

HIGHLIGHTS

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The State of REM: Perspectives of the Outgoing Editor-in-Chief

M. Keith Owens

The *Journal* has undergone many changes over the last 4 yr, including publication by Allen Press, the transition to electronic submission and publication in August 2004, and the increased breadth of the Associate Editor Board (6 of 18 members are international). Turnaround times from submission to initial decision have remained stable at about 94 d. Manuscript submission rate for the 10 yr prior to electronic submission was $145 \cdot \text{yr}^{-1}$, reached a high of 240 in 2005, and currently averages $185 \cdot \text{yr}^{-1}$. The acceptance rate averages 37%, rejection rates average 35%, and the remaining manuscripts are pending revisions in any given year. The majority of manuscripts originate within the United States (66%), but submissions are received from 23 countries annually. The *Journal* could not function without an effective editorial board and I thank them for their dedication and perseverance.

The Future of REM: Perspectives of the Incoming Editor-in-Chief

David D. Briske

My perception of the mission of REM is to foster communication of science-based information to promote wise stewardship of global rangelands. This mission is most effectively addressed by capitalizing on the inherent strength of REM to integrate multidisciplinary information to inform academics, policy makers, and natural resource managers of the numerous challenges and opportunities confronting rangelands. The primary goal during my 4-yr term will be to elevate REM to the next tier of academic journals while continuing to publish manuscripts addressing all aspects of global rangeland resources.

Rotational Grazing on Rangelands: Reconciliation of Perception and Experimental Evidence

D. D. Briske, J. D. Derner, J. R. Brown, S. D. Fuhlendorf, W. R. Teague, K. M. Havstad, R. L. Gillen, A. J. Ash, and W. D. Willms

The goal of this synthesis is to reconcile perceptions advocating the superiority of rotational grazing systems with the contradictory experimental evidence. Plant production was equal or greater in continuous compared to rotational grazing in 87% (20 of 23) of the grazing experiments reviewed. Similarly, animal production per head and per area were equal or greater in continuous compared to rotational grazing in 92% (35 of 38) and 84% (27 of 32) of the experiments, respectively. Advocacy for rotational grazing as a superior strategy of grazing on rangelands is founded on perception and anecdotal interpretations, rather than an objective assessment of the vast experimental evidence.

Prescribed Sheep Grazing to Suppress Spotted Knapweed on Foothill Rangeland

Brian D. Thrift, Jeffrey C. Mosley, Tracy K. Brewer, Brent L. Roeder, Bret E. Olson, and Rodney W. Kott

When should prescribed sheep grazing be applied to suppress spotted knapweed, an invasive perennial forb? We evaluated prescribed sheep grazing on a landscape scale and found that sheep can effectively graze spotted knapweed infestations in either mid-June (perennial grasses at 5–6-leaf stage and spotted knapweed bolting) or mid-July (perennial grasses in soft dough stage and spotted knapweed in late bud/early flowering). In light infestations, sheep will utilize grasses less when prescribed sheep grazing is applied in June. In moderate infestations, sheep will eat less grass and utilize spotted knapweed more heavily when prescribed grazing is applied in July.

Evaluation of Low-Stress Herding and Supplement Placement for Managing Cattle Grazing in Riparian and Upland Areas

Derek W. Bailey, Harv C. VanWagoner, Robin Weinmeister, and Delyn Jensen

Livestock grazing is a critical concern for riparian area management, because cattle spend a disproportionate amount of time there during the summer. Low-stress herding and placement of low-moisture blocks on uplands were evaluated as tools to reduce cattle use of riparian areas. Herding reduced the time cattle spent near streams, resulted in higher riparian stubble heights, and decreased the amount fecal material deposited near streams. Moving cattle to uplands at midday using low-stress herding is an effective tool to reduce use of riparian areas, and herding cattle to supplements placed on uplands can increase grazing use of nearby areas.

