

April–June 2006

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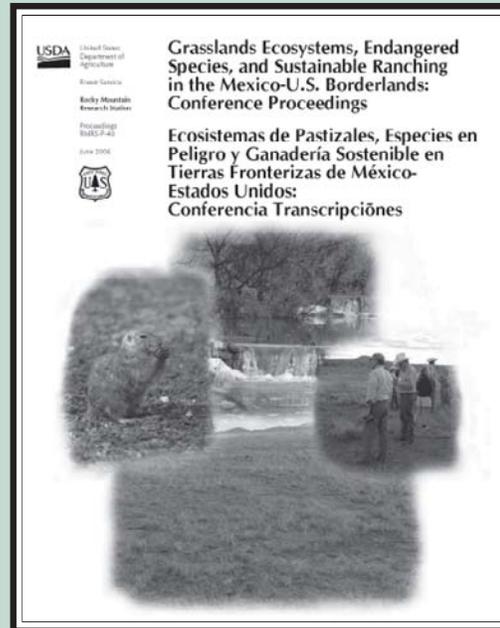
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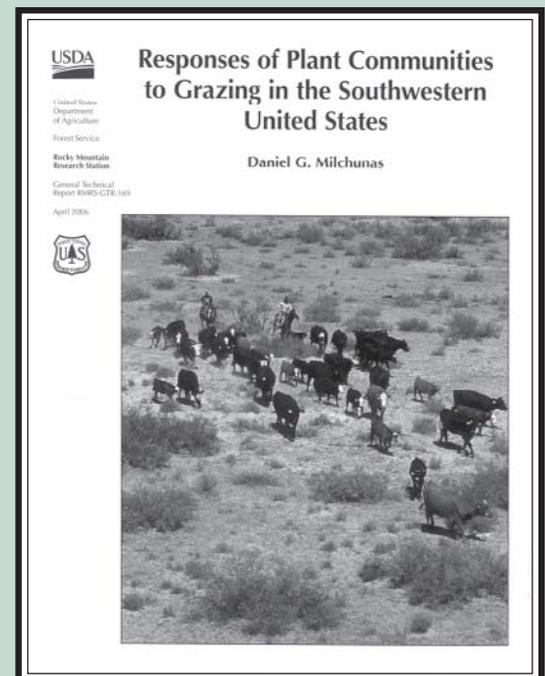
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Forest/rangeland condition indicators	8	<p>Nonparametric projections of forest and rangeland condition indicators: A technical document supporting the 2005 USDA Forest Service RPA Assessment Update. Hof, John; Flather, Curtis; Baltic, Tony; King, Rudy. 2006. Gen. Tech. Rep. RMRS-GTR-166. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 39 p. Available: http://www.fs.fed.us/rm/pubs/rmrs_gtr166.html</p> <p>This report documents the development of the 2005 Forest and Rangeland Condition Indicator Model database and the nonparametric statistical estimation for this analytical structure, with emphasis on three special characteristics of condition indicator production processes: (1) the inability of humans to completely control ecological systems; (2) the lack of a theoretical basis for specific relational functional forms, suggesting the need for a highly flexible model structure; and (3) the broadscale spatial nature of the problem (and data).</p>
WXFIRE program	9	<p>Simulating biophysical environment for gradient modeling and ecosystem mapping using the WXFIRE program: model documentation and application. Keane, Robert E.; Holsinger, Lisa. 2006. Gen. Tech. Rep. RMRS-GTR-168DVD. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 61 p.</p> <p>This paper describes WXFIRE, a computer program that computes spatially explicit climate-based, biophysical variables at any landscape scale or resolution using daily weather data, topography, and soils parameters, and a diverse set of integrated environmental functions. Output from the WXFIRE program can be used to digitally map ecosystem characteristics—including fire regime, fuel model, and vegetation cover type—needed by land managers. WXFIRE is one of the critical computer programs used to map vegetation, fuels, fire regimes, and fire regime condition classes in the LANDFIRE project. A typical application of WXFIRE is presented along with results of an extensive sensitivity analysis.</p>
Grazing in the southwestern United States	10	<p>Responses of plant communities to grazing in the southwestern United States. Milchunas, Daniel G. 2006. Gen. Tech. Rep. RMRS-GTR-169. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 126 p. Available: http://www.fs.fed.us/rm/pubs/rmrs_gtr169.html</p> <p>The broad objective of this report was to extensively review literature on the effects of grazing on 25 plant communities of the southwestern U.S. in terms of plant species composition, aboveground primary productivity, and root and soil attributes. Emphasis is placed on the evolutionary history of grazing and productivity of the particular communities as determinants of response. After reviewing available studies, we compare changes in species composition with grazing among community types. Evidence for grazing as a factor in shifts from grasslands to shrublands is considered.</p>

