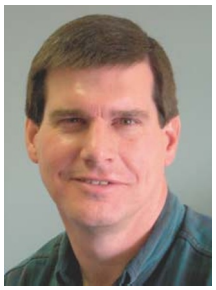

By Jeff Mosley

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.

Animal Ecology

Fire, grazing history, lichen abundance, and winter distribution of caribou in Alaska's taiga. W. B. Collins, B. W. Dale, L. G. Adams, D. E. McElwain, and K. Joly. 2011. *Journal of Wildlife Management* 75:369–377. (Alaska Dept of Fish and Game, 1800 Glenn Hwy, Suite 4, Palmer, AK 99645, USA). Long-term grazing by caribou reduced lichen biomass on their winter range, causing caribou to establish a new winter range that is 60 miles further from their summer range. Also, forage lichens needed 60–80 years to fully recover after fire.

Habitat selection by mountain plovers in shortgrass steppe. D. J. Augustine. 2011. *Journal of Wildlife Management* 75:297–304. (USDA–ARS, Rangeland Resources Research Unit, 1701 Center Ave, Fort Collins, CO 80526, USA). Moderate cattle grazing combined with either prescribed fire or active black-tailed prairie dog colonies enhanced breeding habitat of mountain plovers in northeastern Colorado.

Nest-site selection and productivity of Vesper Sparrows breeding in grazed habitats. M. L. Harrison, N. A. Mahony, P. Robinson, A. Newbury, and D. J. Green. 2011. *Journal of Field Ornithology* 82:140–149. (N. Mahony, Environment Canada, 5421 Robertson Rd, Rural Route 1, Delta, BC V4K 3N2, Canada). No vegetation-cover variable, including vegetation height, affected productivity of vesper sparrows in central British Columbia grasslands.

Grazing Management

Diet botanical composition of goats on rangeland treated with trenbolone acetate. M. Mellado, J. R. Arevalo, A. De Santiago, E. A. Lozano, and A. Rodriguez. 2011. *Journal of Animal and Veterinary Advances* 10:235–240. (E. Lozano, Dept of Animal Nutrition, Univ of Antonio Narro, Saltillo 25315, Coahuila, Mexico). In northern Mexico, growth implants caused free-ranging goats to select more forbs and greater proportions of both highly palatable and lowly palatable shrubs, but total woody browse in goat diets did not differ between implanted and nonimplanted goats.

St. Anthony's fire in livestock: causes, mechanisms, and potential solutions. J. R. Strickland, M. L. Looper, J. C. Matthews, C. F. Rosenkrans, Jr., M. D. Flythe, and K. R.

Brown. 2011. *Journal of Animal Science* 89:1603–1626. (USDA–ARS, Forage Animal Production Research Unit, 1100 Limestone Rd, Univ of Kentucky, Lexington, KY 40546, USA). Review article discusses the management of ergot alkaloid intoxication in grazing livestock.

Ungulate herbivory on alpine willow in the Sangre de Cristo Mountains of Colorado. L. C. Ziegenfuss, K. A. Schoenecker, and L. K. Van Amburg. 2011. *Western North American Naturalist* 71:86–96. (US Geological Survey, 2150 Center Ave, Bldg C, Fort Collins, CO 80526, USA). Elk browsing of alpine willow reduced willow height and willow cover. Subsequent removal of cattle at valley locations and increased human recreational use in alpine areas caused elk to decrease alpine willow browsing.

Hydrology/Riparian

A non-native riparian tree (*Elaeagnus angustifolia*) changes nutrient dynamics in streams. M. M. Mineau, C. V. Baxter, and A. M. Marcarelli. 2011. *Ecosystems* 14: 353–365. (Dept of Biological Sciences, Idaho State Univ, Pocatello, ID 83209, USA). In riparian sites of southeastern Idaho and central Wyoming, stream reaches invaded by Russian olive had greater in-stream nitrogen than uninvaded sites.

