Jeff Mosley

Browsing the Literature

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 publishers or senior authors (addresses shown in parentheses). Suggestions are welcomed and encouraged for items to include in future issues of *Browsing the Literature*. Contact Jeff Mosley, jmosley@montana.edu.

Animal Ecology

Effects of a visual barrier fence on behavior and movements of black-tailed prairie dogs. N. S. Foster-McDonald, S. E. Hygnstrom, and S. P. Korte. 2006. *Wildlife Society Bulletin* 34:1169–1174. (School of Natural Resources, Univ of Nebraska, Lincoln, NE 68583). The SB Tensar snowfence did not control movements of black-tailed prairie dogs.

Response of plant and rodent communities to removal of prairie dogs (*Cynomys gunnisoni*) in Arizona. S. E. Bartz, L. C. Drickamer, and M. J. C. Kearsley. 2007. *Journal of Arid Environments 68*:422–437. (Dept of Biological Sci, Northern Arizona Univ, Box 5640, Flagstaff, AZ 86011). "We conclude that Gunnison's prairie dogs are not functioning as a keystone species in grasslands of northern Arizona."

Grazing Management

Alkaloid profiles, concentration, and pools in velvet lupine (*Lupinus leucophyllus*) over the growing season. S. T. Lee, M. H. Ralphs, K. E. Panter, D. Cook, and D. R. Gardner. 2007. *Journal of Chemical Ecology* 33:75–84. (USDA–ARS, Poisonous Plant Research Lab, 1150 East 1400 North, Logan, UT 84341). In velvet lupine, concentration of the alkaloid that causes livestock birth defects is highest in the plant's immature seeds.

Grassland songbirds in a dynamic management landscape: behavioral responses and management strategies. N. G. Perlut, A. M. Strong, T. M. Donovan, and N. J. Buckley. 2006. *Ecological Applications* 16:2235–2247. (The Rubenstein School of Environment and Natural Resources, Univ of Vermont, 81 Carrigan Dr, Burlington, VT 05405). Savannah sparrows and bobolinks had moderate reproductive success on rotationally grazed pastures in the northeastern United States.

Gunnison sage-grouse use of Conservation Reserve Program fields in Utah and response to emergency grazing: a preliminary evaluation. S. G. Lupis, T. A. Messmer, and T. Black. 2006. *Wildlife Society Bulletin* 34:957–962. (Dept of Wildland Resources, Utah State Univ, Logan, UT 84322). Suggests that high-intensity rotational livestock grazing can be used to enhance the quality of sage-grouse habitat in CRP fields.

Incorporating sheep into dryland grain production systems II. Impact on changes in biomass and weed density. P. G. Hatfield, A. W. Lenssen, T. M. Spezzano, S. L. Blodgett, H. B. Goosey, R. W. Kott, and C. B. Marlow. 2007. *Small Ruminant Research* 67:216–221. (Dept of Animal and Range Sciences, Montana State Univ, Bozeman, MT 59717). Burning or prescribed sheep grazing were equally effective in reducing weed biomass and density in

wheat stubble fields. Prescribed sheep grazing is a viable tool for controlling weeds in dryland wheat fields.

Targeted grazing: A natural approach to vegetation management and landscape enhancement. K. L. Launchbaugh, J. W. Walker, and R. Daines [eds]. 2006. American Sheep Industry Association, Centennial, CO. 199 p. ($25; American Sheep Industry Association, www.sheepusa.org/targetedgrazing). Written by scientists and practitioners from across the United States, this handbook contains 18 chapters that synthesize the research literature and practical experiences about using prescribed (or targeted) livestock grazing to accomplish ecological objectives. Chapters include strategies for controlling invasive weeds, creating fuelbreaks, increasing timber growth and fruit production, improving wildlife habitat, and much more.

