



By Jeff Mosley

Browsing the Literature

This section reviews available new publications on 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

Abundance and variety of birds associated with point sources of water in southwestern New Mexico, USA. C. E. Bock. 2015. *Journal of Arid Environments* 116:53–56. (Dept of Ecology and Evolutionary Biology, Univ of Colorado, Boulder, CO 80309, USA). Rangeland water developments attract birds, especially during winter and spring.

Dynamics and social issues of overpopulated deer ranges in the United States: a long term assessment. P. R. Krausman, S. A. Christensen, J. E. McDonald, and B. D. Leopold. 2015. *California Fish and Game* 100:436–450. (Boone and Crockett Program in Wildlife Conservation, Univ of Montana, Missoula, MT 59812, USA). In 1986, only 5 states in the United States reported overpopulated deer ranges, but 18 states reported overpopulated deer herds in urban areas in 2013. In many states, the deer population is at or below biological carrying capacity but exceeds social carrying capacity.

Greater prairie-chicken brood site selection and survival in the Nebraska Sandhills. L. C. Anderson, L. A. Powell, W. H. Schacht, J. J. Lusk, and W. L. Vodehnal. 2015. *Journal of Wildlife Management* 79:559–569. (Dept of Agronomy and Horticulture, Univ of Nebraska, Lincoln, NE 68583, USA). Optimal brood-rearing habitat for greater prairie chickens in the Nebraska Sandhills is grazed by livestock, has minimal bare ground, has a consistent distribution of litter, contains a forb component, and has vegetation 2 to 4 inches tall in the vicinity of leks.

Invertebrate prey selection by ring-necked pheasants (*Phasianus colchicus*) broods in Nebraska. J. A. Smith, T. W. Matthews, E. D. Holcomb, L. P. Negus, C. A. Davis, M. B. Brown, L. A. Powell, and J. S. Taylor. 2015. *American Midland Naturalist* 173:318–325. (L. Powell, School of Natural Resources, Univ of Nebraska, Lincoln, NE 68583, USA). Weevils (Coleoptera) and ants (Hymenoptera) were the insects most frequently consumed by ring-necked pheasants. Habitat management practices that increase the abundance of these invertebrates should benefit pheasants.

Spatial heterogeneity increases diversity and stability in grassland bird communities. T. J. Hovick, R. D. Elmore, S. D. Fuhlendorf, D. M. Engle, and R. G. Hamilton. 2015. *Ecological Applications* 25:662–672. (Dept of Natural Resource Ecology and Management, Oklahoma State Univ, Stillwater, OK 74074, USA). “We recommend that future management

efforts in rangelands focus on restored disturbance processes to increase heterogeneity and improve grassland bird conservation.”

Use of water developments by female elk at Theodore Roosevelt National Park, North Dakota. G. A. Sargeant, M. W. Oehler, and C. L. Sexton. 2015. *California Fish and Game* 100:538–549. (US Geological Survey, 8711 37th St SE, Jamestown, ND 58401, USA). Elk did not appear to depend on drinking water from water developments or from the Little Missouri River.

Grazing Management

Assessing the impact of supplements, food aversions, and silica on medusahead (*Taeniatherum caput-medusae* (L.) Nevski) use by sheep. T. Hamilton, E. A. Burritt, and J. J. Villalba. 2015. *Small Ruminant Research* 124:45–54. (Department of Wildland Resources, Utah State University, Logan, UT 84322, USA). Supplementation with either protein or energy did not appreciably increase intake of medusahead by sheep.

Hydrology/Riparian

Fenceline contrasts: grazing increases wetland surface roughness. D. T. Booth, S. E. Cox, and J. C. Likins. 2015. *Wetlands Ecology and Management* 23:183–194. (US Department of Agriculture–Agricultural Research Service, 8408 Hildreth Rd, Cheyenne, WY 82009, USA). Excessive cattle grazing contributed to hummock formation in south-central Wyoming wetlands.

Managing habitat to slow or reverse population declines of the Columbia spotted frog in the northern Great Basin. D. S. Pilliod, and R. D. Scherer. 2015. *Journal of Wildlife Management* 79:579–590. (US Geological Survey, 970 Lusk St, Boise, ID 83706, USA). Excluding cattle from ponds and surrounding riparian habitat increased frog recruitment and survival.

Restoration of riparian areas following the removal of cattle in the northwestern Great Basin. J. L. Batchelor, W. J. Ripple, T. M. Wilson, and L. E. Painter. 2015. *Environmental Management* 55:930–942. (W. Ripple, Dept of Forest Ecosystems and Society, Oregon State Univ, Corvallis, OR 97331, USA). Cattle exclusion enabled riparian vegetation cover to increase in southeastern Oregon.

Plant Ecology

Increased seed consumption by biological control weevil tempers positive CO₂ effect on invasive plant *Centaurea diffusa* fitness. J. L. Reeves, D. M. Blumenthal, J. A. Kray, and J. D. Derner. 2015. *Biological Control* 84:36–43. (US Department of Agriculture, Agricultural Research Service, 8408 Hildreth RD, Cheyenne, WY 82009, USA). Climate change–predicted increases in air temperature and atmospheric carbon dioxide caused diffuse knapweed plants to flower and produce seeds earlier in summer.

