



By 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](mailto:jmosley@montana.edu).

## Animal Ecology

**Crucial nesting habitat for Gunnison sage-grouse: a spatially explicit hierarchical approach.** C. L. Aldridge, D. J. Saher, T. M. Childers, K. E. Stahlnecker, and Z. H. Bowen. 2012. *Journal of Wildlife Management* 76:391–406. (Dept of Ecosystem Science, Colorado State University, Fort Collins, CO 80526, USA). At the landscape scale, Gunnison sage-grouse in west-central Colorado nested within habitat where 95% or more of the area contained big sagebrush canopy cover > 5%. At the patch scale, however, Gunnison sage-grouse avoided nesting where big sagebrush canopy cover exceeded 10%.

**Environmental persistence of *Brucella abortus* in the Greater Yellowstone Area.** K. Aune, J. C. Rhyon, R. Russell, T. J. Roffe, and B. Corso. 2012. *Journal of Wildlife Management* 76:253–261. (Wildlife Conservation Society, 301 N Willson, Bozeman, MT 59715, USA). Field experiments established that *Brucella* bacteria can persist on fetal tissues, soil, or vegetation for nearly 3 months. Results confirm the need to temporally separate cattle and brucellosis-exposed bison to reduce the risk of transmitting brucellosis from bison to cattle.

**Habitat and landscape effects on abundance of Missouri's grassland birds.** R. B. Jacobs, F. R. Thompson III, R. R. Koford, F. A. La Sorte, H. D. Woodward, and J. A. Fitzgerald. 2012. *Journal of Wildlife Management* 76:372–381. (Missouri Dept of Conservation, 2901 W. Truman Blvd, Jefferson City, MO 65109, USA). Henslow's sparrows were most abundant in hayed native prairie, dickcissels in Conservation Reserve Program seeded grasslands, and grasshopper sparrows where grassland vegetation height was low.

**Impacts of cattle grazing on small-rodent communities: an experimental case study.** C. Bueno, K. E. Ruckstuhl, N. Arrigo, A. N. Aivaz, and P. Neuhaus. 2012. *Canadian Journal of Zoology* 90:22–30. (P. Neuhaus, Institute of Biology, University of Neuchatel, 11 Rue Emile Argand, CH-2009 Neuchatel, Switzerland). In a comparison of cattle-grazed vs. ungrazed sites in southwestern Alberta, Canada, deer mice were more abundant and meadow voles less abundant in grazed sites.

**Impacts of introduced grasses on breeding season habitat use by northern bobwhite in the south Texas plains.** J. P. Sands, L. A. Brennan, F. Hernandez, W. P. Kuvlesky, Jr., J. F. Gallagher, and D. C. Ruthven III. 2012. *Journal of Wildlife Management* 76:608–618. (Caesar Kleberg Wildlife Research Institute, Texas A&M University, Kingsville, TX 78363, USA).

Northern bobwhites avoided sites where canopy cover of introduced grasses (buffelgrass and Lehmann lovegrass) exceeded 15% to 20%.

**Occurrence, diagnosis, and strain typing of *Mycobacterium avium* subspecies *paratuberculosis* infection in Rocky Mountain bighorn sheep (*Ovis canadensis canadensis*) in southwestern Alberta.** T. Forde, S. Kutz, J. De Buck, A. Warren, K. Ruckstuhl, M. Pybus, and K. Orsel. 2012. *Journal of Wildlife Diseases* 48:1–11. (K. Orsel, Faculty of Veterinary Medicine, University of Calgary, 3350 Hospital Dr NW, Calgary, AB T2N 4N1, Canada). John's disease, or paratuberculosis, was identified within wild bighorn sheep in southwestern Alberta, Canada. The bacterium responsible was not transmitted by domestic sheep but may have been transmitted by cattle.

### Grazing Management

**The effects of increasing grazing height on establishment of pasture weeds in management-intensive rotationally grazed pastures.** M. J. Renz and M. L. Schmidt. 2012. *Weed Science* 60:92–96. (Dept of Agronomy, University of Wisconsin, Madison, WI 53706, USA). Densities of burdock and Canada thistle were less when residual height after grazing was 6 inches vs. 4 inches. More residual grass canopy limited the amount of sunlight available to the weeds.

