



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

Decline of the meadow jumping mouse (*Zapus hudsonius luteus*) in two mountain ranges in New Mexico. J. K. Frey and J. L. Malaney. 2009. *Southwestern Naturalist* 54:31–44. (Frey Biological Research, PO Box 294, Radium Springs, NM 88054, USA). The New Mexico meadow jumping mouse inhabits tall, dense, herbaceous riparian vegetation, especially areas dominated by sedges. Livestock grazing, drought, recreation, development, forest fire, and loss of beaver all have contributed to decreased habitat abundance.

Fitness and nutritional assessment of greater sage grouse (*Centrocercus urophasianus*) using hematologic and serum chemistry parameters through a cycle of seasonal habitats in northern Nevada. K. J. Dyer, B. L. Perryman, and D. W. Holcombe. 2009. *Journal of Zoo and Wildlife Medicine* 40:18–28. (B. Perryman, Dept of Animal Biotechnology, Mail Stop 202, University of Nevada, Reno, NV 89557, USA). Protein, calcium, or phosphorus deficiencies in sage grouse forage may have limited reproductive fitness of a sage grouse population in northern Nevada, rather than the amount of sagebrush canopy cover or height of herbaceous vegetation.

Grassland bird responses to land management in the largest remaining tallgrass prairie. C. J. Rahmig, W. E. Jensen, and K. A. With. 2009. *Conservation Biology* 23:420–432. (K. With, Division of Biology, Kansas State Univ, Manhattan, KS 66506, USA). Bird diversity was greater in native prairie hayfields and native rangeland grazed by cattle than in Conservation Reserve Program fields.

It's not easy being green: wind energy and a declining grassland bird. C. L. Pruett, M. A. Patten, and D. H. Wolfe. 2009. *BioScience* 59:257–262. (Dept of Biological Science, Florida Institute of Technology, Melbourne, FL 32901, USA). Strategies are proposed for conservation of lesser prairie-chickens in the south-central United States, including suggestions for state and federal regulations on wind-farm placement.

Grazing Management

Influence of grazing and available moisture on breeding densities of grassland birds in the Central Platte River Valley, Nebraska. D. H. Kim, W. E. Newton, G. R. Lingle, and F. Chavez-Ramirez. 2008. *Wilson Journal of Ornithology* 120:820–829. (Platte River Whooping Crane Maintenance Trust, Inc., 6611 W Whooping Crane Dr, Wood River,

NE 68883, USA). Of seven bird species studied, five were unaffected by cattle grazing and two species, bobolinks and brown-headed cowbirds, were less abundant in grazed areas.

Hydrology/Riparian

Assessing the extent and diversity of riparian ecosystems in Sonora, Mexico. M. L. Scott, P. L. Nagler, E. P. Glenn, C. Valdes-Casillas, J. A. Erker, E. W. Reynolds, P. B. Shafroth, E. Gomez-Limon, and C. L. Jones. 2009. *Biodiversity and Conservation* 18:247–269. (US Geological Survey, 2150 Center Ave, Bldg C, Fort Collins, CO 80526, USA). The most abundant tree species were willows, mesquite, and Fremont cottonwoods. Saltcedar was rare.

Changing perceptions of change: the role of scientists in tamarix and river management. J. C. Stromberg, M. K. Chew, P. L. Nagler, and E. P. Glenn. 2009. *Restoration Ecology* 17:177–186. (School of Life Sciences, Arizona State Univ, Tempe, AZ 85287, USA). Discusses prejudices among scientists against non-native species and reviews recent research challenging the prevailing view that saltcedar needs to be eradicated from riparian habitat in the western United States.

Prescribed-fire effects on rill and interrill runoff and erosion in a mountainous sagebrush landscape. F. B. Pierson, C. A. Moffet, C. J. Williams, S. P. Hardegreer and P. E. Clark. 2009. *Earth Surface Processes and Landforms* 34:193–203. (USDA-ARS, Northwest Watershed Research Center, 800 Park Blvd, Plaza 4, Suite 105, Boise, ID 83712, USA). Post-burn recovery to 40% ground cover prevented significant soil erosion during rains of low intensity and short duration, but ground cover needed to recover to near 60% to protect steeply sloped, sandy sagebrush sites from high intensity or rainfall events of long duration.

Runoff quality evaluations of continuous and rotational over-wintering systems for beef cows. L. B. Owens and M. J. Shipitalo. 2009. *Agriculture Ecosystems and Environment* 129:482–490. (USDA-ARS, PO Box 488, Coshocton, OH 43812, USA). Runoff, soil erosion, and nitrogen export were less when winter feeding of beef cows was rotated through four pastures rather than feeding the cattle in one area all winter.

Short-term effect of cattle exclosures on Columbia spotted frog (*Rana luteiventris*) populations and habitat in northeastern Oregon. M. J. Adams, C. A. Pearl, B. McCreary, S. K. Galvan, S. J. Wessell, W. H. Wente, C. W. Anderson, and A. B. Kuehl. 2009. *Journal of Herpetology* 43:132–138. (US Geological Survey, Forest and Rangeland Ecosystem Science Center, 3200 SW Jefferson Way, Corvallis, OR 97331, USA). Cattle grazing did not decrease water quality in ponds, and cattle grazing did not affect Columbia spotted frog populations.

