tools, such as AUM preferences, temporary nonrenewable (TNR) use, targeted grazing contracts, as well as newly designed strategies to manage for desirable conditions. Pre-treatment and post-treatment monitoring needs to be designed and implemented to document successes and failures so future management can be adapted and leveraged toward successful ventures. Cooperative monitoring programs are a valuable means that range managers, producers, and landowners can assist each other in collecting data used to adapt and optimize management scenarios.

SRM is sponsoring and coordinating a cooperative learning technical session and strategic development round table to help answer the questions above and to help improve range conditions through supportive policy changes and strategic management applications. We hope you will join us and participate in this event.

Grazing Management for Fine Fuels and Annual Grass Ranges

Exploring the Science and Strategic Plan Development

Presented by the Society for Range Management Nevada Section

Schedule of Events - Day 1

Time: January 13-14th, 2015
Location: Carson City, NV
Hotel: Gold Dust West Casino, Hotel and RV Park 775-885-9000 (gov't rate available)

Tuesday 1/13/15 Technical Session Schedule (Gold Dust West - Pinion Room) (5 CEUs)

- 0700: Registration (open all day)
0800: Welcome and Introduction Speaker - Sherm Swanson (University of Nevada Reno)
0830: Great basin thresholds and states, the latest ecological lessons related to annual grass invasion – Tamzen Stringam (University of Nevada Reno)
0900: General wildlife population trends in response to altered vegetation states – Mike Scott (Nevada Department of Wildlife)
0930: Contrasting livestock production systems: perennial vs annual forage bases and utilizing annual ranges in your annual forage calendar – Barry Perryman (University of Nevada Reno)
1000: Break
1015: Post-Fire Grazing Management in the Presence of Cheatgrass: Rest, Season and Intensity Affects Post-Fire Plant Community Response. – Devon Snyder (University of Nevada Reno)
1045: Range management contrasts: annual grass, perennial native, and annual/perennial co-dominated rangelands; what works and why – Dan Harmon (USDA Agricultural Research Service)
1115: Interaction of grazing and fuel loads in grass-shrub and annual grass dominated rangelands – Kirk Davies (USDA – Agriculture Research Service)
1145: Lunch on your own
1315: Climate variation, trends, and predictions for the Great Basin - Douglas Boyle (Nevada State Climatologist)
1400: Response of annual and perennial grass growth, reserves and fuels accumulation to climatic variation – Brad Schultz (University of Nevada-Cooperative Extension)
1430: Climate variation, range management mechanisms, limitations and opportunities on public lands: a land Management agency's perspective – Kathryn Dyer (Bureau of Land Management)
1500: Break
1515: Feasibility of fine fuels reduction projects by livestock operators – Stacy Davies (Country Natural Beef)
1545: Aligning fuels management and post-fire rehabilitation with pre and post-fire monitoring - Chad Boyd (USDA Agricultural Research Service)
1615: Panel Discussion: Cooperating and finding the nexus of annual grass, fine fuels, and grazing management to decrease wildfire Frequency, annual grass invasions, and maintain rangeland health - Kathryn Dyer (BLM), John McLain (NCA Member), Susan Abele (USFWS), Tina Mudd (NDOA), Lee Turner (NDOW), Kirk Davies (USDA-ARS), Jim Reinhardt (Fire/Fuels-Retired)
1645: Closing remarks – Sherm Swanson (University of Nevada Reno)

Tuesday 1/13/15 Section and Attendees Evening Social Schedule (Gold Dust West - Juniper Room)

- 1730-1830: Social hour, Plant Identification contest
1830-1930: Dinner and 50-year member awards
1930-2000: Auction Fundraiser

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Technical Session - Moderator Biography

Sherman Swanson, PhD – As a rangeland and riparian scientist, Dr. Swanson works with graduate students and colleagues in the University, State and federal agencies and others to study the interrelationships among streams, riparian vegetation, watershed hydrology, land forms, land uses, fire, water quality, and fish and wildlife habitat. As an extension educator, Riparian Specialist for Nevada Cooperative Extension, Dr. Swanson teaches riparian ecology and management, emphasizing the structure needed for dissipating energy, storing water, ameliorating floods and droughts, forming habitats and enhancing water quality. He also coordinates the interagency Nevada Creeks and Communities Team that teaches Riparian Proper Functioning Condition Assessment. Dr. Swanson teaches classes in the UNR Rangeland Ecology and Management interdepartmental major. He holds a bachelors degree in Wildlife Resources, from the University of Idaho, masters degree in Resource Geography from Oregon State University, and PhD in Rangeland Resources from Oregon State University.

Technical Session - Presenter and Panel Member Biographies

Tamzen Stringam, PhD – Ms. Stringham earned a B.S. in Economics from CSU Chico, M.S. in Agriculture and Resource Economics and PhD in Rangeland Science both from Oregon State University. She was raised in Grass Valley, CA on a small livestock and farming operation. She has been married for 35 years and has three grown children and two grandchildren. Ms. Stringham holds the Donna Anderson Endowed Professorship in Rangeland Management at UNR (2008 to-date) and was formerly a professor at Oregon State University. Her research career has focused on quantifying ecological thresholds in both riparian and upland ecosystems and the development of state-and-transition models for use in the management of our nation's rangelands. In 2010, she received the Outstanding Achievement Award for Research from the Society for Range Management and in 2013 she was humbled to win the USDA Secretary of Agriculture Honor Award given for significant contributions to the Agriculture Industry of the United States. She enjoys research that has a direct application to the management of rangelands and the current issues facing land managers today.

Mike Scott – Mr. Scott was raised in Winnemucca, Nevada and graduated from Lowry High School. He attended University of Nevada Reno and graduated in 1988 with a degree in Wildlife Management. Mr. Scott began working for the Nevada Department of Wildlife in 1989 on the water development (guzzler) project. He became the project biologist in 1991 and worked in Battle Mountain and Winnemucca. Then he became an area biologist stationed in Pioche in 1999 and was in that position until December, 2014. He has recently accepted the supervising game biologist position for the Western Region stationed in Reno.

Dr. Barry L. Perryman – Dr. Perryman is a Professor of Rangeland Ecology and Management in the Department of Agriculture, Nutrition, and Veterinary Sciences at the University of Nevada, Reno. He is a frequently sought after keynote speaker who has appeared on the front page of the San Francisco Chronicle, FOX NEWS, and National Television of Turkmenistan. Dr. Perryman is also a regular humor/philosophy columnist for RANGE MAGAZINE. His teaching and research represents a broad spectrum of interest including sage grouse, cheatgrass, sagebrush demography, wildfire rehabilitation, and plant community dynamics. Dr. Perryman has organized several international meetings and continues to work on research projects in Central Asia and Western China. He is frequently asked to serve as master of ceremony and a facilitator for broad constituency meetings such as the 2009 Wild Horse & Burro Symposia held in Reno. He is the lead author of A Field Guide to Nevada Grasses and A Field Guide to Nevada Shrubs, the first taxonomic books to use micro-photography as a plant identification resource. Having mixed-blood Cherokee ancestry, Dr. Perryman brings a unique and interesting perspective to natural resource management issues of the West.

Devon Snyder - Devon Snyder has a B.S. in Environmental Science and has worked exclusively in Nevada for the past four years conducting monitoring and research in vegetation types dominated by sagebrush. Though her career began with the Great Basin Institute, she has been working for over a year as a rangeland ecologist for Dr. Tamzen Stringham at the University of Nevada Reno. Devon will be starting her Natural Resources and Environmental Science Master's project this year in Porter Canyon in the Desatoya Mountains.

Dan Harmon – Mr. Harmon is a lifelong resident of northern Nevada. He has worked for the Agricultural Research Service since 1998 as a rangeland science technician emphasizing in seedling ecology and germination research as it relates to applied management techniques. He attended the University of Nevada at Reno and was mentored by Dr. James A Young. He currently manages the ARS Wild Land Seed Laboratory, greenhouse facilities and numerous research field locations.

Dr. Kirk Davies - Dr. Kirk Davies is a Rangeland Scientist with the USDA-Agricultural Research Service at the Eastern Oregon Agricultural Research Center in Burns, OR and an adjunct professor with Oregon State University. His areas of study include fire ecology, effects of climate and site characteristics on plant community dynamics, invasive species

ecology and management, restoration, and grazing-fire interactions. Dr. Davies has published over sixty peer-reviewed scientific journal articles and over seventy proceedings, management guides, and book chapters on these topics.

Douglas P. Boyle – Mr. Boyle is an Associate Professor in the Department of Geography at the University of Nevada, Reno. He has over twenty years of experience in the field of hydrology and water resources with extensive experience in the development, implementation, and evaluation of complex computer-based hydrologic models to simulate watershed response to precipitation (rainfall and snowmelt). He has served as the Director of the Nevada Water Resources Research Institute and is currently the Nevada State Climatologist. He earned a B.S. in Aerospace Engineering from the University of Southern California in 1989, a M.S. in Hydrology and Hydrogeology from the University of Nevada, Reno in 1996, and a Ph.D. in Hydrology and Systems Engineering from the University of Arizona in 2001.

Brad Schultz - Brad Schultz received his B.S in 1983 in Range and Wildlands Science from the University of California at Davis, and a M.S degree in 1987 in Renewable Natural Resources from UNR in 1987. He holds certification from the Ecological Society of America as an Ecologist, and from the Society for Range Management as a Certified Range Management Consultant and a Certified Professional in Range Management. He has worked on Nevada's rangelands since 1981 including positions with the USFWS on the Sheldon Antelope Range, the BLM in Cedarville, CA and Ely, NV, contract work with the Department of Energy on the Nevada Test Site and Yucca Mountain Projects, the Desert Research Institute, and the University of Nevada Cooperative Extension. In the latter position, his work involves teaching grazing management, managing sagebrush rangelands to improve ecological resilience to catastrophic disturbance, reducing the risk of catastrophic fire, addressing sage-grouse management issues, improving the understanding of plant succession and site capability, and the control of noxious and invasive weeds. In recent years he has been invited by the USFS International Program staff to teach grazing management concepts in Morocco and the Republic of Georgia, and at their first International Rangeland Seminar, which hosted grazing management staff from 12 countries.

Kathryn Dyer, M.S. – Ms. Dyer is the Nevada State Range Program Lead for the Bureau of Land Management. She has held Rangeland Management positions in California and Nevada through her career with BLM. Ms. Dyer is a UNR alumni, holding a Bachelors of Science, majoring in both Animal Science and Pre-Veterinary Studies, as well as a Masters of Science in Animal Science. Her master's project focused on comparing site and age variations in sage-grouse hematologic values to ascertain health of sage-grouse populations in two PMUs in Northern Nevada. She is also the Director for SRM Nevada Section Nevada Youth Range Camp.