### Hydrology/Riparian

**Effects of livestock exclusion on in-stream habitat and benthic invertebrate assemblages in montane streams.** D. B. Herbst, M. T. Bogan, S. K. Roll, and H. D. Safford. 2012. *Freshwater Biology* 57:204–217. (Sierra Nevada Aquatic Research Laboratory, University of California, 1016 Mount Morrison Rd, Mammoth Lakes, CA 93546, USA). Macroinvertebrate diversity in mountain meadow streams was negatively correlated with stream-bank erosion. Diversity of macroinvertebrates increased after 4 years without cattle grazing.

**Forty years of vegetation change on the Missouri River floodplain.** W. C. Johnson, M. D. Dixon, M. L. Scott, L. Rabbe, G. Larson, M. Volke, and B. Werner. 2012. *BioScience* 62:123–135. (Dept of Natural Resource Management, South Dakota State University, Brookings, SD 57007, USA). From 1969 to 2008, in central North Dakota, cottonwood regeneration declined, green ash increased, and invasive plant species such as smooth brome, reed canary grass, and Canada thistle increased.

**Investigation of an *Escherichia coli* environmental benchmark for waterborne pathogens in agricultural watersheds in Canada.** T. A. Edge, A. El-Shaarawi, V. Gannon, C. Jokinen, R. Kent, I. U. H. Khan, W. Koning, D. Lapen, J. Miller, N. Neumann, R. Phillips, W. Robertson, H.

Schreier, A. Scott, I. Shtepani, E. Topp, G. Wilkes, and E. van Bochove. 2012. *Journal of Environmental Quality* 41:21–30. (National Water Research Institute, Environment Canada, Burlington, ON L7R 4A6, Canada). Natural background concentrations of pathogens at reference sites in a watershed were used to derive water quality standards for agricultural sites. Pathogens sampled included *Campylobacter*, *Salmonella*, *Escherichia coli*, *Cryptosporidium*, and *Giardia*.

### Measurements

**Criteria and indicators of sustainable rangeland management.** J. E. Mitchell (ed.). 2011. Joint publication of Sustainable Rangelands Roundtable, University of Wyoming Extension, and Society for Range Management. Laramie, WY: University of Wyoming Extension Publication No. SM-56. 227 p. (University of Wyoming Ag Resource Center, Dept 3313, 1000 E University Ave, Laramie, WY 82072, USA). Presents five criteria and 64 indicators for assessing whether rangelands are managed in ways that are ecologically, economically, and socially sustainable.

### Plant Ecology

**Buffel grass (*Cenchrus ciliaris*) as an invader and threat to biodiversity in arid environments: a review.** V. M. Marshall, M. M. Lewis, and B. Ostendorf. 2012. *Journal of Arid Environments* 78:1–12. (University of Adelaide, PO Box 1, Glen Osmond, SA 5064, Australia). “We present a comprehensive review of the ecology, distribution and biodiversity impacts of buffel grass when behaving as an invasive species.”

**Characteristics and distribution of Palouse Prairie remnants: implications for conservation planning.** C. Looney and S. D. Eigenbrode. 2012. *Natural Areas Journal* 32:75–85. (Washington State Dept of Agriculture, 1111 Washington St SE, Olympia, WA 98504, USA). Most remnants of the Palouse Prairie in eastern Washington and northern Idaho are privately owned, < 5 acres in size, and disproportionately found on rockier and shallower soils than the presettlement expanse of this endangered grassland.

**CO<sub>2</sub>-caused change in plant species composition rivals the shift in vegetation between mid-grass and tall-grass prairies.** H. W. Polley, V. L. Jin, and P. A. Fay. 2012. *Global Change Biology* 18:700–710. (USDA-ARS Grassland Soil and Water Research Laboratory, 808 E Blackland Rd, Temple, TX 76502, USA). In central Texas, additional carbon dioxide in the atmosphere caused Indiangrass to increase production, which in turn caused sideoats grama production to decrease because of competition for light.

