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

Consequences of cattle introduction in a shrubsteppe ecosystem: indirect effects on desert horned lizards (*Phrynosoma platyrhinos*). T. A. S. Newbold and J. A. MacMahon. 2008. *Western North American Naturalist* 68:291–302. (Dept of Soil and Crop Sciences, Colorado State Univ, Fort Collins, CO 80523, USA). In northwestern Utah, changes in habitat structure caused desert horned lizards to avoid areas ungrazed by cattle.

Evidence for interspecific competition between feral ass *Equus asinus* and mountain sheep *Ovis canadensis* in a desert environment. J. P. Marshal, V. C. Bleich, and N. G. Andrew. 2008. *Wildlife Biology* 14:228–236. (School of Animal, Plant and Environmental Sciences, Univ of Witwatersrand, ZA-2050 Wits, South Africa). Feral burros are limiting desert bighorn populations in the Sonora Desert of southeastern California, although the mechanism of competition remains unclear.

Exotic grass invasion impacts fitness of an endangered prairie butterfly, *Icaricia icarioides fender*. P. M. Severns. 2008. *Journal of Insect Conservation* 12:651–661. (Dept of Botany and Plant Pathology, Oregon State Univ, Corvallis, OR 97331, USA). Invasion by tall oatgrass into western Oregon grasslands increases average plant height, which disfavors the endangered Fender's blue butterfly. Clipping tall oatgrass plants to the height of native plants benefits the butterfly.

Range-wide patterns of greater sage-grouse persistence. C. L. Aldridge, S. E. Nielsen, H. L. Beyer, M. S. Boyce, J. W. Connelly, S. T. Knick, and M. A. Schroeder. 2008. *Diversity and Distributions* 14:983–994. (Natural Resource Ecology Lab, Colorado State Univ, Fort Collins, CO 80526, USA). Persistence and extirpation of sage-grouse populations from 1950 to present were unrelated to cattle density, but they were related to the amount of sagebrush habitat present and the frequency of severe droughts.

Grazing Management

Cattle, deer, and elk grazing of the invasive plant sulfur cinquefoil. C. G. Parks, B. A. Endress, M. Vavra, M. L. McInnis, and B. J. Naylor. 2008. *Natural Areas Journal* 28:404–409. (US Forest Service, Pacific Northwest Research Station, 1401 Gekeler Ln, La Grande, OR 97850, USA). Despite previous observational reports that the tannins in sulfur cinquefoil deter grazing, cattle, deer, and elk readily grazed this noxious weed, especially its seedheads.

Impact of livestock grazing on abundance of Miridae and Reduviidae (Hemiptera) in crested wheatgrass pastures. K. M. O'Neill, S. Blodgett, B. E. Olson, and R. S. Miller. 2008. *Journal of Economic Entomology* 101:309–313. (Dept of Land Resources and Environmental Sciences, Montana State Univ, Bozeman, MT 59717, USA). Cattle grazing decreased plant litter, which reduced black grass bugs, insects that damage wheatgrass species on western North American rangelands.

Impacts of animal science research on United States sheep production and predictions for the future. C. J. Lupton. 2008. *Journal of Animal Science* 86:3252–3274. (Texas AgriLife Research, 7887 US Hwy 87 North, San Angelo, TX 76901, USA). Sheep numbers in the United States declined 87% from 1910 to 2007, but the size of the US sheep industry is expected to remain stable in the foreseeable future. Targeted sheep grazing to control noxious weeds is one opportunity for sheep producers to remain profitable.

Potential impacts of climate change on grazing capacity of native grasslands in the Canadian prairies. J. Thorpe, S. A. Wolfe, and B. Houston. 2008. *Canadian Journal of Soil Science* 88:595–609. (Saskatchewan Research Council, 15 Innovation Blvd, Saskatoon, SK S7N 2X8, Canada). Warming climate over the next 50 years is not expected to significantly alter the grazing capacity of Canadian prairies.

Plant–Animal Interactions

Influence of pocket gopher mounds on nonnative plant establishment in a shrubsteppe ecosystem. G. P. Kyle, A. Kulmatiski, and K. H. Beard. 2008. *Western North American Naturalist* 68:374–381. (K. Beard, Dept of Wildland Resources, Utah State Univ, Logan, UT 84322, USA). In north-central Washington, growth of bluebunch wheatgrass and other native plants on pocket gopher mounds was not limited by competition from invasive plants establishing on the gopher mounds, but rather by low soil moisture and slow nitrogen mineralization rates on the mounds.

Plant Ecology

Change in extent of meadows and shrub fields in the central western Cascade Range, Oregon. S. Takaoka and F. J. Swanson. 2008. *Professional Geographer* 60:527–540. (F. Swanson, US Forest Service, Pacific Northwest Research Station, 3200 SW Jefferson Way, Corvallis, OR 97331, USA). From 1946 to 2000, conifer encroachment reduced mountain meadows 54%, and contraction was more prevalent in wet meadows than dry meadows.