	Order No.	
LANDSUM version 4.0	11	<p>Simulating historical landscape dynamics using the landscape fire succession model LANDSUM version 4.0. Keane, Robert E.; Holsinger, Lisa M.; Pratt, Sarah D. 2006. Gen. Tech. Rep. RMRS-GTR-171CD. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 73 p. Available: http://www.fs.fed.us/rm/pubs/rmrs_gtr171.html</p> <p>The landscape fire succession model called LANDSUMv4 (LANDscape SUccession Model version 4.0) is presented here as a tool for estimating historical range and variation (HRV) of landscape characteristics. The model simulates fire and succession on fine scale landscapes for land management applications. It simulates vegetation development as a deterministic process by changing the species composition and stand structure assigned to a polygon. Disturbance initiation is modeled stochastically and disturbance effects are based on the current vegetation conditions of the polygon.</p>
Rangelands of central Asia	12	<p>Rangelands of central Asia: proceedings of the conference on transformations, issues, and future challenges. 2004 January 27; Salt Lake City, UT. Bedunah, Donald J.; McArthur, E. Durant; Fernandez-Gimenez, Maria, comps. 2006. Proceeding RMRS-P-39. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 127 p. Available: http://www.fs.fed.us/rm/pubs/rmrs_p039.html</p> <p>The 11 papers in this document address issues and needs in the development and stewardship of Central Asia rangelands, and identify directions for future work. Five of the papers address rangeland issues in Mongolia, three papers specifically address studies in China, two papers address Kazakhstan, and one paper addresses the use of satellite images for natural resource planning across Central Asia. These papers comprise the proceedings from a general technical conference at the 2004 Annual Meeting of the Society for Range Management, held at Salt Lake City, Utah, January 24–30, 2004.</p>
Grasslands ecosystems proceedings	13	<p>Grasslands ecosystems, endangered species, and sustainable ranching in the Mexico-U.S. borderlands: conference proceedings. Basurto, Xavier; Hadley, Diana, eds. 2006. Proc. RMRS-P-40. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 126 p. Available: http://www.fs.fed.us/rm/pubs/rmrs_p040.html</p> <p>This conference was organized to increase appreciation for the importance of the remaining semi-arid grasslands and to create a platform for expanding the integration of natural and social sciences among individuals and organizations. Main topics include grassland ecology and biodiversity, management and conservation, and sustainable borderland ranching. Endangered species management, especially of black-tailed prairie dogs (<i>Cynomys ludovicianus</i>), was an important topic. Oral presentations were in English or Spanish, and the papers have been printed in both languages.</p>
Wyoming forests	14	<p>Wyoming's forests, 2002. Thompson, Michael T.; DeBlander, Larry T.; Blackard, Jock A. 2005. Resour. Bull. RMRS-RB-6. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 148 p. Available: http://www.fs.fed.us/rm/pubs/rmrs_rb006.html</p> <p>This report presents a summary of the most recent inventory information for Wyoming's forest lands. The report includes descriptive highlights and tables of area, number of trees, biomass, volume, growth, mortality, removals, and net change. Most of the tables are organized by forest type, species, diameter class, or owner group. The report also describes inventory design, inventory terminology, and data reliability.</p>

