Editorial: A Scientifically Rigorous and User-Friendly Rangeland Ecology and Management

Roger Sheley, Chad Boyd, James Dobrowolski, Stuart Hardegree, Jeremy James, and Jane Mangold

Rangeland Ecology and Management is the premier journal for communication of science-based knowledge about rangelands and for fostering innovation in the stewardship of rangelands. Three initiatives in the management of the journal have been identified: 1) the Associate Editor (AE) position has been strengthened into a more active role in managing a constructive discussion between reviewers and authors; 2) guidelines for authors, AEs, and reviewers have been revised; and 3) official recognition of those authors, AEs, and reviewers who make exceptional contributions has been expanded. The quality of this journal defines our profession, and the success of the journal is the harbinger of the significant contribution of our profession to society.

Incorporating Hydrologic Data and Ecohydrologic Relationships in Ecological Site Descriptions


Ecological Site Descriptions (ESDs) seldom include vegetation and hydrology interactions, which strongly regulate ecosystem health and responses to management. These scientists have developed a framework for the integration of ecohydrologic data and relationships within the existing ESD structure. This links the application of rangeland hydrologic and erosion prediction technologies developed by the US Department of Agriculture (USDA) to the development and enhancement of ESDs. The incorporation of ecohydrologic relations expands the ecologic basis of the ESD concept for the management of US rangelands. It also provides for better communication among private land owners, resource managers, and researchers across multiple disciplines in the field of rangeland management.

Pyric-Herbivory and Hydrological Responses in Tallgrass Prairie

Amanda L. West, Chris B. Zou, Elaine Stebler, Samuel D. Fuhlendorf, and Brady Allred

The combination of fire and grazing, called pyric-herbivory, increases the amount of bare ground in recently burned patches and aboveground biomass on unburned patches. Cattle spent 70% of their time within recently burned areas, but this high-intensity grazing following a spring fire did not have prolonged detrimental impacts, including runoff or soil loss. In fact, the increased variability in aboveground biomass and bare ground could enhance resource conservation by buffering highly disturbed areas with minimally disturbed areas.

Grasshopper Responses to Fire and Postfire Grazing in the Northern Great Plains Vary Among Species

David H. Branson and Lance T. Vermeire

Rangeland management practices, such as burning and grazing, may affect grasshopper populations. This study focuses on examining grasshopper responses to late-summer fire and postfire grazing in mixed prairies. Fire reduced grasshopper density by 36% to 53% across the study area, but the effects of burning plus grazing varied depending on the species of grasshopper. Late-summer fire appears to be a useful management tool to reduce the populations of
A Critical Examination of Timing of Burning in the Kansas Flint Hills
E. G. Towne and J. M. Craine

The belief that burning should occur in the Kansas Flint Hills only in late spring has become ingrained in the cultural practices of rangeland management for more than 40 years. We critically reviewed the historical research that provided the foundation for late-spring burning. All of the studies were nonreplicated and lacked meaningful statistical analyses, and their subjective conclusions failed to provide convincing evidence that burning should only occur in late spring. Expanding the window for burning to earlier in the spring could help minimize air quality issues and avoid the disadvantages of burning during late spring.

The Dilemma of Improving Native Grasslands by Overseeding Legumes: Production Intensification or Diversity Conservation
Martín Jaurena, Felipe Lezama, Lucía Salvo, Gerónimo Cardozo, Walter Ayala, José Terra, and Carlos Nabinger

Overseeding of legumes, coupled with phosphorus (P) fertilization to increase legume productivity, is used to increase forage for livestock in native grasslands. Yet this management can lead to the collapse of the native plant community. We assessed whether increased P fertilizer rates are associated with reduced species diversity in native grasslands overseeded with a mix of *Trifolium repens* and *Lotus corniculatus* in Uruguay. Native grass cover and species richness and diversity decreased with increases in soil P. Our findings indicate that a precautionary approach is warranted when considering P fertilization to avoid unnecessary inputs and to minimize losses in plant diversity.

Margareta A. Bruegger, Leticia A. Varelas, Larry D. Howery, L. Allen Torell, Mitchell B. Stephenson, and Derek W. Bailey

Managing the risk of wildfire is a growing concern in the western United States. Targeted grazing, or managing livestock grazing to achieve the desired vegetation goals, is one possible way to reduce fine-fuel loads associated with wildfires. These researchers tested the efficacy of targeted cattle grazing to reduce fine-fuel loads in southeastern Arizona and used a fire model to predict how this treatment would alter fire behavior. Fuel treatments resulting from targeted grazing shortened flame lengths in the fire model, which suggested that targeted grazing could reduce fine-fuel loads enough to lower the potential cost of fighting fires.

