SOUTH DAKOTA GRASSLAND COALITION

Grassroots

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The Green Side Up: Society for Range Management Annual Meeting Review

by Pete Bauman

This edition of "The Green Side Up" is a mix of take home messages from the 67th Annual Society for Range Management Meeting. I had the opportunity to attend the meeting via funding provided by the Great Plains Fire Science Exchange. They invited me to participate in a national discussion on the impacts of invasive cedar and juniper species that are an ever-increasing threat to Great Plains farms and ranches (I'll discuss this more later in this article).

The concept of going to Florida for a rangeland meeting might strike some as odd, given the perception that the entire state is swamp, palm trees, oranges, Mickey Mouse, nightclubs, and silicon. Actually (and somewhat unbelievably for the western cowboy) Florida has a strong ranch and cattle industry. Florida's ranching claim to fame is the Deseret Ranch. At 300,000 acres, 44,000 cows, and 1,300 bulls, the Deseret Ranch is the largest cow-calf operation in the U.S, spanning much of three counties in central Florida near the Orlando area. Unfortunately, I did not have the opportunity to attend the ranch tour as I had planned, but those who did were struck by the enormity of the operation.

I've been to Florida a few times for various prescribed fire trainings. During those excursions, I was always struck by how different…..and similar…..their situation is to most other states in the nation. They too once had a great deal of open grassland and ecosystems that were maintained by fire, but invasive species such as the palmetto and various other ornamentals have changed their landscape dramatically and now ranchers struggle to manage against these invaders. Sound familiar?

Regarding cedar and juniper trees, we have two here in South Dakota that are of concern, the Rocky Mountain juniper (*Juniperus scopulorum*) and the eastern red cedar (*J. virginiana*). The Rocky Mountain Juniper is believed to be native to the Missouri River breaks region and the Black Hills, while the eastern red cedar is thought to be mostly introduced. For those unfamiliar with the difference, the juniper is more of a 'bushy' type plant while the cedar takes on more of an upright growth form typical of a pine or spruce tree. Eastern red cedars are the common tree utilized in shelterbelts and wildlife habitat plantings…..which is part of our current and future 'problem'. Both are rapidly expanding in density and area in several regions of South Dakota.

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SRM Annual Meeting Review continued

Over time, the spread of all types of juniper and cedar has become a major concern in range management. We heard from researchers from across the southern and central plains….range professors, economist, social scientists….they all said the same thing – juniper and cedar are spreading rapidly, they are heading north, they are creating changes on the landscape that are primarily negative in regard to grassland ecology, and the Dakota's are the cedar frontier.

In a nutshell, the expansion of these species across the plains is now being dubbed the 'Green Glacier', and the reality is that the expansion will continue to impact rangeland productivity. The message to come from the recent research is that this expansion appears to be primarily a product of removal of fire from the grasslands. Planting cedars, grazing practices, and other land use decisions do contribute, but generally this grand expansion is simply related to fire exclusion. Where fire has been historically used, the trees are controlled, generally regardless of the other management practices.

Another issue that received attention was the impact of exotic cool season grasses in the northern plains. Smooth brome, Kentucky bluegrass, and the variety of species typically dubbed cheatgrasses are a major concern for our rangelands. Once established in a native pasture, these species can take over, changing the very nature of the plant community and the soil. Scientists now theorize that if Kentucky bluegrass or smooth brome infest over 30% of a pasture and if the native species are reduced to less than 40%, the situation will require significant management inputs to reverse the infestation to again favor the native species. This can be a harsh reality for those who's pastures are dominated by cool season exotic grasses. These species also negatively impact soil heath, aggregate stability, and water infiltration. The key to managing invasive species is to first get educated. Also, stay tuned as we develop more opportunity for education on cedar trees and exotic grasses, and other range topics. If you are not yet subscribed to our email service **sdgrassinfo**, let me know and I'll add you to the list. Peter.bauman@sdstate.edu

Pete Bauman is an Extension Range Field Specialist in Watertown, SD

SDSU Extension

Electronic Newsletter and Information

The SDGC would like to have your correct email address so we can send out announcements of happenings in between newsletters and send you the "Grassroots" newsletter electronically. To be good stewards of our resources, the board recognized substantial savings this switch would make. If you haven't been getting our email from Judge Jessop we might have your wrong email address. Please help us by contacting Judge Jessop at jljessop@kennebectelephone.com or Sandy Smart at alexander.smart@sdstate.edu. We will make sure that your information gets updated on our database. If you would rather receive a hard copy of the newsletter please let us know as well.

