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

Adult pronghorn (*Antilocapra americana*) survival and cause-specific mortality in Custer State Park, SD. B. J. Keller, J. J. Milspaugh, C. Lehman, G. Brundige, and T. W. Mong. 2013. *American Midland Naturalist* 170:311–322. (Dept of Fisheries and Wildlife Sciences, Univ of Missouri, Columbia, MO 65211, USA). Vegetation management to reduce cover for mountain lions and coyotes may be needed to sustain pronghorn populations in foothill and mountain rangelands.

Behavior of feral horses in response to culling and GnRH immunocontraception. J. I. Ransom, J. G. Powers, H. M. Garbe, M. W. Oehler, Sr., T. M. Nett, and D. L. Baker. 2014. *Applied Animal Behaviour Science* 157:81–92. (Dept of Ecosystem Science and Sustainability, Colorado State Univ, Fort Collins, CO 80523, USA). Culling effects were minimal on the behavior of mares, whereas harem-tending behavior of stallions increased and herding decreased.

Nest survival of grassland birds in warm- and cool-season grassland restorations. L. Jaster, W. E. Jensen, and A. R. Forbes. 2014. *American Midland Naturalist* 171:246–257. (W. Jensen, Dept of Biological Sciences, Emporia State Univ, Emporia, KS 66801, USA). In west-central Missouri, nest survival of grassland birds was similar in seeded stands of native warm-season grasses or exotic cool-season grasses.

Nesting ecology and nest survival of lesser prairie chickens on the southern High Plains of Texas. B. A. Grisham, P. K. Borsdorf, C. W. Boal, and K. K. Boydston. 2014. *Journal of Wildlife Management* 78:857–866. (Dept of Natural Resources Management, Texas Tech Univ, Lubbock, TX 79409, USA). In sand shinnery oak rangeland of western Texas, lesser prairie chicken hens selected nest sites dominated by both grasses and shrubs and close to stock tanks. Reproduction increased when the weather promoted greater grass growth earlier in the nesting season, which provided visual obstruction from predators.

Grazing Management

Community responses of arthropods to a range of traditional and manipulated grazing in shortgrass steppe. T. A. S. Newbold, P. Stapp, K. E. Levensailor, J. D. Derner, and W. K. Lauenroth. 2014. *Environmental Entomology* 43:556–568. (Dept of Life Sciences, Sheridan College, Sheridan, WY 82801, USA). Arthropods were largely unaffected by differences in

vegetation structure created by prairie dogs and cattle grazing at different timings and intensities during spring and summer in north-central Colorado.

Exploring integrated crop–livestock systems in different ecoregions of the United States. R. M. Sulc and A. J. Franzluebbers. 2014. *European Journal of Agronomy* 57:21–30. (Dept of Horticulture and Crop Science, Ohio State Univ, Columbus, OH 43210, USA). Discusses the use and potential of integrated crop–livestock systems.

Patch-burn management: Implications for conservation of avian communities in fire-dependent sagebrush ecosystems. E. D. Holcomb, C. A. Davis, and S. D. Fuhlen-dorf. 2014. *Journal of Wildlife Management* 78:848–856. (Dept of Forestry, Wildlife, and Fisheries, Univ of Tennessee, Knoxville, TN 37996, USA). In sand sagebrush rangelands of Oklahoma, patch-burn grazing increased bird community diversity compared with traditional seasonal cattle grazing.

Spatial heterogeneity stabilizes livestock productivity in a changing climate. B. W. Allred, J. D. Scasta, T. J. Hov-ick, S. D. Fuhlen-dorf, and R. G. Hamilton. 2014. *Agriculture Ecosystems and Environment* 193:37–41. (College of Forestry and Conservation, Univ of Montana, Missoula, MT 59812, USA). When rainfall was reduced in tallgrass prairie of the southern Great Plains, cattle productivity was more sustain-able where the vegetation was made spatially heterogeneous by fire and grazing in previous years.

