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

Factors influencing the incidence of cowbird parasitism of least Bell's vireos. B. L. Sharp and B. E. Kus. 2006. *Journal of Wildlife Management* 70:682–690. (Department of Biology, San Diego State University, San Diego, CA 92182). Habitat management for improved breeding success of least Bell's vireo (an endangered bird) should focus on increasing the density of understory vegetation.

Monitoring low density avian populations: an example using mountain plovers. V. J. Dreitz, P. M. Lukacs, and F. L. Knopf. 2006. *Condor* 108:700–706. (Colorado Division of Wildlife, 317 W Prospect Road, Fort Collins, CO 80523). In shortgrass prairie of eastern Colorado, mountain plovers were equally abundant in prairie dog colonies and dryland wheat fields, and less abundant in rangeland outside prairie dog colonies.

Nesting ecology and survival of scaled quail in the Southern High Plains of Texas. G. D. Pleasant, C. B. Dabbert, and R. B. Mitchell. 2006. *Journal of Wildlife Management* 70:632–640. (R. Mitchell, Department of Range, Wildlife and Fisheries Management, Texas Tech University, Lubbock, TX 79409). Forb diversity and security cover are important for scaled quail survival and reproduction. Drought and overgrazing by livestock increase the amount of bare ground and reduce security cover.

Species richness–productivity relationship for small mammals along a desert–grassland continuum: differential responses of functional groups. A. W. Reed, G. A. Kaufman, and D. W. Kaufman. 2006. *Journal of Mammalogy* 87:777–783. (Museum of Natural History, University of Kansas, Lawrence, KS 66045). Increased amounts of plant litter decrease species richness of small mammals.

Grazing Management

Conditioning ewes and lambs to increase consumption of spotted knapweed. T. R. Whitney and B. E. Olson. 2006. *Applied Animal Behaviour Science* 100:193–206. (B. Olson, Department of Animal and Range Sciences, Montana State University, Bozeman, MT 59717). Conditioning ewes to spotted knapweed did not enhance their subsequent consumption of the weed. Conditioning lambs without their ewes present appears to have the greatest potential to increase sheep consumption of spotted knapweed.

Effects of animal browse protection and fertilizer application on the establishment of planted Nuttall oak seedlings. T. S. Taylor, E. F. Loewenstein, and A. H. Chappelka. 2006. *New Forests* 32:133–143. (School of Forestry and Wildlife Science, Auburn University, Au-

burn, AL 36849). Plastic tree shelters were more effective than wire shelters in protecting Nuttall oak seedlings from browsing and increasing seedling height growth.

Effects of condensed tannins supplementation level on weight gain and *in vitro* and *in vivo* bloat precursors in steers grazing winter wheat. B. R. Min, W. E. Pinchak, R. C. Anderson, J. D. Fulford, and R. Puchala. 2006. *Journal of Animal Science* 84:2546–2554. (W. Pinchak, Texas Agricultural Experiment Station, 11708 Highway 70 S, Vernon, TX 76385). Supplementation with condensed tannins from quebracho reduced the severity of bloat and increased steer weight gain on winter wheat pasture.

Effects of habitat management for ducks on target and nontarget species. N. Koper and F. K. A. Schmiegelow. 2006. *Journal of Wildlife Management* 70:823–834. (Department of Renewable Resources, University of Alberta, Edmonton, AB T6G 2H1, Canada). In dry mixed-grass prairie, cattle grazing can be used by wildlife managers to create heterogeneous habitat that benefits many species.

Effects of pre- and postpartum nutrition on reproduction in spring calving cows and calf feedlot performance. L. A. Stalker, D. C. Adams, T. J. Klopfenstein, D. M. Feuz, and R. N. Funston. 2006. *Journal of Animal Science* 84:2582–2589. (T. Klopfenstein, Department of Animal Science, University of Nebraska, Lincoln, NE 68583). Allowing cows to graze subirrigated meadow for 30 days after calving was more profitable than drylot-feeding cows grass hay during the same time period, regardless of whether calves were marketed at weaning or after finishing in a feedlot. Feeding supplemental protein before calving increased weaning weights and the percentage of live calves at weaning, without increasing calf birth weight.

