



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

Effects of Gunnison sage-grouse habitat treatment efforts on associated avifauna and vegetation structure. P.M. Lukacs, A. Seglund, and S. Boyle. 2015. *Avian Conservation and Ecology* 10(2): article no. 7; doi:10.5751/ACE-00799-100207. (Wildlife Biology Program, Univ of Montana, Missoula, MT 59812, USA). On sagebrush sites treated to benefit sage-grouse brood-rearing habitat, the density of Brewer's sparrow and green-tailed towhee decreased, while Vesper's sparrow density increased. "While the concept of an umbrella species is appealing, evidence from this study suggests that conservation efforts aimed at the Gunnison sage-grouse may not be particularly effective for conserving other sagebrush obligate species of concern."

Factors affecting female space use in ten populations of prairie chickens. V.L. Vinder, K.M. Carrlson, A.J. Gregory, C.A. Hagen, D.A. Haukos, D.C. Kesler, L.C. Larsson, T.W. Matthews, L.B. McNew, M.A. Patten, J.C. Pitman, L.A. Powell, J.A. Smith, T. Thompson, D.H. Wolfe, and B.K. Sandercock. 2015. *Ecosphere* 6(9): article no. 166; doi:10.1890/ES14-00536.1. (Dept of Biology, Benedictine College, Atchison, KS 66002, USA). Recommends that conservation efforts for Greater Prairie-Chickens and Lesser Prairie-Chickens be concentrated within three miles of active leks.

Faunal responses to fire in chaparral and sage scrub in California, USA. E.F. van Mantgem, J.E. Keeley, and M. Witter. 2015. *Fire Ecology* 11:128–148. (J. Keeley, US Geological Survey, 47050 Generals Highway, Three Rivers, CA 93271, USA). This paper synthesizes current knowledge about the impact of fire on the fauna of California shrublands.

Feeding behavior of sheep and goats in a deciduous tropical forest during the dry season: the same menu consumed differently. P.G. Gonzalez-Pech, J.F.D. Torres-Acosta, C.A. Sandoval-Castro, and J. Tun-Garrido. 2015. *Small Ruminant Research* 133:128–134. (J. Torres-Acosta, Univ Autonoma Yucatan, P.O. 97100 Apdo, Meridia, Yucatan, Mexico). Sheep and goats largely consumed the same plant species, but dry matter intake by sheep was dominated by fern-leaf acacia pods while intake by goats was dominated by shrub foliage.

Herbivory of sympatric elk and cattle on Lincoln National Forest, south-central New Mexico. H.H. Halbritter and L.C. Bender. 2015. *Forest Ecosystems* 2: article no. 25;

doi:10.1186/s40663-015-0049-0. (Extension Animal Sciences and Natural Resources, New Mexico State Univ, Las Cruces, NM 88003, USA). Elk fed primarily on deciduous shrubs (34–55% of annual diets) while cattle ate grass-dominated diets (72–77% of annual diets). Dietary overlap between elk and cattle was moderate (54–57%).

Human diseases from wildlife. M.R. Conover and R.M. Vail. 2015. 527 p. (CRC Press, Taylor and Francis Group, Boca Raton, FL 33487, USA). This fascinating book summarizes current knowledge of zoonotic diseases (i.e., diseases that can affect both humans and animals) in which North American wildlife plays an important role as a reservoir or vector for the pathogen. For some of the diseases, livestock or pets can become infected from wildlife, and humans become ill from the infected livestock or pets. Plague, brucellosis, anthrax, tuberculosis, and many other diseases are discussed. Rangeland managers, wildlife biologists, ranchers, hunters, and others who enjoy the outdoors should be aware of simple precautions that can reduce their risk of contracting these zoonotic diseases.

Long-term changes in pronghorn abundance index linked to climate and oil development in North Dakota. K.S. Christie, W.F. Jensen, J.H. Schmidt, and M.S. Boyce. 2015. *Biological Conservation* 192:445–453. (Dept of Biological Sciences, Univ of Alberta, Edmonton, AB T6G 2E9, Canada). Results suggest that a rapid decline in pronghorn numbers from 2008 to 2012 was attributable to severe winter weather, augmented by increased oil development.

Grazing Management

Drought effect on weaning weight and efficiency relative to cow size in semiarid rangeland. J.D. Scasta, L. Henderson, and T. Smith. 2015. *Journal of Animal Science* 93:5829–5839. (Dept of Ecosystem Science and Management, Univ of Wyoming, Laramie, WY 82071, USA). Small or moderate size cows (1000 to 1200 pounds) optimized production efficiency compared with large cows (1300 to 1400 pounds) during drought and non-drought years in Wyoming.

Introducing cattle grazing to a noxious weed-dominated rangeland shifts plant communities. J.S. Davy, L.M. Roche, A.V. Robertson, D.E. Nay, and K.W. Tate. 2015. *California Agriculture* 69:230–236. (Dept of Plant Sciences, Univ of California-Davis, Davis, CA 95616, USA). Targeted cattle grazing applied at a pasture-scale reduced medusahead but not yellow starthistle.

Hydrology/Riparian

Evaluation of dryland riparian restoration with cottonwood and willow using deep-planting and herbivore protection. J.E. Hall, M.M. Pollock, S. Hoh, C. Volk, J. Goldsmith, and C.E. Jordan. 2015. *Ecosphere* 6(12): article no. 263; doi: 10.1890/ES15-00296.1. (National Oceanic and

Atmospheric Administration, Northwest Fisheries Science Center, 2725 Montlake Blvd E Seattle, WA 98112, USA). Pole cuttings of cottonwood and willow were successfully established in augered holes up to 6 feet deep that penetrated the water table. Vented, plastic tree shelters 6-feet high prevented browsing better than either 3-foot high plastic tree shelters or 3-foot diameter circular fence cages.

