



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

Abundance of non-breeding horned larks and chestnut-collared longspurs on grazed and rested semiarid grassland. J. F. Kelly, D. L. Hawksworth, and R. A. Meyer. 2006. *Southwestern Naturalist* 51:172–180. (US Forest Service, Rocky Mountain Research Station, 333 Broadway SE, Suite 115, Albuquerque, NM 87102). In central New Mexico, cattle grazing during late summer, fall, and winter had minor effects on grassland bird abundance.

Persistence of Gunnison's prairie dog colonies in Arizona, USA. D. M. Wagner, L. C. Drickamer, D. M. Krpata, C. J. Allender, W. E. Van Pelt, and P. Keim. 2006. *Biological Conservation* 130:331–339. (Dept of Biological Sci, Northern Arizona Univ, Flagstaff, AZ 86011). Declines in Gunnison's prairie dog populations were not due to poisoning, recreational shooting, or habitat conversion. Plague was the primary factor.

Placental traits in pen-fed goats and goats kept on rangeland. M. Mellado, L. Olivares, H. Diaz, and J. A. Villarreal. 2006. *Journal of Applied Animal Research* 29:133–136. (Dept of Nutrition, Univ of Autonoma Agraria Antonio Narro, Saltillo 25315, Coahuila, Mexico). Whether does were reared in pens or on desert rangeland had no effect on birth weight of kids, but the nutrient-restricted rangeland does had lower body condition and smaller placentas.

Proximate and landscape factors influence grassland bird distributions. M. A. Cunningham and D. H. Johnson. 2006. *Ecological Applications* 16:1062–1075. (Dept of Geology and Geography, Vassar College, Poughkeepsie, NY 12604). In North Dakota prairie, tree cover was the habitat attribute most detrimental to grassland birds.

Relation between semen quality and rangeland diets of mixed-breed male goats. M. Mellado, F. Pastor, R. Lopez, and F. Rios. 2006. *Journal of Arid Environments* 66:727–737. (Dept of Nutrition, Univ of Autonoma Agraria Antonio Narro, Saltillo 25315, Coahuila, Mexico). On Chihuahuan Desert rangeland, bucks consuming large amounts of catclaw acacia, tarbush, cactus, creosote bush, or cliffrose produced fewer sperm and sperm were less motile.

The nutritional, ecological, and ethical arguments against baiting and feeding white-tailed deer. R. D. Brown and S. M. Cooper. 2006. *Wildlife Society Bulletin* 34:519–524. (Dept of Wildlife and Fisheries Sci, Texas A & M Univ, College Station, TX 77843). Reviews the literature and concludes that feeding or baiting deer should be discontinued.

Total plasma protein and reneating by greater sage-grouse. M. A. Gregg, M. R. Dunbar, J. A. Crawford, and M. D. Pope. 2006. *Journal of Wildlife Management* 70:472–478. (US Fish and Wildlife Service, Sheldon Hart Mountain National Wildlife Refuge Complex, Lakeview, OR 97630). Habitat management that helps prelaying hens increase dietary protein intake (ie, increase intake of weedy forbs) will increase reneating rates of sage-grouse.

Grazing Management

Effect of supplemental feeding on spatial distribution and browse utilization by white-tailed deer in semi-arid rangeland. S. M. Cooper, M. K. Owens, R. M. Cooper, and T. F. Ginnett. 2006. *Journal of Arid Environments* 66:716–726. (Texas Agricultural Experiment Station, 1619 Garner Field Road, Uvalde, TX 78801). “We caution against long-term supplemental feeding in fixed locations because of the potential for localized range degradation around the feeders.”

The effect of high-tensile electric fence designs on big-game and livestock movements. R. R. Karhu and S. H. Anderson. 2006. *Wildlife Society Bulletin* 34:293–299. (USDA Natural Resources Conservation Service, PO Box 33124, Casper, WY 82602). The majority of elk (79%), mule deer (93%), and pronghorns (97%) successfully crossed a 3-wire electric fence. Electric shock did not appear to affect elk, mule deer, or pronghorns at a charge of 0.5–4.5 joules, and less than 1% were shocked when they encountered a high-tensile electric fence.

