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

Do pronghorn (*Antilocapra americana*) perceive roads as a predation risk? S.D. Gavin and P.E. Komers. 2006. *Canadian Journal of Zoology* 84:1775–1780. (Dept. of Biological Science, Univ. of Calgary, Calgary, AB T2N 1N4, Canada). Pronghorns near high-traffic roads were more vigilant and spent less time foraging compared with pronghorns near roads with less traffic.

Nutrient requirements of horses, 6th ed, revised. National Research Council. 2007. (\$90; National Academies Press, 500 Fifth St. NW, Washington, DC 20055 or <http://books.nap.edu>. 360 p.). Updated summary of energy, protein, mineral, vitamin, and water requirements for horses.

Nutrient requirements of small ruminants: sheep, goats, cervids, and New World camelids. National Research Council. 2007. (\$116; National Academies Press, 500 Fifth St. NW, Washington, DC 20055 or <http://books.nap.edu>. 384 p.). Updated compilation of nutrient requirements for sheep, goats, white-tailed deer, red deer, elk, caribou/reindeer, llamas, and alpacas.

Swift fox use of black-tailed prairie dog towns in northwest Texas. K.L. Nicholson, W.B. Ballard, B.K. McGee, J. Surles, J.F. Kamler, and P.R. Lemons. 2006. *Journal of Wildlife Management* 70:1659–1666. (Dept. of Range, Wildlife and Fisheries Management, Texas Tech Univ., Lubbock, TX 79409). Prairie dog towns do not provide important habitat for swift foxes in northwestern Texas.

The effect of fire on spatial distributions of male mating aggregations in *Gryllotalpa major* Saussure (Orthoptera: Gryllotalpidae) at The Nature Conservancy's Tallgrass Prairie Preserve in Oklahoma: evidence of a fire-dependent species. D.R. Howard and P.S.M. Hill. 2007. *Journal of the Kansas Entomological Society* 80:51–64. (Biological Sciences, Univ. of Tulsa, Tulsa, OK 74104). Prairie mole crickets prefer recently burned sites for leks.

Grazing Management

Characteristics of ungulate behavior and mortality associated with wire fences. J.L. Harrington and M.R. Conover. 2006. *Wildlife Society Bulletin* 34:1295–1305. (Dept. of Wildland Resources, Utah State Univ., Logan, UT 84322). Pronghorn, mule deer, and elk deaths due to roadside fences were largely caused by animals getting caught between the top 2 wires. Woven-wire fences topped with a single strand of barbed wire were more lethal to wild ungulates than woven wire with 2 strands of barbed wire above it or 4-strand barbed wire fences.

Herbivore optimization by North American elk: consequences for theory and management. K.M. Stewart, R.T. Bowyer, R.W. Ruess, B.L. Dick, and J.G. Kie. 2006. *Wildlife Monographs* 167:1–24. (Dept. of Biological Science, Idaho State Univ., Pocatello, ID 83209). In wetter forest sites, but not in dry forests or grasslands, moderate elk grazing increased plant yield compared with no elk grazing. This is the first study to document this phenomena in woody plant communities.

Impact of grazing intensity during drought in an Arizona grassland. M.R.R. Loeser, T.D. Sisk, and T.E. Crews. 2007. *Conservation Biology* 21:87–97. (Center for Environmental Science and Education, Northern Arizona Univ., Flagstaff, AZ 86011). In northern Arizona grassland, over an 8-year period, rest-rotation cattle grazing at moderate intensity maintained greater native plant diversity than either no grazing or short duration grazing.

Integration of plant species diversity on grazing behavior and performance of livestock grazing temperate region pastures. K.J. Soder, A.J. Rook, M.A. Sanderson, and S.C. Goslee. 2007. *Crop Science* 47:416–425. (USDA-ARS, Pasture System and Watershed Management Research Unit, Bldg. 3702, Curtin Rd., University Park, PA 16802). Summarizes the importance of plant species diversity on performance of livestock grazing in temperate pastures.

The value to herbivores of plant physical and chemical diversity in time and space. F.D. Provenza, J.J. Villalba, J. Haskell, J.W. MacAdam, T.C. Griggs, and R.D. Wiedmeier. 2007. *Crop Science* 47:382–398. (Dept. of Wildland Resources, Utah State Univ., Logan, UT 84322). Foraging within diverse mixtures of plants enables grazing animals to optimize intake of nutrients and secondary compounds.

Hydrology/Riparian

Butterflies (Papilionoidea and Hesperioidea) as potential ecological indicators of riparian quality in the semiarid western United States. S.M. Nelson. 2007. *Ecological Indicators* 7:469–480. (Bureau of Reclamation, PO Box 25007, Denver, CO 80225). Although butterfly abundance was related to weather, some assemblages of butterfly species were found in “high quality” riparian habitat whereas other assemblages were found in “low quality” habitat.

