



New Publications

July– September 2003



ROCKY MOUNTAIN
Research Station

What's Inside . . .

- *Hayman Fire case study*
- *Ponderosa pine field guide*
- *Forest Vegetation Simulator*
- *Seventh World Wilderness proceedings*
- *Homes and wildfire*
- *Forest Service program descriptions*

. . . and much more

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SUBJECT	ORDER #	TITLE
Coarse woody debris	9	Coarse woody debris: managing benefits and fire hazard in the recovering forest. Brown, James K.; Reinhardt, Elizabeth D.; Kramer, Kylie A. 2003. Gen. Tech. Rep. RMRS-GTR-105. Ogden, UT: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 16 p. Also available: http://www.fs.fed.us/rm/pubs/rmrs_gtr105.html . Management of coarse woody debris following fire requires consideration of its positive and negative values. The ecological benefits of coarse woody debris and fire hazard considerations are summarized. This paper presents recommendations for desired ranges of coarse woody debris. Example simulations illustrate changes in debris over time and with varying management. Available: http://www.fs.fed.us/rm/pubs/rmrs_gtr105.html
Inventorying and monitoring	10	Statistical strategy for inventorying and monitoring the ecosystem resources of the Mexican States of Jalisco and Colima at multiple scales and resolution levels. Schreuder, H. T.; Williams, M. S.; Aguirre-Bravo, C.; Patterson, P. L. 2003. Gen. Tech. Rep. RMRS-GTR-107. Ogden, UT: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 15 p. Also available: http://www.fs.fed.us/rm/pubs/rmrs_gtr107.html . The sampling strategy is presented for the initial phase of the natural resources pilot project in the Mexican States of Jalisco and Colima. The sampling design used is ground-based cluster sampling with post-stratification based on Landsat Thematic Mapper imagery. Estimation described in this document will be primarily useful for strategic planning at the State and national levels.
Canopy cover	11	Accuracy assessment of percent canopy cover, cover type, and size class. Schreuder, H. T.; Bain, S.; Czaplowski, R. C. 2003. Gen. Tech. Rep. RMRS-GTR-108. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 10 p. Also available: http://www.fs.fed.us/rm/pubs/rmrs_gtr108.html . Truth for vegetation cover percent and type is obtained from very large-scale photography (VLSP), stand structure as measured by size classes, and vegetation types from a combination of VLSP and ground sampling. A procedure is given for mapped plots to be assessed as being partially or totally correct. We recommend the use of primary accuracy for management decisions and secondary accuracy for research decisions to distinguish between accuracy desired.
Ponderosa pine field guide	12	Field guide to old ponderosa pines in the Colorado Front Range. Huckaby, Laurie Stroh; Kaufmann, Merrill R.; Fornwalt, Paula J.; Stoker, Jason M.; Dennis, Chuck. 2003. Gen. Tech. Rep. RMRS-GTR-109. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 43 p. Also available: http://www.fs.fed.us/rm/pubs/rmrs_gtr109.html . We describe the distinguishing physical characteristics of old ponderosa pine trees in the Front Range of Colorado and the ecological processes that tend to preserve them. Photographs illustrate identifying features of old ponderosa pines and show how to differentiate them from mature and young trees. The publication includes a photographic gallery of old ponderosa pine trees growing on poor, moderate, and good sites. We illustrate trees growing under various forest conditions and with different injuries and histories. The companion general technical report [RMRS-GTR-110] includes a more detailed description of ponderosa pine ecology and the role of old trees in the historical and modern landscapes.