Stacy L. Davies - Stacy Davies is the General Manager of the Roaring Springs Ranch in Frenchglen, Oregon. Stacy managed Hatfield's High Desert Ranch from 1988 to 1994. Doc and Connie Hatfield were pioneers in modern range management techniques and provided Stacy with an education no amount of money could buy. Three years in Florida working for Deseret Cattle and Citrus provided an opportunity to learn how to manage livestock in large numbers. Stacy has been Manager of Roaring Springs Ranch since 1997 and has steadily grown the operation to be one of the largest range operations in the US. Finding unique solutions to complex natural resource issues is Stacy's passion. We must recognize there are social and economic components to successful range management, and it is Stacy's belief that healthy environments and economies are not in conflict, rather they are co-dependent.

Chad Boyd, PhD – Mr. Boyd is currently employed as a rangeland ecologist with the Agricultural Research Service in Burns, Oregon. He received a BS in Wildlife Management from Texas Tech University and an MS and Ph.D. in Rangeland Ecology from Utah State and Oklahoma State Universities, respectively. He is currently pursuing research aimed at shedding light on topical management challenges bridging agricultural production and management of natural resources. Much of his current work focuses on restoration of exotic annual grass-dominated rangeland and the relationship between fuel load attributes and fire-caused mortality of perennial bunchgrasses. In the past he has worked in avian habitat conservation as Coordinator for the Oaks and Prairies Joint Venture and recently he has become increasingly involved in planning for sage-grouse habitat management activities at local, regional, and range-wide scales.

John McLain - John McLain is a founding Principal of Resource Concepts Inc (RCI), a multidisciplinary consulting firm located in Carson City, Nevada. He recently became semi-retired although still active in resource consulting work. Previous to his 35 years with RCI, he spent 10 years with USDA Soil Conservation Service both in Montana and Nevada. John is a graduate of Montana State University, was past President of SRM, serves on the Citizens Advisory Committee for both UNR Cooperative Extension Service and College of Agriculture, Biotechnology, and Natural Resources (CABNR). John has served as a Nevada delegate to the Council for Agriculture, Research, Extension, and Teaching (CARET) for a number of years. He is a Certified Range Management Consultant (CRMC) and Certified Professional in Soil Erosion and Sediment Control (CPESC).

Susan Abele – Ms. Abele works for the U.S. Fish and Wildlife Service's Partners for Fish and Wildlife Program in Reno where she is implementing a variety of habitat restoration projects with private landowners and tribes. Previously, she was with The Nature Conservancy in Nevada as a Conservation Planner. During this time, she primarily worked with the

U.S. Forest Service and Bureau of Land Management on restoration planning across large landscapes as well as other state-wide conservation planning efforts. Susan received her undergraduate degree in Biology from the University of Oregon and a Master's of Science in Wildlife Biology at the University of Idaho. She and her husband have been living in Reno since 2004 and keep busy with their two young children, dog, cat, two fish, and four chickens.

Tina K. Mudd, PMP – Ms. Mudd is the Rangeland Health Program Manager for the Nevada Department of Agriculture. She earned her Bachelor's of Science from the University of Nevada, Reno, where she also earned a Master's Degree in Environmental Policy. She holds a Project Management Professional Certification. Ms. Mudd has intermingled her career with public and private industry service, focusing on program and project development in the natural resources field. Ms. Mudd specializes in development and facilitation of local working groups focused on regional resource issues. Ms. Mudd has developed statewide and multi-state programs and cooperatives as well as applied her project knowledge to manage the construction of multi-million dollar mining and restoration projects.

Lee Turner -

Jim Reinhardt – Mr. Reinhardt holds a bachelor's degree in Agriculture from the University of Nevada Reno. Jim spent 20 years in State and County Fire and all-risk emergency services. He served as Fire Management Officer for Nevada Division of Forestry for 10 years, six years as fire chief for the East Fork Fire and Paramedic District, and four years as a National Incident Management Team consultant. His roles within NIMS teams included Structure Protection Specialist, Type 1 Operations Section Chief, Type 1 Planning Section Chief, and Type 1 Incident Commander. He was also the Incident Commander for the Sierra Front Type 3 Team. He has been involved with many committee, councils, and associations throughout his career, not limited to the Nevada Fireman's Association, Nevada Fire Chief's Association, and Sierra Front Fuels Committee. Mr. Reinhardt also consulted in Nevada as a fire specialist to evaluate wildfire risk for hundreds of communities. In addition to the above-stated experience, he was a ranch foreman for the List Land and Cattle Company for six years.

Technical Session - Key Points *(all powerpoint presentations can be found on the NV SRM website at <http://www.rangelands.org/nevada/index.html>)*

0800: Welcome and Introduction Speaker - Sherm Swanson (University of Nevada Reno)

Cheatgrass causes us to recognize fire and fuels management are a high-stakes endeavor for the future resistance and resilience of sagebrush rangelands. The focus has recently been elevated by the Interior Secretary Order 3335. The misperception that cheatgrass is only desired forage while it is green may stem from Aldo Leopold's discussion of the problem in A Sand County Almanac more than half a century ago. Some literature linking grazing to increased cheatgrass and some solutions to the fire problem suffer from the same missed keystone -- management of the timing, duration, rotation, and intensity of grazing are all critical determinants of vegetation responses. With strong management, grazing can become a tool for good rather than simply a land use to be restricted for less bad. A prime example comes from the recognition that since the 1980's at least, big fire years come the year after one or more very wet years. This lag time provides a long window of opportunity to use fall grazing to consume residual fuels. Grazing during summer-fall dormancy greatly risks to essential perennial plants needed for rangeland resistance and resilience. Dependence on cheatgrass noted for variable forage production is not economically easy for ranchers. Management to concentrate grazing into linear fuel breaks in years of overabundant cheatgrass requires management that costs money. The challenge for agencies and all of us working together is to find solutions to the problem of mega-fires after very wet years. Triple bottom line sustainable ways to use our most extensively available tool, livestock grazing, require open communication that embraces the whole problem set. Recent drought environmental assessments have missed this larger problem. It is time to empower tools with NEPA documented planning that embraces climate variability and the bigger fire problem, along with the economic stability necessary to implement the tools. Finding durable solutions will require cooperation among diverse stakeholders and produce better decisions, improved relationships, and sustainable communities and landscapes. Providing the foundation of understanding for this and beginning the conversation is the focus of our program today and tomorrow.

0830: Great basin thresholds and states, the latest ecological lessons related to annual grass invasion – Tamzen Stringam (University of Nevada Reno)

Tamzen shared lessons she and her team have learned working for four years in Nevada to develop state and transition models. They have found the data base to be much bigger than they thought it would be so today will be a summary of what they have to flesh out. The team is close to completion of MLRAs 24, 25, 28A and 28B and has started MLRA 23 and 26; already they have 577 field notes written. An MLRA, Major Land Resource Area, is a classification scheme NRCS uses to break up lands into geographically associated land resource units that share a common land use, elevation and topography, climate, water, soils, and vegetation. Field notes will include a soil site correlation to ensure the ecological site mapped for that location is correct, species composition by weight, production, rangeland health, soil description, photos, GPS location and extensive notes including such information as climate that year, any grazing impacts observed, wild horse use, or Sage-grouse present. Previous fire history is included from GIS.

State and Transition Models are written from all this information to describe the dynamics on the site. Very important to note: when you try to figure thresholds or what will be the response to disturbance, what MLRA you are in matters; there is a reason an area has been defined in a certain MLRA – it is not random but can be seen in the data. The BLM Fire and Invasives Action Team (FIAT) doesn't recognize MLRA differences or soil chemistry. Yes, there is utility in FIAT, but it is too broad and too simple; we know that when we try to simplify ecology we shoot ourselves in the foot.

Tamzen stated “Nevada is not Nevada is not Nevada; the Great Basin is not the Great Basin is not the Great Basin.” She displayed significant differences recorded in amount of cheatgrass present, sites that had potential for an annual state, elevation, width of valleys and parent material, precipitation, soil types, soil temperatures and soil moisture in the different MLRAs and sites and then asked, “Why would we expect sites to have the same response to disturbance when they are so different?”

In general, MLRA 24 has a lot of cheatgrass and a lot of lightning, MLRA 25 is cooler and wetter, there is not a lot of fire in MLRA 28 but it is a mixed bag, between 24 and 25, with a different chemical makeup derived from limestone and the team found 28's soil moisture to be a mix of both 24 and 25. The team is tracking limestone-influenced soils; when the calcium carbonate response reaches 30-40% the cheatgrass drops out; they don't know why, is it the calcium carbonate or something it is binding?

Tamzen noted that when they looked at burned sites, both wildfire and prescribed burns in MLRA 28:

- Mesic sites (N=8) were all over the board in their response so you can't say they will go to cheatgrass
- Frigid sites (N=12) mostly stayed at their current potential
- For both 28 A&B sites, encroachment of trees with an annual understory is a big problem; she suggests any treatment other than burning in 28
- None of the mesic sites went to annuals; two of the frigid sites went to the annual state. If you apply the FIAT score sheet, the mesic should have gone to annuals and the frigid should not. This means problems with the FIAT methodology.
- 28 A&B receive summer moisture; the mesic sites are not following what would be expected

Tamzen suggests in MLRA 24 sites, with a Wyoming Big sage overstory and Sandberg bluegrass underneath, 90% of the time Sandberg will hold the site and it won't convert to cheatgrass. Therefore, do not seed it as that will just damage the Sandberg and open the site to annuals.

In MLRA 25, seeding success is good; sagebrush will reestablish but not always. The difference comes from what the pre-fire plant community was; disturbance history matters. One fire on a site will do one thing, if there are two fires another will occur, and three fires may well tip the site over the edge. This is particularly true in the less than 10 inch precipitation zone.

Tamzen has been developing Disturbance Response Groups: areas within a MLRA that respond similarly. She feels these are a better way to look at response and they allow management planning at the landscape scale. The models work.

0900: General wildlife population trends in response to altered vegetation states – Mike Scott (Nevada Department of Wildlife)

Mike Scott, recently of Lincoln County NDOW, now of the NDOW game division at the state office, stated there are two dynamics at work in Nevada: too much and not enough fire. It creates two issues; northern Nevada, which used to have vast stands of sagebrush, has seen too much fire, and central and southeast Nevada has grown too much PJ due to not enough fire. This affects Mule deer, Sage-grouse, antelope and elk.

Mule deer rely on sagebrush for their winter range and a lot of winter range in northern Nevada has been converted to annual grasslands by fire in recent years. In the 1940's and 1950's there was little fire in Nevada but since 1999 over 6 million acres have burned, 3 million in sagebrush, with 1.9 million acres most likely to convert to annual grasslands.