Prescribed Burning by Garnet Perman

Prairie plants evolved through hoof action and fire. With grass fires that accompanied recent drought conditions, fire has earned a bad rap, but it can be an effective grass management tool. With most of the state having good soil moisture, the time might be right to consider planning a burn.

Dave Steffen, from Burke, said his first bit of advice is to have a goal, and develop a plan from there. He did a prescribed burn to knock back brome grass and enhance native warm season grasses in a pasture. "Boy, tremendous results!" he said. The resulting increase in production helped get him through the recent dry years. A number of producers in his area are using fire to control the infestation of cedar trees in their pastures.

Jim and Lee Kopriva use fire to enhance crop land that they reseeded to native grass. Weedy grasses, particularly cool season grasses like brome, cheat grass and quack grass are a problem in new seedings. They use up available moisture and shade out the warm season natives before they get a good start. Koprivas burn in the spring when those non-natives are 6-8 inches tall and most damaged by fire. "It accomplishes something chemical and fertilizer will never do," Jim said. They plan to burn every year, but actually complete a burn about every 3 years because conditions have to be just right. "You have to have the discipline to not burn no matter how ready you are," he said.

Both Steffen and Kopriva advise that a burn plan is essential. Steffen uses an online template developed in Nebraska where prescribed burning is more widespread. South Dakota NRCS recently updated their burn plan. Stan Boltz, state NRCS range management specialist said, "We're just getting started in the controlled burning game." A sample plan, the template and a video explaining the process can be found on the state NRCS website: http://www.nrcs.usda.gov/wps/portal/nrcs/main/sd/technical/landuse/pasture. The step by step information goes through everything that must be considered for a successful burn. Steffen says, "It isn't that hard to do."

Cost share is available with several NRCS programs. Most plans require rest during the growing season to build up a fuel load, so a typical burn plan requires about a year's advance planning. The timing of the burn depends on which species is to be controlled, and some species like western snowberry are enhanced by burning, so understanding the objective is important.

Experienced help is a good idea for a first time burn, and can be obtained from several sources. The state NRCS offices have different levels of expertise when it comes to burning. Game, Fish and Parks, Pheasants Forever and Ducks Unlimited are able to help individual producers. Bill Slovek, from Philip, worked with GF&P to control a Kentucky Bluegrass infestation on a quarter of land. Slovek did the perimeter preparation work and called the neighbors, but GF&P did the rest of the work including having the local fire department present. Koprivas learned about burning from SDSU professors, Eric Mosel and Sandy Smart when Lee attended college. Mousel and Smart provided the expertise and some eager grad students to set up and carry out their first couple of burns.

Eric Mousel and Lee Kopriva in 2011
(Photo by A. Smart)

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Managing Grazing Litter by Rick Smith

Trampled litter and dung from a recently "mob" grazed paddock at Rick Smith's in 2012 (Photo: by A. Smart)

My January SDGC article was about the importance of microbes flourishing by eating litter and in turn maximizing infiltration. This will focus on creating and managing a litter cover that is effective and efficient. Losing plant nutrients to oxidation or having poor soil organism activity will not improve your grassland soils. These are the inefficiencies you want to remove with your grazing management, because ultimately you want all grass nutrients to be used for your livestock needs and simultaneously feed the litter to soil organisms for improved plant growth in succeeding growing seasons.

Litter needs to serve a purpose and litter needs to be replaced routinely. This would be similar to politicians and diapers. You can have individual tall grass plants or several hundred pounds of aboveground biomass that looks fantastic from the road, but if there isn't good soil litter coverage or the litter is just accumulating without breaking down, one is not improving the soil below it. Litter needs to be consumed by soil or surface organisms and returned to the soil.

