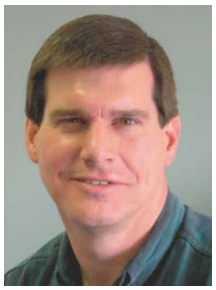

By Jeff Mosley

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

Counterintuitive effects of large-scale predator removal on a midlatitude rodent community. J. L. Maron, D. E. Pearson, and R. J. Fletcher. 2010. *Ecology* 91:3719–3728. (Division of Biological Science, Univ of Montana, Missoula, MT 59812, USA). In western Montana, exclusion of predators or ungulates did not affect the abundance of Columbian ground squirrels or deer mice. Abundance of montane voles, however, was suppressed by weasels.

Influence of woody vegetation on grassland birds within reclaimed surface mines. B. M. Graves, A. D. Rodewald, and S. D. Hull. 2010. *Wilson Journal of Ornithology* 122:646–654. (School of Environment and Natural Resources, The Ohio State University, Columbus, OH 43210, USA). Grassland birds avoided woody vegetation, and nesting success of Grasshopper sparrows and Henslow's sparrows was lower near woody vegetation; authors concluded that tree and shrub encroachment needs suppressed to benefit grassland birds.

Plant diversity and the stability of foodwebs. N. M. Haddad, G. M. Crutsinger, K. Gross, J. Haarstad, and D. Tilman. 2011. *Ecology Letters* 14:42–46. (Dept of Biology, North Carolina State Univ, Raleigh, NC 27695, USA). Higher grassland plant diversity resulted in more stable populations of arthropods.

Grazing Management

A review: the use of livestock protection dogs in association with large carnivores in the Rocky Mountains. C. Urbigkit and J. Urbigkit. 2010. *Sheep and Goat Research Journal* 25:1–8. (PO Box 1663, Pinedale, WY 82941, USA). Identifies breeds of livestock protection dogs best suited for use around large carnivores, such as wolves. Also discusses the potential use of spiked collars to increase survival of livestock protection dogs.

Can sheep and cattle rumen microorganisms be conditioned to invasive weeds? T. R. Whitney and B. E. Olson. 2010. *Sheep and Goat Research Journal* 25:26–31. (B. Olson, Dept of Animal and Range Sciences, Montana State Univ, Bozeman, MT 59717, USA). Sheep might eat more common tansy if they are conditioned to it first; however, authors concluded that conditioning is unlikely to increase tansy consumption by cattle or to increase consumption of spotted knapweed by either cattle or sheep.

Effect of long-term cattle grazing on seasonal nitrogen and phosphorus concentrations in range forage species in the fescue grassland of southwestern Alberta. C. L. Li, X. Y. Hao, W. D. Willms, M. L. Zhao, and G. D. Han. 2010. *Journal of Plant Nutrition and Soil Science* 173:946–951. (X. Hao, Agriculture and Agri-Food Canada, Lethbridge Research Center, 5403 First Ave South, Lethbridge, AB T1J 4B1, Canada). Fifty-eight years of cattle grazing at either moderate or heavy intensities did not affect the total N and P content of most forage species. Grazing did, however, increase the N and P content of Kentucky bluegrass because grazing delayed the maturity of this species, and grazing did accelerate nitrogen cycling through dung and urine deposition.

English ivy (*Hedera* spp., Araliaceae) response to goat browsing. C. S. Ingham and M. M. Borman. 2010. *Invasive Plant Science and Management* 3:178–181. (Dept of Animal Science, Oregon State Univ, Corvallis, OR 97331, USA). Foliar cover of English ivy, a noxious weed in Oregon forests, was dramatically reduced by high-intensity–short-duration goat browsing applied in late August for one or two years.

Manipulating sheep browsing levels on coyote willow (*Salix exigua*) with supplements. A. L. Lujan, S. A. Utsumi, S. T. Smallidge, T. T. Baker, R. E. Estell, A. F. Cibils, and S. L. Ivey. 2010. *Sheep and Goat Research Journal* 25:32–38. (A. Cibils, Dept of Animal and Range Sciences, New Mexico State Univ, Las Cruces, NM 88003, USA). When fed willow that had been harvested during plant dormancy, sheep supplemented with cottonseed meal ate more willow, but none of the supplements affected intake of willow that had been harvested during the growing season. More research is needed to investigate whether supplementation with whole corn might cause sheep to eat less dormant-season willow.

Plant production after defoliation of native, Northern Mixed Prairie on hummocky terrain in Saskatchewan. A. Pantel, J. T. Romo, and Y. Bai. 2010. *Canadian Journal of Plant Science* 90:421–433. (J. Romo, Dept of Plant Sciences, Univ of Saskatchewan, Saskatoon, SK S7N 5A8, Canada). Authors recommend at least one full year of rest after grazing in northern mixed-grass prairie of southern Saskatchewan.

Protein supplementation of low-quality forage: influence of frequency of supplementation on ewe performance and lamb nutrient utilization. C. S. Schauer, M. L. Van Emon, M. M. Thompson, D. W. Bohnert, J. S. Caton, and K. K. Sedivec. 2010. *Sheep and Goat Research Journal* 25:66–73. (North Dakota State Univ Hettinger Research and Extension Center, 102 Highway 12 West, Hettinger, ND 58639, USA). "Results suggest ruminants consuming low-quality forage can be supplemented with protein as infrequently as once every 10 days, while not negatively affecting nutrient digestibility or ewe performance."

