

## How an Undergraduate Benefited from Attending the Society for Range Management Annual Meeting

BY SEAN KELLY

During the last few semesters, I have been in a rut! I have just been going through the motions; attending classes, doing homework, etc. because they were part of the requirements at Colorado State University (CSU). I really looked forward to vacations and weekends. Hunting season, concerts, and football games were more important to me than learning about the world around me.

In February, members of the CSU Range Club went to the Annual Society for Range Management Meeting in Omaha, Nebraska. We were exposed to and interacted with, about 1500 professionals in the field of range management. There were also about 200 range students from 20 other schools in the United States and Canada who attended the meeting.

We made the 10 to 12 hour ride to Omaha in university motor pool vans, crossing rangelands I had never seen before. We were enthusiastically guided through Nebraska by range science professors from Colorado State. There were also a few graduate students and a Colorado rancher in the vans to spice up the trip. I talked for miles and miles and hours on end about my favorite subjects with the same "guys" who are cited in my text books.

At the convention there were countless technical sessions, symposia, and posters prepared by professionals and graduate students from around the world. I was moved by the sheer dedication and enthusiasm of the range professionals who will soon be my colleagues.

There were many student functions and competitions to bring us together and opportunities to interact with the other students. After a week of studying, competing, praying, and honky tonking, I realized that those other students are some of my best friends: We all have common interests and aspirations. After the student awards ceremony, the SRM Student Conclave President from Oregon shook my hand and said that we will meet again some time soon. At that moment, I realized we all hopefully will have similar jobs someday.

Near the end of the convention, I purchased a range science baseball cap for my girlfriend from the students of the University of Idaho. It had their logo on the back, but was exactly her style. I figured I would just remove the stitching, but before I did that, I realized I was actually proud to promote any University's range department. I gave it to her just like it was designed!

With all due respect to my current professors, I must say it was worth missing a week of classes to be blessed by God with such emotional inspiration. Many times, during and following the convention, I was brought to tears, and I am not ashamed to say so. I also saw the same emotions in others as well. I believe the most important thing I learned at that convention is that we must all work together to promote responsible stewardship of the land. I repeat, WE ALL must

work together. That includes the animal scientists, plant scientists, political scientists, engineers, statisticians, recreationists, and even the musicians.

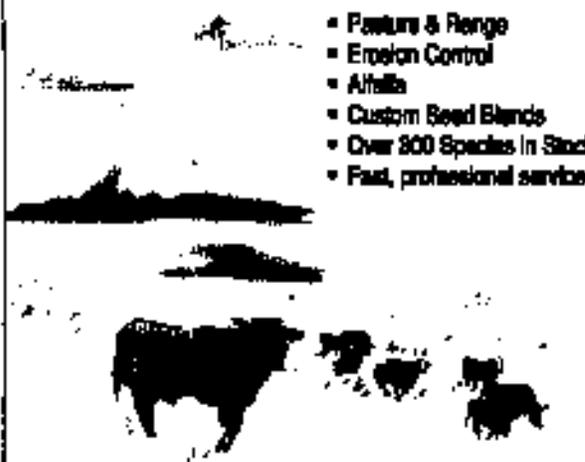
There is a reason we attend state supported universities, and I know it is not for gold! We are not here for the parties, concerts, and football games. They will not go away, so college life will always be fun. However, we are here to learn and contribute to society. We are here to save the world! Am I wrong?

Author is a senior in the rangeland ecosystem science dept, CSU.

Reprinted from: the *Range Rider*, Colorado Section Newsletter Volume 50, Number 3, 1999.