Influence of stock density and rate and temporal patterns of forage allocation on the diet mixing behavior of sheep grazing sagebrush steppe. R. A. Shaw, J. J. Villalba, and F. D. Provenza. 2006. *Applied Animal Behaviour Science* 100:207–218. (Department of Forest, Range and Wildlife Sciences, Utah State University, Logan, UT 84322). In late spring–early summer, sheep grazed at high stock densities ate more sagebrush than sheep grazed at low stock density.

Hydrology/Riparian

Islands of hydrologically enhanced biotic productivity in natural and managed arid ecosystems. A. Rango, S. L. Tartowski, A. Laliberte, J. Wainwright, and A. Parsons. 2006. *Journal of Arid Environments* 65:235–252. (USDA-ARS, Jornada Experimental Range, PO Box 30003, Las Cruces, NM 88003). Installation of water-ponding dikes or other structures can be used to mimic nature and divert water to areas targeted for rangeland rehabilitation.

Spatial and annual variability in concentrations and sources of *Escherichia coli* in multiple watersheds. C. L. Meays, K. Broersma, R. Nordin, A. Mazumder, and M. Samadpour. 2006. *Environmental Science and Technology* 40:5289–5296. (Department of Biology, University of Victoria, PO Box 3020 Station CSC, Victoria, BC V8N 3N5, Canada). In multiple-use watersheds of south-central British Columbia, wildlife contributed 79% of *E. coli* in streams whereas cattle contributed 12%.

Plant Ecology

An integrated framework for science-based arid land management. J. E. Herrick, B. T. Bestelmeyer, S. Archer, A. J. Tugel, and J. R. Brown. 2006. *Journal of Arid Environments* 65:319–335. (USDA-ARS, Jornada Experimental Range, PO Box 30003, Las Cruces, NM 88003). Suggests using ecological site descriptions as the framework for organizing research results and expert knowledge to help resource managers base land management decisions on the best available information.

Disentangling complex landscapes: new insights into arid and semiarid system dynamics. D. P. C. Peters, B. T. Bestelmeyer, J. E. Herrick, E. L. Fredrickson, H. C. Monger, and K. M. Havstad. 2006. *BioScience* 56:491–501. (USDA-ARS, Jornada Experimental Range, PO Box 30003, Las Cruces, NM 88003). Presents a framework to help scientists and resource managers identify the key factors that are influencing an arid or semiarid site.

Environmental management glossary. 2006. Soil and Water Conservation Society. (\$25 plus shipping and handling; <http://store.swcs.org>; 945 SW Ankeny Road, Ankeny, IA 50023). In easy-to-understand language, this 282-page softcover book provides definitions of more than 4,000 terms.

Mesquite recruitment in the Chihuahuan Desert: historic and prehistoric patterns with long-term impacts. E. L. Fredrickson, R. E. Estell, A. Laliberte, and D. M. Anderson. 2006. *Journal of Arid Environments* 65:285–295. (USDA-ARS, Jornada Experimental Range, PO Box 30003, Las Cruces, NM 88003). Pre-European peoples used honey mesquite for fuel, medicine, food, building material, cosmetics, and religious ritual, thereby exerting influence over mesquite distribution and abundance. Authors suggest that when these uses ended, mesquite expansion may have ultimately occurred in the absence of livestock grazing.

Shoot herbivory on the invasive plant, *Centaurea maculosa*, does not reduce its competitive effects on conspecifics and natives. B. A. Newingham and R. M. Callaway. 2006. *Oikos* 114:397–406. (Department of Biological Sciences, University of Nevada, Las Vegas, NV 89154). Authors conclude that very high levels of consistent defoliation may be

required to reduce the competitive ability of spotted knapweed.