Ground litter of plant leaves or dung can be consumed by earthworms, beetles or hoppers and excreted directly as plant available nutrients. More often these organisms may carry plant material into the soil where a whole host of other fungi, bacteria and nematodes will do the conversion work. If these aboveground workers aren't present to start the process, aboveground plant material will just oxidize and be lost to the atmosphere.

Hard stems or stalks that are left standing are not contributing to the litter recycling process and may lose nearly all their nutrients to oxidation if not physically laid to the soil surface. The ability to shade or protect soil is improved exponentially with a horizontal stalk or stem vs. a vertical one.

Trampling by livestock or wildlife and the weight of snow are the most efficient methods of laying down heavy stalks for litter, but clipping also is possible. In the Eastern third, because of the amount of moisture and humidity, thinner and weaker hollow stem mature cool season grasses will normally rot at the soil surface and fall over by the following spring. A warm season grass or legume stem being thicker and stronger may remain upright for more than a year if undisturbed.

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Managing Grazing Litter continued

In order for the carbon in litter to become soil organic matter, there must be a nitrogen source to feed the converters. Just as if you tried to feed a cow straw without nitrogen (protein), these microbes require and will do better with more protein in the litter mix. Assuring the presence of a nitrogen source is a key to efficiency. If one doesn't, then the soil activity will be minimum, and one could quickly get in a situation of too much lazy litter of poor value and actually suppress production. This is a common problem with CRP, wildlife protection areas or wilderness devoid of historic grazing animals. A nitrogen source could be from adding legumes, applying manure, applying commercial nitrogen, grazing early in the season when grass has high protein content or from a protein supplement being fed to livestock consuming the grass residual. The bugs aren't fussy where the nitrogen comes from. Because nitrogen is soluble in water, it can quickly disperse throughout the litter cover and soil to maximize its use.

A grazing program, which tramples a portion of fresh grass flat to the soil surface during use, is the fastest and most reliable method to build healthy litter recycling. Grazing programs that improve manure distribution will also benefit the nitrogen and nutrient recycling overall. These both can be accomplished with ultra-high density-short duration grazing programs.

Mob grazing Pat Guptill's near Quinn, SD in 2012 (Photo by A. Smart).

When a mob grazing type program doesn't fit your management capabilities, you have to look at other improvement programs that may take longer or require additional costs to achieve. Just leaving more fall mature grass to be knocked flat by snow or clipped is a beginning to get the soil covered. If a legume is present, letting it mature and drop the protein rich leaves to the ground can help jump start the nitrogen sourcing.

Building soil health with great litter management is a compounding process, meaning that your production results continue to build as your soil health improves. The hardest step is sacrificing some grazing today for a reward of better infiltration, better drought tolerance, more active soil nutrients, resulting in more production down the road.

Rick Smith is a farmer/rancher near Hayti, SD and the Lake Poinsett Watershed Coordinator. He can be contacted at 605-886-6513

Prescribed Burning continued

Another essential is good communication with the neighbors and the local fire department. Some fire departments may even welcome a burn as an opportunity for wildland fire training. Neighbors can be understandably nervous and should be notified that a burn is in the works. In addition to Steffen, Kopriva, and Slovek, Coalition members listed as mentors for prescribed burning include Ellen Reddick and Larry Wagner.

Garnet Perman is a freelance writer and ranches with her husband, Lyle, near Lowry, SD

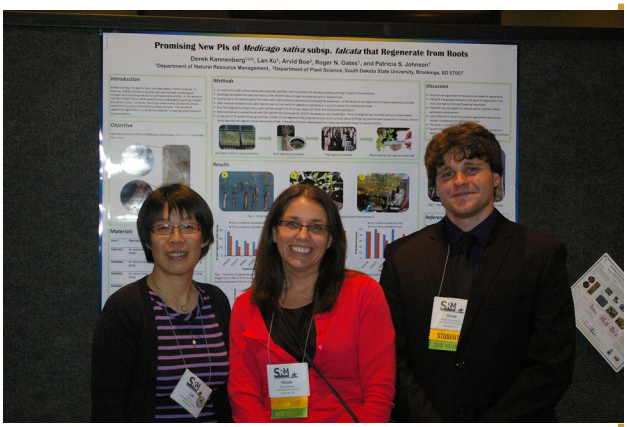
Collegiate Participation at the 2014 SRM by Sandy Smart