Hydrology/Riparian

Aspen restoration using beaver on the Northern Yellow-stone Winter Range under reduced ungulate herbivory. M. J. Runyon, D. B. Tyers, B. F. Sowell, and C. N. Gower. 2014. *Restoration Ecology* 22:555–561. (B. Sowell, Dept of Animal and Range Sciences, Montana State Univ, Bozeman, MT 59717, USA). Beaver activity facilitated aspen regeneration by removing overstory trees and increasing sprouting, but aspen regeneration was unsuccessful until elk browsing inten-sity was reduced by wolf predation.

Ecology, management, and conservation implications of North American beaver (*Castor canadensis*) in dryland streams. P. P. Gibson and J. D. Olden. 2014. *Aquatic Con-servation: Marine and Freshwater Ecosystems* 24:391–409. (School of Aquatic and Fishery Sciences, Univ of Washing-ton, Seattle, WA 98105, USA). Authors review the ecologi-cal effects and management of beaver in western rangeland streams.

Ecosystem services of *Phragmites* in North America with emphasis on habitat functions. E. Kiviat. 2013. *AoB PLANTS* 5:ph008 (doi:10.1093/aobpla/ph008). (Husonia, PO Box 5000, Annandale, NY 12504, USA). This paper

documents important ecosystem services provided by com-mon reed, a plant that many ecologists consider to be a weed.

Estimating water quality effects of conservation prac-tices and grazing land use scenarios. G. L. Wilson, B. J. Dalzell, D. J. Mulla, T. Dogwiler, and P. M. Porter. 2014. *Journal of Soil and Water Conservation* 69:330–342. (Dept of Soil, Water and Climate, Univ of Minnesota, St Paul, MN 55108, USA). Changing land use from row crop production to pasture grazing reduced sediment and phosphorus loading into streams by more than 85% in southeastern Minnesota.

Interactions of sapsuckers and *Cytospora* canker can fa-cilitate decline of riparian willows. K. M. Kaczynski, D. J. Cooper, and W. R. Jacobi. 2014. *Botany* 92:485–493. (Dept of Forest and Rangeland Stewardship, Colorado State Univ, Fort Collins, CO 80523, USA). In addition to excessive moose browsing and reduced stream flow, riparian willows are dying from wounds inflicted by red-naped sapsuckers, be-coming infected with a fungus that girdles the willow stems.

***Phragmites australis* management in the United States: 40 years of methods and outcomes.** E. L. G. Hazelton, T. J. Mozdzer, D. M. Burdick, K. M. Kettenring, and D. F. Whigham. 2014. *AoB PLANTS* 6:plu001 (doi:10.1093/aob-pla/plu001). (Dept of Watershed Sciences, Utah State Univ, Logan, UT 84322, USA). Synthesizes current knowledge and management recommendations for common reed.

Short-term vegetation response following mechan-ical control of saltcedar (*Tamarix* spp.) on the Virgin Riv-er, Nevada, USA. S. M. Ostoja, M. L. Brooks, T. Dudley, and S. R. Lee. 2014. *Invasive Plant Science and Management* 7:310–319. (US Geological Survey, 40298 Junction Dr, Suite A, Oakhurst, CA 93644, USA). Native plant diversity in-creased but abundance was very low 2 to 5 y following salt-cedar control.

Plant Ecology

Drought and ecological site interaction on plant com-position of a semi-arid rangeland. J. D. Scasta and B. S. Rector. 2014. *Arid Land Research and Management* 28:197–215. (Dept of Natural Resource Ecology and Management, Oklahoma State Univ, Stillwater, OK 74075, USA). Rela-tive abundance of sideoats grama was unaffected by extreme drought, whereas Texas grama and Texas cupgrass increased and Texas wintergrass decreased.

Environmental change in Garry oak (*Quercus garryana*) ecosystems: the evolution of an eco-cultural landscape. M. G. Pellant and Z. Gedalof. 2014. *Biodiversity and Conserva-tion* 23:2053–2067. (Parks Canada, 300–300 West Georgia St, Vancouver, BC V6B 6B4, Canada). Garry oak ecosystems in southwestern British Columbia depend on prescribed fire

for their open structure, with severe fires needed once every 26–41 y. In the absence of prescribed fire during the past century, encroachment by Douglas-fir trees has resulted in closed coniferous forest at most sites.