	Order No.	
Four Corners timber harvest	15	<p>The Four Corners timber harvest and forest products industry, 2002. Morgan, Todd A.; Dillon, Thale; Keegan, Charles E., III; Chase, Alfred L.; Thompson, Mike T. 2006. Resour. Bull. RMRS-RB-7. Fort Collins, CO: United States Department of Agriculture, Forest Service, Rocky Mountain Research Station. 64 p. Available: http://www.fs.fed.us/rm/pubs/rmrs_rb007.html</p> <p>This report traces the flow of timber harvested in the “Four Corners” States (Arizona, Colorado, New Mexico, and Utah) during calendar year 2002, describes the composition and operations of the region’s primary forest products industry, and quantifies volumes and uses of wood fiber. Historical wood products industry changes are discussed, as well as trends in timber harvest, production, and sales of primary wood products.</p>
Fire suppression costs	16	<p>Factors affecting fire suppression costs as identified by incident management teams. Canton-Thompson, Janie; Thompson, Brooke; Gebert, Krista; Calkin, David; Donovan, Geoff; Jones, Greg. 2006. Res. Note RMRS-RN-30. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 10 p. Available: http://www.fs.fed.us/rm/pubs/rmrs_rn030.html</p> <p>This study uses qualitative sociological methodology to discover information and insights about the role of Incident Management Teams in wildland fire suppression costs. We interviewed 48 command and general staff members of Incident Management Teams throughout the United States. Topics affecting costs that emerged prominently are discussed in this report. They include, in no particular order: lack of decision space; outside costs over which Incident Management Teams have no control; rigid policies and rules limiting the ability to manage effectively, including cost-effectively mitigating for safety dangers on the ground; external decisions affecting costs; use of sophisticated technology; expanding public demand for information related to sophisticated technology; increased use of contracting for equipment and services; other demands on the agency; increased aircraft use; agency reorganizations affecting workforce availability; and new rules and regulations limiting flexibility needed for geographic differences. These findings should be useful in addressing wildfire suppression cost issues in the future.</p>
Crown fire modeling systems	17	<p>Comparison of crown fire modeling systems used in three fire management applications. Scott, Joe H. 2006. Res. Pap. RMRS-RP-58. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 25 p. Available: http://www.fs.fed.us/rm/pubs/rmrs_rp058.html</p> <p>The relative behavior of surface-crown fire spread rate modeling systems used in three fire management applications—CFIS (Crown Fire Initiation and Spread), FlamMap and NEXUS—is compared using fire environment characteristics derived from a dataset of destructively measured canopy fuel and associated stand characteristics. Although the surface-crown modeling systems predict the same basic fire behavior characteristics (type of fire, spread rate) using the same basic fire environment characteristics, their results differ considerably.</p>
Semidesert grass-shrub rangeland	18	<p>Mesquite removal and mulching impacts on herbage production on a semi-desert grass-shrub rangeland. Pease, Stacy; Ffolliott, Peter F.; Gottfried, Gerald J.; DeBano, Leonard F. 2006. Res. Pap. RMRS-RP-59. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 5 p. Available: http://www.fs.fed.us/rm/pubs/rmrs_rp059.html</p> <p>The objectives of our study were to determine the effects of velvet mesquite (<i>Prosopis velutina</i>) removal, control of the resulting basal sprouts, and mulching treatments on herbage production (standing biomass) and selected soil chemicals (nutrients) shown to affect herbage production on the Santa Rita Experimental Range. Mesquite control treatments consisted of overstory removal by chain saw with and without control of the resulting basal sprouts. Mulching treatments were applications of mesquite wood chips, commercial compost, or lopped-and-scattered mesquite branchwood.</p>

Other Station-Authored Publications

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Fire and fuels

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The Fire Effects Information database is available online through the Rocky Mountain Research Station Web site: <http://www.fs.fed.us/database/feis/>. FEIS provides up-to-date information about fire effects on plants and animals. It was developed at the USDA Forest Service Rocky Mountain Research Station's Fire Sciences Laboratory in Missoula, Montana. The FEIS database contains literature reviews, taken from current English-language literature of almost 900 plant species, about 100 animal species, and 16 Küchler plant communities found on the North American continent. The emphasis of each review is fire and how it affects each species. Background information on taxonomy, distribution, basic biology and ecology of each species is also included. Reviews are thoroughly documented, and each contains a complete bibliography. Managers from several land management agencies (U.S. Department of Agriculture, Forest Service, and U.S. Department of the Interior, Bureau of Indian Affairs, Bureau of Land Management, Fish and Wildlife Service, and National Park Service) identified the species to be included in the database. Those agencies funded the original work and continue to support maintenance and updating of the database. Species recently added include:

Species name	Common name
<i>Ephedra nevadensis</i>	Nevada ephedra, Mormon-tea, Mormon tea, Nevada jointfir, gray ephedra
<i>Hypericum perforatum</i>	common St. Johnswort, goatweed, Klamath weed
<i>Lepidium latifolium</i>	perennial pepperweed, broadleaved pepperweed, tall whitetop
<i>Pinus aristata</i>	Rocky Mountain bristlecone pine, Colorado bristlecone pine
<i>Pinus longaeva</i>	Great Basin bristlecone pine, intermountain bristlecone pine, western bristlecone pine
<i>Rhus aromatica</i>	fragrant sumac, aromatic sumac
<i>Rhus trilobata</i>	skunkbush sumac, fragrant sumac, three-leaf sumac, squawbush
<i>Sarcobatus vermiculatus</i>	black greasewood, greasewood
<i>Sonchus arvensis</i>	perennial sowthistle, perennial sow thistle, field sowthistle

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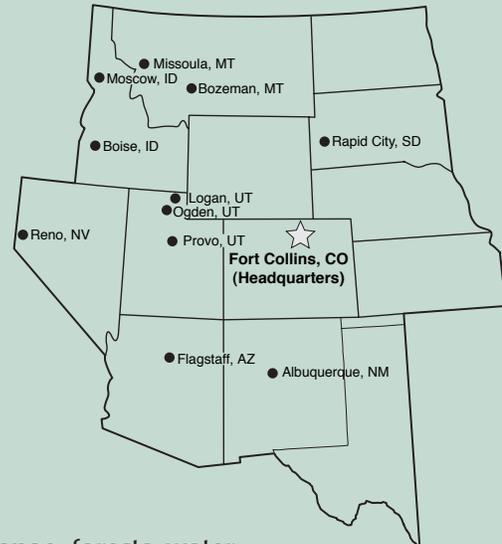
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