**granite**  
**SEED**

---



- Pasture & Range
- Erosion Control
- Alfalfa
- Custom Seed Blends
- Over 800 Species In Stock
- Fast, professional service

Call or Fax for our Catalog (801) 651-1466, Fax (801) 785-3967  
Granite Seed Co., P.O. Box 177, Lehi, Utah 84043



## Sneek a Peek at the upcoming issue of Journal of Range Management

### Livestock Guarding Dogs in Norway: Part II Different Working Regimes

Inger Hansen and Martin E. Smith

Open mountain/forest range and widely ranging sheep make livestock guarding dogs adaptations difficult under Norwegian conditions. A field trial evaluated 10 Great Pyrenees dogs' behavior patterns and effectiveness under different working regimes. Patrol dogs under command of a dog handler were engaged in guarding activities > twice as often than dogs inside a fenced pasture, however pasture dogs barked > 15 times as frequently and no depredated sheep inside a fenced pasture were found. Socialization of the puppy to sheep is dependent on future guarding method planned; the less command by people, the stronger social bond to sheep is required.

### Responses of Winterfat Seeds and Seedlings to Desiccation

J.Q. Hou, J.T. Romo, Y Bai and D.T. Booth

High seedling mortality has been identified as a major obstacle to winterfat seedling establishment. The influence of seedbed desiccation on germination and seedling survival of winterfat seeds and young seedlings were evaluated in a laboratory study at the University of Saskatchewan. Seedling survival was positively correlated with relative humidity and negatively correlated with the duration of desiccation with seedlings more tolerant of desiccation from seeds that rapidly germinated. Establishment of winterfat seedlings will be favored by seedbed conditions that protect seedlings from severe and prolonged desiccation and allow fast entry of the radicle into soil.

### Group Size Effects on Grazing Behaviour and Efficiency in Sheep

Agostino Sevi, Donato Casamassima and Antonio Muscio

Little information is available on flock size effects on sheep grazing efficiency and behaviour or the influences of seasonal climatic or pasture conditions. Grazing trials in southern Italy evaluated the effect of group size in grazing efficiency and behaviour of sheep. In the winter, group size did not affect grazing efficiency and herbage intake but in the spring the ewes in the small group grazed shorter times, had a lower herbage intake, and a less efficient use of forage. Flock sizes of 6 sheep or more should be used when evaluating sheep grazing behaviour.

### Response of White-tailed Deer Foods to Discing in a Semiarid Habitat

Timothy E. Fulbright

Discing strips of rangeland is a common management practice for increasing herbaceous plants eaten by white-tailed deer. The question of how often strips should be disced to maximize desirable plants was addressed in this study. Discing increased canopy cover of annuals preferred by deer, but this increase was counterbalanced by decreased preferred perennials and increased cover of unpalatable forbs. Discing is not recommended as a habitat improvement practice in semi-arid areas when the objective is to increase canopy cover of forbs preferred by white-tailed deer.

### Technical Note: Pericarp Removal Has Little Effect on Sagebrush Seeds

Yuguang Bai, Stuart P. Hardegree, D. Terrance Booth and Eric E. Roos

Pericarp removal is a result of commercial seed processing of sagebrush and there is a concern about its impact on seed quality. We tested 2 seedlots of Wyoming big sagebrush (*Artemisia tridentata* Nutt. ssp. *wyomingensis* Beetle & Young) to determine if pericarp removal affected seed hydration of germinability under water stress. In general, pericarp removal had a relatively minor effect on these processes and properties. The commercial seed processing is unlikely to affect seedling establishment.

### Benefits and Impacts of Wildlife Water Developments

Steven S. Rosenstock, Warren B. Ballard, and James C. deVos, Jr.

Critics have suggested that wildlife water developments have not yielded expected benefits and may negatively impact wildlife by increasing predation, competition, and disease transmission. Following an extensive literature review and discussions with resource managers across the western U.S., we concluded that water developments have likely benefitted many game and nongame species, but have not always yielded expected increases in animal distribution and abundance. Purported negative impacts are not supported by data and remain largely speculative. We recommend that resource managers apply more rigorous planning criteria to new projects and expand research and monitoring efforts associated with water development programs.