SUBJECT	ORDER #	TITLE
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Ponderosa pine ecology	13	Identification and ecology of old ponderosa pine trees in the Colorado Front Range. Huckaby, Laurie Stroh; Kaufmann, Merrill R.; Fornwalt, Paula J.; Stoker, Jason M.; Dennis, Chuck. 2003. Gen. Tech. Rep. RMRS-GTR-110. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 47 p. Also available: http://www.fs.fed.us/rm/pubs/rmrs_gtr110.html
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We describe the distinguishing physical characteristics of old ponderosa pine trees in the Front Range of Colorado, the processes that tend to preserve them, their past and present ecological significance, and their role in ecosystem restoration. The publication includes a photographic gallery of old ponderosa pine trees growing on poor, moderate, and good sites. We discuss dendrochronological methods of aging old trees and determining their fire history. The companion field guide [RMRS-GTR-109] includes a condensed description of ponderosa pine ecology, distinguishing characteristics of old ponderosa pines, and a photographic gallery illustrating their identifying features.

Forest Service programs	14	Forest Service programs, authorities, and relationships: a technical document supporting the 2000 USDA Forest Service RPA Assessment. Schuster, Ervin G.; Krebs, Michael A. 2003. Gen. Tech. Rep. RMRS-GTR-112. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 88 p. Also available: http://www.fs.fed.us/rm/pubs/rmrs_gtr112.html
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The Forest and Rangeland Renewable Resources Planning Act (RPA) of 1974, as amended, directs the Forest Service to prepare and update a renewable resources assessment that would include “a description of Forest Service programs and responsibilities, their interrelationships, and the relationship of these programs and responsibilities to public and private activities.” There have been two previous descriptions, in 1979 and 1989. This third description is organized around major Forest Service programs within the National Forest System, State and Private Forestry, and Research and Development. Each section discusses major program areas, legal authorizations, administrative and organizational considerations, and relationships within the Forest Service and with outside organizations. A listing of major legislative authorities is provided.

Livestock ranching	15	Economic, social, and cultural aspects of livestock ranching on the Española and Canjilon Ranger Districts of the Santa Fe and Carson National Forests: a pilot study. Raish, Carol; McSweeney, Alice M. 2003. Gen. Tech. Rep. RMRS-GTR-113. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 89 p. Also available: http://www.fs.fed.us/rm/pubs/rmrs_gtr113.html
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The ranches of northern New Mexico, composed of land and livestock, are integral components of family and community life. This pilot study examines current economic, social, and cultural aspects of livestock operations owned by ranchers with Federal grazing permits (permittees) on the Canjilon and Española Ranger Districts of the Santa Fe and Carson National Forests. This research develops preliminary results and tests survey methods that will be used in a planned larger study. Information gathered from the study is intended to help agency managers administer forest lands with increased effectiveness by promoting greater cultural understanding.

SUBJECT	ORDER #	TITLE
Hayman Fire case study	16	Hayman Fire case study. Graham, Russell T., tech. ed. 2003. Gen. Tech. Rep. RMRS-GTR-114. Ogden, UT: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 396 p. Also available: http://www.fs.fed.us/rm/pubs/rmrs_gtr114.html <p>The Hayman Fire case study, involving more than 60 scientists and professionals from throughout the United States, examined how the Hayman Fire of 2002 behaved, the effects of fuel treatments on burn severity, the emissions produced, the ecological (for example, soil, vegetation, animals) effects, the home destruction, postfire rehabilitation activities, and the social and economic issues surrounding the Hayman Fire. The Hayman Fire Case Study revealed much about wildfires and their interactions with both the social and natural environments. As the largest fire in Colorado history it had a profound impact both locally and nationally. The findings of this study will inform both private and public decisions on the management of natural resources and how individuals, communities, and organizations can prepare for wildfire events.</p>
Hayman Fire summary	17	Hayman Fire case study: summary. Graham, Russell T., tech. ed. 2003. Gen. Tech. Rep. RMRS-GTR-115. Ogden, UT: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 32 p. Also available: http://www.fs.fed.us/rm/pubs/rmrs_gtr115.html <p>This publication summarizes the findings in the 400-page companion document, <i>Hayman Fire Case Study</i>, Gen. Tech. Rep. RMRS-GTR-114. This summary document's purpose is to convey information quickly and succinctly to a wide array of audiences.</p>
Hayman Fire CD	18	Hayman Fire case study. Graham, Russell T., tech. ed. 2003. Gen. Tech. Reps. RMRS-GTR-114, 115. Ogden, UT: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. GTR-114: 396 p.; GTR-115: 32 p. One CD. <p>This CD contains both the <i>Hayman Fire Case Study</i> (RMRS-GTR-114) and the <i>Hayman Fire Case Study: Summary</i> (RMRS-GTR-115). GTR-115 summarizes the findings in the 396-page companion document, <i>Hayman Fire Case Study</i>, GTR-114.</p>
Forest Vegetation Simulator	19	The Fire and Fuels Extension to the Forest Vegetation Simulator. Reinhardt, Elizabeth; Crookston, Nicholas L., tech. eds. 2003. Gen. Tech. Rep. RMRS-GTR-116. Ogden, UT: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 209 p. Also available: http://www.fs.fed.us/rm/pubs/rmrs_gtr116.html <p>The Fire and Fuels Extension (FFE) to the Forest Vegetation Simulator (FVS) simulates fuel dynamics and potential fire behaviour over time, in the context of stand development and management. Existing models of fire behavior and fire effects were added to FVS to form this extension. New submodels representing snag and fuel dynamics were created to complete the linkages. Fuel managers and silviculturists charged with managing fire-prone forests can use the FFE-FVS and this document to better understand and display the consequences of alternative management actions.</p>