Interactive effects of pasture management intensity, release from grazing and prescribed fire on forty subtropical wetland plant assemblages. E.H. Boughton, P.F. Quintana-Ascencio, P.J. Bohlen, J.E. Fauth, and D.G. Jenkins. 2016. *Journal of Applied Ecology* 53:159–170. (MacArthur Agroecology Research Center, 300 Buck Island Ranch Rd, Lake Placid, FL 33852, USA). Excluding cattle grazing or prescribed fire decreased vegetation species diversity in wetlands within southern Florida rangeland.

Measurements

Soil aggregate stability was an uncertain predictor of ecosystem functioning in a temperate and semiarid grassland. K.O. Reinhart, K.A. Nichols, M. Peterson, and L.T. Vermeire. 2015. *Ecosphere* 6(11): article no. 238; doi:10.1890/ES15-00056.1. (U.S Department of Agriculture-Agricultural Research Service, 243 Fort Keogh Rd, Miles City, MT 59301, USA). Soil aggregate stability was not a useful predictor of primary productivity or soil water transport for a mixed-grass prairie site in southeastern Montana.

Plant Ecology

Populus tremuloides stands continue to deteriorate after drought-incited sudden aspen decline. J.J. Worrall, A.G. Kreck, and S.B. Marchetti. 2015. *Canadian Journal of Forest Research* 45:1768–1774. (US Forest Service, 216 N. Colorado St., Gunnison, CO 81230, USA). Incited by drought at the beginning of this century, the plant disease known as Sudden Aspen Decline damaged more than 1.3 million acres of aspen in the Southern Rocky Mountains. Although spread of the disease stopped circa 2009, most of the affected stands have continued to deteriorate.

Response of native versus exotic plant guilds to cattle and elk herbivory in forested rangeland. B.K. Pekin, M.J. Wisdom, C.G. Parks, B.A. Endress, and B.J. Naylor. 2016. *Applied Vegetation Science* 19:31–39. (Division of Applied Plant Ecology, San Diego Zoo Institute for Conservation Research, 15600 San Pasqual Valley Rd., Escondido, CA 92027, USA). Grazing by elk or cattle had only a minor impact on exotic plants in northeastern Oregon, and cattle grazing did not favor exotic plants any more than grazing by elk.

Rehabilitation/Restoration

Control of silky crazyweed (*Oxytropis sericea*) with aminopyralid + 2,4-D and picloram + 2,4-D on native rangeland. L.E. Goodman, A.F. Cibils, R.L. Steiner, J.D.

Graham, and K.C. McDaniel. 2015. *Invasive Plant Science and Management* 8:401–408. (Dept of Natural Resource Ecology and Management, Oklahoma State Univ, Stillwater, OK 74078, USA). In northern New Mexico, silky crazyweed (a.k.a., whitepoint loco or white locoweed) was effectively controlled with applications of either Grazon P+D or GrazonNext at the late-flowering stage.

Enhancing quality of desert tortoise habitat: augmenting native forage and cover plants. S.R. Abella, L.P. Chiquoine, E.C. Engel, K.E. Kleinick, and F.S. Edwards. 2015. *Journal of Fish and Wildlife Management* 6:278–289. (School of Life Sciences, Univ of Nevada, Las Vegas, NV 89154, USA). Desert tortoise forage in southern Nevada was successfully increased by pelletized seeding of desert plantain within fenced areas that excluded feral burros and jackrabbits.

Evidence that the Conservation Reserve Program slowed population declines of pheasants on a changing landscape in Nebraska, USA. T.L. Hiller, J.S. Taylor, J.J. Lusk, L.A. Powell, and A.J. Tyre. 2015. *Wildlife Society Bulletin* 39:529–535. (Forest and Wildlife Research Center, Box 9690, Mississippi State Univ, Mississippi State, MS 39762, USA). Introduction of the Conservation Reserve Program in 1986 slowed, but did not reverse, the long-term decline of pheasant populations in Nebraska.

Registration of ‘Arsenal’ meadow bromegrass. K.B. Jensen, D. Singh, B.S. Bushman, and J.G. Robins. 2015. *Journal of Plant Registrations* 9:304–310. (US Department of Agriculture-Agricultural Research Service, 695 North 100 East, Logan, UT 84322, USA). ‘Arsenal’ is a new cultivar of meadow bromegrass suitable

for non-irrigated pastures and rangelands with at least 13 inches of annual precipitation. ‘Arsenal’ provides high-yielding nutritious forage, and this cultivar is winter hardy and drought tolerant.

Testing integrated management strategies for tall buttercup (*Ranunculus acris*) in irrigated hayfield meadows. H.K. Strevey and J.M. Mangold. 2015. *Invasive Plant Science and Management* 8:385–392. (Dept of Land Resources and Environmental Sciences, Montana State Univ, Bozeman, MT 59717, USA). Milestone herbicide provided 93% control without harming perennial grass production. Perspective herbicide provided 96% control but reduced perennial grass production about 20%.

The toxicity of glyphosate alone and glyphosate-surfactant mixtures to western toad (*Anaxyrus boreas*) tadpoles. K. Vincent and C. Davidson. 2015. *Environmental Toxicology and Chemistry* 34:2791–2795. (Dept of Biology, San Francisco State Univ, San Francisco, CA 94132, USA). Glyphosate mixed with the surfactant Competitor was six times more toxic than glyphosate mixed with the surfactant Agri-dex, and both mixtures were more toxic than glyphosate alone.

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