### Consumption of Low Larkspur by Cattle

James A. Pfister and Dale R. Gardner

Low larkspur is a toxic range plant that is often fatal to cattle when ingested during spring or early summer on foothill or mountain rangelands. Grazing trials with cow-calf pairs in north central Utah during 1996 and 1997 examined toxicity and consumption of low larkspur. Cattle avoided eating low larkspurs before flowering but did eat the mature plants even if other forage was available. Increased grazing pressure caused cattle to eat more larkspur until plant density was reduced by grazing but losses may be reduced by ensuring that grazing pressure and/or stock density are not excessive on low larkspur-infested rangelands.

### Sagebrush Response to Ungulate Browsing in Yellowstone

Carl L. Wambolt and Harrie W. Sherwood

The effects of large populations of ungulates in the Northern Yellowstone Winter Range on the larger woody plants (primarily aspen and willows) have been debated for over 60 years. To understand the effects on more widespread woody plants, we compared shrub parameters of sagebrush habitat types continually browsed or protected for over 30 years in 19 environmentally paired, protected and browsed sites. We found significant differences in development between protected and browsed shrubs. This ungulate induced decline of shrubs and habitat value has implications of ultimately affecting many organisms with the loss of quality sagebrush habitat.

### Botanical Composition of Cattle and Vizcacha Diet in Central Argentina

Eliana E. Bontti, Roberto M. Boo, Lilia I. Lindstrom and Omar R. Ella

There is a potential competition between the diets of vizcacha and cattle in the semiarid region of Argentina. The botanical composition and possible dietary overlap between both herbivores were evaluated by microscopic analysis of feces on a monthly interval. A 75% overlap in diets was found during the wet period with 38 to 48% overlap during the dry period. The combined effect of heavy grazing by cattle and vizcachas should be prevented to avoid displacing high quality forages with undesirable grasses and woody plant community composition which would be difficult to reverse.

### Clipping Effects on Growth Dynamics of Japanese Brome

M.R. Haferkamp and M.G. Karl

Japanese brome has invaded many northern mixed prairie plant communities. The effect of weekly or biweekly defoliation by clipping was evaluated in a greenhouse study in 1991, 1992, and 1997. Clipping vegetative plants in 1991 reduced tiller numbers and leaf heights whereas clipping plants with reproductive shoots in 1992 and 1997 increased tiller numbers and reduced leaf heights. While care must be exercised in extrapolating from greenhouse studies to the field, these findings relate to situations where soil water is adequate for regrowth of plants after defoliation which would fit the environmental conditions in the northern plains in many years.

### Cattle Grazing and Avian Communities of the St. Lawrence River Islands

Luc Belanger and Martin Picard

Cattle grazing potentially affects the avian communities on the islands along the St. Lawrence River in Quebec. The impact of different degrees of grazing pressure on avian communities of natural spring flooded prairie areas of the St. Lawrence River were evaluated. Results showed that the grazing pressure determined the type of bird species present and their density. To preserve ground and shrub-nesting bird species in the area, electric fences or other structures should be used to protect shrub zones and marsh shorelines with emergent plants to insure the presence of passerine species associated with older prairie and riparian habitats.

### First Limiting Nutrient for Summer Calving Cows Grazing Autumn-Winter Range

Gregory P. Lardy, Don C. Adams, Terry J. Klopfenstein and Richard T. Clark

Limited information is available regarding whether energy or protein is first limiting for lactating summer calving cows grazing native range during the autumn-winter months. The first limiting nutrient for summer calving cows was evaluated in a series of 3 year grazing trials in the Nebraska sandhills. Degraded intake protein was found to be the first limiting nutrient for cows during the breeding season and during autumn-winter lactation after the breeding season. Protein supplements which are high in degradability can meet the necessary supplement protein requirements.