Cattle as Dispersal Vectors of Invasive and Introduced Plants in a California Annual Grassland
Julie Chuong, Jared Huxley, Erica N. Spotswood, Liana Nichols, Pierre Mariotte, and Katharine N. Suding

Domestic livestock can transport seeds over long distances by ingesting and then excreting seeds in their dung or by collecting seeds on their skin and fur and depositing them. These scientists quantified both methods of dispersal by cattle in the Sierra foothills rangeland of California. Forbs were more likely than grasses to be dispersed through the animal’s digestive system. Invasive grasses, such as medusahead (*Taeniatherum caput-medusae*), were more likely to be dispersed by being carried on cattle hair. Management strategies to limit seed dispersal by livestock are needed.

Daily Forage Intake by Cattle on Natural Grassland: Response to Forage Allowance and Sward Structure
Júlio K. DaTrindade, Fabio P. Neves, Cassiano E. Pinto, Carolina Bremm, Jean C. Mezzalira, Laura B. Nadin, Teresa C. M. Genro, Horacio L. Gonda, and Paulo C. F. Carvalho

The objective of this study was to determine the sward characteristics that maximize daily forage and nutrient intake by cattle in the natural grassland of southern Brazil. In this plant community, high-quantity, high-quality intake was achieved at a daily forage allowance of 13 pounds of dry matter per 100 pounds of animal body weight and forage mass between 1,600 and 2,050 pounds of dry matter per acre, sward height between 4.5 and 5.25 inches, and tussock frequency lower than 30% in the pastures. Management practices should consider establishing sward structures to create adequate grazing environments that enable high intake.

Grazing Impact on Brood Parasitism in the Black-Capped Vireo
Anthony J. Locatelli, Heather A. Mathewson, and Michael L. Morrison

The brown-headed cowbird (*Molothrus ater*) is an obligate brood parasite associated with grazing and has contributed to the endangered status of the black-capped vireo (*Vireo atricapilla*), a songbird. These scientists assessed how enclosed livestock grazing vs. free grazing by roaming wild ungulates, grassland in the landscape, distance to water, and nest concealment related to cowbird parasitism of black-capped vireo nests in central Texas. Areas with enclosed livestock grazing and large amount of grassland had the highest probability of nest parasitism. The authors offer management suggestions to help land managers prioritize cowbird control and land protection efforts.
Rangeland Monitoring Reveals Long-Term Plant Responses to Precipitation and Grazing at the Landscape Scale

Seth Munson, Michael C. Duniway, and Jamin K. Johanson

Integrating historical rangeland monitoring data with ecologic site concepts can provide the context to understanding vegetation response to climate and land use. The authors examined how precipitation and grazing intensity influenced changes in plant species cover by ecologic sites, from 1967 to 2013, across the US Bureau of Land Management (BLM) land on the Colorado Plateau. Cool-season precipitation influenced changes in the cover of most species. The response of dominant cool-season perennial bunchgrasses to precipitation depended on the ecologic site and grazing intensity. The results of this study highlight the importance of using historical monitoring data to inform management decisions and guide future monitoring efforts.

Grassland Carbon Sequestration Ability in China: A New Perspective From Terrestrial Aridity Zones

Jianlong Li, Yizhao Chen, Shaojie Mu, Shengguo Sun, Chengcheng Gang, José Padarian, Pavel Groisman, Jingming Chen, and Siwei Li

It is unclear how changes in water availability influence carbon sequestration by grassland ecosystems. These researchers modified a terrestrial biogeochemical model to investigate the net ecosystem productivity of Chinese grasslands under different levels of aridity from 1982 to 2008. Grasslands respond differently to variations in temperature and precipitation based on their aridity. The researchers predict that the gap of carbon sequestration between humid and arid grasslands will expand.

Voices of Change: Narratives from Ranching Women of the Southwest United States

Hailey Wilmer and María E. Fernández-Giménez

The gendered contexts of ranch decision making and rangeland management are not well understood. These researchers interviewed 19 ranching women in Arizona and New Mexico about the changes they had experienced in ranching over their lifetimes. The analysis of their narratives suggests that women are innovative managers who transfer cultural and technical ranching knowledge across generations, but they can face gender barriers that may be especially challenging for aging ranch women. These findings suggest that rancher needs for decision-making support are gendered and dynamic throughout ranchers’ life stages. Ranching women are active managers, advocates, leaders, and collaborators in all aspects of rangeland systems and deserve attention from researchers, educators, and policy makers.

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