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

Assessment of shock collars as nonlethal management for wolves in Wisconsin. J. E. Hawley, T. M. Gehring, R. N. Schultz, S. T. Rossler, and A. P. Wydeven. *Journal of Wildlife Management* 73:518–525. (Dept of Environmental Protection, PO Box 1550, Burlington, CT 06013, USA). Although active shocking did restrict wolf access to bait station areas, wolves were not effectively conditioned and returned once shocking ceased.

Effect of enhanced nutrition on mule deer population rate of change. C. J. Bishop, G. C. White, D. J. Freddy, B. E. Watkins, and T. R. Stephenson. 2009. *Wildlife Monographs* 172:1–28. (Colorado Division of Wildlife, 317 W Prospect Rd, Fort Collins, CO 80526, USA). Forage nutritive quality in winter limited a mule deer population in southwestern Colorado. Habitat treatments are needed to favor early seral plant communities in the pinyon–juniper habitat.

Effects of native and non-native grassland plant communities on breeding passerine birds: implications for restoration of northwest bunchgrass prairie. P. L. Kennedy, S. J. DeBano, A. M. Bartuszevige, and A. S. Leuders. 2009. *Restoration Ecology* 17:515–525. (Dept of Fisheries and Wildlife, Oregon State Univ, PO Box E, Union, OR 97883, USA). In northeastern Oregon, grasslands comprised of 1% to 53% of non-native vegetation and provided suitable habitat for native grassland breeding birds.

Habitat use by Sonoran desert tortoises. E. R. Zylstra and R. J. Steidl. 2009. *Journal of Wildlife Management* 73:747–754. (School of Natural Resources, 325 Biological Sciences East, Univ of Arizona, Tucson, AZ 85721, USA). Desert tortoises in the Sonoran Desert selected steep, east-facing slopes. Vegetation characteristics did not influence habitat selection.

Immunocontraception decreases group fidelity in a feral horse population during the non-breeding season. C. M. V. Nunez, J. S. Adelman, C. Mason, and D. I. Rubenstein. 2009. *Applied Animal Behaviour Science* 117:74–83. (Dept of Ecology and Evolutionary Biology, Princeton Univ, Princeton, NJ 08544, USA). Contracepted mares displayed weaker social ties with other horses.

Influence of anthropogenic structures on northern bobwhite space use in western Oklahoma. S. W. Dunkin, F. S. Guthery, S. J. Demaso, A. D. Peoples, and E. S. Parry.

2009. *Journal of Wildlife Management* 73:253–259. (Dept of Natural Resource Ecology and Management, Oklahoma State Univ, Stillwater, OK 73152, USA). Bobwhites preferred to nest 275–655 yards away from livestock watering sites and more than 330 yards from fences. The density of fences, livestock watering sites, aboveground power lines, and oil field structures on the study area was compatible with bobwhite populations.

Planted grasslands and native sod prairie: equivalent habitat for grassland birds? K. K. Bakker and K. F. Higgins. 2009. *Western North American Naturalist* 69:235–242. (College of Arts and Sciences, Dakota State Univ, 820 N Washington Ave, Madison, SD 57042, USA). In tallgrass prairie of eastern South Dakota and western Minnesota, grassland bird species diversity was greater in native prairie than in seeded stands of cool-season grass monocultures, cool-season mixtures, or warm-season monocultures. However, grassland bird species diversity in seeded warm-season mixtures did not differ from native prairie.

Prescribed fire effects on wintering, bark-foraging birds in northern Arizona. T. L. Pope, W. M. Block, and P. Beier. 2009. *Journal of Wildlife Management* 73:695–700. (Dept of Wildlife and Fisheries Science, Texas A&M Univ, College Station, TX 77843, USA). Densities of white-breasted nuthatches and pygmy nuthatches were unaffected by prescribed burning in ponderosa pine forests, whereas hairy woodpecker density was five times greater in burned areas.

Survival rates of female greater sage-grouse in autumn and winter in southeastern Oregon. R. G. Anthony and M. J. Willis. 2009. *Journal of Wildlife Management* 73:538–545. (US Geological Survey, Oregon Cooperative Fish and Wildlife Research Unit, 104 Nash Hall, Oregon State Univ, Corvallis, OR 97331, USA). Sage-grouse survival rates did not differ among three study areas: 1) a wildlife refuge managed by the US Fish and Wildlife Service, 2) Bureau of Land Management (BLM) livestock grazing allotments, and 3) BLM livestock grazing allotments where 25% of the area's big sagebrush habitat had been replaced with crested wheatgrass seedings.

Grazing Management

Efficacy of prescribed grazing depends on timing, intensity and frequency. M. J. Rinella and B. J. Hileman. 2009. *Journal of Applied Ecology* 46:796–803. (USDA–Agricultural Research Service, Fort Keogh Livestock and Range Research Lab, 243 Fort Keogh Rd, Miles City, MT 59301, USA). Supports results from previous studies that defoliation of leafy spurge early in the growing season reduces leafy spurge and increases associated species in the plant community.