### Reclaiming Russian Knapweed Infested Rangeland

Lani J. Benz, K. George Beck, Thomas D. Whitson, and David W. Koch

Russian knapweed often recovers from single method control efforts only to re-establish to pre-control population levels. We evaluated the effectiveness of combining herbicide treatments or mowing with dormant seeding of perennial rangeland grasses. Results showed that herbicides suppressed Russian knapweed better than mowing, but all suppression methods had to be combined with grass seeding to be successful. Clopyralid plus 2,4-D plus fall seeded streambank wheatgrass, while expensive (\$262 ha<sup>-1</sup>), was the best treatment combination because it controlled Russian knapweed effectively while the sod-forming grass established well and helped to prevent re-invasion by the weed.

### Canopy Analysis for Characterization of Defoliation Intensity on Sandhills Range (1) Defoliation Intensity Characterized through Canopy Analysis of Sandhills Range (2) Canopy Analysis as a Technique to Characterize Defoliation Intensity (3)

M.S. Miller-Goodman, L.E. Moser, S.S. Waller, J.E. Brummer and P.E. Reece

A rapid, nondestructive method to measure herbage disappearance is needed to quantify defoliation and stocking rate impacts on plant canopy characteristics. A LI-COR LAI-2000 was used to quantify LAI (canopy density) response to defoliation by cattle, determine if changes in LAI are related to stocking rate, and to determine advantages and drawbacks of the technique. Differences in LAI could be attributed to certain grazing treatments at various dates; stocking rate accounted for 62% of the decrease in LAI. When configured to the site, the LAI-2000 provided a rapid method to quantify defoliation intensity associated with grazing cattle.

# Browsing the Literature

JEFF MOSLEY

This section reviews new publications available about the art and science of rangeland management. Personal copies of these publications can be obtained by contacting the respective publisher or senior author (addresses shown in parentheses). Suggestions are welcomed and encouraged for items to include in the future issues of *Rangelands*.

## *Animal Ecology*

**Selective differences between naive and experienced cattle foraging among eight grasses.** D. Ganskopp and R. Cruz. 1999. *Applied Animal Behaviour Science* 62:293-303. (USDA-ARS, HC-71 4-51 Hwy 205, Burns, OR 97720). Cattle in a new environment grazed less efficiently and grazed a broader array of forages than experienced cattle.

**Grazing behavior of livestock and wildlife.** K.L. Launchbaugh, K.D. Sanders, and J.C. Mosley, editors. 1999. *Idaho Forest, Wildlife & Range Experiment Station Bulletin* 70. (\$20; Dept. of Rangeland Ecology & Mgmt., Univ. of Idaho, Moscow, ID 83844). This 147-page proceedings includes 17 state-of-the-art review papers that synthesize existing knowledge and management implications of livestock and wildlife foraging behavior.

## *Grazing Management*

**Best management practices for grazing in Montana.** K. Lee-Campbell, coordinator. 1999. (Conservation Districts Bureau, Dept. of Natural Resources and Conservation, P.O. Box 20160, Helena, MT 59620). Uses non-technical language and photographs to describe the Best Management Practices for livestock grazing in Montana.

**Early summer vs. late summer diets of sheep grazing in a conifer plantation.** T. Mbabaliye, J. L. Kingery, and J.C. Mosley. 1999. *Sheep & Goat Research Journal* 15:34-40. (J.L. Kingery, Dept. of Rangeland Ecology & Mgmt., Univ. of Idaho, Moscow, ID 83844). Nutritive quality of sheep diets was low in late summer, and diet selection by sheep strongly favored grasses and sedges rather than forbs or shrubs, regardless of grazing season.

**Utilization of heterogenous grasslands by domestic herbivores: Theory to management.** D.W. Bailey, B. Dumont, and M.F. WallisDeVries. 1998. *Annales de Zootechnie* 47:321-333. (Northern Agr. Res. Center, Montana State Univ., Star Route 36, Box 43, Havre, MT 59501). Reviews the factors affecting grazing distribution of livestock and suggests possible ways to modify grazing patterns.