Many other species besides Mule deer are dependent on sagebrush as well; when snow is deep there is not much else accessible to eat. NDOW Area 6 has Nevada's biggest deer herds and phenomenal summer range, but the western part of Elko County, and northern Lander and Eureka Counties have burned 90% of the critical winter range and created essentially annual ranges. The long term trend of the deer harvest is down. In the winter of 2001-2002 there was a 60-70% fawn loss and 30-40% of deer were lost in the Area 6 herds; NDOW biologists saw many carcasses when they flew inventories in the spring.

Sage-grouse face the same issues due to fires across the northern part of the state and PJ expansion in central and southern Nevada. Valleys are still present but encroachment of PJ has narrowed them for Sage-grouse habitat. He has seen Sage-grouse using the higher elevation and burns. Recent monsoonal moisture in southeastern Nevada has given the native vegetation a shot in the arm to compete against cheatgrass. On Table Mountain, in Lincoln County, he has seen Sage-grouse use PJ but they don't prefer it. They are forced to use it because that is what is there but they are sensitive to vertical structure because it provides perches for raptors. Mike said BLM is starting to cut massive areas of PJ and it looks great but he worries all the litter on the ground is an impediment to Sage-grouse.

Antelope have historically been found in big herds in northwestern Nevada in northern Washoe County and western Humboldt County. They like a sagebrush mosaic so some fires like the Holloway Fire in the Montana Mountains has enhanced antelope habitat.

Elk are able to use burned habitats. For them, fires in dense PJ can be beneficial and you will find animals in burns. On White Rock, in Lincoln County, there is no understory beneath the PJ so it has little value for wildlife except thermal protection. Conversion of burned PJ to cheatgrass has forced BLM to chain. Mike believes this can be beneficial, but it is temporary; burning is better to create longer lasting habitat but fire has a down side as well. On West Table in Lincoln County Sage-grouse are starting to use the old burn areas which are starting to go back to sagebrush. Big herds of elk are moving across burned areas; Mike thinks elk can live anywhere.

Elk and antelope numbers are up, Sage-grouse and Mule deer numbers are static or down since the 1980's. The reason is diminished habitat; sagebrush areas have been lost. Mike has seen adult Sage-grouse in all sorts of crazy places but he is concerned the brood cannot get through cut juniper on the ground though that is better habitat than what it was when growing. However, he sees the best way to get PJ to grow is to chain mature PJ; it will come back to seedlings; chained areas must be maintained. Mike thinks forage kochia is fantastic stuff.

0930: Contrasting livestock production systems: perennial vs annual forage bases and utilizing annual ranges in your annual forage calendar – Barry Perryman (University of Nevada Reno)

Flexibility in planning systems is necessary. Pulses...our precipitation, growth and changes come in pulses. Manage for pulses = need for flexibility. Multiple use requires setting objectives past just grazing. We NEED Temporary non-renewable permits for prescribed grazing of cheatgrass as a tool for fire suppression/prevention. Interesting slide showed that we are getting fewer fires, but they are larger! From 1999-2009 7 million acres of Nevada burned. This is more of a reason to implement fall prescribed grazing.

An additional concern is, cheatgrass requires litter to get established, limit the litter through prescribed grazing.

1015: Post-Fire Grazing Management in the Presence of Cheatgrass: Rest, Season and Intensity Affects Post-Fire Plant Community Response. – Devon Snyder (University of Nevada Reno)

Post fire grazing, early season grazing can reduce cheatgrass and promote sandberg sp. In the study, sandberg/cheatgrass complexes benefitted from early season grazing.

1045: Range management contrasts: annual grass, perennial native, and annual/perennial co-dominated rangelands; what works and why – Dan Harmon (USDA Agricultural Research Service)

- Based on lessons learned from extensive field trials conducted over several decades in Nevada this presentation emphasized the need to select competitive seed species, placement of the seed for soil contact, and effective control of intraspecies competition from invasive annual species like cheatgrass to achieve a successful outcome post-disturbance seedings.
- Based on this extensive field experience the ARS Reno Field Unit recommended the following steps for achieving seeding success in Nevada and the Great Basin:
 1. Understand your site potential.
 2. Measure your cheatgrass threat potential by sampling the soil seed bank.
 3. Implement active weed control as needed during the seedling establishment period to reduce competition from cheatgrass.
 4. Seed the most cost effective long-lived perennial grass species with the highest potential for plant establishment.
 5. Manage seeding to achieve the goal of perennial grass establishment, cheatgrass suppression, and functional plant succession.
 6. Actively manage established seedings to increase species diversity and maintain a healthy perennial grass component.

1115: Interaction of grazing and fuel loads in grass-shrub and annual grass dominated rangelands – Kirk Davies (USDA – Agriculture Research Service)

- Fuels management is critical to limiting fire risk and severity. Livestock grazing represents the only fuels treatment that is feasible across large landscapes.
- Ongoing research occurring in the northern Great Basin compares livestock grazing effects from moderate growing season use, dormant season grazing, and long-term grazing exclusion, on shrub-grasslands and annual grasslands. Current results from this ongoing research:
 1. Livestock grazing can reduce wildfire risk.
 2. Livestock grazing also increases plant resilience to wildfire by lower fire temperatures and increasing unburned patches.
 3. Wildfire in grazed areas are more easily suppressed due to slower moving fire conditions and reduced flame lengths which facilitates direct attack.
 4. Dormant season grazing has a great potential in that cattle distribution is expanded, there is less potential to adversely affect desirable perennial vegetation, and fuel loads are known and site-specific grazing treatments can be developed.
 5. These initial research results were conditioned by the following cautions:
 - Actual effects will vary by plant community composition and fire weather.
 - Some wildlife species require residual vegetation and cover.
 - Livestock grazing to reduce fire fuel loads and reduce fire severity should be based on flexible and responsive grazing management plans that are adapted based on annual conditions.

1315: Climate variation, trends, and predictions for the Great Basin - Douglas Boyle (Nevada State Climatologist)

Post fire grazing, early season grazing can reduce cheatgrass and promote sandberg sp. In the study, sandberg/cheatgrass complexes benefitted from early season grazing.

1400: Response of annual and perennial grass growth, reserves and fuels accumulation to climatic variation – Brad Schultz (University of Nevada-Cooperative Extension)

Relative to drought, plants can recover and produce enough in drought years to reseed and recover. We need to ask, what is drought for a desert suited plant? Also, based on the data shown, plants can succeed and survive with 75% of the moisture available in drought years. If we manage the resource correctly, we can manage the cattle and plants for success.

1430: Climate variation, range management mechanisms, limitations and opportunities on public lands: a land Management agency's perspective – Kathryn Dyer (Bureau of Land Management)

Climate variation, range management mechanisms, limitations and opportunities on public lands, a land management agency perspective:

- Fundamentals of Rangelands Health and Standards: Watersheds, Ecological, Water quality, Habitats for T/E and other special status species.
- Standards and guidelines are based on these same fundamentals so all practices done on federal lands have to be done to address these fundamentals.
- Annual Rangelands - where livestock forage production is attributable to annual plants vs. Ephemeral rangelands.
 - Perennial system - CFR Definitions: More reliable, Potential to become an intact system, and Higher habitat quality values.
 - Annual System - Unreliable forage base, Requires different permitting, Lacks ecological functionality, Not a priority for restoration dollars
 - Activity Plan - a plan for managing resource use to achieve specific objectives. For example an allotment management plan to use grazing to improve range health fundamentals.
 - If lands get designated as "annual rangelands" through RMP's, then they would no longer be managed toward ecological status. If we do this designation, we can no longer try to re-establish perennial systems.
- TNR - Can be issued on an annual basis for annual or perennial forage if there is production greater than average.
- Permitting does allow use and placement of supplemental feed including salt and protein barrels for rangeland management on public lands outside of the permit terms and conditions.
- NEPA - There are 3 general ways to use NEPA in the range program to utilize annually available forage.
 - NEPA can be used for fuels reduction.
 - TNR EA - Rarely done (never). It takes longer to complete them than you have time to graze the forage.
 - Permit renewal EA - These EAs should and include identification of conditions warranting management changes, and analysis of these management changes. This approach requires monitoring and documentation. Sometimes fairly large yearly modifications to the operation could be found to be environmentally appropriate.
 - BLM now has a state term permit team lead and several members on the team for doing permit renewals state wide. She doesn't know if BLM will have the ability to have the man power to deal with adaptive management, nor the ability to collect all the permitting changing. Range staff has not been increasing in Nevada.
 - If/Then Statements for permits - She gives an example:
IF - monitoring shows that upland key species utilization is light (under 40%) and riparian

stubble height is 6 inches or greater. THEN - Following year of scheduled pasture use, increase cattle use by 100 AUMs (200 cattle for 2 weeks).

- IF monitoring shows utilization....40-60%....THEN maintain current use levels
- BLM currently has Drought EA's, it might work best to have weather variation EA's or a better than annual EA. It would be required to have pre and post monitoring.
- Prescribed/Targeted Grazing NEPA alternative - Can be expensive for producers
Like stewardship contracting
- The secretarial-order from January 5, could include livestock use for maintaining/managing vegetation.

1515: Feasibility of fine fuels reduction projects by livestock operators – Stacy Davies (Country Natural Beef)

- Oregon, Deseret Ranch, Roaring Springs Ranch since 2007. Stacy has helped with research projects, has 2 PhDs and several Master's degree students, and participated with USDA-ARS on their research as well.
- There is a full-time wildlife biologist on the ranch. They focus on economics, environment and the social aspect.
- The public land grazing industry has been smeared with "Sacred cows at the public trough", but he shows pictures of sacred sage hen at the private trough on the ranch. He isn't talking about sage grouse today, but he has some great info. They have been trapping and radio collaring birds and some spend 7 months in the alfalfa fields. He is just above the Sheldon antelope refuge.
- The owners of the ranch have had it since 1992. He has done all the work through cattle. He's going to talk about economics.
 - What generates true wealth - is the conversion of natural resources to money. Today's ranch contributes \$4.27 per cow per day. Ranchers provide way more economic impact than just the grazing fee that goes away. The money and economic impact ranchers provide should be considered. The major threat to their way of life is the gridlock in public land management.
 - BLM wouldn't let them bale the cheatgrass from 1998 and they didn't burn up partially possibly due to the checkerboard land and the lack of cheatgrass on the private lands.
 - 2,000 AUMs on 100,000 acre pasture. They looked at the pasture and agreed that the pasture needed to be grazed - cheatgrass waste high in the greasewood. They took 4500 cows from February to august. They removed the cheatgrass and when lightning struck, they didn't get a fire.
- Ranch manager's job, grow forage to feed cattle to sell as beef for a profit. They have white sage, bottlebrush squirreltail, they protect their white sage.
- Practical things they have done. In June cheatgrass was done, bottle brush was about to set seed.....
 - They've found that you can affect annual-perennial grass ratios if you manage it tightly. You have to move the minute the cows start eating the perennials. We need people watching and the ability to make decisions.
 - They've been having success with hand harvested bottlebrush squirreltail, and they've had some success with spicata as well.
 - Fire is there second greatest threat (white sage, and Beatty Butte - lots of intact sage). 400,000 acre pasture. They protect these two areas. Double the number of AUMS for livestock to protect these areas.
 - There is too much fuel in some places and too much damage when they do burn. They are working with Barry to fall and winter graze to try and make a conversion from cheatgrass to perennials. They are seeing a positive response.
 - About every 1,000 years there was a change in cultures and then about a foot of sand. There was blowing dirt every 1,000 years between each period of that lake bed.
 - They seed after every wildfire and now plant crested wheatgrass until snow and then fly the kochia on when the snow covers the ground in January.
 - They have an AMP for every allotment, and they've written in adaptive management language and they've have flexibility due to that.
 - The buckaroos live with the cows and they are allowed to make decisions. They do have to have the cow boss check on them.