Agricultural conservation practices and wetland ecosystem services in the wetland-rich Piedmont–Coastal Plain region. D. De Steven and R. Lowrance. 2011. *Ecological Applications* 21:S3–S17 Supplement. (USDA-Forest Service, Southern Research Station, PO Box 227, Stoneville, MS 38776, USA). " … viable wetlands can persist within grazed flats if livestock access and grazing are managed appropriately."

Effects of surrounding land use on playa inundation following intense rainfall. A. B. Cariveau, D. C. Pavlacky, Jr., A. A. Bishop, and T. G. LaGrange. 2011. *Wetlands* 31:65–73. (Rocky Mountain Bird Observatory, PO Box 1232, Brighton, CO 80603, USA). In southwestern Nebraska, playa lakes were more likely to become inundated when surrounded by rangeland versus cropland or fields enrolled in USDA's Conservation Reserve Program.

Relationships among rotational and conventional grazing systems, stream channels, and macroinvertebrates. K. L. Raymond and B. Vondracek. 2011. *Hydrobiologia* 669:105–117. (National Park Service, 7660 East Broadway Blvd, Suite 308, Tucson, AZ 85710, USA). In the Upper Midwest of the United States, riparian sites grazed by cattle under rotational grazing had more stable streambanks, higher quality aquatic habitat, lower soil compaction, and larger particles in the streambed than riparian sites with continuous cattle grazing.

The potential of passive stream restoration to improve stream habitat and minimize the impact of fish disease: a short-term assessment. E. S. Hansen and P. Budy. 2011. *Journal of the North American Benthological Society* 30:573–588. (P. Budy, Dept of Watershed Sciences, Utah State Univ, Logan, UT 84322, USA). Exclusion fencing of livestock for 1 to 2 years in northern Utah reduced nitrogen concentrations in the stream, increased streambank stability, and decreased the cover of exotic plant species.

Measurements

Feature extraction techniques for measuring pinon and juniper tree cover and density, and comparison with field-based management surveys. M. D. Madsen, D. L. Zvirzdin, B. D. Davis, S. L. Petersen, and B. A. Roundy. 2011. *Environmental Management* 47:766–776. (USDA–ARS, Eastern Oregon Agricultural Research Center, 67826-A Hwy 205, Burns, OR 97720, USA). In Utah, measurements of pinyon–juniper tree cover and density obtained from aerial photography were very highly correlated with ground measurements.

Small-footprint Lidar estimations of sagebrush canopy characteristics. J. J. Mitchell, N. F. Glenn, T. T. Sankey, D. R. Derryberry, M. O. Anderson, and R. C. Hruska. 2011. *Photogrammetric Engineering and Remote Sensing* 77:521–530. (Dept of Geosciences, Idaho State Univ, 995 Univ Blvd, Idaho Falls, ID 83402, USA). In southeastern Idaho, field estimates of sagebrush canopy cover were highly correlated with measurements obtained from LIDAR airborne remote sensing.

Plant Ecology

Canyon grassland vegetation changes following fire in northern Idaho. C. L. Gucker and S. C. Bunting. 2011. *Western North American Naturalist* 71:97–105. (USDA–Forest Service, Rocky Mountain Research Station, 5575 Highway 10 West, Missoula, MT 59808, USA). A backing fire in late summer had little effect on grassland communities. Bluebunch wheatgrass recovered to prefire levels within 3 years; prefire and postfire canopy cover of yellow starthistle was nearly equal.

Influence of increasing common ragweed (*Ambrosia artemisiifolia*) or common cocklebur (*Xanthium strumarium*) densities on forage nutritive value and yield in tall fescue pastures and hay fields. K. K. Rosenbaum, K. W. Bradley, and C. A. Roberts. 2011. *Weed Technology* 25:222–229. (K. Bradley, Division of Plant Sciences, Univ of Missouri, Columbia, MO 65211, USA). Yield and forage nutritive value of tall fescue pastures were affected only marginally by increasing amounts of common ragweed or common cocklebur.