## *Improvements*

**Biology and management of noxious rangeland weeds.** R.L. Sheley and J.K. Petroff, editors. 1999. (\$32.95 + \$3.00 shipping; Univ. of Arizona Press, 1230 N. Park Ave., Suite 102, Tucson, AZ 85719). This 608-page book presents the identification, ecology, and management options for 29 of the most serious rangeland weeds in the western U.S. and western Canada.

**Noxious brush and weed control research highlights--1998.** D.B. Wester and C.M. Britton, editors. 1998. Vol. 29. (Dept. of Range, Wildlife & Fisheries Mgmt., Texas Tech Univ., Lubbock, TX 79409). Progress report describing 63 research projects in the Department of Range, Wildlife & Fisheries Management at Texas Tech University.

## *Measurements*

**Aboveground biomass estimation of broom snakeweed (*Gutierrezia sarothrae*) plants.** S. Tian and D.B. Wester. 1999. *Texas Journal of Science* 51:55-64. (Dept. of Range, Wildl. & Fisheries Mgmt., Texas Tech Univ., Lubbock, TX 79409). Presents 2 regression equations for predicting aboveground biomass of broom snakeweed.

**In situ narrow-band reflectance characteristics of cover components in sagebrush-steppe.** E.W. Bork, N.E. West, and K.P. Price. 1998. *Geocarto International* 13(4):5-15. (Dept. of Rangeland Resources, Utah State Univ., Logan, UT 84322). Narrow-band imagery showed strong potential for improving remote sensing of rangelands.

**Use of hand-held radiometers to evaluate the cover and hydrologic characteristics of semiarid rangelands.** D.F. Post, E.S. Martin, J.R. Simanton, and E.E. Sano. 1999. *Arid Soil Research and Rehabilitation* 13:201-217. (Dept. of Soil, Water & Environ. Sci., Univ. of Arizona, Tucson, AZ 85721). Spectral reflectance data collected with a hand-held radiometer were used to predict soil cover and runoff.

## *Plant/Animal Interactions*

**Aspen, elk and fire in the Rocky Mountain national parks of North America.** C.A. White, C.E. Olmsted, and C.E. Kay. 1998. *Wildlife Society Bulletin* 26:449-462. (Banff national Park, P.O. Box 900, Banff, AB T0L 0C0, Canada). Aspen stands do not regenerate in areas of high and very high elk density.

**Burrowing activities of kangaroo rats and patterns in plant species dominance at a shortgrass steppe-desert grassland ecotone.** M.J. Fields, D.P. Coffin, and J.R. Gosz. 1999. *Journal of Vegetation Science* 10:123-130. (D.P. Coffin, USDA-ARS, Box 30003, Las Cruces, NM 88003). Kangaroo rats and their activities benefitted black grama vs. blue grama.

**Effect of *Euphorbia esula* on sheep rumen microbial activity and mass in vitro.** J.L. Roberts and B.E. Olson. 1999. *Journal of Chemical Ecology* 25:297-314. (B.E. Olson, Dept. of Animal & Range Sciences, Montana State Univ., Bozeman, MT 59717). Rumen microbes were not inhibited by secondary compounds in leafy spurge when leafy spurge had high nitrogen content.

**How grazing and soil quality affect native and exotic plant diversity in Rocky Mountain grasslands.** T.J. Stohlgren, L.D. Schell, and B. VandenHeuvel. 1999. *Ecological Applications* 9:45-64. (Natural Resource Ecology Lab, Colo. State Univ., Fort Collins, CO 80523). At landscape scales, grazing has little effect on native plant species richness or the spread of most exotic plant species.

**Influence of prairie dogs (*Cynomys ludovicianus*) on habitat heterogeneity and mammalian diversity in Mexico.** G. Ceballos, J. Pacheco, and R. List. 1999. *Journal of Arid Environments* 41:161-172. (Inst. of Ecol., National Autonomous Univ. of Mexico, Ap. Postal 70-275, Mexico City 04510, DF, Mexico). Prairie dogs and their activities increase species diversity in grasslands.

