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

A meta-analysis of the effects of common management actions on the nest success of North American birds. C. Hartway and L. S. Mills. 2012. *Conservation Biology* 26:657–666. (Dept of Ecosystem and Conservation Sciences, Univ of Montana, Missoula, MT 59812, USA). Livestock exclusion, prescribed burning, removal of predators, and removal of cowbirds are all effective ways to increase nest success of bird populations in Canada and the United States.

Disturbance factors influencing greater sage-grouse lek abandonment in north-central Wyoming. J. E. Hess and J. L. Beck. 2012. *Journal of Wildlife Management* 76:1625–1634. (Hayden Wing Associates LLC, PO Box 1689, Laramie, WY 82073, USA). Oil and gas development increased lek abandonment.

Ecological roles and conservation challenges of social, burrowing, herbivorous mammals in the world's grasslands. A. D. Davidson, J. K. Detling, and J. H. Brown. 2012. *Frontiers in Ecology and the Environment* 10:477–486. (Dept of Biology, Univ of New Mexico, Albuquerque, NM 87131, USA). Discusses the ecological roles of burrowing mammals and how grassland management can enable burrowing mammals and human activities to coexist.

Influence of a large-scale removal of an invasive plant (*Melaleuca quinquenervia*) on home-range size and habitat selection by female Florida panthers (*Puma concolor coryi*) within Big Cypress National Preserve, Florida. P. Julian III, E. M. Everham III, and M. B. Main. 2012. *Southeastern Naturalist* 11:337–348. (Dept of Marine and Ecological Sciences, Florida Gulf Coast Univ, Myers, FL 33965, USA). *Melaleuca* (a.k.a., punktree) is an invasive, non-native broad-leaved tree in Louisiana and Florida. Removing *Melaleuca* trees improved habitat quality and reduced home-range sizes of the endangered Florida panther.

Nest success and cause-specific nest failure of grassland passerines breeding in prairie grazed by livestock. T. N. Johnson, P. L. Kennedy, and M. A. Etterson. 2012. *Journal of Wildlife Management* 76:1607–1616. (Dept of Zoology and Physiology, Univ of Wyoming, Laramie, WY 82071, USA). In northeastern Oregon, cattle stocking rate did not affect nest success of savannah sparrows and horned larks. Authors recommend that the most effective way to improve nest success is to decrease nest predation.

Grazing Management

Cow dogs: use of livestock protection dogs for reducing predation and transmission of pathogens from wildlife to cattle. K. C. VerCauteren, M. J. Lavelle, T. M. Gehring, and J. M. Landry. 2012. *Applied Animal Behaviour Science* 140:128–136. (USDA-APHIS Wildlife Services, National Wildlife Research Center, 4101 LaPorte Ave, Fort Collins, CO 80521, USA). Authors discuss ways to develop guard dogs for maintaining separation between cattle and wild ungulates to prevent disease transmission and to protect cattle from wild carnivores.

Feeding corn during the last 12 days of gestation improved colostrum production and neonatal activity in goats grazing subtropical semi-arid rangeland. S. Vera-Ramirez, A. Terrazas, J. A. Delgadillo, N. Serafin, J. A. Flores, J. M. Elizundia, and H. Hernandez. 2012. *Journal of Animal Science* 90:2362–2370. (H. Hernandez, Univ Autonoma Agriculture Antonio Narro, Torreon 27054, Coahuila, Mexico). Partial substitution of the grazing diet with 1.3 lbs/day of corn during the last 12 days of gestation improved colostrum yield of does and suckling activity of newborn kids.

Perspective on forage legume systems for the tallgrass and mixed-grass prairies of the southern Great Plains of Texas and Oklahoma. T. J. Butler and J. P. Muir. 2012. *Crop Science* 52:1971–1979. (Samuel Roberts Noble Foundation, 2510 Sam Noble Parkway, Ardmore, OK 73401, USA). Authors summarize current knowledge about establishing and managing legumes in the southern Great Plains.

