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

Large-scale effects on bird assemblages in desert grasslands. G. Block and M. L. Morrison. 2010. *Western North American Naturalist* 70:19–25. (M. Morrison, Dept of Wildlife and Fisheries Sciences, Texas A&M Univ, College Station, TX 77843, USA). In desert grasslands of Arizona and New Mexico during winter, chestnut-collared longspurs and horned links were most abundant where woody cover was less than 1%. Vesper sparrows, black-throated sparrows, Brewer's sparrows, and chipping sparrows were most abundant where woody cover was 6–15%.

Nesting ecology and reproductive success of lesser prairie-chickens in shinnery oak-dominated rangelands. D. M. Davis. 2009. *Wilson Journal of Ornithology* 121:322–327. (Dept of Fish and Wildlife Resources, Univ of Idaho, Moscow, ID 83844, USA). In east-central New Mexico, lesser prairie-chickens selected nest sites with 42% shrub cover and only 2% forb cover. Grass height and grass cover did not differ between nest sites and random sites.

The capability of several toxic plants to condition taste aversions in sheep. J. A. Pfister, D. R. Gardner, C. C. Cheney, K. E. Panter, and J. O. Hall. 2010. *Small Ruminant Research* 90:114–119. (USDA-ARS, 1150 East 1400 North, Logan, UT 84341, USA). As an alternative to using lithium chloride, conditioned taste aversions were achieved by feeding smooth woodyaster, a selenium-containing plant. Sheep were not averted by feeding either freckled milkvetch or broom snakeweed.

The role of natural plant products in modulating the immune system: an adaptable approach for combating disease in grazing animals. F. D. Provenza and J. J. Villalba. 2010. *Small Ruminant Research* 89:131–139. (Dept of Wildland Resources, Utah State Univ, Logan, UT 84322, USA). Summarizes the potential impact of feeding natural plant products to animals to help them resist disease.

Grazing Management

Delaying sheep grazing after wildfire in sagebrush steppe may not affect vegetation recovery. L. Roselle, S. S. Seefeldt, and K. Launchbaugh. 2010. *International Journal of Wildland Fire* 19:115–122. (Dept of Rangeland Ecology and Management, Univ of Idaho, Moscow, ID 83844, USA). Moderate sheep grazing in autumn 1, 2, or 3 years after fire, or

moderate sheep grazing in spring 2 or 3 years after fire, did not impede recovery of perennial grass cover.

Grazing management contributions to net global warming potential: a long-term evaluation in the Northern Great Plains. M. A. Liebig, J. R. Gross, S. L. Kronberg, R. L. Phillips, and J. D. Hanson. 2010. *Journal of Environmental Quality* 39:799–809. (USDA-ARS, PO Box 459, Mandan, ND 58554, USA). All pastures evaluated were significant sinks for soil organic carbon and minor sinks for methane. Moderate grazing intensity on native rangeland reduced greenhouse gas emissions more than heavily grazed native rangeland or heavily grazed–fertilized crested wheatgrass pasture.

Influences of agricultural practice and summer grazing on soil compaction in wheat paddocks. B. K. Northup, J. A. Daniel, and W. A. Phillips. 2010. *Transactions of the American Society of Agricultural and Biological Engineers* 53:405–411. (USDA-ARS, 7207 W Cheyenne, El Reno, OK 73036, USA). Soil compaction increased when winter–spring cattle grazing of winter wheat was followed by summer grazing of an annual legume that had been incorporated into the fallow period of the wheat.

Meadow fescue, tall fescue, and orchardgrass response to defoliation management. G. E. Brink, M. D. Casler, and N. P. Martin. 2010. *Agronomy Journal* 102:667–674. (USDA-ARS, 1925 Linden Drive West, Madison, WI 53706, USA). "Meadow fescue should be considered as a viable alternative to tall fescue and orchardgrass in temperate, managed intensive rotational grazing systems due to its comparable yield and superior digestibility."

Soil and herbaceous plant responses to summer patch burns under continuous and rotational grazing. W. R. Teague, S. L. Dowhower, S. A. Baker, R. J. Ansley, U. P. Krueter, D. M. Conover, and J. A. Waggoner. 2010. *Agriculture Ecosystems and Environment* 137:113–123. (Texas AgriLife Research, PO Box 1658, Vernon, TX 76384, USA). "The rotational grazing treatment had less bare ground and lower soil temperatures on both unburned and burned areas than the continuously grazed treatment." Soil carbon and carbon-to-nitrogen ratios were also higher with rotational grazing.

Hydrology/Riparian

Influence of streambank fencing on the environmental quality of cattle-excluded pastures. J. J. Miller, D. S. Chanasyk, T. Curtis, and W. D. Willms. 2010. *Journal of Environmental Quality* 39:991–1000. (Agriculture and Agri-Food Canada, 5403 First Ave South, Lethbridge, AB T1J 4B1, Canada). Vegetation cover increased, bare soil decreased, and soil bulk density decreased after 4 to 6 years of cattle exclusion in a stream riparian area in southern Alberta.