**Germination response of grassland species to plant-derived smoke.** D. W. Schilck and N. Zavala. 2012. *Journal of Arid Environments* 79:111–115. (Dept of Biological Sciences,

Texas Tech University, Lubbock, TX 79409, USA). Fire-cued seed germination is uncommon in grasses and forbs of the southern mixed-grass prairie.

***Linaria dalmanica* invades south-facing slopes and less-grazed areas in grazing-tolerant mixed-grass prairie.** D. M. Blumenthal, A. P. Norton, S. E. Cox, E. M. Hardy, G. E. Liston, L. Kennaway, D. T. Booth, and J. D. Derner. 2012. *Biological Invasions* 14:395–404. (USDA-ARS, 1701 Center Ave, Fort Collins, CO 80521, USA). Indirect evidence in southeastern Wyoming suggests that cattle grazing may inhibit Dalmatian toadflax invasion.

**Salinity effects on germination and plant growth of prairie cordgrass and switchgrass.** S. Kim, A. L. Rayburn, T. Voigt, A. Parrish, and D. K. Lee. 2012. *Bioenergy Research* 5:225–235. (D. Lee, Dept of Crop Science, University of Illinois, Urbana, IL 61801, USA). “Red River” prairie cordgrass performed well in saline soils, whereas “Cave-in-Rock” switchgrass did not.

**Sonoran Desert ecosystem transformation by a C<sub>4</sub> grass without the grass/fire cycle.** A. D. Olsson, J. Betancourt, M. P. McClaran, and S. E. Marsh. 2012. *Diversity and Distributions* 18:10–21. (School of Earth Sciences and Environmental Sustainability, Northern Arizona University, Flagstaff, AZ 86011, USA). In southern Arizona desert scrub, plant species diversity declined dramatically within 20 years following buffelgrass invasion, without changes to the fire regime.

## Rehabilitation/Restoration

**Grass-legume mixtures suppress weeds during establishment better than monocultures.** M. A. Sanderson, G. Brink, L. Ruth, and R. Stout. 2012. *Agronomy Journal* 104:36–42. (USDA-ARS Northern Great Plains Research Laboratory, PO Box 459, Mandan, ND 58554, USA). Monocultures and mixtures of orchardgrass, quackgrass, alfalfa, and white clover were evaluated in Pennsylvania and Wisconsin. For-

age mixtures with greater species evenness (i.e., more similar proportions of species in the mixture) did not suppress weeds better than mixtures dominated by a few species (low species evenness) or monocultures. Grass-legume mixtures suppressed weeds better than monocultures.

**Restoration of the fire-grazing interaction in *Artemisia filifolia* shrubland.** S. L. Winter, S. D. Fuhlendorf, C. L. Goad, C. A. Davis, K. R. Hickman, and D. M. Leslie, Jr. 2012. *Journal of Applied Ecology* 49:242–250. (Dept of Natural Resource Ecology and Management, Oklahoma State University, Stillwater, OK 74078, USA). In western Oklahoma, adding patch burning to cattle-grazed pastures increased the heterogeneity of vegetation structure on sand sagebrush rangeland, but effects dissipated 1–3 years after fire.

## Soils

**Regional patterns of biological soil crust lichen species composition related to vegetation, soils, and climate in Oregon, USA.** H. T. Root and B. McCune. 2012. *Journal of Arid Environments* 79:93–100. (Dept of Botany and Plant Pathology, Oregon State University, Corvallis, OR 97333, USA). Soil crust lichens were less diverse where broom snakeweed and rabbitbrush were abundant.

**Soil carbon and nitrogen recovery on semiarid Conservation Reserve Program lands.** S. M. Munson, W. K. Lauenroth, and I. C. Burke. 2012. *Journal of Arid Environments* 79:25–31. (US Geological Survey, Canyonlands Research Station, 2290 SW Resource Blvd, Moab, UT 84532, USA). In northeastern Colorado, carbon sequestration rates were one to two orders of magnitude lower than rates reported in more mesic Conservation Reserve Program grasslands.

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