The Undergraduate Range Management Exam (URME) and Plant ID competitions were held at the 67th Annual Society for Range Management meetings in Orlando, FL Feb 8th – Feb 13th. The URME Team placed 7th out of 21 teams and the Plant ID Team placed 8th out of 22 Teams. Kelsey Ducheneaux and graduate student Benjamin Turner (not pictured) won the Rangeland Cup competition and Jacob Maca placed 3rd in the extemporaneous speaking contest.

Pictured left to right are: Dr. Lora Perkins (URME Coach), Jacob Maca (URME), Sam Haigh (RC, ID, URME), Tyler Swan (RC, ID, URME), Lance Wheeler (RC, ID, URME), Kelsey Ducheneaux (RC, ID, URME), Morgan Myers (RC, ID, URME), Cady Olson (RC, ID, URME), Wyatt Johnson (RC, ID, URME), Ella Woroniecki (URME, ID), Dr. Gary Larson (ID Coach), and Dr. Sandy Smart (RC Advisor).

RC = Range Club, ID = Range Plant Identification, URME = Undergraduate Range Management Exam

Nicole Boone and Derek Kannenberg, undergraduate students advised by Dr. Lan Xu, presented undergraduate research projects examining the bud bank of invasive cool-season grasses (Boone) and new strains of yellow flowered alfalfa (Kannenberg).



Dr. Lan Xu, and undergraduates Nicole Boone, and Derek Kannenberg pose at the poster competition.

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Collegiate Participation at the 2014 SRM continued

Graduate students presented their research at the 2014 SRM meeting during the concurrent oral paper and poster sessions. SDSU graduate students in attendance were Megan Brown (advisor Sandy Smart), Kurt Chowanski (advisor Roger Gates), Emily Helms (advisor Sandy Smart), Mark Hendrix (not pictured; advisor Roger Gates), Wyatt Kirwan (advisor Sandy Smart), Christi Koehler (advisors KC Jensen and Pat Johnson), Ben Turner (not pictured; advisor Roger Gates) and Emily Ulrich (advisor Lora Perkins). Topics included mob grazing, habitat structure, drought resilience, and systems modeling.

Pictured left to right are: Kristi Koehler, Wyatt Kirwan, Emily Ulrich, Megan Brown, Kurt Chowanski, and Emily Helms.

High School Youth Forum by Krecia Leddy

Kadon Leddy recently participated in a 6-8 minute paper presentation competition with 22 other students from across the nation and Canada at the Society for Range Management's High School Youth Forum (HSYF) held in Orlando, Florida. Kadon's presentation was titled "When in Drought, Manage Throughout" and he received second place in the paper presentation student competition. He received his award from SRM President, Wally Butler. During the Forum the delegates participated in an ecological tour of Merrit Island National Wildlife Refuge and Canaveral National Seashore, had a professional interaction dinner, and a delegate business meeting and workshop.

Kadon Leddy with SRM President Wally Butler receiving 2nd place in the HSYF.
(Photo by Krecia Leddy)

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Calendar of Events

Event	Date	Location	Contact Person	Phone
Ag Day Festival	March 22	Sioux Falls	Judge Jessop	605-280-0127
Range Camp	June 3-5	Sturgis	Tate Lantz	605-390-8049
			Dave Ollila	605-394-1722
Bird Tour	June 13-14	Union Center	Judge Jessop	605-280-0127
Rangeland and Soils Days	June 24-25	Chamberlain	Tina DeHaai	605-734-5953 ext 3
			Dave Ollila	605-394-1722

Please remit any comments, suggestions, or topics deemed necessary for further review to: Sandy Smart, SDSU Box 2170, Brookings, SD 57007, alexander.smart@sdstate.edu, (605) 688-4017