Soil test phosphorus and nitrate adjacent to artificial and natural cattle watering sites in southern Alberta. J. J. Miller, T. W. Curtis, E. Bremer, D. S. Chanasyk, and W. D. Willms. 2010. *Canadian Journal of Soil Science* 90:331–340. (Agriculture and Agri Food Canada, 5403 First Ave South, Lethbridge, AB T1J 4B1, Canada). Soil nutrient enrichment was greater at off-stream watering troughs than at cattle watering sites adjacent to the river, indicating that off-stream watering troughs were effective in shifting nutrient distribution away from the river.

Timing of cattle grazing alters impacts on stream banks in an Oregon mountain watershed. M. L. McInnis and J. D. McIver. 2009. *Journal of Soil and Water Conservation* 64:394–399. (Dept of Rangeland Ecology and Management, Oregon State Univ, Corvallis, OR 97331, USA). "[G]razing riparian areas when adjacent uplands are attractive to cattle may help reduce deleterious impacts on stream banks."

Measurements

Fecal pats help to predict nutrient intake by cattle during summer on California's annual rangelands. A. D. Jinks, J. W. Oltjen, P. H. Robinson, and C. C. Calvert. 2010. *California Agriculture* 64:101–105. (Jackson Soil and Water Conservation District, 573 Parsons Drive, Medford, OR 97501, USA). Predictive equations developed from local data improved the ability of near-infrared spectroscopy of fecal samples to estimate crude protein and digestible organic matter content of cattle diets.

Plant–Animal Interactions

The impact of changing grasslands on late quaternary bison of the Southern Plains. P. J. Lewis, E. Johnson, B. Buchanan, and S. E. Churchill. 2010. *Quaternary International* 217:117–130. (Dept of Biological Sciences, Sam Houston State Univ, Huntsville, TX 77340, USA). Southern Plains bison underwent a dramatic decrease in body size, reaching modern size 6,500 years ago. New data suggest that bison size decreased in response to the replacement of C-3 grass ecosystems by less nutritious C-4 grass ecosystems that occurred 8,000 to 6,500 years ago.

Plant Ecology

Separation of grassland litter and ecosite influences on seasonal soil moisture and plant growth dynamics. E. S. Deutsch, E. W. Bork, and W. D. Willms. 2010. *Plant Ecology* 209:135–145. (E. Bork, Dept of Agricultural, Food, and Nutritional Science, Univ of Alberta, Edmonton, AB T6G 2P5, Canada). Plant litter promotes midseason plant

growth in northern fescue grasslands because the plant litter reduces soil moisture evaporation.

Tree and forest encroachment into fescue grasslands on the Cypress Hills Plateau, southeast Alberta, Canada. K. J. Widenmaier and W. L. Strong. 2010. *Forest Ecology and Management* 259:1870–1879. (3-2119 Fifth St Southwest, Calgary, AB T2S 2B5, Canada). Tree cover, primarily lodgepole pine, increased 51% from 1950 to 2007. The absence of wildfires, combined with greater moisture and a longer frost-free season, is the apparent cause.

Rehabilitation/Restoration

Registration of 'Homestead' Canada wildrye. K. P. Vogel, R. B. Mitchell, D. D. Baltensperger, K. D. Johnson, and I. T. Carlson. 2010. *Journal of Plant Registrations* 4:123–126. (USDA-ARS, PO Box 830737, Univ of Nebraska, Lincoln, NE 68583, USA). A new cultivar of Canada wildrye was developed cooperatively by USDA-ARS and the University of Nebraska, suitable for seeding in the tallgrass prairie ecoregion of the Midwest, USA.

Seasonal effects of prescribed burning and roller chopping on saw palmetto in flatwoods. E. V. Willcox and W. M. Giuliano. 2010. *Forest Ecology and Management* 259:1580–1585. (Dept of Wildlife Ecology and Conservation, Univ of Florida, Gainesville, FL 32605, USA). Compares the effects of prescribed burning, roller chopping, and combinations of the two during the dormant season or the growing season and concludes that roller chopping during the growing season was most effective for reducing density of saw palmetto.

Wildlife impacts to big sagebrush on reclaimed mined lands. G. E. Schuman, R. A. Olson, K. A. Partlow, and S. E. Belden. 2010. *Arid Land Research and Management* 24:117–132. (11610 Blazer Road, Cheyenne, WY 82009, USA). Wyoming big sagebrush plants on a reclaimed coal mine site in northeastern Wyoming experienced severe browsing by wildlife. Primary browsers were white-tailed jackrabbits, black-tailed jackrabbits, and cottontail rabbits.

Socioeconomics

Managing your ranch during drought: implications from long- and short-run analyses. J. P. Ritten, C. T. Bastian, W. M. Frasier, M. A. Smith, and S. I. Paisley. 2010. Univ of Wyoming Cooperative Extension Service Bulletin B-1205, Laramie, WY 82071, USA; 11 p. (http://www.uwyo.edu/CES/PUBS/B1205.pdf). Examines potential financial risks and returns of purchasing additional feed versus partial herd liquidation during drought.

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