Land-use history and an invasive grass affect tallgrass prairie sedge community composition. D. A. McGranahan,

D. M. Engle, J. T. Molloy, J. R. Miller, and D. M. Debinski. 2015. *Applied Vegetation Science* 18:209–219. (School of Natural Resources, North Dakota State Univ, Fargo, ND 58108, USA). “Neither historical grazing nor current fire/grazing management affected sedge diversity or floristic integrity.”

Native North American pine attenuates the competitive effects of a European invader on native grasses. K. L. Metlen, and R. M. Callaway. 2015. *Biological Invasions* 17:1227–1237. (Nature Conservancy, 33 North Central Ave, Suite 405, Medford, OR 97501, USA). Ponderosa pine litter suppressed spotted knapweed and reduced competition between spotted knapweed and Idaho fescue.

Variations in vernalization requirements among ecotypes of *Festuca hallii*. R. Palit, Y. Bai, J. Romo, B. Coulman, and R. St. Pierre. 2015. *Grass and Forage Science* 70:353–364. (Y. Bai, Dept of Plant Science, Univ of Saskatchewan, Saskatoon, SK S7N 5A8, Canada). Seed germination and seedling growth varied among ecotypes of plains rough fescue; thus local seed sources are considered important when planting plains rough fescue.

Rehabilitation/Restoration

Fertilizing western rangelands for ungulate conservation: an assessment of benefits and risks. N. M. Korfanta, M. L. Mobley, and I. C. Burke. 2015. *Wildlife Society Bulletin* 39:1–8. (Institute of Environment and Natural Resources, Dept 3971, Univ of Wyoming, Laramie, WY 82071, USA). Authors advise against applying nitrogen fertilizer to sagebrush rangelands as a way to increase sagebrush biomass and the carrying capacity of mule deer and other wildlife.

Impact of cogongrass management strategies on generalist predators in cogongrass-infested longleaf pine plantations. S. M. Sells, D. W. Held, S. F. Enloe, N. J. Lowenstein, and L. G. Eckhardt. 2015. *Pest Management Science* 71:478–484. (D. Held, Dept of Entomology and Plant Pathology, Auburn Univ, Auburn, AL 36849, USA). Arthropods were not harmed by repeated herbicide applications to suppress cogongrass in longleaf pine understory.

Socioeconomics

Integrated climate and land use change scenarios for California rangeland ecosystem services: wildlife habitat, soil carbon, and water supply. K. B. Byrd, L. E. Flint, P. Alvarez, C. F. Casey, B. M. Sleeter, C. E. Souldard, A. L. Flint, and T. L. Sohl. 2015. *Landscape Ecology* 30:729–750. (US Geological Survey, 345 Middlefield Rd, MS-531, Menlo Park, CA 94025, USA). In the Central Valley of California and surrounding foothills, human development and cropland are expected to replace 37% of existing rangeland by the year 2100.

Soils

Grassland to shrubland state transitions enhance carbon sequestration in the northern Chihuahuan Desert.

M. D. Petrie, S. L. Collins, A. M. Swann, P. L. Ford, and M. E. Litvak. 2015. *Global Change Biology* 21:1226–1235. (Dept of Biology, Univ of New Mexico, Albuquerque, NM 87131, USA). The replacement of native C-4-dominated desert grassland by C-3-dominated shrubland increases carbon sequestration due to a longer growing season and less ecosystem respiration.

Long-term climate change mitigation potential with organic matter management on grasslands. R. Ryals, M. D. Hartman, W. J. Parton, M. S. Delonge, and W. L. Silver. 2015. *Ecological Applications* 25:531–545. (Institute for the Study of the Environment and Society, Brown Univ, Box 1951, Providence, RI 02912, USA). Small, multiple applications of compost to grassland soils can increase soil carbon sequestration and minimize nitrous oxide emissions.

Patch burning: implications on water erosion and soil properties. A. O. Parlak, M. Parlak, H. Blanco-Canqui, W. H. Schact, J. A. Guretzky, and M. Mamo. 2015. *Journal of Environmental Quality* 44:903–909. (H. Blanco-Canqui, Dept of Agronomy and Horticulture, Univ of Nebraska,

Lincoln, NE 68583, USA). Soil properties in recently burned patches did not differ from those of older burned or unburned patches in eastern Nebraska rangeland.

Runoff and sediment yield relationships with soil aggregate stability for a state-and-transition model in southeastern Arizona. C. D. H. Collins, J. J. Stone, and L. Cratic, III. 2015. *Journal of Arid Environments* 117:96–103. (US Department of Agriculture-Agricultural Research Service, 2000 E. Allen Rd, Tucson, AZ 85719, USA). Soil aggregate stability is increasingly used to indicate erosion potential. This study determined that for one common ecological site in southeastern Arizona, soil aggregate stability less than 4 may indicate an increased risk of erosion.

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

Rangelands (37)4:163–165

doi: 10.1016/j.rala.2015.06.002

© 2015 The Society for Range Management