Tradeoffs in performance of native warm-season grass cultivars and locally harvested seed managed for wildlife habitat or livestock production. S. K. Chamberlain, L. K. Paine, J. L. Harrison, and R. D. Jackson. 2012. *Agronomy Journal* 104:1383–1391. (Nelson Institute of Environmental Studies, Univ of Wisconsin, 550 North Park St, Madison, WI 53706, USA). Native warm-season grass pastures in Wisconsin were rotationally grazed in June and July without harming grassland bird habitat.

Hydrology/Riparian

Are the North American deserts expanding? Some climate signals from groundwater storage conditions. W. Brutsaert. 2012. *Ecohydrology* 5:541–549. (School of Civil and Environmental Engineering, Cornell Univ, Ithaca, NY 14853, USA). Study revealed no evidence that aridity has increased in the Chihuahua, Mojave, and Great Basin Deserts during the past century. Human activities, rather than climate change, may have decreased groundwater storage in the Sonora Desert.

Effects of cattle grazing on Platte River caddisflies (*Isonychia plattensis*) in central Nebraska. M. J. Harner and K. Geluso. 2012. *Freshwater Science* 31:389–394. (Platte

River Whooping Crane Critical Habitat Maintenance Trust, 6611 West Whooping Crane Dr, Wood River, NE 68883, USA). “Resting pastures from grazing to permit vegetation to rebound appears to allow cattle and Platte River caddisflies to coexist in sloughs along the Platte River.”

Estimating potential *E. coli* sources in a watershed using spatially explicit modeling techniques. K. J. Riebschleager, R. Karthikeyan, R. Srinivasan, and K. McKee. 2012. *Journal of the American Water Resources Association* 48:745–761. (Dept of Biological and Agricultural Engineering, Texas A&M Univ, College Station, TX 77843, USA). Bacterial water quality violations in the Lake Granbury watershed of north-central Texas resulted from malfunctioning wastewater treatment systems and pet wastes rather than livestock or wildlife.

Short-term soil moisture response to low-tech erosion control structures in a semiarid rangeland. M. H. Nichols, K. McReynolds, and C. Reed. 2012. *Catena* 98:104–109. (USDA-ARS Southwest Watershed Research Center, 2000 E Allen Rd, Tucson, AZ 85719, USA). Rock check dams constructed in small ephemeral channels in southeastern Arizona increased streambank soil moisture.

Water quality effects of herded stream crossings by domestic sheep bands. P. E. Clark, C. A. Moffet, G. S. Lewis, M. S. Seyfried, S. P. Hardegree, and F. B. Pierson. 2012. *Journal of Environmental Quality* 41:1580–1590. (USDA-ARS Northwest Watershed Research Center, 800 East Park Blvd, Suite 105, Boise, ID 83712, USA). In the Centennial Mountains of eastern Idaho and southwestern Montana, water quality was degraded for 24 to 48 minutes up to 0.3 of a mile downstream from one-way crossings by a herded band of domestic sheep (about 2,000 animals).

Measurements

Montane meadows in the Sierra Nevada: comparing terrestrial and aquatic assessment methods. S. E. Purdy, P. B. Moyle, and K. W. Tate. 2012. *Environmental Monitoring and Assessment* 184:6967–6986. (Center for Watershed Sciences, Univ of California, Davis, 1 Shields Ave, Davis, CA 95616, USA). Five methods of meadow condition assessment provided very different interpretations. Authors recommend a multimetric approach that assesses both terrestrial and aquatic habitat features.

Plant Ecology

Contrasting bud bank dynamics of two co-occurring grasses in tallgrass prairie: implications for grassland dynamics. J. P. Ott and D. C. Hartnett. 2012. *Plant Ecology* 213:1437–1448. (Division of Biology, Kansas State Univ, Manhattan, KS 66506, USA). Big bluestem buds are more numerous and live longer than buds of rosette grass, which

helps explain why big bluestem is less sensitive to weather and other disturbances.

Oak conservation maintains native grass stands in an oak woodland-annual grassland system. L. M. Roche, K. J. Rice, and K. W. Tate. 2012. *Biodiversity and Conservation* 21:2555–2568. (Dept of Plant Science, Univ of California, Davis, Davis, CA 95616, USA). Purple needlegrass density was greater near blue oak trees in savanna and grassland sites but not in woodland sites.