Sheep Spatial Grazing Strategies at the Arid Patagonian Monte, Argentina

Monica B. Bertiller and Jorge O. Ares

We asked what vegetation traits influence sheep in selecting foraging paths across landscapes. We overlaid records of positions of ewes (*Ovis aries*) collared with global positioning system receivers obtained at several seasons on a digital map of vegetation units of a paddock of 1,250 ha at the Patagonian Monte shrublands, Argentina. Ewes followed diverse paths but always selected among a limited number of vegetation units with structural traits allowing wide visibility ranges and low structural antiherbivore defenses. This information is valuable in identifying and predicting spots of potential land degradation, and planning the distribution of flocks within paddocks with shrub-dominated vegetation.

Age and Body Condition of Goats Influence Consumption of Juniper and Monoterpene-Treated Feed

Rachel A. Frost, Karen L. Launchbaugh, and Charles A. Taylor, Jr

Consumption of chemically defended plants may be influenced by animal characteristics including age and nutritional status. This project examined the influence of age and body condition of goats on consumption of redberry juniper and a feed treated with a high concentration of monoterpenes. Young animals and those in low body condition consumed more of both the juniper foliage and the treated feed than did mature animals or those in high body condition. Managers should be aware of how an animal's physiological state influences diet selection to improve production and manipulate plant community dynamics.

Invertebrate Community Response to a Shifting Mosaic of Habitat

David M. Engle, Samuel D. Fuhlendorf, Aaron Roper, and David M. Leslie, Jr

By promoting vegetation heterogeneity within a pasture, patch burning is an alternative to the model of uniform distribution of grazing that promotes vegetation homogeneity. We compared patch burning with homogeneity-based management in tallgrass prairie to determine the influence of the two treatments on the aboveground invertebrate community. Total invertebrate mass was about 50% greater in transitional patches (i.e., patches recovering from fire and focal grazing) within patch-burned pastures as compared to pastures under homogeneity-based management. Patch burning provides habitat that meets requirements for a broad range of invertebrate species and might also benefit other native animal assemblages.

Effect of Pinyon-Juniper Tree Cover on the Soil Seed Bank

Elizabeth A. Allen and Robert S. Nowak

Reversing the expansion of pinyon-juniper woodlands and restoring previous vegetation are desirable management goals. To help determine if natural revegetation will occur at different levels of tree dominance, we examined if the loss in understory cover that occurred with increasing tree cover was reflected in the density and diversity of the seed bank. Overall, seed banks did not differ in seed density or species diversity because only a few species, which were mainly annual forbs and a few ubiquitous grasses, made up the bulk of the seed bank, and seed density for these species did not change as tree cover increased. Furthermore, much of the standing vegetation was not represented in the seed bank. Because seed densities for more desirable perennial grasses and shrubs were low at all levels of tree cover, managers cannot rely upon recruitment from the natural seed bank to quickly reestablish desirable species after disturbance.

Infiltration, Runoff, and Sediment Yield in Response to Western Juniper Encroachment in Southeast Oregon

Steven L. Petersen and Tamzen K. Stringham

Infiltration was measured in a western juniper (*Juniperus occidentalis* Hook.) watershed to characterize the hydrologic processes associated with landscape position. Infiltration rate, runoff, and sediment content were measured with the use of a small-plot rainfall simulator. Comparing canopy cover levels, steady-state infiltration rates on control plots were 68% greater than on high juniper cover sites and 34% greater than on moderate juniper cover sites on south-facing slopes. On north-facing slopes, no differences in infiltration rates were observed between juniper cover levels,

demonstrating differential hydrologic responses associated with ecological site. Accelerated runoff and erosion in juniper-dominated sites (high level) across east-, west-, and south-facing slopes can lead to extensive degradation to the hydrology of those sites.

Intermountain Presettlement Juniper: Distribution, Abundance, and Influence on Postsettlement Expansion

Dustin D. Johnson and Richard F. Miller

The widespread removal of piñon and juniper over the past several decades has raised considerable debate as to the extent of expansion and the potential removal of woodlands that persisted prior to settlement in the 1860s. Analysis of tree rings and structure of four western juniper woodlands in Idaho and Oregon suggests trees that established prior to settlement accounted for 1%–10% of the current population greater than 1 m tall. These legacy trees were widely scattered across the landscape and more common in lower-elevation stands with greater surface rock cover and higher insolate exposure. However, there was a difference in the density and distribution of presettlement trees among the four woodlands. Reference conditions should be developed as a standard against which to evaluate current conditions and future alternatives and to serve as goals for ecological restoration treatments.