Development of a reference-based method for identifying and scoring indicators of condition for coastal plain riparian reaches. R. Rheinhardt, M. Brinson, R. Brooks, M. McKenney-Easterling, J.M. Rubbo, J. Hite, and B. Armstrong. 2007. *Ecological Indicators* 7:339–361. (Dept. of Biology, East Carolina Univ., Greenville, NC 27858). Describes a rapid field method for assessing condition of stream channels and riparian vegetation.

Measurements

A photo-based monitoring technique for willow communities. C.S. Boyd, K.T. Hopkins, and T.J. Svejcar. 2006. *Wildlife Society Bulletin* 34:1049–1054. (T. Svejcar, Eastern Oregon Agricultural Research Center, 67826-A Hwy 205, Burns, OR 97720). A photo-based monitoring technique using digital image-processing software produced quick and repeatable estimates of willow abundance.

Estimating shrub forage yield and utilization using a photographic technique. D. Damiran, T. DelCurto, D.E. Johnson, S.L. Findholt, and B.K. Johnson. 2006. *Northwest Science* 80:259–263. (T. DelCurto, Eastern Oregon Agricultural Research Center, 67826-A Hwy 205, Burns, OR 97720). Shrub yield and utilization were accurately assessed using a non-destructive photographic technique.

Plant Ecology

Broadleaf and grass weeds of the West identification combo CD pack, version 3.1. J.M. DiTomaso. 2007. (\$60; Western Society of Weed Science at <http://www.wsweedscience.org/Store/onlinestore.asp>). Computer-based, interactive weed identification guide to 754 broadleaf species and 231 grasses. The 2-CD pack contains more than 4,000 color photographs and illustrations.

Ecological effects of changes in fire regimes in *Pinus ponderosa* ecosystems in the Colorado Front Range. R.L. Sherriff and T.T. Veblen. 2006. *Journal of Vegetation Science* 17:705–718. (Dept. of Geography and Environmental Studies, Univ. of Hawaii, Hilo, HI 96720). At elevations below 6,400 feet, historic fires were of low severity. However, in most of the ponderosa pine zone along the Front Range, forest structure was shaped primarily by severe fires rather than by surface fires.

Influence of mycotrophy on native and introduced grass regeneration in a semiarid grassland following burning. M.E. O'Dea. 2007. *Restoration Ecology* 15:149–155. (School of Natural Resources, Univ. of Arizona, Tucson, AZ 85721). In southern Arizona, introduced lovegrasses (*Eragrostis* spp.) reestablish after fire more quickly than native grasses because lovegrasses do not require infection by soil mycorrhizal fungi.

Rehabilitation/Restoration

Effects of frequent mowing on survival and persistence of forbs seeded into a species-poor grassland. D.W. Williams, L.L. Jackson, and D.D. Smith. 2007. *Restoration Ecology* 15:24–33. (L. Jackson, Dept. of Biology, Univ. of Northern Iowa, Cedar Falls, IA 50614). Mowing tallgrass prairie weekly during the growing season reduced competition for light from large established grasses and enabled forbs to establish and thrive. Grasses were not harmed after weekly mowing for 2 growing seasons.

Effects of prescribed fire on habitat of beaver (*Castor canadensis*) in Elk Island National Park, Canada. G.A. Hood, S.E. Bayley, and W. Olson. 2007. *Forest Ecology and Management* 239:200–209. (Elk Island National Park, 8336-76 Ave., Edmonton, AB T6C 0J1, Canada). Prescribed fire did not improve beaver habitat.

Fertilization augments Canada thistle (*Cirsium arvense* L. Scop) control in temperate pastures with herbicides. C.W. Grekul and E.W. Bork. 2007. *Crop Protection* 26:668–676. (E. Bork, Dept. of Agricultural, Food and Nutritional Science, Univ. of Alberta, Edmonton, AB T6G 2P5, Canada). Picloram + 2,4-D, or clopyralid, effectively suppressed Canada thistle in central Alberta, and control was enhanced with annual spring fertilization of N–P–K–S.

Mid-spring burning reduces spotted knapweed and increases native grasses during a Michigan experimental grassland establishment. N.W. MacDonald, B.T. Scull, and S.R. Abella. 2007. *Restoration Ecology* 15:118–128. (Dept. of Biology, Grand Valley State Univ., Allendale, MI 49401). Spring burns decreased spotted knapweed and increased

seeded native warm-season grasses. Spotted knapweed density and yield also declined on unburned plots through time, suggesting that warm-season grasses may effectively compete with spotted knapweed even in the absence of fire.

Revegetation guidelines for western Montana: considering invasive weeds. K. Goodwin, G. Marks, and R. Sheley. 2006. Montana State Univ. Extension Bulletin 170. 44 p. (\$3; MSU Extension Publications, PO Box 172040, Bozeman, MT 59717). A detailed, step-by-step guide to revegetating degraded sites with desirable plant species.

Using herbicides to rehabilitate native grasslands. T.G. Barnes. 2007. *Natural Areas Journal* 27:56–65. (Dept. of Forestry, Univ. of Kentucky, Lexington, KY 40546). Imazapic, clethodim, and sulfosulfuron herbicides all showed promise for removing tall fescue and increasing native warm-season grasses.

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