Browsing the Literature

Jeff Mosley

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 publisher or senior author (addresses shown in parentheses). Suggestions are welcomed and encouraged for items to include in future issues of *Rangelands*.

Animal Ecology

Delivery method and supplement consumption by grazing ruminants: A review. J.G.P. Bowman and B.F. Sowell. 1997. J. Anim. Sci. 75:543–550. (Dept. Anim. and Range Sci., Montana State Univ., Bozeman, MT 59717). Reviews the factors affecting variation in individual animal consumption of supplement by grazing cattle and sheep.

Effects of frequency of supplementation of adult cows in western Texas. J.E. Huston et al. 1997. Proc. Western Section Amer. Soc. Anim. Sci. 48:236–238. (Texas Agr. Exp. Sta., 7887 US Highway 87 North, San Angelo, TX 76901–9714). Feeding a protein supplement only once per week was an effective strategy for mature cows grazing rangeland in winter.

Effects of nutrient supplementation in cows fed snakeweed. L.F. Gulino Klein et al. 1997. Proc. Western Section Amer. Soc. Anim. Sci. 48:261–266. (Dept. Animal and Range Sci., New Mexico State Univ., Las Cruces, NM 88003). Provides preliminary evidence that protein supplementation can increase cattle tolerance to snakeweed poisoning.

Elk and domestic sheep interactions in a north-central Utah aspen ecosystem. J.L. Beck, J.T. Flinders, D.R. Nelson, C.L. Clyde, H.D. Smith, and P.J. Hardin. 1996. USDA For. Ser. Intermtn. Res. Sta. Res. Paper 491. (Publications Room, Intermountain Research Station, 324 25th St., Ogden, UT 84501). Describes habitat selection, forage preferences, dietary overlap and other relationships between elk and sheep in the mountains of north-central Utah.

Feeding area selection: The leader-follower phenomenon. P.T. Greenwood and L.R. Rittenhouse. 1997. Proc. Western Section Amer. Soc. Anim. Sci. 48:267–269. (Dept. Rangeland Ecosystem Sci., Colo. State Univ., Fort Collins, CO 80523). Individual cows can lead others to preferred feeding sites in a pasture.

Influence of energy supplementation on grazing ruminants: Requirements and responses. J.S. Caton and D.V. Dhuyvetter. 1997. J. Anim. Sci. 75:533–542. (Dept. Animal and Range Sci., North Dakota State Univ., Fargo, ND 58105). Reviews current knowledge of energy requirements of grazing livestock and the effects of energy supplementation.

The effects of cattle grazing on optimal foraging in mule deer (*Odocoileus hemionus*). J.G. Kie. 1996. For. Ecol. and Manage. 88:131–138. (USDA For. Ser., Pacific Northwest Research Station, 1401 Gekeler Lane, La Grande, OR 97850). When herbaceous forage was in limited supply, increased cattle stocking rates caused female mule deer to spend less time feeding. But increased cattle stocking rates had no effect on time spent foraging by deer when herbaceous plants were growing rapidly.

Grazing Management

A decision support approach to sustainable grazing management for spatially heterogeneous rangeland paddocks. J.A. Bellamy, D. Lowes, A.J. Ash, J.G. McIvor, and N.D. MacLeod. 1996. Australian Rangeland J. 18:370–391. (CSIRO, 306 Carmody Road, St. Lucia, QLD 4067, Australia). This paper describes a decision support system for evaluating the sustainability of range livestock grazing in terms of the risk of changes to the vegetation and soil resource, and the profitability of production.

Forage intake by and site and extent of digestion in beef cattle grazing midgrass prairie or plains bluestem pasture throughout the summer. S.A. Gunter, F.T. McCollum, and R.L. Gillen. 1997. J. Anim. Sci. 75:490–501. (SW Res. & Ext. Ctr., 362 Highway 174 North, Hope, AR 71801). Forage intake and digestion by beef cattle would be enhanced if plains bluestem pastures were grazed June through August, and midgrass prairie rangeland was grazed in May and October.

Grazing livestock as a management tool in the Intermountain West. J.A. Young and J.L. McLain. 1997. Proc. Western Section Amer. Soc. Anim. Sci. 48:3–6. (USDA-ARS, 920 Valley Road, Reno, NV 89512). Discusses the role of livestock grazing in the current and future management of Intermountain rangelands.

Grazing management: Technology for sustaining rangeland ecosystems? R.K. Heitschmidt and J.W. Walker. 1996. Australian Rangeland J. 18:194–215. (USDA-ARS, Route 1, Box 2021, Miles City, MT 59301). Concludes that current grazing management technology necessarily requires moderate stocking rates to insure the ecological, economic, and social sustainability of livestock grazing on rangeland.

Lamb grazing strategies for the irrigated Sonoran Desert. J.N. Guerrero and V.L. Marble. 1997. Proc. Western Section Amer. Soc. Anim. Sci. 48:243–245. (Univ. Calif., Holtville, CA 92250). Recommends a 21-day set stocking system when grazing lambs on established fields of irrigated alfalfa.

Response of a depleted sagebrush steppe riparian system to grazing control and woody plantings. W.P. Clary, N.L. Shaw, J.G. Dudley, V.A. Saab, J.W. Kinney, and L.C. Smithman. 1996. USDA For. Ser. Intermtn. Res. Sta. Res. Paper INT-RP-492. (Publications Distribution, Intermountain Research Station, 324 25th St., Ogden, UT 84401). Exclusion of cattle grazing or light to moderate spring grazing benefitted willow and cottonwood plantings better than light to moderate fall grazing or heavy season-long grazing.