1545: Aligning fuels management and post-fire rehabilitation with pre and post-fire monitoring - Chad Boyd (USDA Agricultural Research Service)

- We have an annual grass problem. 100 million acres? The range of cheatgrass in North America - Puerto Rico is cheatgrass free. It obviously impacts habitats.
- How do we deal with cheatgrass - with perennial bunchgrasses. As seedlings, they are terrible competitors; as they become mature, perennials bunchgrasses are great at limiting annual grass expression.
- Since 2000, 7 of the 11 western states had their largest wildfire in recorded history. How are we responding? Before, during, after the fire. There is improvement in our after fire restoration. Suppression is what we do during the fire. We are actually pretty good at suppressing fire - 97% of fire starts either go out or are put out. We don't have a lot of suppression room for improvement. Focus on before and after the fire.
- Roadmap - what we do before and after the fire.
 - Determine the extent of fire-caused perennial bunchgrass mortality.
 - Influence of fuel load structure on perennial bunch grass mortality
 - Preemptive management of fuel loads
- Fire mortality figures are all over the board because different types of artificial burning apparatus. Miller homestead fire.
 - Marked plants right after the fire and came back to see how many died. 23-64% mortality. Not able to determine species as they were already burned. Is this number significant? Perennial bunchgrasses may only live 8-12 years. What if we get repeated fire every 20 years? We could have incremental loss. That seems to be what people see happens in the field.
- What causes a bunch grass to die? 60-100 degrees C are the lethal temperatures. But time is the factor. So heat load is the time above the lethal temperature.
 - Wanted to find out, how much heat do these bunch grasses experience during fire? Looked at 60 in each species. It takes about 5-7 minutes of temperatures about 60 degrees to cause them to die during fire. But they had no mortality. The larger the grass, the larger impact negatively in the next years' production.
 - Mixed fuel environment: Thurber's, Idaho fescue, and Bluebunch wheatgrass. Under sagebrush canopy - 10 to 20 minutes of lethal temperature on these plants. So great increase on lethal temperature exposure and 18% mortality, most of those plants within 45 cm of a shrub base.
 - Did large plots - Heat load and did same experiment, so the mortality occurred on plants that were within 50 cm of a shrub base.
 - Then looked at the Miller Homestead fire. Plants in interspaces, mortality 1yr post fire = less than 20%. In proximity to shrub canopies, much higher mortality.
 - Post-fire soil color is a good indicator of perennial bunchgrass mortality.
 - Grass fuel abundance may impact fire severity via its role in carrying fire between shrub patches and igniting shrubs.
 - Implications? Kill all the shrubs? No! Modify fuel load composition to improve resilience following fire.
- Consider the state and transition model. All the fuel phases of sagebrush grass systems, and could have different outcome following the fire. What management actions could we take to improve outcomes following fire? If in High Shrub and High Grass, could result in significant perennial bunchgrass mortality. Could use a treatment to reduce shrubs, or use grazing to break up continuity. If in a low shrub but high grass phase, not as much of a concern. Maybe some grazing. In high shrubs and low perennial grass fuels, it is context dependent. If we get a fire, we may lose the few perennials we have left. Need to treat the shrubs and get a release of the few perennials left.
- Strategically allocating post-fire rehab. 88% of perennial grass mortality explained by soil color. Thus spatially target areas for rehab based on aerial images for determining where soil colors are equitable to mortality.
- When fear is unbounded, catastrophe is always in the confidence interval. - Kevin Doherty. When he looks at the presentations today, he said that we are bounding the fear and we are not screwed! We have a way of looking at the fear and seeing that it can be managed and the fear is being bounded and he is hopeful that we'll be able to move forward.

1615: Panel Discussion: Cooperating and finding the nexus of annual grass, fine fuels, and grazing management to decrease wildfire Frequency, annual grass invasions, and maintain rangeland health - Katheryn Dyer (BLM), John McLain (NCA Member), Susan Abele (USFWS), Tina Mudd (NDOA), Lee Turner (NDOW), Kirk Davies (USDA-ARS), Jim Reinhardt (Fire/Fuels-Retired), Gary McCuin (Livestock Industry)

- What have you heard today that is actionable? What things can we and should do?

Jim - There are only two fire guys in the room. We are missing one of the really important parties in the room. We need work with the fire folks to get things on the ground. They actually killed people because there wasn't anyone talking to each other. Now there is a cooperative. How do we form a cooperative so that everyone is aiming for the same thing?

Tina, was encouraged by Kathryn's talk. We need researchers and the producers with the science to go to the policy makers to try to get policy changed. She will work with Conservation districts to establish monitoring and prescribed grazing and work with producers to help them work with their policy makers with the science.

Kirk - it is not all doom and gloom, we have options to reduce the risk of fire. Flexibility is what's going to allow us to do good things. We have tools and people dedicated to making a difference. Need to have grazing on these high fuel years. Biological thinning is what they call it in Oregon, in high production years, to reduce the fuels during the high precipitation / high production years.

Kathryn - We have a lot of information for making informed adaptive management plans and the info was there so we can make good plans in action. She can insure that the range staff throughout the state know how to use these tools and how to work within their regulations to gain that flexibility.

John McLain - the info applies to land. There are a lot of things happening in research and on private lands. We need to integrate the private and public and the processes that hold us from applying them. We don't need more research to put these projects on the public lands. We need flexibility. John would be asking for an AMP for every ranching allotment and operators should be screaming for them. Invite the agency to come work on a new AMP.

Susan Abele - hopeful for the possibility of flexibility on public lands. There is so much science with other science that has totally different opinions and results, and for her she wonders how she can use the science in her office to make a difference. Report back to my boss. We will pursue working with private land owners to work with them on their public land allotments for these candidate species. Provide support to interject flexibility.

Lee Turner - there is a tide rolling against the use of forage kochia or other non-natives. He thinks that is a bad thing. He is working on trying some projects on the ground and early spring management on cheatgrass sites and we need to add a lot more flexibility. People have to be willing and able. SNWA has the flexibility to do some demonstration projects. Ecologists are eternal optimists. Lee wants to plant more of the species that he thinks that will work (wants more trust). Needs to seek trust to get to be allowed monitor his own projects.

Gary McCuin - not an optimist. We found out today we know a lot about range management and we don't need to know everything. It seems that all we can do is reduce livestock to gain flexibility. Specifically, he as a producer needs to be able to change up when, where and how he grazes and needs the flexibility from the BLM to do it. He has to get through the regulatory quagmire to do something and that is near impossible to accomplish. I need the agency to work with me to accomplish proper grazing management.

Assorted comments - Need incentives and capacity for our producers. NEPA will be their excuse in Lee's experience. NEPA is in the way. NEPA has morphed into a road block. Get a definition as a major federal action. Can't let the radical environmental groups rule our lives because they are not going to make the land better. Elephant in the room, perhaps we need to designate certain lands as annual grasslands through the land use plans. Rangelands still have a significant beneficial use for producing meat and raising livestock.

Grazing Management for Fine Fuels and Annual Grass Ranges

Exploring the Science and Strategic Plan Development

Presented by the Society for Range Management Nevada Section

Schedule of Events - Day 2

Wednesday 1/14/15 Strategic Development Roundtable Schedule (*Gold Dust West - Pinion Room*) (2 CEUs)

0700: Registration (*open all day*)

0800: Roundtable Introductions (*Sherman Swanson – Moderator*)

- BLM Range – Kathryn Dyer
- USFS Range – Tom Frolli
- NRCS Range – Patti Novak-Echenique
- UNCE Range – Brad Schultz
- USFWS – Susan Abele
- Wildlife – Sheila Anderson
- UNR Range – Tamzen Stringam
- NDOA Range – Tina Mudd
- NCA Member – John McLain
- NCAT/SETT – Kelly McGowan
- Fuels/Fire – Jim Reinhardt
- Audience
- Gary McCuin - Producer

0830: Foundational Information, Current Trends, and Anticipated Needs

0900: Strategic Development Session – Agency, Industry, and NGO representatives participate in roundtable discussions to resolve pressing issues and provides solutions to current challenges. Audience will be asked to provide facts where needed as well as questions at critical points during the session. Topics to include, but not limited to:

- *NEPA Planning for Climate Variability (e.g. wet cycles and droughts)*
- *Level and kind of NEPA required for strategic (unpaid) and targeted (paid) grazing applications*
- *Monitoring requirements, procedures, and cooperation required for needed management*
- *Targeted grazing vs. traditional fuels management application funding*
- *Agreement on processes needed for progress and next steps*
- *Pilot project opportunities to demonstrate employment of strategies, and future actions*

1200: Lunch on your own

Wednesday 1/14/15 Nevada SRM Section Business Meeting (*Gold Dust West - Juniper Room*)

1300: Nevada Section Business Meeting – Call to order

1530: Adjourn

SPONSORS:



Strategic Development Roundtable - Moderator Biography

Sherman Swanson, PhD – As a rangeland and riparian scientist, Dr. Swanson works with graduate students and colleagues in the University, State and federal agencies and others to study the interrelationships among streams, riparian vegetation, watershed hydrology, land forms, land uses, fire, water quality, and fish and wildlife habitat. As an extension educator, Riparian Specialist for Nevada Cooperative Extension, Dr. Swanson teaches riparian ecology and management, emphasizing the structure needed for dissipating energy, storing water, ameliorating floods and droughts, forming habitats and enhancing water quality. He also coordinates the interagency Nevada Creeks and Communities Team that teaches Riparian Proper Functioning Condition Assessment. Dr. Swanson teaches classes in the UNR Rangeland Ecology and Management interdepartmental major. He holds a bachelors degree in Wildlife Resources, from the University of Idaho, masters degree in Resource Geography from Oregon State University, and PhD in Rangeland Resources from Oregon State University.