SUBJECT	ORDER #	TITLE
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Wilderness impacts	20	Wilderness visitors and recreation impacts: baseline data available for twentieth century conditions. Cole, David N.; Wright, Vita. 2003. Gen. Tech. Rep. RMRS-GTR-117. Ogden, UT: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 52 p. Also available: http://www.fs.fed.us/rm/pubs/rmrs_gtr117.html
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This report provides an assessment and compilation of recreation-related monitoring data sources across the National Wilderness Preservation System (NWPS). Telephone interviews with managers of all units of the NWPS and a literature search were conducted to locate studies that provide campsite impact data, trail impact data, and information about visitor characteristics. Both unpublished data collected by the management agencies and data published in reports are included. Extensive appendices provide detailed information about available data for every study that we located.

Seventh World Wilderness Congress	21	Science and stewardship to protect and sustain wilderness values: Seventh World Wilderness Congress symposium; 2001 November 2–8; Port Elizabeth, South Africa. Proc. RMRS-P-27. Ogden, UT: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 272 p. Also available: http://www.fs.fed.us/rm/pubs/rmrs_p027.html
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The Seventh World Wilderness Congress met in Port Elizabeth, South Africa, in 2001. The symposium on science and stewardship to protect and sustain wilderness values was one of several symposia held in conjunction with the Congress. The papers contained in this proceedings were presented at this symposium and cover seven topics: state-of-knowledge on protected areas issues in South Africa; traditional and ecological values of nature; wilderness systems and approaches to protection; protection of coastal/marine and river/lake wilderness; spiritual benefits, religious beliefs, and new stories; personal and societal values of wilderness; and the role of science, education, and collaborative planning in wilderness protection and restoration.

Santa Rita Experimental Range	22	Santa Rita Experimental Range: 100 years (1903 to 2003) of accomplishments and contributions; conference proceedings; 2003 October 30–November 1; Tucson, AZ. McClaran, Mitchel P.; Ffolliott, Peter F.; Edminster, Carleton B., tech. coords. 2003. Proc. RMRS-P-30. Ogden, UT: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 197 p. Also available: http://www.fs.fed.us/rm/pubs/rmrs_p030.html
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The purpose of this conference was to celebrate the 100 years of accomplishments and contributions of the Santa Rita Experimental Range, the longest continuously operating research area dedicated to the sustainable management of North American rangelands. This conference provided a forum for people to share their knowledge, experiences, and opinions about the contributions that the Santa Rita Experimental Range has made to rangeland management.