Spatial ecology of raccoons related to cattle and bovine tuberculosis in northeastern Michigan. T. C. Atwood, T. J. Deliberto, H. J. Smith, J. S. Stevenson, and K. C. Vercauteren. 2009. *Journal of Wildlife Management* 73:647–654. (USDA Wildlife Services, National Wildlife Research Center, 4101 LaPorte Ave, Fort Collins, CO 80521, USA). Because raccoons can carry the causative bacterium for bovine tuberculosis, authors recommend that livestock producers locate livestock feeding areas and watering sites away from forest patches to limit comingling with raccoons.

The biogeographical distribution of duncecap larkspur (*Delphinium occidentale*) chemotypes and their potential toxicity. D. Cook, D. R. Gardner, J. A. Pfister, K. D. Welch, B. T. Green, and S. T. Lee. 2009. *Journal of Chemical Ecology* 35:643–652. (USDA–Agricultural Research Service, Poisonous Plant Research Laboratory, 1150 E 1400 N, Logan, UT 84341, USA). Duncecap larkspur plants in Utah, Colorado, and southern Wyoming have little or no toxicity, but the same plant species is highly toxic in Idaho, southwestern Montana, and northwestern Wyoming.

Hydrology/Riparian

Use of standardized visual assessments of riparian and stream condition to manage riparian bird habitat in eastern Oregon. H. A. Cooke and S. Zack. 2009. *Environmental Management* 44:173–184. (Dept of Biological Science, Univ of Alberta, Edmonton, AB T6G 2E9, Canada). The US Environmental Protection Agency Habitat Assessment Field Data Sheet method provided a better assessment of riparian bird habitat than either the Proper Functioning Condition assessment or the USDA–Natural Resources Conservation Service Stream Visual Assessment Protocol.

Measurements

Use of satellite images to assess forage production in the rangelands of Zacatecas. G. M. Garcia, R. G. Luna, F. G. E. Chairez, M. D. A. Ramirez, and J. A. R. Corral. 2009. *Tecnica Pecuaria en Mexico* 47:135–144. (Campo Experimental Zacatecas, KM 24-5 Carretera Zacatecas Fresnillo, Calera 98500, Zacatecas, Mexico). A multiple regression equation ($R^2 = 0.66$) was developed to estimate rangeland forage yield from Normalized Difference Vegetation Index data collected via remote sensing.

Plant Ecology

Forty years of vegetation changes on the Pumice Desert, Crater Lake National Park, Oregon. E. L. Horn. 2009. *Northwest Science* 83:200–210. (336 Marina Loop, West Yellowstone, MT 59758, USA). Herbaceous vegetation has remained sparse and relatively unchanged for 40 years, but the number of lodgepole pine trees has nearly tripled.

Plant community response to loss of large herbivores: comparing consequences in a South African and a North American grassland. C. E. Burns, S. L. Collins, and M. D. Smith. 2009. *Biodiversity and Conservation* 18:2327–2342. (Dept of Wildlife Ecology, Univ of Maine, Orono, ME 04469, USA). In tallgrass prairie of northeastern Kansas, plant diversity was less where ungulate grazing had been excluded for 32 years.

Rehabilitation/Restoration

Dogfennel (*Eupatorium capillifolium*) size at application affects herbicide efficacy. B. A. Sellers, J. A. Ferrell, G. E. MacDonald, and W. N. Kline. 2009. *Weed Technology* 23:247–250. (Range Cattle Research and Education Center, Univ of Florida, Ona, FL 33865, USA). Triclopyr + fluroxpyr is an effective herbicide control option for dogfennel if applied when dogfennel plants are 15 inches tall.

Open field host selection and behavior by tamarisk beetles (*Diorhabda* spp.) (Coleoptera: Chrysomelidae) in biological control of exotic saltcedars (*Tamarix* spp.) and risks to non-target athel (*T. aphylla*) and native *Frankenia* spp. P. J. Moran, C. J. DeLoach, T. L. Dudley, and J. Sanabria. 2009. *Biological Control* 50:243–261. (USDA–Agricultural Research Service Beneficial Insects Research Unit, 2413 E Highway 83, Weslaco, TX 78596, USA). Although tamarix beetles, biological control agents for saltcedar, were found to feed and deposit eggs on non-target athel trees, the beetles had limited impact to athel trees in the field.

Potential agricultural uses of flue gas desulfurization gypsum in the northern Great Plains. T. M. DeSutter and L. J. Cihacek. 2009. *Agronomy Journal* 101:817–825. (Dept of Soil Science, North Dakota State Univ, Fargo, ND 58108, USA). Flue gas desulfurization gypsum, a byproduct from the combustion of coal for electrical energy, can be used as a calcium or sulfur fertilizer to increase crop or rangeland production.

The effects of flavonoid allelochemicals from knapweeds on legume-rhizobia candidates for restoration. E. R. Alford, J. M. Vivanco, and M. W. Paschke. 2009. *Restoration Ecology* 17:506–514. (M. Paschke, Colorado State Univ, 1472 Campus Delivery, Fort Collins, CO 80523, USA). ". . .Legumes may not be susceptible to knapweed allelopathy and may be good choices in restoration of knapweed infestations when inoculated, particularly on sites with low soil nitrogen."

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