Strategic Development Roundtable - Panel Member Biographies

Kathryn Dyer, M.S. – Ms. Dyer is the Nevada State Range Program Lead for the Bureau of Land Management. She has held Rangeland Management positions in California and Nevada through her career with BLM. Ms. Dyer is a UNR alumni, holding a Bachelors of Science, majoring in both Animal Science and Pre-Veterinary Studies, as well as a Masters of Science in Animal Science. Her master's project focused on comparing site and age variations in sage-grouse hematologic values to ascertain health of sage-grouse populations in two PMUs in Northern Nevada. She is also the Director for SRM Nevada Section Nevada Youth Range Camp.

Tom Frolli - Tom Frolli is currently the U.S. Forest Service Inter-Regional Wild Horse and Burro Program Coordinator and Intermountain Region 4 Rangeland Management Specialist. Tom has been a Rangeland Management Specialist with the U.S. Forest Service for 33 years; ten of those years have been in Nevada. He received his Bachelors of Science degree in Range Management from Humboldt State University. Tom is a Certified Rangeland Manager by the State of California Board of Forestry and Certified Professional in Rangeland Management by Society of Range Management.

Patti Novak-Echenique – Since 2006 Ms. Novak-Echenique has been employed as NRCS State Rangeland Management Specialist in Nevada. Prior to coming to Nevada, she served as State Grassland Specialist in Illinois for 1 year and Area Range Specialist in southern California for 10 years at NRCS. Prior to employment with NRCS, she spent 13 years as a rangeland management specialist for the Los Angeles Department of Water and Power in the Owens Valley of California.

Brad Schultz - Brad Schultz received his B.S in 1983 in Range and Wildlands Science from the University of California at Davis, and a M.S degree in 1987 in Renewable Natural Resources from UNR in 1987. He holds certification from the Ecological Society of America as an Ecologist, and from the Society for Range Management as a Certified Range Management Consultant and a Certified Professional in Range Management. He has worked on Nevada's rangelands since 1981 including positions with the USFWS on the Sheldon Antelope Range, the BLM in Cedarville, CA and Ely, NV, contract work with the Department of Energy on the Nevada Test Site and Yucca Mountain Projects, the Desert Research Institute, and the University of Nevada Cooperative Extension. In the latter position, his work involves teaching grazing management, managing sagebrush rangelands to improve ecological resilience to catastrophic disturbance, reducing the risk of catastrophic fire, addressing sage-grouse management issues, improving the understanding of plant succession and site capability, and the control of noxious and invasive weeds. In recent years he has been invited by the USFS International Program staff to teach grazing management concepts in Morocco and the Republic of Georgia, and at their first International Rangeland Seminar, which hosted grazing management staff from 12 countries.

Susan Abele – Ms. Abele works for the U.S. Fish and Wildlife Service's Partners for Fish and Wildlife Program in Reno where she is implementing a variety of habitat restoration projects with private landowners and tribes. Previously, she was with The Nature Conservancy in Nevada as a Conservation Planner. During this time, she primarily worked with the U.S. Forest Service and Bureau of Land Management on restoration planning across large landscapes as well as other state-wide conservation planning efforts. Susan received her undergraduate degree in Biology from the University of Oregon and a Master's of Science in Wildlife Biology at the University of Idaho. She and her husband have been living in Reno since 2004 and keep busy with their two young children, dog, cat, two fish, and four chickens.

Sheila Anderson – Ms. Anderson holds a B.S in Wildlife Management from the University of Nevada Reno, and a M.S. from the University of Wyoming in Range Management. Ms. Anderson has worked professionally as a natural resource specialist for 36- years. As a Senior Resource Specialist at Resource Concepts, Inc. Ms. Anderson supervises and designs field data collection activities for vegetation and wildlife resources. Ms. Anderson conducts impact analyses, develops mitigation alternatives, and facilitates conflict resolution. Ms. Anderson has developed and implemented

sampling protocols for baseline wildlife and aquatic invertebrate surveys; vegetation composition, ecological condition and trend analyses, stream proper functioning condition analyses; and assessments of livestock and wildlife competition. Ms. Anderson has prepared biological reports for NEPA analyses; ESA Biological Evaluations, and specialized environmental clearance for federal and state special status species. She provides the ecological/biological input for wetland and riparian restoration designs, and prepares details and specifications for revegetation treatments, specializing in harsh site reclamation. Most recently, Ms. Anderson has served as Technical Editor/Writer for the Bi-State Greater Sage-Grouse Action Plan (2012) and the Stewardship Alliance of NE Elko Sagebrush Conservation Plan (2014).

Tamzen Stringam, PhD – Ms. Stringham earned a B.S. in Economics from CSU Chico, M.S. in Agriculture and Resource Economics and PhD in Rangeland Science both from Oregon State University. She was raised in Grass Valley, CA on a small livestock and farming operation. She has been married for 35 years and has three grown children and two grandchildren. Ms. Stringham holds the Donna Anderson Endowed Professorship in Rangeland Management at UNR (2008 to-date) and was formerly a professor at Oregon State University. Her research career has focused on quantifying ecological thresholds in both riparian and upland ecosystems and the development of state-and-transition models for use in the management of our nation's rangelands. In 2010, she received the Outstanding Achievement Award for Research from the Society for Range Management and in 2013 she was humbled to win the USDA Secretary of Agriculture Honor Award given for significant contributions to the Agriculture Industry of the United States. She enjoys research that has a direct application to the management of rangelands and the current issues facing land managers today.

Tina K. Mudd, PMP – Ms. Mudd is the Rangeland Health Program Manager for the Nevada Department of Agriculture. She earned her Bachelor's of Science from the University of Nevada, Reno, where she also earned a Master's Degree in Environmental Policy. She holds a Project Management Professional Certification. Ms. Mudd has intermingled her career with public and private industry service, focusing on program and project development in the natural resources field. Ms. Mudd specializes in development and facilitation of local working groups focused on regional resource issues. Ms. Mudd has developed statewide and multi-state programs and cooperatives as well as applied her project knowledge to manage the construction of multi-million dollar mining and restoration projects.

John McLain, CRMC, CPESC - John McLain is a founding Principal of Resource Concepts Inc (RCI), a multidisciplinary consulting firm located in Carson City, Nevada. He recently became semi-retired although still active in resource consulting work. Previous to his 35 years with RCI, he spent 10 years with USDA Soil Conservation Service both in Montana and Nevada. John is a graduate of Montana State University, was past President of SRM, serves on the Citizens Advisory Committee for both UNR Cooperative Extension Service and College of Agriculture, Biotechnology, and Natural Resources (CABNR). John has served as a Nevada delegate to the Council for Agriculture, Research, Extension, and Teaching (CARET) for a number of years. He is a Certified Range Management Consultant (CRMC) and Certified Professional in Soil Erosion and Sediment Control (CPESC).

Kelly McGowan, CPM – Mr. McGowan holds a Bachelors degree from University of Nevada Reno in Geography, with an emphasis in climatology and landforms. He is a Certified Public Manager with the State of Nevada and has worked in the natural resources conservation field for over 20 years. He has collaborated with private landowners, public entities, and others to address natural resource concerns throughout Nevada. Much of his time was spent working for or with local conservation districts. Kelly currently represents the Nevada Department of Agriculture on the Sagebrush Ecosystem Technical Team (SETT). SETT efforts over the past two years have been dedicated to developing plans and resources to enhance, protect, rehabilitate, and restore sagebrush ecosystems within the State, with a primary focus on Greater Sage-grouse habitats.

Jim Reinhardt – Mr. Reinhardt holds a bachelor's degree in Agriculture from the University of Nevada Reno. Jim spent 20 years in State and County Fire and all-risk emergency services. He served as Fire Management Officer for Nevada Division of Forestry for 10 years, six years as fire chief for the East Fork Fire and Paramedic District, and four years as a National Incident Management Team consultant. His roles within NIMS teams included Structure Protection Specialist, Type 1 Operations Section Chief, Type 1 Planning Section Chief, and Type 1 Incident Commander. He was also the Incident Commander for the Sierra Front Type 3 Team. He has been involved with many committee, councils, and associations throughout his career, not limited to the Nevada Fireman's Association, Nevada Fire Chief's Association, and Sierra Front Fuels Committee. Mr. Reinhardt also consulted in Nevada as a fire specialist to evaluate wildfire risk for hundreds of communities. In addition to the above-stated experience, he was a ranch foreman for the List Land and Cattle Company for six years.

Strategic Development Roundtable - Key Points

A panel of 13 people were seated in a half circle at the front of the room and the audience was considered to be an active party to all discussions, but all interactions were moderated and recorded. A series of questions were asked of the audience and the panel. The panel members vocalized their answers and were recorded on an easel. The audience recorded their answers on 3x5 cards and were allowed to vocalize them if they were different than the panel member's answers.

Question #1: What is the best opportunity to improve grazing management for fine fuels? (state the landscape and management setting)

Panel responses (captured on flip chart)

- Identify successful grazing management stories and replicate across the state. Ensure buy-in to transferable and clear objectives.
- Self-regulated operators with monitoring that works with agencies to have flexible grazing permits
- Planning at the local level with collaborative processes. Using trust and responsibility to be accountable. Flexibility on producers and regulators parts.
- Employ grazing and fine fuels management based on objectives with flexibility that is realistic for operators and where land health can be achieved.
- Match tools with biological realities of differences between annual and perennial plants and range health.
- Employ grazing and fine fuels management that has beneficial or no impact to non-linear ecological systems identified/tied to ecological sites with state and transition models and current conditions recorded.
- Private land opportunities to explore successes and failures using science to employ pilot projects. Use stories to influence policies for federal lands.
- Utilize overwhelming amount of scientific knowledge and expertise utilized to assemble fire management objectives publicized in the Great Basin Wildfire Forum-The Search for Solutions Report (<http://dcur.nv.gov/wp-content/wildfireforum.pdf>), which are largely not implemented
- Initiate Holistic Resource Management groups to employ multiple stakeholders to develop consensus on objectives for land and stakeholder outcomes.

Collective audience responses (captured on 3x5 cards) – actual statements in Appendix A

- Strategic livestock grazing in intact (functional) sagebrush – perennial grass communities, based on timing and duration management, with the objective of maintaining or improving plant community resistance and resilience. (2) Targeted grazing to manage areas of annual grass dominated (especially where threshold has been crossed). Landscape setting – Especially Wyoming and mountain big sagebrush communities. But including other plant communities within sagebrush ecosystems. Context – Flexibility required both on part of management agencies and ranchers. This requires vision, cooperation: Trust best attained through grassroots collaboration.
- Manage the NEPA process so that it does not continue to be a roadblock to land stewardship and conservation. Create flexibility within NEPA to actively manage the forage base at a landscape scale & allotment level with the best science. Draft if-then statements for grazing EAs' objectives to create adaptive management in NEPA.
- Increase flexibility in grazing management (i.e. standards and guidelines) to assist in reaching resource and fuels management goals. Build flexibility into grazing permits to stock range to best utilize fire – fuels, based on annual production. Observed this on major wildland fires all over the State as an incident management team member talking to local ranchers whose lands were impacted by fire. Managing all livestock, wildlife, and recreation uses on the land, to be able to change amount of livestock and where they are at times of the year. Encourage federal agencies to provide more flexibility to producers to graze when and where it is appropriate, flexibility to implement projects in every landscape setting. Let producers take responsibility for implementation if there is a fine fuel problem by managing the process of getting cows on the ground to consume the fine fuels.