Hydrology/Riparian

Riparian area management: Grazing management processes and strategies for riparian-wetland areas. S. Wyman, D. W. Bailey, M. Borman, S. Cote, J. Eisner, W. Elmore, B. Leinard, S. Leonard, F. Reed, S. Swanson, L. Van Riper, T. Westfall, R. Wiley, and A. Winward. 2006. Technical Reference 1737-20, BLM/ST/ST-06/002+1737. Bureau of Land Management, Denver, CO. 105 p. (Printed Materials Distribution Service, Bureau of Land Management, PO Box 25047, Denver, CO 80225). This publication is the latest update of the BLM technical reference for managing livestock grazing in riparian ecosystems.

Plant Ecology

Evaluation of elemental allelopathy in *Acroptilon repens* (L.) DC. (Russian knapweed). C. Morris, C. A. Call, T. A. Monaco, P. R. Grossi, and S. A. Dewey. 2006. *Plant and Soil* 289:279–288. (C. Call, Dept of Wildland Resources, Utah State Univ, Logan, UT 84322). Although Russian knapweed is known to concentrate zinc in upper soil layers, this study found no evidence that elevated levels of zinc had allelopathic effects on desirable grasses.

Long-term interactions of climate, productivity, species richness, and growth form in relictual sagebrush steppe plant communities. N. E. West and T. P. Yorks. 2006. *Western North American Naturalist* 66:502–526. (Dept of Wildland Resources, Utah State Univ, Logan, UT 84322). In relict sagebrush steppe sites of southern Idaho, sagebrush and other shrubs have increased in relative abundance compared with herbaceous plants. These changes during the past 20 to 30 years are due more to the absence of fire than climate change or absence of livestock grazing.

Mechanisms underlying the impacts of exotic annual grasses in a coastal California meadow. H. M. Coleman, and J. M. Levine. 2007. *Biological Invasions* 9:65–71. (School of Environmental Science and Management, Univ of California, Santa Barbara, CA 93106). Native forbs were limited by insufficient sunlight reaching them through the canopy and litter of invasive annual grasses. Native forbs were not limited by insufficient water.

Performance of *Bromus tectorum* L. in relation to soil properties, water additions, and chemical amendments in calcareous soils of southeastern Utah, USA. M.E. Miller, J. Belnap, S. W. Beatty, and R. L. Reynolds. 2006. *Plant and Soil* 288:1–18. (US Geological Survey, 190 East Center St., Kanab, UT 84741). In southeastern Utah, fall establishment of cheatgrass and its growth in spring are limited by water availability, whereas winter growth is limited by low nutrient mobilization and uptake caused by cold temperatures.

Rehabilitation/Restoration

Carbon-negative biofuels from low-input high-diversity grassland biomass. D. Tilman, J. Hill, and C. Lehman. 2006. *Science* 314:1598–1600. (Dept of Ecology, Evolution, and Behavior, Univ of Minnesota, St. Paul, MN 55108). Seeded mixtures of native grasses produced dramatically more bioenergy than monocultures. Also, grass mixtures produced 51% more bioenergy per acre than corn grain ethanol.

Investigation of potential zooanthroponotic transmission of cryptosporidiosis and giardiasis through agricultural use of reclaimed wastewater. G. D. Di Giovanni, W. Q. Betancourt, J. Hernandez, N. W. Assadian, J. P. F. Margez, and E. J. Lopez. 2006. *International Journal of Environmental Health Research* 16:405–418. (Texas Agricultural Experiment Station, 1380 A&M Circle, El Paso, TX 79927). Despite high levels of cryptosporidium and giardia in reclaimed wastewater used to irrigate pastures for grazing sheep, there was no evidence that the pathogens in the wastewater were transmitted to the sheep.

Long-term effects of tebuthiuron on *Bromus tectorum*. D. N. Blumenthal, U. Norton, J. D. Derner, and J. D. Reeder. 2006. *Western North American Naturalist* 66:420–425. (USDA–ARS, Crops Research Lab, 1701 Center Ave, Fort Collins, CO 80526). Eleven years after Wyoming big sagebrush sites were thinned with tebuthiuron, shrub cover was 31% in untreated sites vs 15% in treated sites, perennial grass cover was 9% in untreated vs 12% in treated sites, and cheatgrass cover was 1% in untreated sites vs 4% in treated sites.