Postfire responses by southern arroyo willow forest and by southern-willow scrub dominated by *Salix lasiolepis* in San Diego County, California. J. F. O'Leary and W. R. Bredemeyer. 2012. *Southwestern Naturalist* 57:327–332. (Dept of Geography, San Diego State Univ, San Diego, CA 92182, USA). Arroyo willows resprouted vigorously after wildfire, but nonnative grasses increased, principally red brome and Italian ryegrass.

The influence of chilling requirement on the southern distribution limit of exotic Russian olive (*Elaeagnus angustifolia*) in western North America. K. R. Guilbault, C. S. Brown, J. M. Friedman, and P. B. Shafroth. 2012. *Biological Invasions* 14:1711–1724. (Dept of Bioagricultural Sciences and Pest Management, Colorado State Univ, Fort Collins, CO 80523, USA). Russian olive bud-break has a chilling requirement that presently limits its southern distribution. If climate change exhibits a warming trend, Russian olive may retreat northward.

Rehabilitation/Restoration

Enhancing Garry oak seedling performance in a semi-arid environment. J. D. Bakker, L. B. Colasurdo, and J. R. Evans. 2012. *Northwest Science* 86:300–309. (School of Environmental and Forest Sciences, Box 354115, Univ of Washington, Seattle, WA 98195, USA). “We highly recommend the use of plastic mulch, which is easily installed and inexpensive, when planting Garry oak in semiarid environments.”

Grassland response to herbicides and seeding of native grasses 6 years posttreatment. B. A. Endress, C. G. Parks, B. J. Naylor, S. R. Radosevich, and M. Porter. 2012. *Invasive Plant Science and Management* 5:311–316. (US Forest Service Pacific Northwest Research Station, 1401 Gekeler Lane, La Grande, OR 97850, USA). The invasive perennial forb sulfur cinquefoil was effectively controlled by integrating picloram application and native grass seeding.

Rehabilitating medusahead (*Taeniatherum caput-medusae*) infested rangeland using a single-entry approach. R. L. Sheley, B. S. Bingham, and K. W. Davies. 2012. *Weed Science* 60:612–617. (USDA-ARS, 67826-A Hwy 205, Burns, OR 97720, USA). Imazapic application without seeding suppressed medusahead and increased perennial bunchgrasses where enough bunchgrasses existed before treatment. The simultaneous application of imazapic and seeding was successful where desired species were absent before treatment.

Russian thistle (*Salsola tragus* L.) control on bighorn sheep winter ranges in Jasper National Park. T. M. Antill, M. A. Naeth, E. W. Bork, and A. L. Westhaver. 2012. *Natural Areas Journal* 32:391–397. (M. Naeth, Dept of Renewable Resources, Univ of Alberta, Edmonton, AB T6G 2H1, Canada). All treatments that included herbicide reduced Russian thistle, but also removed native forbs. Exclusion of ungulate grazing reduced Russian thistle and enabled other forbs to increase.

Safening of native grass to herbicides by using carbon bands. W. J. Grichar, J. Lloyd-Reilley, J. Rahmes, W. R. Ocumpaugh, and J. L. Foster. 2012. *Weed Technology* 26:499–505. (Texas AgriLife Research, 3507 Highway 59E, Beeville, TX 78102, USA). A slurry of activated carbon was sprayed in a 1-inch band behind the press wheels of the drill when seeding perennial grasses. Herbicides were applied the next day. The activated carbon provided a “safe zone” for perennial grass seedlings to establish where flumioxazin, imazapic, or imazethapyr herbicides were applied.

Sulfur cinquefoil (*Potentilla recta*) response to defoliation on foothill rangeland. R. A. Frost and J. C. Mosley. 2012. *Invasive Plant Science and Management* 5:408–416. (Dept of Animal and Range Sciences, Montana State Univ, Bozeman, MT 59717, USA). Results of a clipping experiment indicate that targeted livestock grazing or mowing applied once annually during flowering or seedset could effectively suppress the biomass production and viable seed production of sulfur cinquefoil.

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Rangelands 35(1):47–49

doi: 10.2111/RANGELANDS-D-13-00001.1

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