- Increase AUMs in years following above average precipitation. Landscape setting and context: A major focus should be in and immediately surrounding our most productive Greater Sage Grouse habitats. Climate variability and its effect should be closely observed. Stop the rest policy on cheatgrass near-mono cultures after a fire or otherwise. And include cheatgrass in forage estimates. Landscape – Highly degraded cheatgrass dominated landscapes.
- Utilize AMPs to guide grazing management for each year. Allotment management planning that has been completed by BLM/FS, permittees, and possibly other stakeholders that covers necessary flexibility and clearly states “requirements” that are agreed to / understood by all. Stakeholders support of AMP / permit renewal provides a level of assurance regarding potential litigation. The land management agencies need to encourage and incentivize rancher development and implementation of new or updated AMPs that includes the current science and flexibility needed to address current resource issues, including the management of fine fuels (including ephemeral) forages.
- Coordinated (Coordinated Resource Management) approach between all stakeholders (private, federal tribal, state, etc.) across all landscapes on how to best manage rangelands and recognize their values. Assemble local working groups or holistic resource management groups that represent a landscape (e.g. 1-2 million acres) for voluntary participation to provide a collaborative environment for broad based understanding of resource and operational situation, issue identification, recommended changes, planning implementation of consensus based resource and grazing management, public private partnerships and stakeholder support. Utilize the wealth of science that has already been produced, and communicate that science better to all stakeholders. The people who know the science, the practitioners, & the people who know how to work within public lands policy, law, & regulations need to work together towards a common goal. All players need to cooperate. Meet together, discuss problem areas. What can we do together to work on them. Who has what to offer – staff, monies, equipment, etc. So that we can all get to where we want to be – healthy landscapes across the State. Observed at Smith Creek Ranch where various entities came together for improvement projects of various areas. Can do this throughout our rangelands. We also need to be out on the ground more so we know what is happening on the ground.
- Empower agencies to affect change by taking action. Empower permittees to be more influential in the planning process.
- Build trust between and reward responsibility among land managers, users and stakeholders as a pre-requisite to successful land management. Flexibility allowed in plans (ES’s, LUP’s, etc.) with an agency leadership attitude to say “yes” whenever they can and create the space for this to happen and lead their staff into the process consistently so producers have the confidence to invest resources needed to do the grazing needed in whatever means is required to accomplish actions on the ground needed to reduce fine fuels and other management best accomplished by using proper timing, duration, and intensity of grazing.
- Utilize monitoring to gauge the level of responsibility of involved parties. Monitoring must be automatic, as persistent, as ever present, and as well funded as NEPA, for management to succeed into the future. In Nevada the BLM needs more staff to better monitor natural resource conditions. Without adequate monitoring data, change on the landscape cannot be made. This needs to occur across all of Nevada. Utilize monitoring to attribute actual impacts of each land use to the documented resource impact. Remember its not just livestock, public lands are multiple use. There are more things happening out there that affect the landscape-waters & forage - that grazing management won’t fix, horses, ATVs, campers, etc.
- Boots on the ground! We need good paying jobs for people to be on the land with cattle, with monitoring, with free-roaming horses, etc. We can only manage well if we are out there. More buckaroos, range cons, monitors and archeologists on the land. We have planned numerous projects and actions for range management, grazing, sage grouse, etc. These need to be put into action at a large scale.
- Start with private lands in necessary to get started in applying demonstration areas. Monitor results and communicate them to landowners, managers and scientists alike. An opportunity exists with private lands to “showcase” or demonstrate management actions. If we make a significant area of private lands showing “desired results,” we can use that as robust evidence to foment needed policy change(s) for federal land management agencies and then changes in actual management of those lands. The private lands provide the

nexus and catalyst for appropriate partnerships, research, and related aspects. Private lands can serve as the key in demonstrating the need for and value of flexibility not always provided in current federal land management authorizations.

- Identify successful implementation of grazing and fine fuels management across private-public operation. Clarify what it is and what it takes to achieve the objectives and replicate across the State. Develop a fine fuels management plan that can work for and be used by districts. Landscape setting has to include public land.
- Federal policies need to be changed to allow more flexibility to users of federal lands. With that flexibility also comes responsibility to manage toward land management goals and objectives.
- The human component of land management decisions and policies (economic, social, cultural) needs to be recognized more thoroughly by the federal government.
- Public land management agency adoption and use of State and Transition Models. Understanding current condition (state, phase) and options for management or restoration. This can be applied at any landscape if the user knows the ecological site or disturbance response group. Flexibility in the grazing management will be necessary. Educate land managers in “how to manage” and a better understanding of rangeland health, and educate permit holders, grazers, and private land owners on the understanding of how ecological thresholds are crossed & how state and transition models work. Develop ESD/STM/DRG – not AMP, not drought EA, not climate variability EA – specific management plans through NEPA. Analyze consequences under NEPA of taking management actions to manage within states (ei. Best of the worst or in desired state) or implementing restoration pathways to transition to desired state. This will provide flexibility in management and recognize all tools including grazing. This would allow landscape scale flexibility based on current rangeland science and would focus time and resources to best possible outcomes rather than shotgun approach. BLM etc. must not be afraid of moving forward – quit being litigation averse! Transfer information among producers, “ologists,” and agency folks to form usable guidelines and strategies for rotating grazers based upon resource availability and range health – incorporating state-transition info. Use this exchange of info and peer pressure to encourage active management of grazing in areas that are loosely managed. Landscape: Southern Great Basin. Management context: Producers on the ground. Be more innovative in applying our current knowledge to work into existing processes under existing regulations and policies. Example: use S&T concepts and descriptions to derive better rangeland health assessments and determinations by 1) basing site potential on the current state, rather than PNC where the S & T model indicates that the pathway to return to PNC would require management inputs that are not technically or economically feasible. 2) Develop management strategies in such situations that facilitate stability in the current state, rather than unrealistic strategies to move toward PNC using nonexistent pathways.
- Realize that use on perennial plants does not have the same biological effect at different growth stages & one utilization limit is not applicable to all growth stages. Landscape setting and management context is predominantly bunchgrass rangelands & the applicability of specific utilization limits for all periods of plant development.
- Utilize science developed in and for the Great Basin to provide a foundation for decisions and management approaches.
- Ensure economic feasibility of management options and impacts to landowners and land users.
- Fire services and range management need to work together during planning processes.
- Encourage a paradigm shift at the management level in the federal agencies, preferably at the state level to set standards for districts to manage for grazing and fine fuels. Doing the right thing for the land is being lost in the need to meet program targets. Also BLM offices are not staffed with the appropriate staffing to be proactive on the landscape.
- Grazing management should be fully incorporated into ecosystem management. Grazing should be used (in the context of fine fuels management), as a tool, just like fuels reduction. It should not be a means to merely harvest more grass. As a federal land manager, I want to see the resources staff work closely with fire staff and fire ecologists. Grazing management permits should take into account the ecological potential of the site and ultimately the landscape. All permits & NEPA documents should allow for flexible management and adaptive

management. Both views, removing all livestock and putting more on the range only serve the radicals. Landscape setting: The public lands and adjoining private ranch. Grazing and fine fuels management should be included together into an Integrated Vegetation Management concept. These are tools to be used to achieve functioning ecosystems for proper land health. Both tools must be intensively managed. Too often grazing is viewed as the cause of less than desirable conditions of rangelands. All resources should take ownership of improving rangeland conditions, including wildlife, mining, recreation, agriculture, etc.

- Increased wildfire frequency & intensity coupled with climate variability has provided statewide / National awareness with public and politicians. Now incumbent on resource professionals to initiate partnerships on the ground across the landscape to improve resiliency – adaptability. Opportunity – find policies or make policy that enables flexible grazing preferences based on annual forage/fuels reduction. Setting- all areas where fine fuels threaten range resilience/resistance in the presence of an increased fire frequency.
- Entertain and implement dual class livestock grazing, cattle, sheep, or goats where it makes practical sense for reaching objectives.

Question #2: What idea problem or goal excites your passions and makes you think we should work on it today?

The audience and panel was then asked the second question, then asked to vote on which one the strategic roundtable was going to focus on discussing and resolving. Votes just indicated priority level and not the diminishment of value of the points to address grazing management for fine fuels management.

- 19 votes - Finding and increasing flexibility and accountability within NEPA and grazing plans. (audience combined two ideas to make this one.)
- 7 votes - Collaboratively setting long and short term objectives with well-developed monitoring plans
- 4 votes - Educating audience (and those within the realm of range management) in State and Transition Model and Ecological Site Description use.
- 2 votes - Flexible, accountable, holistic livestock operations
- 2 votes - Develop and Incident Action Plan with clear objectives to address grazing and fine fuels management based on best science.
- 1 vote - Integrated vegetation management
- 1 vote - Active vegetation grazing and wildlife habitat management
- 1 vote - Work collaboratively with a common vision to get things done
- 1 vote - Meld interface of public and private lands recognizing the values of each.
- 1 vote - Incentivize rancher development of updated or new Annual Management Plans
- 1 vote - Stop rest policy on the cheatgrass monocultures after fires
- 1 vote - More buckaroos, range conservationists, and range monitors
- Inflexible utilization limits
- Expanding public/private partnerships
- Develop and implement grazing management on private lands and demonstrate biological and fire management benefits
- Diverse professional assistance to landowners and managers developing land use plans
- How can BLM authorize grazing of excess fuels?
- Management default back 50 years
- More funding for technological development
- Introduce Americans to where their food comes from
- State level working group to work on all of the above.
- Initiate landscape scale vegetation/grazing management.

Focus Issue: Finding and increasing flexibility and accountability within NEPA and grazing plans.

The moderator then decided to have the panel and audience discuss and attempt to find resolution on the most popular item above with the time available for the rest of the strategic development roundtable.

Explain the NEPA Process

- In the NEPA process, the monitoring plan would be tied to objectives such that conducting said monitoring would directly provide both flexibility and accountability
- In NEPA, flexibility requires adaptive management, and the agency has to provide full disclosure of the full range of federal actions.
- Agencies need to be solid on the Administrative Procedures Act in regards to NEPA
- Most projects funded by USFWS on private land require a Categorical Exclusion and one page checklist that is signed at the local level
- NRCS projects are covered by a Categorical Exclusion with more pages on private lands
- Accountability of federal agency and permittee increases dramatically with Section 7 consultation, especially with regards to required monitoring
- NEPA isn't always complicated, complications are the result of litigation
- NEPA is straight forward if needs are well communicated by BLM

Question #3: What level of accountability is needed to increase flexibility?