Hydrology/Riparian

Influence of summer management practices of grazed wheat pastures on runoff, sediment, and nutrient losses. J. A. Daniel, W. A. Phillips, and B. K. Northup. 2006. *Transactions of the American Society of Agricultural Engineers* 49:349–355. (USDA-ARS, Grazinglands Research Lab, El Reno, OK 73036). On winter wheat fields in the southern Great Plains, the greatest losses of sediment, nitrogen, and phosphorus after summer rainfall occurred on fields that had been grazed by cattle in November–May and then chemical fallowed.

Processes of *Tamarix* invasion and floodplain development along the lower Green River, Utah. A. S. Birken and D. J. Cooper. 2006. *Ecological Applications* 16:1103–1120. (D. Cooper, Dept of Forest, Rangeland, and Watershed Stewardship, Colorado State Univ, Ft Collins, CO 80523). *Tamarix*, or salt cedar, first established in 1938. *Tamarix* expanded most when large floods were followed by years with low flow. Recruitment was not triggered by periods of low flow alone.

Measurements

Effect of method, site, and taxon on line-intercept estimates of sagebrush cover. C. L. Wambolt, M. R. Frisina, S. J. Knapp, and R. M. Frisina. *Wildlife Society Bulletin* 34:440–445.

(Dept of Animal and Range Sciences, Montana State Univ, Bozeman, MT 59717). The line-intercept technique for estimating shrub canopy cover was developed in the 1940s, and sampling procedures have been standardized among range, wildlife and forest managers, and educators in the US Forest Service, Bureau of Land Management, Natural Resources Conservation Service, and the Cooperative Extension Service. This study documented that a variation of the technique used by some scientists and resource managers provides lower estimates of canopy cover than the standard technique.

Estimating floristic integrity in tallgrass prairie. J. B. Taft, C. Hauser, and K. R. Robertson. 2006. *Biological Conservation* 131:42–51. (Wildlife and Plant Ecology Center, Illinois Natural History Survey, 1816 South Oak St, Champaign, IL 61820). The Floristic Quality Index was more informative than traditional species-diversity measures in tallgrass prairie of northern Illinois.

Plant-Animal Interactions

Effects of blackberry (*Rubus discolor*) invasion on oak population dynamics in a California savanna. K. Williams, L. J. Westrick, and B. J. Williams. 2006. *Forest Ecology and Management* 228:187–196. (Dept of Biology, California State Univ, San Bernardino, CA 92407). Blackberry thickets prevent browsing of oak saplings, but also prevent oak seedling establishment, resulting in a pulse of oak sapling recruitment followed by long periods of little or no recruitment.

Herbivore impact on grassland plant diversity depends on habitat productivity and herbivore size. E. S. Bakker, M. E. Ritchie, H. Olff, D. G. Milchunas, and J. M. H. Knops. 2006. *Ecology Letters* 9:780–788. (School of Biological Sci, 348 Manter Hall, Univ of Nebraska, Lincoln, NE 68588). Assemblages of large herbivores increased plant diversity in productive environments, but either large or small herbivores decreased plant diversity in lowly productive environments.

Plant Ecology

A century of vegetation change in the San Juan Mountains, Colorado: An analysis using repeat photography. J. L. Zier and W. L. Baker. 2006. *Forest Ecology and Management* 228:251–262. (Dept of Geography, Univ of Wyoming, Laramie, WY 82071). Conifers and aspens have encroached into grasslands and shrublands of western Colorado, with conifer invasion of willow wetlands especially common.

Climatic variability and episodic *Pinus ponderosa* establishment along the forest-grassland ecotones of Colorado. K. League and T. Veblen. 2006. *Forest Ecology and Management* 228:98–107. (Dept of Geography, Univ of Colorado, Boulder, CO 80309). El Nino events in the Pacific Ocean increased spring and fall moisture in northern Colorado which facilitated pine establishment. During the past 40 years, tree establishment was concentrated in 4 years: 1973, 1979, 1983, and 1990.