Rehabilitation/Restoration

First-year establishment, biomass and seed production of early vs. late seral natives in two medusahead (*Taeniatherum caput-medusae*) invaded soils. S. M. Uselman, K. A. Snyder, E. A. Leger, and S. E. Duke. *Invasive Plant Science and Management* 7:291–302. (Dept of Natural Resources and Environmental Science, Univ of Nevada, Reno, NV 89557, USA). A seeding mixture of early seral species established better and suppressed medusahead more than a seeding mixture of late-seral species did.

Landowners' perceptions of risk in grassland management: woody plant encroachment and prescribed fire. R. N. Harr, L. W. Morton, S. R. Rusk, D. M. Engle, J. R. Miller, and D. Debinski. 2014. *Ecology and Society* 19:41 (doi:10.5751/ES-06404-190241). (D. Engle, Dept of Natural Resources Ecology and Management, Oklahoma State Univ, Stillwater, OK 74075, USA). In Iowa and Missouri grasslands invaded by eastern redcedar, landowners perceived the risks of prescribed fire to be greater than forage losses from conifer encroachment.

Long-term results of tebuthiuron herbicide treatment on creosote bush (*Larrea tridentata*) in southeast Arizona, USA. J. Brock, B. Brandau, D. Arthun, A. L. Humphrey, G. Dominguez, and A. Jacobs. 2014. *Journal of Arid Environments* 110:44–46. (D. Arthun, Bureau of Land Management, 711 14th Ave, Safford, AZ 85546, USA). Tebuthiuron provided long-term control (30 y) of creosote bush, but the anticipated reestablishment of native grasses did not occur.

Medusahead ecology and management: California annual grasslands to the Intermountain West. A. M. Nafus and K. W. Davies. 2014. *Invasive Plant Science and Management* 7:210–221. (Dept of Animal and Rangeland Science, Oregon State Univ, Corvallis, OR 97331, USA). Provides an updated synthesis of the ecology and management of the invasive grass medusahead.

Restoration of exotic annual grass-invaded rangelands: Importance of seed mix composition. K. W. Davies, D. D.

Johnson, and A. M. Nafus. 2014. *Invasive Plant Science and Management* 7:247–256. (USDA-Agricultural Research Service, 67826-A Hwy 205, Burns, OR 97720, USA). To increase perennial herbaceous cover and density after controlling medusahead in Wyoming big sagebrush steppe of southeastern Oregon, seeding crested wheatgrass only was equally effective to seeding more-diverse native-seed mixtures.

Restoration practices have positive effects on breeding bird species of concern in the Chihuahuan Desert. J. M. Coffman, B. T. Bestelmeyer, J. F. Kelly, T. F. Wright, and R. L. Schooley. 2014. *Restoration Ecology* 22:336–344. (USDA-Agricultural Research Service, PO Box 30003, Las Cruces, NM 88003, USA). Grassland bird diversity will increase where herbicide application suppresses encroaching shrubs and creates a mosaic of treated and untreated areas.

Sagebrush steppe recovery after fire varies by development phase of *Juniperus occidentalis* woodland. J. D. Bates, R. N. Sharp, and K. W. Davies. 2014. *International Journal of Wildland Fire* 23:117–130. (USDA-Agricultural Research Service, 67826-A Hwy 205, Burns, OR 97720, USA). Western juniper encroachment into sagebrush steppe was controlled with prescribed fire. Sagebrush-grass communities reestablished where preburn tree density was moderate, but cheatgrass dominated after burning where preburn tree density was high.

Structural heterogeneity increases diversity of non-breeding grassland birds. T. J. Hovick, R. D. Elmore, and S. D. Fuhlendorf. 2014. *Ecosphere* 5:62 (doi:10.1890/ES14-00062.1). (Dept of Natural Resource Ecology and Management, Oklahoma State Univ, Stillwater, OK 74075, USA). Results demonstrate that patch-burn grazing can create a shifting mosaic of grassland structure that benefits winter habitat of grassland songbirds.

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

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