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

Modeling post-fledging survival of Lark Buntings in response to ecological and biological factors. A. A. Y. Adams, S. K. Skagen, and J. A. Savidge. 2006. *Ecology* 87:178–188. (Department of Wildlife and Fisheries Biology, Colorado State University, Fort Collins, CO 80523). Drought had a strong negative impact on survival of young lark buntings, a short-grass prairie bird.

Trends associated with residential development in riparian breeding bird habitat along the Snake River in Jackson Hole, WY, USA: implications for conservation planning. C. M. Smith and D. G. Wachob. 2006. *Biological Conservation* 128:431–446. (Teton Science School, PO Box 8699, Jackson, WY 83002). Neotropical migratory birds declined with increasing residential development, but food generalists, ground gleaners, and avian nest predators all increased with increasing residential development.

Education

At home on the range, level 1. M. Coley, K. A. Astroth, G. Cade, J. Dawson, T. M. Kappel, M. Cavey, E. Miller, C. Moseley, G. Hyde, E. Bergman, S. Roffe, D. Lucas, J. Whaley, V. Dupuis, A. Smith, J. Gill, and J. Mosley. 2005. Montana State University Extension Bulletin 5311. (\$5; Extension Publications, 115 Culbertson Hall, Montana State University, Bozeman, MT 59717). A team of range educators from Montana, Texas, Oklahoma, Idaho, Colorado, and Wyoming developed this rangeland management curriculum for grades 4 thru 8. Satisfies National Science Education Standards and is endorsed by the National Collection of 4-H Curricula.

Grazing Management

Effect of creep feed supplementation and season on intake, microbial protein synthesis and efficiency, ruminal fermentation, digestion, and performance in nursing calves grazing native range in southeastern North Dakota. J. J. Reed, A. L. Gelvin, G. P. Lardy, M. L. Bauer, and J. S. Caton. 2006. *Journal of Animal Science* 84:411–423. (J. Caton, Department of Animal and Range Science, North Dakota State University, Fargo, ND 58105). Supplementation with a wheat middlings and soybean hulls-based creep feed did not increase weight gains appreciably.

Impacts of simulated livestock grazing on Utah prairie dogs (*Cynomys parvidens*) in a low productivity ecosystem. E. Cheng and M. E. Ritchie. 2006. *Oecologia* 147:546–555. (College of Forestry and Conservation, University of Montana, Missoula, MT 59812). Prairie dogs preferred the moderate defoliation treatment plots over unclipped areas.

Hydrology/Riparian

Occurrence, persistence, and expansion of saltcedar (*Tamarix* spp.) populations in the Great Plains of Montana. J. P. Sexton, A. Sala, and K. Murray. 2006. *Western North American Naturalist* 66:1–11. (A. Sala, Division of Biological Science, University of Montana, Missoula, MT 59812). Saltcedar stands establish where native trees and shrubs are not abundant, then saltcedar stands persist and expand over time.

Soil salinity patterns in *Tamarix* invasions in the Bighorn Basin, Wyoming, USA. C. G. Ladenburger, A. L. Hild, D. J. Kazmer, and L. C. Munn. 2006. *Journal of Arid Environments* 65:111–128. (A. Hild, Department of Renewable Resources, University of Wyoming, Laramie, WY 82071). Surface soils beneath saltcedar trees had greater salinity and lower pH than soil in interspaces. Soil salinity was lower than saltcedar stands in the southwestern United States.

Transverse and longitudinal variation in woody riparian vegetation along a montane river. J. M. Friedman, G. T. Auble, E. D. Andrews, G. Kittel, R. F. Madole, E. R. Griffin, and T. M. Allred. 2006. *Western North American Naturalist* 66:78–91. (US Geological Survey, 3215 Marine Street, Suite E-127, Boulder, CO 80303). In southwestern Colorado, sand-bar willow communities occurred on sites that were flooded once every 2.2 years or less, whereas stands of river birch trees were favored most by flooding that occurred less frequently, once every 2.2 to 4.6 years.