- The level of accountability increases with a listed species or with the level of innovation
- BLM and permittee are both accountable
- Objectives must be reasonable and obtainable for permittee

Question #4: What constitutes a major federal action?

- Federal action is something that has the potential to affect the human environment

Question #5: Why are we letting operations/managerial decisions require NEPA?

- a. Regulations, precedent, and litigation
- b. Our limited approach to NEPA is the problem.
- c. New ways are needed to tackle NEPA
- d. Agencies can't perform amount of NEPA required to keep up with issues
 1. agencies are understaffed
 2. litigation is a large resource sink
 3. new staff ramp up times
 4. total work loads are too much for staff levels
- e. Public and private partnerships are not being pursued
- f. Archaeological clearances can limit implementation, but NEPA planning can occur without clearances

Possible Solutions

- Permit renewal teams and collaborative monitoring
- Updated Annual Management Plans and Candidate Conservation Agreements
- Collaborative planning processes because they are the most successful and least litigated
- Public Rangelands Improvement Act-Section 12 allows for stewardship programs and innovation, which led to model for BLM Washoe Modoc Stewardship program that is still being utilized after decades of use

- Coordinated Resource Management Planning is time consuming and may not be practical for day-to-day management
- FACA limitations and requirements need to be considered
- Provide a template to ranchers to follow for Annual Management Plan drafting
- Utilize the monitoring subcommittee of the Sagebrush Ecosystem Council to pursue a template for a cooperative monitoring agreement
- Utilize Resource Advisory Committees to advise agency leadership
- Federal Land Policy Management Act Amendment, which provides for Categorical Exclusion authority for permit renewal which allows more time for innovative work
- Use simple NEPA processes for small actions like protein block placement (*note: protein block placement does not require NEPA if grazing occurs within the terms and conditions of the permit. NEPA is required for protein placement if grazing occurs outside of the terms and conditions of the permit*)
- Using the programmatic Environmental Assessment process may be more efficient
- Permit renewals including all flexibility included
- Accountability by rancher including required inventory and monitoring of range resources
- Include If/Then terms and conditions in NEPA (*If certain conditions occur like excess fuel production, then grazing can occur per prescription*)
- Use State and Transition Models as the foundation of the If/Then terms
- Implement adaptive management with opportunity to fail or succeed, learn and replan
- Line officer priority needed for timely actions and signatory willingness which is an important part of agency accountability. (*may need instruction from high level authorities*)
- Base Standards and Guidelines assessments on State and Transition Models so that grazing is not inappropriately changed

Next Steps to Make Progress on Grazing Management for Annual Grasses and Fine Fuels

Collective panelist next steps (captured from flip chart)

- Pursue programmatic NEPA document for fine fuels management or weather variability based on Disturbance Response Groups (BLM/USFS)
- Produce template for NEPA authorized grazing plan utilizing If/Then terms approach utilizing Disturbance Response Groups as foundation (BLM/USFS)
- Produce or find examples in existence to help BLM and ranchers with fine fuels management planning using cohesive planning strategies (BLM/Ranchers)
- Produce Disturbance Response Groups for the rest of Nevada (NRCS/UNR)
- Formulate a small group with clear objectives (eg policy changes) to pursue and achieve progress
- Recruit livestock operators willing to engage and implement innovative management (Range Management Community)
- Acquire agency commitment to engage and proceed. Range program leads to vet ideas through management (BLM/USFS)
- Synthesize meeting content (this report) to create an action plan to move forward (NV SRM)
- Form or reactivate a Coordinated Resource Management Group
- Implement a conservation planning process across the landscape
- Entertain a version of the Nevada Range Management School that focuses on grazing management for fine fuels and resource objectives (UNCE)
- Action plan needs to be shepherded by NV SRM to ensure follow through and tangible results realized
- Agency ideas need to be gathered regarding how the larger range management community can help them succeed
- Demonstrate and publicize changes on the ground ASAP (NDA)

- Refine the message and pursue desires with agencies
- Get buy-in from the ranching industry

Collective audience next steps (captured from 3x5 cards) – actual statements in Appendix B

- Take into account climate pulses a lot more in analysis of range, fuels and natural resource conditions.
- Develop strategic grazing across northern Nevada to manage fine fuels in or after high production years.
- Provide for the appropriate amount of flexibility to allow active management of fine fuels and annual grasses using grazing.
- Pursue authorization for flexibility on grazing and vegetation management through appropriate planning process (eg permit renewal, programmatic EA, amend the land use plan to designate “annual grasslands” to “forage”, If/Then statements included in terms and conditions on permit).
- Include early spring and late fall grazing in all vegetation management EAs to have that flexibility.
- Pursue flexibility in grazing levels across the landscape to ensure realistic outcomes of landscape influences on grazing differences across the landscape as well as to allow for proper conservation of diversity needed for wildlife habitat conservation.
- Demonstrate effective land, grazing, and fuels management strategies to the public.
- Take advantage of the permit renewal process by making grazing changes then.
- Pursue a programmatic EA for grazing for fine fuels management if it is a more practical means of traversing the process of authorization.
- Work more closely with fire/fuels personnel as well as others to determine effectiveness of fine fuels management as well as determining locations and times where needed.
- Pursue better collaboration between land users and land managers to formulate and achieve management goals and objectives that don’t stop at boundary or property lines.
- Encourage trust building between agency personnel and permittees.
- Utilize the “interested party” lists for each district for a method of providing comments and suggestions to district level decisions.
- For other projects, cooperative agreements can be implemented. *Contact the field manager and start asking questions.
- Encourage permittees to be more assertive in the planning and permitting processes.
- Encourage agencies to incentivize longevity of range management specialists in positions to reduce turnover, increase level of local knowledge, and increase mentorship of new personnel.
- Encourage agencies and permittees to have personnel on the ground that are monitoring fine fuels and grazing use conditions to allow for appropriate decisions that are timely and reflect real-time conditions. Lobby Congress for funding for these positions in the agencies.
- Educate the public and policy makers to provide the impetus for utilizing grazing as a tool to manage fine fuels. Current discussions among specialists or those in the fire and range management field aren’t delivered to the public or policy makers.
- Educate managers, permittees and monitoring crews on State and Transition Models as well as Ecological Site Descriptions.
- Educate permittees on fuels, plants, and green-brown strategy.
- Educate permittees on the role of monitoring in the land management process and encourage them to take responsibility for monitoring the lands in which they use.
- “Default back to 50 years ago will solve all management problems.” Robert R. Depaoli
- Nullify harmful laws such as NEPA and FLPMA.

Conference Evaluation Results

There were over 80 in attendance at the technical session on Day 1 and 52 in attendance at the Strategic Development Roundtable on Day 2.

	very satisfied		satisfied		very dissatisfied		
1. Please rate your overall satisfaction with the conference:	6	8	4	1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Please rate your overall satisfaction o the technical presentations:	6	10	2	1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Please rate your overall satisfaction with the format of the conference (i.e.- morning sessions, breaks, lunch, afternoon sessions/breakouts):	8	6	4	<input type="checkbox"/>	<input type="checkbox"/>	1	<input type="checkbox"/>
4. Please rate your overall satisfaction with the reception and breaks:	6	7	4	1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Please rate your overall satisfaction with the facilities:	7	7	2	1	2	<input type="checkbox"/>	<input type="checkbox"/>
6. Please rate your overall satisfaction with the location of the conference (Carson City, NV):	10	5	4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Overall, based on your total experience at the conference, will you attend or recommend someone else attend next year's conference?	17 yes		2 maybe		<input type="checkbox"/> no		

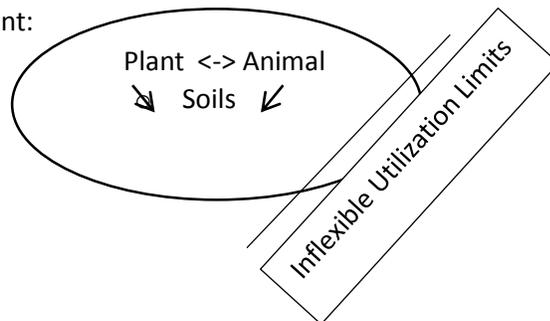
8. Attendants were asked to provide any comments they had on future conference locations, topics, speakers or general suggestions regarding this conference's materials that were covered or not covered.

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- Work extra hard at getting manager level agency folks (ie decision makers) and more PRODUCERS!!!
 - Could use more breaks or longer ones for more hallway interaction
 - Smokey venue
 - Carson City was good, but casino venue less so. Try for a non-smoking venue in the future! Could rotate among Carson, Winnemucca, Elko, Ely?
 - Make presentations available online or at session
 - Provide presenter schedule time for more question/discussion after presentations (eg 20 min presentation and 10 min Q&A.
 - Great Job! The meeting was well organized and well thought out! The speakers were some of the best I have ever heard.
 - I can see a lot of research has gone into cheatgrass but there are worse weeds that we need to protect the range from, such as halogeton, russian thistle. Lets spend a little time on those other threats so we are not surprised by them. Also, educating permittees and upper management (state office, Washington DC Office) to the sound science behind some of the management actions proposed. *We need a method or venue to communicate with "interested public" or agencies.
 - Can the NV Section of SRM really take on revising the NEPA law? Maybe too big to bite.
 - Time management for speakers - notifying speakers when time is up, in a different way? Great topics! Very interesting. Good panel - too bad more "people with power" in federal agencies didn't attend.
 - Come to Austin so I can get the Ranchers in Central NV more interested and involved in SRM
 - Favor longer talks for certain topics such as Stacy Davies. I had hoped agency leads/managers would be present.

- Ira Hansen and Cliff Gardner have extracted details from pre 1850 exploration. Historic records would have helped with perspective in these discussions.
- Too much smoke in Casino
- Keep trending toward action!
- I would like to see invitations extended and/or encouraged to non-profits, public, news groups, and all interested parties.