Structure and function of a Chihuahuan Desert ecosystem: the Jornada Basin Long-Term Ecological Research Site. K. M. Havstad, L. F. Huenneke, and W. H. Schlesinger, editors. 2006. (Oxford University Press, 198 Madison Ave, New York, NY 10016). This 465-page book summarizes the knowledge gained from more than 90 years of research in southern New Mexico.

The biology of invasive alien plants in Canada. 4. *Heracleum mantegazzianum* Sommier & Levier. N. A. Page, R. E. Wall, S. J. Darbyshire, and G. A. Mulligan. 2006. *Canadian Journal of Plant Science* 86:569–589. (Raincoast Applied Ecology, 102-1661 W 2nd Ave, Vancouver, BC V6J 1H3, Canada). Provides state-of-the-art knowledge about giant hogweed, an invasive, introduced plant in southern Canada and portions of the United States that is closely related to a native species, cow parsnip (*Heracleum maximum*).

Rehabilitation/Restoration

A review of research progress on cicer milkvetch (*Astragalus cicer* L.). S. N. Acharya, J. P. Kastelic, K. A. Beauchemin, and D. F. Messenger. 2006. *Canadian Journal of Plant Science* 86:49–62. (Lethbridge Agricultural Research Centre, PO Box 3000, Lethbridge, AB T1J 4B1, Canada). Successful seeding of cicer milkvetch, a nonbloating legume, requires seed scarification, inoculation with rhizobia, and shallow seeding into a firm seedbed in late spring without a companion crop.

Green-tailed towhee response to prescribed fire in montane shrubland. G. Jehle, J. A. Savidge, and N. B. Kotliar. 2006. *Condor* 108:634–646. (Department of Fishery and Wildlife Biology, Colorado State University, Fort Collins, CO 80523). Results suggest that green-tailed towhees benefit most when their nesting habitat contains shrub cover, preferably common juniper, which is not too dense.

Strategies for savanna restoration in the southern Great Plains: effects of fire and herbicides. R. J. Ansley and M. J.

Castellano. 2006. *Restoration Ecology* 14:420–428. (Texas Agricultural Experiment Station, 11708 Highway 70 S, Vernon, TX 76385). Aerial spraying of clopyralid was more effective than a high-intensity winter fire or application of clopyralid + triclopyr when restoring a honey mesquite savanna.

Threshold concepts and their use in rangeland management and restoration: the good, the bad, and the insidious.

B. T. Bestelmeyer. 2006. *Restoration Ecology* 14:325–329. (USDA-ARS, Jornada Experimental Range, PO Box 30003, Las Cruces, NM 88003). Cautions that uncritical evaluation of state-and-transition thresholds may cause land managers to erroneously conclude that thresholds have been reached, thereby causing managers to forego restoration efforts in areas that would otherwise benefit from restoration.

Soils

Increased N availability in grassland soils modifies their microbial communities and decreases the abundance of arbuscular mycorrhizal fungi.

K. Bradley, R. A. Drijber, and J. Knops. 2006. *Soil Biology and Biochemistry* 38:1583–1595. (R. Drijber, School of Forestry and Environmental Studies, Michigan Tech University, Houghton, MI 49931). In little bluestem grassland in Minnesota, mycorrhizal fungi were decreased by long-term nitrogen fertilization.

Response of soil microbial biomass and enzyme activities to the transient elevation of carbon dioxide in a semi-arid grassland.

E. Kandeler, A. R. Mosier, J. A. Morgan, D. G. Milchunas, J. Y. King, S. Rudolph, and D. Tscherko. 2006. *Soil Biology and Biochemistry* 38:2448–2460. (E. Mosier, Department of Agricultural and Biological Engineering, University of Florida, Gainesville, FL 32611). In shortgrass prairie of northern Colorado, 5 years of elevated carbon dioxide in the atmosphere did not change microbial biomass in the soil.

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