SUBJECT	ORDER #	TITLE
Big sagebrush	23	Countering misinformation concerning big sagebrush. Welch, Bruce L.; Criddle, Craig. 2003. Res. Pap. RMRS-RP-40. Ogden, UT: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 28 p. Also available: http://www.fs.fed.us/rm/pubs/rmrs_rp040.html <p>This paper examines the scientific merits of eight axioms of range or vegetative management pertaining to big sagebrush: (1) Wyoming big sagebrush (<i>Artemisia tridentata</i> ssp. <i>wyomingensis</i>) does not naturally exceed 10 percent canopy cover and mountain big sagebrush (<i>A. t. ssp. vaseyana</i>) does not naturally exceed 20 percent canopy cover; (2) As big sagebrush canopy cover increases over 12 to 15 percent, bare ground increases and perennial grass cover decreases; (3) Removing, controlling, or killing big sagebrush will result in a two or three or more fold increase in perennial grass production; (4) Nothing eats it; (5) Biodiversity increases with removing, controlling, thinning, or killing of big sagebrush; (6) Mountain big sagebrush evolved in an environment with a mean fire interval of 20 to 30 years; (7) Big sagebrush is an agent of allelopathy; and (8) Big sagebrush is a highly competitive, dominating, suppressive plant species.</p>
Ecological restoration	24	Reestablishing natural succession on acidic mine spoils at high elevation: long-term ecological restoration. Brown, Ray W.; Amacher, Michael C.; Mueggler, Walter F.; Kotuby-Amacher, Janice. 2003. Res. Pap. RMRS-RP-41. Ogden, UT: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 49 p. Also available: http://www.fs.fed.us/rm/pubs/rmrs_rp041.html <p>Methods for restoring native plant communities on acidic mine spoils at high elevations were evaluated in a “demonstration area” in the New World Mining District of southern Montana. Research plots installed in 1976 were assessed for 22 years and compared with adjacent native reference plant communities. A 1.5-acre (0.61-ha) area of mine spoils was shaped and treated with hydrated lime, organic matter, and fertilizer. The area was then seeded heavily with five native grasses collected from adjacent native plant communities. Natural seed rain, transplanting, refertilization, and use of introduced species were also studied.</p>
Lodgepole pine	25	Growth of lodgepole pine stands and its relation to mountain pine beetle susceptibility. Mata, S. A.; Schmid, J. M.; Olsen, W. K. 2003. Res. Pap. RMRS-RP-42. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 19p. Also available: http://www.fs.fed.us/rm/pubs/rmrs_rp042.html <p>Periodic diameter and basal area growth were determined for partially cut stands of lodgepole pine at five locations over approximately 10 year periods. Individual tree growth is discussed in relation to potential susceptibility to mountain pine beetle infestation. Data from the stands are employed in the susceptibility rating methods of Amman et al. (1977), Shore and Safranyik (1992), and Anhold et al. (1996) to determine stand susceptibility and the results discussed in terms of general applicability of these methods to partially cut stands.</p>