Appendix A – Verbatim audience responses to Question #1

- Increased flexibility and accountability – with flexibility comes responsibility.
- Coordinated approach between all stakeholders (private, federal tribal, state, etc.) across all landscapes on how to best manage rangelands and recognize their values. Federal policies need to be changed to allow more flexibility to users of federal lands and the human component (economic, social, cultural) needs to be recognized in these policies.
 - Start with improving private lands where we have the opportunity to demonstrate success to our federal partners... *just doing something is necessary! Even if small. 2) As stated above, we start with private landscapes so we can make progress while we explore flexibility in our planning documents... demonstrating by example for timing & rest rotation... do not leave no as an option and monitor that change progress to tell our story! With proper management it's a good story. My landscape setting is in the political arena!
- Public land management agency adoption /use of STM. Understanding current condition (state, phase) and options for management or restoration. This can be applied at any landscape if the user knows the ecological site or disturbance response group. Flexibility in the grazing management will be necessary.
- Come to the realization that use on perennial plants does not have the same biological effect at different growth stages & one utilization limit is not applicable to all growth stages. Landscape setting and management context is predominantly bunchgrass rangelands & the applicability of specific utilization limits for all periods of plant development:



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- Get beyond NEPA – go to the permittees/issues, needs & solutions. Landscape setting and management context: - Allotment level with permittee; - AMPs as the target; - flexibility/monitoring; - Utilize science developed in and for the Great Basin; - Economically feasible. Fire services and range management need to work together re planning
- Setting: local working groups 1-2 million acres – AMPs. Voluntary participation. Context: Collaborative planning public –private partnerships w/stakeholder support. Best opportunity – flexibility which requires trust & responsibility
- Identifying successful implementation of grazing and fine fuels management across private-public operation. It's important to clarify what it is and what it takes to achieve the objectives and replicate across the State. Again landscape setting has to include public land. Allotment management planning that has been completed by BLM/FS, permittees, and possibly other stakeholders that covers necessary flexibility and clearly states “requirements” that are agreed to / understood by all. Stakeholders support of AMP / permit renewal provides a level of assurance re: potential litigation.
- Public lands- initiate HRM groups to: 1) Develop a broad based understanding of resource and operational situation. 2) Develop a consensus based strategy of grazing management, and resource management / needed changes. 3) Empower management requiring agencies to get on the ground & change action.

- Increase AUMs in years following above average precipitation. Landscape setting and context: A major focus should be in and immediately surrounding our most productive GSG habitats. Climate variability and its effect should be closely observed.
- Build flexibility into grazing permits to stock range to best utilize fire – fuels, based on annual production. Observed this on major wildland fires all over the State as an incident management team member talking to local ranchers whose lands were impacted by fire. Talking to ranchers during 2005-2005 wildfire risk analysis project.
- Audience responses from 3x5 cards:
- From a BLM Perspective, I believe that a paradigm shift needs to occur at a management level preferably at the state level to set standards for districts to manage for grazing and fine fuels. Doing the right thing for the land is being lost in the need to meet program targets. Also BLM offices are not staffed with the appropriate staffing to be proactive on the landscape.
- A lot of the science is here. We need better communication. The people who know the science, the practitioners, & the people who know how to work within public lands policy, law, & regulations need to work together towards a common goal.
- Create flexibility within NEPA to actively manage the forage base at a landscape scale & allotment level with the best science.
- The best opportunity would be to give to the people on the ground (producers) more influence. And be flexible to change with what they see needs to be done. Managing all livestock, wildlife, and recreation uses on the land, To be able to change amount of livestock and where they are at times of the year.
- We need more flexibility as producers from the management agencies. Flexibility to graze when and where it is appropriate, flexibility to implement projects in every landscape setting. Basically assist Yes, but mostly just get out of the way. If there is a fine fuel problem let the cows out to take the fuel down. BUT producers must also need to be active in management of all the lands they are stewards of.
- Do conservation plans including projects / management and monitoring / follow up – Include flexibility / Adaptive management. Coordination / collaboration (CRM) - less emphasis on NEPA. Flexibility in standards / Guidelines.
- Grazing management should be fully incorporated into ecosystem management. Grazing should be used (in the context of fine fuels management), as a tool, just like fuels reduction. It should not be a means to merely harvest more grass. As a federal land manager, I want to see the resources staff work closely with fire staff and fire ecologists. Grazing management permits should take into account the ecological potential of the site and ultimately the landscape. All permits & NEPA documents should allow for flexible management and adaptive management. Both views, removing all livestock and putting more on the range only serve the radicals. Landscape setting: The public lands and adjoining private ranch.
- Flexibility allowed in plans (ES's, LUP's, etc.) with an agency leadership attitude to say “yes” whenever they can and create the space for this to happen and lead their staff into the process consistently so producers have the confidence to invest resources needed to do the grazing needed in whatever means is required to accomplish actions on the ground needed to reduce fine fuels and other management best accomplished by using proper timing, duration, and intensity of grazing.
- Develop ESD/STM/DRG – not AMP, not drought EA, not climate variability EA – specific management plans through NEPA. Analyze consequences under NEPA of taking management actions to manage within states (ei. Best of the worst or in desired state) or implementing restoration pathways to transition to desired state. This will provide flexibility in management and recognize all tools including grazing. This would allow landscape scale flexibility based on current rangeland science and would focus time and resources to best possible outcomes rather than shotgun approach. BLM etc. must not be afraid of moving forward – quit being litigation averse!
- Increased wildfire frequency & intensity coupled with climate variability has provided statewide / National awareness with public and politicians. Now incumbent on resource professionals to initiate partnerships on the ground across the landscape to improve resiliency – adaptability.

- Grazing and fine fuels management should be included together into an Integrated Vegetation Management concept. These are tools to be used to achieve functioning ecosystems for proper land health. Both tools must be intensively managed. Too often grazing is viewed as the cause of less than desirable conditions of rangelands. All resources should take ownership of improving rangeland conditions, including wildlife, mining, recreation, agriculture, etc.
- Monitoring must be automatic, as persistent, as ever present, and as well funded as NEPA, for management to succeed into the future.
 - Not from Nevada – but flexibility of grazing permits based on production.
- Dual class livestock grazing, cattle, sheep, or goats
- Strategic livestock grazing in intact (functional) sagebrush – perennial grass communities, based on timing and duration management, with the objective of maintaining or improving plant community resistance and resilience. (2) Targeted grazing to manage areas of annual grass dominated (especially where threshold has been crossed). Landscape setting – Especially Wyoming and mountain big sagebrush communities. But including other plant communities within sagebrush ecosystems. Context – Flexibility required both on part of management agencies and ranchers. This requires vision, cooperation: Trust best attained through grassroots collaboration.
- Maximum flexibility must be written into all allotment grazing plans allowing for more holistic management.
- The land management agencies need to encourage and incentivize rancher development and implementation of new or updated AMPs that includes the current science and flexibility needed to address current resource issues, including the management of fine fuels (including ephemeral) forages.
- Stop the rest policy on cheatgrass near-mono cultures after a fire or otherwise. And include cheatgrass in forage estimates. Landscape – Highly degraded cheatgrass dominated landscapes.
- Be more innovative in applying our current knowledge to work into existing processes under existing regulations and policies. Example: use S&T concepts and descriptions to derive better rangeland health assessments and determinations by 1) basing site potential on the current state, rather than PNC where the S & T model indicates that the pathway to return to PNC would require management inputs that are not technically or economically feasible. 2) Develop management strategies in such situations that facilitate stability in the current state, rather than unrealistic strategies to move toward PNC using nonexistent pathways.
- Boots on the ground! We need good paying jobs for people to be on the land with cattle, with monitoring, with free-roaming horses, etc. We can only manage well if we are out there. More buckaroos, range cons, monitors and archeologists on the land.
- The best opportunity is to educate land managers in “how to manage” and a better understanding of rangeland health. I don’t think permit holders, grazers, and private land owners understand how decrease (sic) perennial grasses are and how ecological thresholds are crossed & how state and transition models work. I don’t think I have seen a good fine fuels management plan.
- An opportunity exists with private lands to “showcase” or demonstrate management actions. If we make a significant area of private lands showing “desired results,” we can use that as robust evidence to foment needed policy change(s) for federal land management agencies and then changes in actual management of those lands. The private lands provide the nexus and catalyst for appropriate partnerships, research, and related aspects. Private lands can serve as the key in demonstrating the need for and value of flexibility not always provided in current federal land management authorizations.
- All players need to cooperate. Meet together, discuss problem areas. What can we do together to work on them. Who has what to offer – staff, monies, equipment, etc. So that we can all get to where we want to be – healthy landscapes across the State. Observed at Smith Creek Ranch where various entities came together for improvement projects of various areas. Can do this throughout our rangelands. We also need to be out on the ground more so we know what is happening on the ground. Remember its not just livestock, public lands are multiple use. There are more things happening out there that affect the landscape-waters & forage - that grazing management won’t fix, horses, ATVs, campers, etc.

- In Nevada the BLM needs more staff to better monitor natural resource conditions. Without adequate monitoring data, change on the landscape cannot be made. This needs to occur across all of Nevada.
- Draft if-then statements for grazing EAs' objectives to create adaptive management in NEPA.
- Transfer information among producers, "ologists," and agency folks to form usable guidelines and strategies for rotating grazers based upon resource availability and range health – incorporating stat-transition info. Use this exchange of info and peer pressure to encourage active management of grazing in areas that are loosely managed. Landscape: Southern Great Basin. Management context: Producers on the ground.
- Opportunity – find policies or make policy that enables flexible grazing preferences based on annual forage/fuels reduction. Setting- all areas where fine fuels threaten range resilience/resistance in the presence of an increased fire frequency.

Appendix B – Verbatim audience suggestions on the next steps needed to make progress on grazing management for annual grasses and fine fuels

- What is the objective? Include early spring and late fall grazing in all vegetation management EAs to have that flexibility. Take into account climate pulses a lot more in my analysis. More in depth. Work with fire personnel / fuels.
- Land users and land managers having like-minded management goals and objectives that don't stop at boundary or property lines.
- Overall education of public and of policy makers will ultimately provide the impetus for utilizing grazing as a tool to manage. Too often we as managers / scientists sit in rooms and talk to each other. But those messages aren't delivered to the public or policy makers. Broad education is the best way to achieve landscape scale and regional action. It can provide courage for any landscape.
- "Default back to 50 years ago will solve all management problems." Robert R. Depaoli
- Nullify harmful laws such as NEPA and FLPMA.
- Developing strategic grazing across northern Nevada to manage fine fuels in or after high production years. The issue is where, how much, and when, because every location cannot be grazed at the level needed. We also don't want to graze all locations to the same level because we would lose the diversity of habitats multiple wildlife species need.
- The best (and almost only) time to make grazing changes to public land is during the permit renewal process. Comments and suggestions are requested of the public that has signed up as BLM interested parties. For other projects, cooperative agreements can be implemented. *Contact the field manager and start asking questions.
- Permittee: 1.) Education (e.g. fuels, plants, green-brown strategy); 2.) Assertive in planning permitting process; 3.) Monitoring – responsibility; 4.) build trust with agency personnel. Agency: 1.) Incentivize RMS longevity, mentorship; 2.) Work cooperatively with permittees; 3.) Flexibility – active management; 4.) Greater "boots on the ground"; 5.) Education – i.e. ESD & STM;
- 6.) Build trust with permittees; 7.) demonstrate appropriate management to public; 8.) Programmatic EA?
- ____: Lobby congress to amend the land use plan to designate "annual grasslands" to "forage" (does this need stipulation?). Kathryn: Lead effort to develop if/then plan to adopt in EA's. Genie, Tamzen: Work together to educate managers on how to use ESD's. Lobby congress for many full-time monitors on ground.