Vegetation, soils, and hydrogeomorphology of riparian patch types of a dryland river. K. J. Bagstad, S. J. Lite, and J. C. Stromberg. 2006. *Western North American Naturalist* 66:23–44. (J. Stromberg, MWH America, Inc., Chicago, IL 60604). Along the San Pedro River in southeastern Arizona, cottonwood–willow and saltcedar patches were inundated with water more frequently than mesquite patches. Cottonwood–willow patches had shallower groundwater than saltcedar or mesquite patches.

Measurements

Implementing a cooperative permittee monitoring program. E. Peterson. 2005. (Wyoming Cooperative Extension Service, PO Box 579, Pinedale, WY 82941). In straightforward language, this 18-page color brochure provides valuable tips about implementing cooperative monitoring programs on public land grazing allotments, bringing together ranchers and agency personnel.

Interpreting indicators of rangeland health, version 4. M. Pellant, P. Shaver, D. A. Pyke, and J. E. Herrick. 2005. Bureau of Land Management (BLM) Technical Reference 1734-6. 122 p. (BLM, PO Box 25047, Denver, CO 80225-0047). Describes qualitative methods for rapidly assessing how well ecological processes are functioning on rangelands.

The structure and functioning of dryland ecosystems—conceptual models to inform long-term ecological monitoring. M. E. Miller. 2005. US Geological Survey Scientific Investigations Report 2005-5197. 73 p. (<http://pubs.usgs.gov/sir/2005/5197/>). Presents conceptual ecological models that describe the structure and function of rangeland ecosystems in the Colorado Plateau region of Utah, Arizona, Colorado, and New Mexico. Intended to help resource managers identify vital signs to be monitored for long-term trends and ecosystem health.

Plant–Animal Interactions

Interactions between *Euphorbia esula* toxins and bovine ruminal microbes. S. L. Kronberg, F. T. Halaweish, M. B. Hubert, and P. J. Weimer. 2006. *Journal of Chemical Ecology* 32:15–28. (USDA-ARS, Northern Great Plains Research Lab, PO Box 459, Mandan, ND 58554). Leafy spurge was not toxic to rumen bacteria, but microbial activity in the rumen may have enhanced the toxicity of leafy spurge to cattle. This may explain why cattle often develop aversions to leafy spurge after eating it.

Plant Ecology

Inhibition of seed germination and seedling growth by hound's tongue (*Cynoglossum officinale* L.) seed leachate. A. Rashid, N. H. Furness, B. E. Ellis, and M. K. Upadhyaya. 2005. *Weed Biology and Management* 5:143–149. (Land and Food Systems, University of British Columbia, Vancouver, BC V6T 1Z4, Canada). Presents preliminary evidence that hound's tongue seeds exude allelopathic substances.

Reconstructing landscape-scale tree invasion using survey notes in the Medicine Bow Mountains, Wyoming, USA. M. D. Andersen and W. L. Baker. 2006. *Landscape Ecology* 21:243–258. (W. Baker, Department of Geography, University of Wyoming, Laramie, WY 82071). The relatively slow rate of tree invasion (ie, a 7.3% decrease in forest openings in the last 110 years) was partially attributed to the area's dry climate.

Rehabilitation/Restoration

Biological control of Canada thistle in temperate pastures using high density rotational cattle grazing. S. L. De Bruijn and E. W. Bork. 2006. *Biological Control* 36:305–315. (E. Bork, Department of Agriculture, Food and Nutrition Science, University of Alberta, Edmonton, AB T6G 2P5, Canada). Prescribed cattle grazing was evaluated for controlling Canada thistle. Two intense defoliations per summer nearly eliminated this weed after 2–3 consecutive years of treatment.