SUBJECT	ORDER #	TITLE
Great Basin bird populations	26	A 20-year recount of bird populations along a Great Basin elevational gradient. Woodyard, John; Renfro, Melissa; Welch, Bruce L.; Heister, Kristina. 2003. Res. Pap. RMRS-RP-43. Ogden, UT: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 11 p. Also available: http://www.fs.fed.us/rm/pubs/rmrs_rp043.html <p>During 1981 and 1982, Dean E. Medin conducted bird censuses along an elevational gradient (5,250 to 11,400 feet) near and on Wheeler Peak of east-central Nevada. Twenty years later we conducted bird census on seven of his 12 plots. Data from the bristlecone pine—<i>Pinus longaeva</i>—plot were collected in 1981 but not published (data on file with the Great Basin National Park). Data for the remaining six plots were collected in 1982 and published.</p>
Repeat photography	27	Long-term vegetation change on Utah's Fishlake National Forest: a study in repeat photography. Kay, Charles E. 2003. U.S. Department of Agriculture, and Utah State University. 175 p. <p>An extensive search was conducted of archival and other sources to locate historical photographs for south-central Utah, focusing on the Fishlake National Forest and surrounding lands. Those images were then taken into the field, the original camera stations relocated, and modern pictures made of the historical scenes to evaluate long-term vegetation change and land management activities.</p>
Forest health	28	Utah forest health report: a baseline assessment, 1999–2001. Keyes, C.; Rogers, P.; LaMadeleine, L.; Applegate, V.; Atkins, D. 2003. Salt Lake City: Utah Department of Natural Resources, Division of Forestry, Fire and State Lands. 47 p. Also available: http://www.fs.fed.us/rm/ogden/pubs/pdfs/utforest_lr.pdf <p>Forests cover about one-third of Utah's landscape and provide important recreational opportunities, wildlife habitat, aesthetic benefits, timber products, and watershed values. Impacts from native and non-native insects and diseases, air pollution, fire suppression, poor management practices, and climate change are some of the primary stressors that may affect forests. Monitoring forest ecosystems is an important first step in fulfilling stewardship responsibilities. This baseline report will act as a benchmark for comparison of future Forest health monitoring efforts.</p>

SUBJECT**ORDER #****TITLE**

Fire videos available in limited quantities

The following fire videos are available in limited quantities on a first-come-first-served basis.

Protecting homes

29 **Protecting your home from wildfire.** Cohen, Jack. 2000. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. One 25-minute video.

Jack Cohen, U.S. Forest Service Research Physical Scientist, evaluates burn patterns and examines the potential source of home ignitions during the Bitterroot Fires of 2000. Jack offers homeowners practical suggestions to reduce the fuel load around their homes, suggestions that could potentially save their homes.

Preventing ignition

30 **Wildfire: preventing home ignitions.** Cohen, Jack. 2002. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. One 19-minute video.

This 19-minute video tells you how a wildfire can ignite your home. A “home ignition zone,” the area that includes a home and its immediate surroundings, determines a home’s ignition resistance during a severe wildfire. The video covers how the combustion process causes home ignitions; how some homes are destroyed while others survive; and how your most effective home protection efforts can occur within the “home ignition zone.” The program is a product of Jack Cohen’s research at the Fire Sciences Laboratory in Missoula, MT, and part of Firewise Communities.

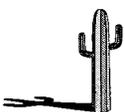
New Web publication

The following publication is available exclusively on our Web site: <http://www.fs.fed.us/rm>

Population estimates

United States State-level population estimates: colonization to 1999. Coulson, David P.; Joyce, Linda. 2003. Gen. Tech. Rep. RMRS-GTR-111WWW. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 55 p. NOTE: No hard copy will be printed. Available: http://www.fs.fed.us/rm/pubs/rmrs_gtr111.html

The U.S. landscape has undergone substantial changes since Europeans first arrived. Many land use changes are attributable to human activity. We develop annual population series from first European settlement to 1999 for all 50 States and Washington, DC, for use in modeling land use trends. Linear interpolation was used to complete the series after critically evaluating the appropriateness of linear interpolation versus exponential interpolation.



Fire Publications and Web Sites

Hayman Fire Case Study

The public comment period has concluded and the final Hayman Fire report has been published. Request Order No. 16 for the full report, Order No. 17 for the summary, or Order No. 18 for the CD containing both. These reports are also available in PDF format at: http://www.fs.fed.us/rm/hayman_fire

USDA United States
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of Agriculture

Forest Service

**Rocky Mountain
Research Station**

General Technical
Report RMRS-GTR-114

September 2003



Hayman Fire Case Study

Russell T. Graham, Technical Editor



Fire Publications and Web Sites

Rocky Mountain Research Station Wild-land Fire Research: http://www.fs.fed.us/rm/main/fire_res.html

This site provides links to online fire publications, directories of Forest Service fire researchers, Fire Sciences Laboratory, Fire Effects Information System, Wildland Fire Assessment System, Fire Management Tools, and an historical chronology of wildland fire research in the Interior Western United States.