Hydrology

Efficiency of grass buffer strips and vegetation height on sediment filtration in laboratory rainfall simulations. R.A. Pearce, M.J. Trlica, W.C. Leininger, J.L. Smith, and G.W. Frasier. 1997. J. Environ. Qual. 26:139–144. (Envirocounsel Consulting, 311 Vista Road, Bishop, CA 93514). Results suggest that "vegetation height alone is not a suitable guideline for estimating sediment filtration and that length of vegetation buffer was more important than vegetation height in filtering sediment."

Improvements

A theoretical framework for developing successional weed management strategies on rangeland. R.L. Sheley, T.J. Svejcar, and B.D. Maxwell. 1996. Weed Tech. 10:766–773. (Dept. Plant, Soil & Environ. Sci., Montana State Univ., Bozeman, MT 59717). Presents a conceptual model for managing rangeland weeds based upon principles of plant succession.

Evaluation of the effects of spine removal by burning on the nutritive quality of cholla cactus for an emergency feed. J.E. Sawyer, L.A. Knox, G.B. Donart, and M.K. Petersen. 1997. Proc. Western Section Amer. Soc. Anim. Sci. 48:252–254. (Dept. Animal and Range Sci., New Mexico State Univ., Las Cruces, NM 88003). Removing the spines from cholla by burning enhanced its palatability and nutritive value, making it an acceptable alternative feedstuff during drought.

Noxious brush and weed control research highlights—1996. C.M. Britton and D.B. Wester, eds. 1996, Vol. 27. (Dept. Range, Wildlife, and Fisheries Management, Texas Tech Univ., Lubbock, TX 79409). Progress report describing 49 research projects in the Department of Range, Wildlife, and Fisheries Management at Texas Tech University.

Measurement/Sampling

The Pacific Northwest Region—Vegetation and inventory monitoring system. T.A. Max et al. 1996. USDA For. Ser. Pacific Northwest Res. Sta. Res. Paper 493. (Publications Dept., Pacific Northwest Research Station, P.O. Box 3890, Portland, OR 97208). This paper describes the sampling strategy used to do broad-scale inventory and monitoring of National Forest System lands in the Pacific Northwest.

Plant-Animal Interactions

Feeding behaviour of red deer (*Cervus elaphus*) on Sitka spruce (*Picea sitchensis*): The role of carbon-nutrient balance. G.R. Iason, A.J. Duncan, S.E. Hartley, and B.W. Staines. 1996. For. Ecol. and Manage. 88:121–129. (Macaulay Land Use Research Institute, Craigiebuckler, Aberdeen AB9 2QJ, Scotland). Greater concentrations of monoterpenes in spruce needles did not deter red deer (i.e., elk) from initially biting the needles, but did reduce the total amount eaten.

Grazing of lowland heath in England: Management methods and their effects on heathland vegetation. J.M. Bullock and R.J. Pakeman. 1997. Biol. Conserv. 79:1–13. (Furzebrook Research Station, Wareham BH20 5AS, Dorset, England). "The introduction of grazing or higher stocking rates generally increased plant species richness, and the cover of grasses, forbs, bryophytes and lichens and bare ground while reducing litter depth and the cover of dwarf shrubs and scrub species."

Reclamation

Effects of humidity on storing big sagebrush seed. B.L. Welch. 1996. USDA For. Ser. Intermtn. Res. Sta. Res. Paper 493. (Publications Room, Intermountain Research Station, 324 25th St., Ogden, UT 84501). Big sagebrush seed should not be stored where humidity exceeds 32 to 40%, and forced-air seed driers should not heat big sagebrush seed over 60 degrees C.

Surface soil water loss after summer rainfall in a semi-desert grassland. B.A. Roundy, L.B. Abbott, and M. Livingston. 1997. Arid Soil Res. and Rehab. 11:49–62. (Dept. Botany and Range Sci., Brigham Young Univ., Provo, UT 84602). Depending on the severity of soil drying conditions, warm season grass seedlings in southeastern Arizona will not establish when rainfall is followed by 2 to 8 days without rain.

Socioeconomics

Comparative profitability of cattle and wildlife ranches in semi-arid Zimbabwe. U.P. Krueter and J.P. Workman. 1997. J. Arid Environ. 35:171–187. (Dept. Rangeland Ecol. and Management, Texas A&M Univ., College Station, TX 77843). Wildlife ranching in semi-arid savannas was not more profitable than cattle ranching, but ranch profits would be maximized by combining a cattle enterprise with a wildlife enterprise.

Soils

Changes in ponderosa pine site productivity following removal of understory vegetation. M.D. Busse, P.H. Cochran, and J.W. Barren. 1996. Soil Sci. Amer. J. 60:1614–1621. (USDA For. Ser., 2400 Washington Ave., Redding, CA 96001). Results suggest that understory vegetation plays an important role in maintaining soil quality of ponderosa pine sites in central Oregon.

The pattern of soil variables related to Artemisia tridentata in a burned shrub-steppe. J.J. Halvorson, H. Bolton, and J.L. Smith. 1997. Soil Sci. Soc. Amer. J. 61:287–294. (Battelle Institute, Pacific Northwest Labs, P.O. Box 999, Richland, WA 99352). Removing big sagebrush plants by burning lowered soil quality in all variables except for organic carbon and soil pH.

Author is associate professor and extension range management specialist, Dept. of Animal and Range Sciences, Montana State Univ., Bozeman, MT 59717.