**Mammalian herbivores: Ecosystem-level effects in two grassland national parks.** J.K. Detling. 1998. *Wildlife Society Bulletin* 26:438-448. (Dept. of Biology, Colo. State Univ., Fort Collins, CO 80523). Compares grazing effects from prairie dogs, bison, and feral horses.

**Thunder on the Yellowstone revisited: An assessment of management of native ungulates by natural regulation, 1968–1993.** F.J. Singer, D.M. Swift, M.B. Coughenour, and J.D. Varley. 1998. *Wildlife Society Bulletin* 26:375-390. (Box 168, Yellowstone National Park, WY 82190). No widespread evidence of overgrazing was observed in the vast majority of the winter range.

#### *Plant Ecology*

**Exotic plant species invade hot spots of native plant diversity.** T.J. Stohlgren et al. 1999. *Ecological Monographs* 69:25-46. (Natural Resource Ecology lab, Colo. State Univ., Fort Collins, CO 80523). Sites with high plant species richness can be invaded by exotic plant species.

**Impact of drought on desert shrubs: Effects of seasonality and degree of resource island development.** J.F. Reynolds, R.A. Virginia, P.R. Kemp, A.G. deSoyza, and D.C. Tremmel. 1999. *Ecological Monographs* 69:69-106. (Dept. of Botany, Duke Univ., Box 90340, Durham, NC 27708). Creosotebush appeared better able to withstand winter/spring drought than did mesquite.

#### *Reclamation*

**Arbuscular mycorrhizae and water stress tolerance of Wyoming big sagebrush seedlings.** P.D. Stahl, G.E. Schuman, S.M. Frost, and S.E. Williams. 1998. *Soil Science Society of America Journal* 62:1309-1313. (Dept. of Renewable Resources, Univ. of Wyoming, Laramie, WY 82071). Big sagebrush should be planted in fresh topsoil to encourage mycorrhizae to attach to sagebrush roots.

**Effects of moisture, temperature, and time on seed germination of five wetland Carices: Implications for restoration.** R.A. Budelsky and S.M. Galatowitsch. 1999. *Restoration Ecology* 7:86-97. (Dept. of Hort. Sci., Univ. of Minnesota, St Paul, MN 55108). Sedge seeds should be stored under wet-cold conditions to maintain seed viability.

**Shrub densities on pre-1985 reclaimed mine lands in Wyoming.** D.T. Booth, J.K. Gores, G.E. Schuman, and R.A. Olson. 1999. *Restoration Ecology* 7:24-32. (USDA-ARS, 8408 Hildreth Road, Cheyenne, WY 82009). Seeding diverse shrub mixtures at high seeding rates should help reclaimed mine lands meet Wyoming standards.

#### *Soils*

**Biopedturbation by mammals in deserts: A review.** W.G. Whitford and F.R. Kay. 1999. *Journal of Arid Environments* 41:203-230. (USDA-ARS, Box 30003, Las Cruces, NM 88003). Soil disturbance by mammals can greatly influence soil formation and biodiversity.

**Impact of grazing management on the carbon and nitrogen balance of a mixed-grass rangeland.** G.E. Schuman, J.D. Reeder, J.T. Manley, R.H. Hart, and W.A. Manley. 1999. *Ecological Applications* 9:65-71. (USDA-ARS, 8408 Hildreth Road, Cheyenne, WY 82009). Livestock grazing increased carbon and nitrogen in the root zone of the soil profile.

**Microbiotic crust influence on unsaturated hydraulic conductivity.** J.D. Williams, J.P. Dobrowolski, and N.E. West. 1999. *Arid Soil Research & Rehabilitation* 13:145-154. (USDA-ARS, P.O. Box 370, Pendleton, OR 97810). Living or dead microbiotic crusts did not affect permeability of sandy loam soil.

Author is associate professor and extension range management specialist, Dept. of Animal and Range Sciences, Montana State Univ., Bozeman, MT 59717.