Hydrology/Riparian

Groundwater uptake by woody vegetation in a semiarid oak savanna. G. R. Miller, X. Y. Chen, Y. Rubin, S. Y. Ma, and D. D. Baldocchi. 2010. *Water Resources Research* 46: Article No. W10503. 14 p. (Dept of Civil Engineering, Texas A&M Univ, College Station, TX 77843, USA). Blue oak trees in California oak savanna should be considered obligate phreatophytes. Groundwater uptake enables blue oaks to buffer the effects of summer drought.

Measurements

Monitoring standing herbage on granitic soils in the Big Horn Mountains, Wyoming, USA. D. W. Uresk, T. Juntti, and J. Javersak. 2010. *Grassland Science* 56:189–193. (US Forest Service, 231 East Saint Joseph St, Rapid City, SD 57701, USA). Developed and validated the relationship between Robel pole visual obstruction readings and clipped standing herbage.

Plant Ecology

Biology, ecology and management of Scotch broom (*Cytisus scoparius* L.). M. Graves, J. Mangold, and J. Jacobs. 2010. Montana State Univ Extension Bulletin EB202, 11 p. (MSU Extension Publications, PO Box 172040, Bozeman, MT 59717, USA). Bulletin describes management options for Scotch broom, an introduced, invasive perennial shrub in Alaska, British Columbia, California, Hawaii, Idaho, Montana, Oregon, Utah, and Washington.

Effects of plant competition, seed predation, and nutrient limitation on seedling survivorship of spotted knapweed (*Centaurea stoebe*). D. G. Knochel, C. Flagg, and T. R. Seastedt. 2010. *Biological Invasions* 12:3771–3784. (Dept of Ecology and Evolutionary Biology, Univ of Colorado, Boulder, CO 80309, USA). " … a combination of seed limitation and shortage of 'safe sites' within undisturbed vegetation can limit densities of *C. stoebe*."

Rehabilitation/Restoration

Changing soils to manage plant communities: activated carbon as a restoration tool in ex-arable fields. A. Kulmatiski. 2011. *Restoration Ecology* 19:102–110. (Dept of Biology, Univ of Alaska, Anchorage, AK 99507, USA). In north-central Washington, adding activated carbon to the soil, combined with seeding native plant species, restored native plant dominance within six years.

Restoring native plants to crested wheatgrass stands. V. A. Fansler and J. M. Mangold. 2011. *Restoration Ecology* 19:16–23. (J. Mangold, Dept of Land Resources and Environmental Sciences, Montana State Univ, Bozeman, MT 59717, USA). Neither disking or glyphosate spraying before seeding increased establishment of native species seeded into crested wheatgrass stands.

Testing disturbance, seeding time, and soil amendments for establishing native warm-season grasses in non-native cool-season pasture. J. E. Doll, K. A. Haubensak, E. L. Bouressa, and R. D. Jackson. 2011. *Restoration Ecology* 19:1–8. (R. Jackson, Nelson Institute for Environmental Studies, Univ of Wisconsin, 550 North Park St, Madison, WI 53706, USA). Drill-seeded native C_4 grasses successfully established in the presence of rotational cattle grazing or annual burning. Adding carbon to the soil did not affect seedling recruitment, but native grasses did not establish when nitrogen was added.

Socioeconomics

Factors impacting agricultural landowners' willingness to enter into conservation easements: a case study. A. D. Miller, C. T. Bastian, D. M. McLeod, C. M. Keske, and D. L. Hoag. 2011. *Society and Natural Resources* 24:65–74. (C. Bastian, Dept of Agricultural and Applied Economics, Univ of Wyoming, Laramie, WY 82071, USA). "Results from the focus groups reveal that landowners have concerns about providing easements in perpetuity. They also considered public access to and loss of managerial control of their property as obstacles."

Soils

Grassland canopy management and native tallgrass species composition effects on C and N in grass canopies and soil. W. E. Riedell, S. L. Osborne, T. E. Schumacher, and J. L. Pikul. 2011. *Plant and Soil* 338:51–61. (USDA–ARS, 2923 Medary Ave, Brookings, SD 57006, USA). After conversion of cropland to grassland in eastern South Dakota, soil carbon accumulated fastest in untreated sites, intermediate in sites mowed in late summer where mowed forage was removed, and slowest in spring-burned sites.

Soil microbial communities resistant to changes in plant functional group composition. C. B. Marshall, J. R. McLaren, and R. Turkington. 2011. *Soil Biology and Biochemistry* 43:78–85. (J. McLaren, Dept of Biology, Univ of Texas at Arlington, Arlington, TX 76019, USA). In a dry meadow surrounded by spruce forest in the southwestern Yukon, the soil microbial community was largely unaffected by changes in the plant community composition.

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ERRATUM

The article "Grazing Systems: More Thoughts and Observations" in the February 2011 issue of *Rangelands*, 33(1) p. 35-40, contained three subtitles under Figures 3, 5, and 6 that were incorrect. The correct wording for the subtitles under these three figures are as follows:

Figure 3: Inside the South Exclosure, with no grazing since 1950, the Pace Frequency data above are shown from the four transects run for the years shown.

Figure 5: This photo from 2005 shows the browse and other plants inside the exclosure as numerated in Figure 3.

Figure 6: This photo from 2005 shows the browse and other plants outside the exclosure under the Best Pasture rotation grazing system. The plant occurrence and density is about the same as inside the exclosure as numerated in Figure 4.