The relationships among plant cover, density, seed rain, and dispersal of *Bromus tectorum* in high-elevation populations. A. R. Kanarek and R. H. Kao. 2011. *Western North American Naturalist* 71:131–136. (Dept of Biology, Colorado State Univ, Fort Collins, CO 80523, USA). In the mountains of northeastern Colorado, cheatgrass seeds fell in close proximity to cheatgrass plants; no cheatgrass seeds were found to have dispersed more than 4 inches from the edge of a cheatgrass patch.

Rehabilitation/Restoration

Role of competition in restoring resource poor arid systems dominated by invasive grasses. S. Mangla, R. L. Sheley, J. J. James, and S. R. Radosevich. 2011. *Journal of Arid Environments* 75:487–493. (Dept of Forest Ecosystems and Society, Oregon State Univ, Corvallis, OR 97331, USA). Competition from cheatgrass or medusahead did not affect establishment of Sandberg bluegrass or bluebunch wheatgrass. Abiotic factors were much more influential.

The potential conservation value of non-native species. M. A. Schlaepfer, D. F. Sax, and J. D. Olden. 2011. *Conservation Biology* 25:428–437. (College of Environmental Science and Forestry, State Univ of New York, Syracuse, NY 13210, USA). Although some non-native species will continue to cause biological and economic damage, authors predict that the proportion of nonnative species that are viewed as benign or even desirable will slowly increase in the future.

Socioeconomics

Connecting children to the land: place-based education in the Muddy Creek Watershed, Oregon. M. Santelmann, H. Gosnell, and S. M. Meyers. 2011. *Journal of Geography* 110:91–106. (Dept of Geosciences, Oregon State Univ, Corvallis, OR 97331, USA). Describes a curriculum used to educate middle school children about farm and forest enterprises in a rural watershed of western Oregon.

Incentive structure of and private landowner participation in an endangered species conservation program. M. G. Sorice, W. Haider, J. R. Conner, and R. B. Ditton. 2011. *Conservation Biology* 25:587–596. (Dept of Ecosystem Science and Management, Texas A&M Univ, College Station, TX 77843, USA). Financial incentives alone were judged insufficient to encourage large numbers of central Texas landowners to manage their land for the benefit of endangered songbirds. Many landowners need to perceive strong social pressure before they will participate.

Measuring up: synchronizing biodiversity measurement systems for markets and other incentive programs. B. Cochran, N. R. Maness, and E. Alcott. 2011. Willamette Partnership, 2550 SW Hillsboro Hwy, Hillsboro, OR 97123, USA; 39 p. (http:/willamettepartnership.org/measuring-up). Analyzes 25 existing biodiversity measurement systems, presents a standard process for developing biodiversity measurement systems, and offers options for improving the delivery and performance of biodiversity markets and conservation programs.

Soils

Biogeographic differences in the effects of *Centaurea stoebe* on the soil nitrogen cycle: novel weapons and soil microbes. A. S. Thorpe and R. M. Callaway. 2011. *Biological Invasions* 13:1435–1445. (Institute of Applied Ecology, PO Box 2855, Corvallis, OR 97339, USA). Reduced soil nitrate in spotted knapweed-invaded grasslands in Montana might be due in part to chemicals exuded by spotted knapweed that inhibit nitrifying soil bacteria.

Landscape position effect on selected soil physical properties of reconstructed prairies in southcentral Iowa. J. G. Guzman and M. M. Al-Kaisi. 2011. *Journal of Soil and Water Conservation* 66:183–191. (Dept of Agronomy, Iowa State Univ, Ames, IA 50011, USA). Soil organic carbon increased and soil bulk density decreased as the number of years since prairie restoration increased.

The invasive grass *Agropyron cristatum* doubles belowground productivity but not soil carbon. A. S. Macdougall, and S. D. Wilson. 2011. *Ecology* 92:657–664. (S. Wilson, Dept of Biology, Univ of Regina, Regina, SK S4S 0A2, Canada). Fifty-year-old crested wheatgrass stands had twice as much root productivity than native C_4 grass stands, but soil carbon content did not differ.

Jeff Mosley is Professor of Range Science and Extension Range Management Specialist, Department of Animal and Range Sciences, Montana State University, Bozeman, MT 59717, USA.