Plants and breeding bird response on a managed Conservation Reserve Program grassland in Maryland. D. E. Gill, P. Blank, J. Parks, J. B. Guerard, B. Lohr, E. Schwartzman, J. G. Gruber, G. Dodge, C. A. Rewa, and H. F. Sears. 2006. *Wildlife Society Bulletin* 34:944–956. (Dept of Biology, Univ of Maryland, College Park, MD 20742). Results indicate that habitat selection by grassland birds is influenced more by vegetation structure than by plant species composition. Recommends that prescribed fire and herbicides be ap-

plied frequently to sustain CRP grasslands and prevent tree and shrub encroachment.

Short- and long-term changes in elk use and forage production in sagebrush communities following prescribed burning. F. Van Dyke and J. A. Darragh. 2006. *Biodiversity and Conservation* 15:4375–4398. (Dept of Biology, Wheaton College, Wheaton, IL 60187). In south-central Montana, prescribed burning transformed mountain big sagebrush-dominated sites into native herbaceous plant communities that persisted for at least 15 years without sagebrush reinvasion. Elk made increased use of these sites for at least 15 years after burning.

Socioeconomics

Addressing misconceptions about agriculture: Instructor's Guide. B. Wolanyk. 2006. American Farm Bureau Foundation for Agriculture, Washington, DC. Printed volume (46 p.) plus CD-ROM. ($15; American Farm Bureau Foundation for Agriculture, 600 Maryland Ave, Suite 1000W, Washington, DC 20024). This guide covers 35 key issues and is designed for classroom use at the high school and college levels. Written in an easy-to-understand format with step-by-step directions, the guide includes ready-to-use scripts and PowerPoint presentations on CD-ROM.

Biological invasions: recommendations for US policy and management. D. M. Lodge, S. Williams, H. J. MacIsaac, K. R. Hayes, B. Leung, S. Reichard, R. N. Mack, P. B. Moyle, M. Smith, D. A. Andow, J. T. Carlton, and A. McMichael. 2006. *Ecological Applications* 16:2035–2054. (Dept of Biological Sci, Univ of Notre Dame, PO Box 369, Notre Dame, IN 46556). This position paper from the Ecological Society of America recommends the federal government assume more responsibility for all aspects of invasive-species management in the United States.

Custom rates for Idaho agricultural operations 2005–2006. P. E. Patterson and R. L. Smathers. 2006. Univ of Idaho Extension Service Bulletin 729. 16 p. (Univ of Idaho Extension Service, Moscow, ID; www.info.ag.uidaho.edu). Summarizes survey data for custom farming services such as haying, chisel plowing, and grass seeding. During the past 6 years, custom rates have increased less than ownership and operating costs for equipment.

Effect of certified health programs on the sale price of beef calves marketed through a livestock videotape auction service from 1995 through 2005. M. E. King, M. D. Salman, T. E. Wittum, K. G. Odde, J. T. Seeger, D. M. Grotelueschen, G. M. Rogers, and G. A. Quakenbush. 2006. *Journal of the American Veterinary Medical Association* 229:1389–1400. (M. Salman, College of Veterinary Medicine and Biomedical Sci, Colorado State Univ, Fort Collins, CO 80523). A study involving 3 million calves found that preconditioned calves (vaccinated and weaned before delivery) sold for higher prices every year during a 10-year period. Price premiums ranged from $1 to almost $8 per hundredweight.

Soils

The invasive plant species *Centaurea maculosa* alters arbuscular mycorrhizal fungal communities in the field. D. L. Mummey and M. C. Rillig. 2006. *Plant and Soil* 288:81–90. (Division of Biological Sci, Univ of Montana, Missoula, MT 59812). Spotted knapweed invasion of native grassland reduces the diversity and abundance of arbuscular mycorrhizal fungi.

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