Effect of Conifer Encroachment Into Aspen Stands on Understory Biomass

B. R. Stam, J. C. Malechek, D. L. Bartos, J. E. Bowns, and E. B. Godfrey

The problem with conifer encroachment into aspen stands is the loss of both aspens and the understory biomass that is associated with the aspen communities. We documented the rate of decreasing understory biomass production with increasing conifer encroachment. Even small levels of conifer encroachment (<15% canopy cover) produce drastic reduction in understory biomass production. Management implications include loss of aspen forest types and potential overstocking of livestock grazing allotments if associated loss of forage is not considered.

Responses of Chaparral and Oak Woodland Plant Communities to Fuel Reduction Thinning in Southwestern Oregon

Keith A. Perchemlides, Patricia S. Muir, and Paul E. Hosten

Land managers are carrying out extensive fuel reduction programs to reduce potential wildfires, but few published

studies have reported on consequences of such treatments for native or exotic plant species. We compared vegetation and abiotic characteristics between paired thinned and unthinned chaparral and oak woodland communities of southwestern Oregon 4 to 7 yr posttreatment, and contrasted impacts of manual vs. mechanical treatments. Herbaceous cover increased on thinned sites, but species richness did not change. Manual and mechanical treatment impacts on abiotic site conditions differed, but differences in vegetation impacts were not statistically significant. Fuel-reduction thinning may have some unintended negative impacts, including expansion of exotic grasses, reductions in native perennial species cover, persistent domination by annuals, and increased surface fuels.

Medusahead Dispersal and Establishment in Sagebrush Steppe Plant Communities

Kirk W. Davies

Medusahead is an invasive annual grass that reduces biodiversity and production of rangelands. To prevent medusahead invasion land managers need to know more about how it invades a plant community. Medusahead dispersal and establishment were measured in southeastern Oregon. Medusahead seeds dispersed relatively short distances with no seeds dispersing beyond 2 m. Medusahead establishment was negatively correlated to large perennial bunchgrass density and positively correlated to annual grass density. These results suggest that narrow containment zones around medusahead infestations and promoting large bunchgrass would be effective methods to help prevent medusahead invasions.

Defoliation Effects on *Bromus tectorum* Seed Production: Implications for Grazing

Kara Hempy-Mayer and David A. Pyke

Cheatgrass presents a serious challenge to native plant restoration projects in semiarid rangelands. We conducted a clipping study in two cheatgrass-dominated areas to analyze the potential of livestock grazing to control cheatgrass for native plant reseeding projects. The most effective defoliation occurred when cheatgrass was clipped twice to 2.5 cm—once in the boot stage and again 2 wk later, though the level of control deemed necessary for a successful reseeding project was met at just one of the sites. This study further pinpoints how cheatgrass control might be achieved with livestock grazing and possible limitations of this strategy.

Enhancing Native Grass Productivity by Cocultivating With Endophyte-Laden Calli

M. E. Lucero, J. R. Barrow, P. Osuna, I. Reyes,
S. E. Duke

Microbial endophytes that positively influence plant growth often cannot be cultured outside of plant tissues. To overcome this obstacle and examine how these endophytes may influence plant growth, we inoculated surface-sterilized native grass seedlings with endophyte-laden calli from other plant species, and transplanted hardened seedlings to a controlled field setting. Establishment, early growth, late growth, and seed and stolon production were all influenced by one or more callus treatments, with productivity of some cocultured plant treatments exceeding controls by 300%. Results indicate uncultured microbes may be manipulated to positively influence plant establishment, growth, and reproduction.

Method of Supplementation May Affect Cattle Grazing Patterns

Derek W. Bailey and Delyn Jensen

Uneven grazing distribution on rugged rangeland can result in localized heavy use of gentle terrain near water and may necessitate reductions in the grazing period to prevent overgrazing. Grazing patterns of cows fed low-moisture blocks placed on high steep slopes were compared to those fed range cake in accessible terrain. Cows fed strategically placed low-moisture blocks used steeper slopes and spent more time near supplement sites than cows fed range cake. Strategic placement of low-moisture blocks in rough terrain is a more practical and effective approach to improve uniformity of cattle grazing than feeding range cake in accessible terrain.