Vegetated buffer strips can lead to increased release of phosphorus to waters: a biogeochemical assessment of the mechanisms. M. I. Stutter, S. J. Langan, and D. G. Lumsdon. 2009. *Environmental Science and Technology* 43:1858–1863. (Macaulay Institute, Aberdeen, AB15 8QH, Scotland). Vegetation may need to be harvested from grass filter strips to offset biogeochemical processes that cause soil phosphorus to move into adjoining water bodies.

Wide-area estimates of saltcedar (*Tamarix* spp.) evapotranspiration on the lower Colorado River measured by heat balance and remote sensing methods. P. L. Nagler, K. Morino, K. Didan, J. Erker, J. Osterberg, K. R. Hultine, and E. P. Glenn. 2009. *Ecophysiology* 2:18–33. (US Geological Survey, Sonoran Desert Research Station, 125 Biological Sciences East, Univ of Arizona, Tucson, AZ 85721, USA). Contrary to widespread opinion, transpiration rates were similar for saltcedar and native shrubs and trees on a floodplain terrace.

Measurements

Fast, easy measurements for assessing vital signs of tall grassland. P. C. Schulze, K. J. Wilcox, A. Swift, and J. L. Beckert. 2009. *Ecological Indicators* 9:445–454. (Dept of Biology, Austin College, Sherman, TX 75090, USA). Recommends a small set of simple measurements for monitoring tallgrass prairie health. The recommended measurements are presence of bare ground, abundance of five native perennial grass species, and abundance of two invasive species.

Plant-Animal Interactions

Seed dispersal by *Bison bison* in a tallgrass prairie. C. A. Rosas, D. M. Engle, J. H. Shaw, and M. W. Palmer. 2008. *Journal of Vegetation Science* 19:769–778. (M. Palmer, Dept of Botany, Oklahoma State Univ, Stillwater, OK 74078, USA). Bison hair and dung contain large numbers of seeds of numerous forb and grass species.

Plant Ecology

Climate and vegetation change during the twentieth century in the lower Peace River district, northern Alberta, Canada. W. L. Strong, M. J. Redburn, and C. C. Gates. 2009. *Holocene* 19:199–207. (PO Box 40186, Main Station, Whitehorse, YT Y1A 6M9, Canada). Increased effective precipitation during the past 100 years, rather than reductions in prescribed or natural fires, caused shrubs and trees to replace grasslands.

Ecological effects of large fires on US landscapes: benefit or catastrophe? R. E. Keane, J. K. Agee, P. Fule, J. E. Keeley, C. Key, S. G. Kitchen, R. Miller, and L. A. Schulte. 2008. *International Journal of Wildland Fire* 17:696–712. (US Forest Service, Rocky Mountain Research Station, 5775 Highway 10, Missoula, MT 59808, USA). This

review paper concludes that large fires were common on most historical western United States landscapes.

Plant community diversity and composition provide little resistance to *Juniperus* encroachment. A. C. Ganguli, D. M. Engle, P. M. Mayer, and E. C. Hellgren. 2008. *Botany* 86:1416–1426. (US Forest Service, Rocky Mountain Research Station, 322 E Front St, Suite 401, Boise, ID 83702, USA). Results indicate that greater plant species richness and diversity in tallgrass prairie will not impede eastern redcedar encroachment.

The ecological importance of severe wildfires: some like it hot. R. L. Hutto. 2008. *Ecological Applications* 18:1827–1834. (Division of Biological Science, Univ of Montana, Missoula, MT 59812, USA). “. . .The severe fires we see burning in many forests in the Intermountain West are not entirely ‘unnatural’ or ‘unhealthy.’ Instead, severely burned forest conditions have probably occurred naturally across a broad range of forest types for millennia.”

Rehabilitation/Restoration

Acute oral toxicities of wildland fire control chemicals to birds. N. B. Vyas, J. W. Spann, and E. F. Hill. 2009. *Ecotoxicology and Environmental Safety* 72:862–865. (US Geological Survey, Patuxent Wildlife Research Center, 10300 Baltimore Ave, Beltsville, MD 20705, USA). Conclusions were reached that three fire retardants and

two fire suppressant foams were not toxic to the bird species tested: northern bobwhites, American kestrels, and red-winged blackbirds.

Biosolids increase soil aggregation and protection of soil carbon five years after application on a crested wheat-grass pasture. B. M. Wallace, M. Krzic, T. A. Forge, K. Broersma, and R. F. Newman. 2009. *Journal of Environmental Quality* 38:291–298. (Faculty of Land and Food Systems, Univ of British Columbia, Vancouver, BC V6T 1Z4, Canada). In south-central British Columbia, positive impacts to soil properties remained four and five years after application of biosolids.

Influence of rainfall, type of range, and brush management on abundance of northern bobwhites (*Colinus virginianus*) in southern Texas. S. M. Cooper, J. C. Cathey, D. L. Alfors, and S. S. Sieckenius. 2009. *Southwestern Naturalist* 54:13–18. (Texas AgriLife Research, 1619 Garner Field Rd, Uvalde, TX 78801, USA). “Treatments to reduce brush increased abundance of northern bobwhites to a limited extent and were most effective when large blocks of land were treated.”

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