Germination and seed water status of 4 grasses on moss-dominated biological soil crusts from arid lands. M. D. Serpe, J. M. Orm, T. Barkes, and R. Rosentreter. 2006. *Plant Ecology* 185:163–178. (Dept of Biology, Boise State Univ, Boise, ID 83725). Biological soil crust dominated by a short moss (*Bryum argenteum*) reduced grass seed germination by about 50%.

Rehabilitation/Restoration

Control of invasive weeds with prescribed burning. J. M. DiTomaso, M. L. Brooks, E. B. Allen, R. Minnich, P. M. Rice, and G. B. Kyser. 2006. *Weed Technology* 20:535–548. (Dept of Plant Sci, Univ of California-Davis, Mail Stop 4, 1 Shields Ave, Livermore, CA 95616). Summarizes the current state of knowledge on prescribed burning as a tool for invasive weed management.

Decline of spotted knapweed density at 2 sites in western Montana with large populations of the introduced root weevil, *Cyphocleonus achates* (Fahraeus). J. M. Story, N. W. Callan, J. G. Corn, and L. J. White. 2006. *Biological Control* 38:227–232. (Western Agricultural Research Center, Montana State Univ, 580 Quast Lane, Corvallis, MT 59828). After 11 years, a Eurasian root weevil reduced spotted knapweed plant density at 2 sites, 99% and 77%. Two annual exotic weeds, cheatgrass and flixweed, replaced spotted knapweed.

Fire frequency and mosaic burning effects on a tallgrass prairie ground beetle assemblage. W. M. Cook and R. D. Holt. 2006. *Biodiversity and Conservation* 15:2301–2323. (Center for Environmental Studies, Arizona State Univ, PO Box 873211, Tempe, AZ 85287). Widespread annual burning of tallgrass prairie in Kansas had minimal effects on ground beetle populations.

Long-term vegetation response to mesquite removal in desert grassland. M. P. McClaran and D. L. Angell. 2006. *Journal of Arid Environments* 66:686–697. (School of Natural Resources, 325 Biological Sci East, Univ of Arizona, Tucson, AZ 85721). In southern Arizona, removing mesquite

trees to increase grass yield is not recommended in areas with less than 14 inches of annual precipitation and less than 20% mesquite canopy cover.

Predicting and mitigating weed invasions to restore natural post-fire succession in Mesa Verde National Park, Colorado, USA. M. L. Floyd, D. Hanna, W. H. Romme, and T. E. Crews. 2006. *International Journal of Wildland Fire* 15:247–259. (Environmental Studies Program, Prescott College, 220 Grove Ave, Prescott, AZ 86301). Areas with high native plant diversity have the greatest risk of weed invasion following wildfire.

Socioeconomics

Social dilemmas and public range management in Nevada. G. C. van Kooten, R. Thomsen, T. G. Hobby, and A. J. Eagle. 2006. *Ecological Economics* 57:709–723. (Dept of Economics, Univ of Victoria, PO Box 1700, Station CSC, Victoria, BC V8W 2Y2, Canada). Ranchers' disagreements with public land managers were affected mainly by gender (males tended to have more disagreements), lack of trust, and disputes concerning responses to wildfire. Ranchers and public land agency personnel need to work together to increase trust.

Soils

Physical and chemical properties of soils under some piñon-juniper-oak canopies in a semi-arid ecosystem in New Mexico. M. K. Shukla, R. Lal, A. Ebinger, and C. Meyer. 2006. *Journal of Arid Environments* 66:673–685. (Dept of Plant and Environmental Sci, New Mexico State Univ, MSC 3Q, PO Box 30003, Las Cruces, NM 88003). In northeastern New Mexico, the accumulation of litter under tree canopies reduced soil compaction and crusting and increased soil carbon and nitrogen.

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