Comparison of damage to native and exotic tallgrass prairie plants by natural enemies. X. M. Han, S. P. Dendy, K. A. Garrett, L. Fang, and M. D. Smith. 2008. *Plant Ecology* 198:197–210. (M. Smith, Dept of Ecology and Evolutionary Biology, Yale Univ, New Haven, CT 06520, USA). Insects and pathogens damaged big bluestem much more than Caucasian bluestem, perhaps explaining in part how Caucasian bluestem has been able to proliferate in the tallgrass prairie at the expense of big bluestem.

Demography of perennial grassland plants: survival, life expectancy and life span. W. K. Lauenroth and P. B. Adler. 2008. *Journal of Ecology* 96:1023–1032. (Warner College of Natural Resources, Colorado State Univ, Fort Collins, CO 80523, USA). In Kansas grassland, maximum observed life spans ranged from 3 years to 25 years for forbs and 5–39 years for grass plants. Most herbaceous perennials did not live more than 6 years, and forbs were more likely to die young than grasses.

Environmentally biased fragmentation of oak savanna habitat on southeastern Vancouver Island, Canada. M. Vellend, A. D. Bjorkman, and A. McConchie. 2008. *Biological Conservation* 141:2576–2584. (Dept of Botany, Univ of British Columbia, Vancouver, BC V6T 1Z4, Canada). Prior to European settlement, indigenous peoples used prescribed fire to maintain oak savannas on flat low-lying areas with deep soils. Most of these areas have since been converted to agricultural and urban areas, leaving remnant oak savannas largely on steep, rocky hilltops with shallow soils.

Field-based competitive impacts between invaders and natives at varying resource supply. J. L. Maron and M. Marler. 2008. *Journal of Ecology* 96:1187–1197. (Division of Biological Sciences, Univ of Montana, Missoula, MT 59812, USA). Biomass of spotted knapweed was unaffected by competition from native vegetation, but competition from native plants moderately suppressed sulfur cinquefoil and Dalmatian toadflax.

Rehabilitation/Restoration

Ecophysiological responses of Chihuahuan Desert grasses to fire. B. W. Allred and K. A. Snyder. 2008. *Journal of Arid Environments* 72:1989–1996. (8C Ag Hall, Oklahoma State Univ, Stillwater, OK 74078, USA). Physiological characteristics of black grama and purple threeawn responded favorably to fire.

Manage your land for wildlife: a wildlife management handbook for Rocky Mountain landowners. J. E. Knight. 2008. Montana State University Extension, Bozeman, MT, USA. ISBN-13: 978-0-9635114-2-3 ($25; www.msuextension.org/publications.asp). This 254-page book is a straightforward guide for landowners wanting to know how to improve habitat and population management of wild ungulates, upland game birds, and waterfowl on private lands in the Rocky Mountain region.

Rangeland vegetation and soil response to summer patch fires under continuous grazing. W. R. Teague, S. E. Duke, J. A. Waggoner, S. L. Dowhower, and S. A. Gerrard. 2008. *Arid Land Research and Management* 22:228–241. (Texas AgriLife Research, PO Box 1658, Vernon, TX 76385, USA). After summer burning reduced honey mesquite and cactus in northern Texas, herbaceous plants needed favorable precipitation to recover. When drought conditions preceded and followed burning, herbaceous vegetation needed 3–5 years to recover. If average rainfall preceded and followed summer burning, herbaceous vegetation exceeded pre-burn levels within 2 years.

Spatial analysis of effects of mowing and burning on colony expansion in reintroduced black-tailed prairie dog (*Cynomys ludovicianus*). J. Northcott, M. C. Andersen, G. W. Roemer, E. L. Frederickson, M. DeMers, J. Truett, and P. L. Ford. 2008. *Restoration Ecology* 16:495–502. (M. Andersen, Dept of Fisheries and Wildlife Sciences, New Mexico State Univ, Las Cruces, NM 88003, USA). The direction of expansion of prairie dog colonies can be manipulated. Prairie dogs preferred to dig new burrows where the vegetation had been purposely mowed or burned.

White-tailed deer distribution in response to patch burning on rangeland. M. G. Meek, S. M. Cooper, M. K. Owens, R. M. Cooper, and A. L. Wappel. 2008. *Journal of Arid Environments* 72:2026–2033. (S. Cooper, Texas AgriLife Research, 1619 Garner Field Rd, Uvalde, TX 78801, USA). Distribution of whitetails was largely unaffected by late summer prescribed burns when low rainfall amounts post-burning limited plant regrowth. Cattle presence did not affect white-tailed deer distribution.

Soils

Soil physical responses to cattle grazing cover crops under conventional and no tillage in the Southern Piedmont USA. A. J. Franzluebbers and J. A. Stuedemann. 2008. *Soil and Tillage Research* 100:141–153. (USDA-ARS, 1420 Experiment Station Rd, Watkinsville, GA 30677, USA). Cattle-grazing of cover crops was evaluated in two cropping systems: summer grain/winter cover crop and winter grain/summer cover crop. Cattle trampling did not appreciably damage the soils in either cropping system.

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