Community response of nontarget species to herbicide application and removal of the nonindigenous invader *Potentilla recta* L. R. L. Sheley and M. K. Denny. 2006. *Western North American Naturalist* 66:55–63. (USDA-ARS,

67826A Hwy 205, Burns, OR 97720). Native perennial grass cover increased after herbicide application to control sulfur cinquefoil, but picloram, metsulfuron, and clopyralid reduced forb densities in southeastern Montana.

Competition of giant smutgrass (*Sporobolus indicus*) in a bahiagrass pasture. J. A. Ferrell, J. J. Mullahey, J. A. Dusky, and F. M. Roka. 2006. *Weed Science* 54:100–105. (Department of Agronomy, University of Florida, Gainesville, FL 32611). Economic analyses indicated that giant smutgrass should not be controlled with hexazinone until ground cover of giant smutgrass reaches about 35%.

Early season mowing improves the effectiveness of chlor-sulfuron and glyphosate for control of perennial pepperweed (*Lepidium latifolium*). M. J. Renz and J. M. DiTomaso. 2006. *Weed Technology* 20:32–36. (Department of Plant Science, New Mexico State University, PO Box 30003 MSC 3AE, Las Cruces, NM 88003). Mowing alone did not control perennial pepperweed, but mowing followed by herbicide treatment to resprouting plants was very effective.

Effects of fire disturbance on grasshopper (Orthoptera: Acrididae) assemblages of the Comanche National Grassland, Colorado. L. Nadeau, P. E. Cushing, and B. C. Kondratieff. 2006. *Journal of the Kansas Entomological Society* 79:2–12. (Department of Bioagricultural Science and Pest Management, Colorado State University, Fort Collins, CO 80523). Spring burns in the shortgrass prairie did not affect grasshopper populations.

Effect of mowing and hexazinone application on giant smutgrass (*Sporobolus indicus* var. *pyramidalis*) control. J. A. Ferrell and J. J. Mullahey. 2006. *Weed Technology* 20:90–94. (Department of Agronomy, University of Florida, Gainesville, FL 32611). Mowing prior to herbicide treatment with hexazinone does not improve control of giant smutgrass. A rate of 1.0 pound·acre⁻¹ of hexazinone is recommended.

Recovery and germinability of native seed fed to cattle. M. K. Whitacre and C. A. Call. 2006. *Western North*

American Naturalist 66:121–128. (C. Call, Department of Forest, Range, and Wildlife Science, Utah State University, Logan, UT 84322). Globemallow and bottlebrush squirreltail seeds may be suited to dispersal on rangeland by feeding them to livestock, but seeds of Wyoming big sagebrush are not.

Revegetation equipment catalog. H. Wiedemann, N. Shaw, M. Pellant, and S. Monsen. 2005. (<http://reveg-catalog.tamu.edu>). This web-based publication was compiled by the Rangeland Technology and Equipment Council in partnership with the US Forest Service Rocky Mountain Research Station and the BLM Great Basin Restoration Initiative. Provides descriptions, applications, and photographs of equipment designed for rangeland vegetation manipulation, wildlife habitat improvement, and disturbed-land rehabilitation. Vendor contact information is included.

Tall ironweed (*Vernonia altissima* Nutt.) control in pastures with fall-applied herbicides. M. W. Marshall, J. D. Green, D. C. Ditsch, and J. W. Turner. 2006. *Weed Technology* 20:52–57. (J. Green, Department of Agronomy, University of Kentucky, Lexington, KY 40546). Midsummer mowing followed by fall application of triclopyr effectively removed tall ironweed from grass pastures.

Soils

Spatial variability of soil chemical properties of a prairie–forest transition in Louisiana. A. Bekele and W. H. Hudnall. 2006. *Plant and Soil* 280:7–21. (Environmental Science Research Center, St. Francis Xavier University, PO Box 5000, Antigonish, NS B2G 2W5, Canada). Soil pH can be used to objectively delimit the prairie–forest boundary where eastern red cedar trees are encroaching into grasslands. Prairie soils are basic (pH > 7.0) and forest soils are acidic (pH < 7.0).

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