RMRS Fire Research in Support of the National Fire Plan: http://www.fs.fed.us/rm/main/fire_plan/index.html

The National Fire Plan is a long-term investment that will help protect communities and natural resources, and most importantly, the lives of firefighters and the public. It is a long-term commitment based on cooperation and communication among Federal agencies, States, local governments, tribes, and interested publics. This site provides links to the National Fire Plan Topics spreadsheet, National Fire Plan links, and other fire links.

Rocky Mountain Research Station Online Fire Publications: http://www.fs.fed.us/rm/main/fire_res/fire_pubs.html

This site provides links to some Rocky Mountain Research Station fire publications.

Living with Fire game: http://www.fs.fed.us/rm/fire_game

Living with Fire is an educational game that puts you in the place of a fire manager, based on research and tools developed for real-world fire management. Recommended for ages 10 and up.



Fire Publications and Web Sites



National Incident Information Center: <http://www.fs.fed.us/news/fire>

The National Incident Information Center (NIIC) gathers and disseminates information on fires and other natural disasters that occur nationwide. The staff summarizes technical information for ease of understanding and assists in providing this information to interested groups and individuals and elected officials at the Federal, State, and local levels. The Morning Report is the primary document containing

National Interagency Fire Center: <http://www.nifc.gov>

The National Interagency Fire Center (NIFC) in Boise, Idaho, is the nation's support center for wildland firefighting. Seven Federal and State agencies call NIFC home and work together to coordinate and support wildland fire and disaster operations. These agencies include the Bureau of Indian Affairs, Bureau of Land Management, Forest Service, Fish and Wildlife Service, National Park Service, National Association of State Foresters, National Weather Service, and Office of Aircraft Services.

Fire videos

Wildfire: Preventing Home Ignitions: www.fs.fed.us/rm/main/videos/wildfire.html (Order No. 30) and *Protecting Your Home From Wildfire:* www.fs.fed.us/rm/main/videos/protecting.html (Order No. 29) are two videos that will help home owners assess their home's susceptibility to wildfire.

Rocky Mountain Center (RMC): <http://www.fs.fed.us/rmc>

The RMC is dedicated to numerical analysis and forecasting of fire weather and smoke dispersion to help fire fighters and air-resource managers meet target challenges. We provide high resolution meteorological data in real-time over 12 States of the Interior Western U.S.A. and two subdomains of 4-km resolution covering Colorado–Wyoming and Arizona–New Mexico regions. We utilize NOAA's Local Analysis and Prediction System (LAPS) and the MM5 Community Model. Our information product consists of real-time maps and point data of observed and predicted weather as well as a suit of fire danger indices. In addition to weather information and fire-danger indices, we provide real-time smoke forecast for selected fires in our domains. Smoke analysis are produced by the BlueSky System in cooperation with the Northwest Regional Modeling Consortium.



Available Elsewhere

Obtain the following publications through university libraries, the publisher, or other outlets. Forest Service employees in RMRS, R-2, R-3, and R-4, and some selected WO-Detached units may request these items from the RMRS Library at cbatt@fs.fed.us or telephone: (970) 498-1205.

Atmosphere/climate

The climatic impacts of land surface change and carbon management, and the implications for climate-change mitigation policy. Marland, Gregg; Pielke, Roger A., Sr.; Apps, Mike; [and others]. 2003. *Climate Policy*. 3: 149–157.

Trends in regional evapotranspiration across the United States under the complementary relationship hypothesis. Hobbins, Michael T.; Ramirez, Jorge A.; Brown, Thomas C. 2001. In: Ramirez, Jorge A., ed. *Proceedings of the twenty-first annual AGU hydrology days; 2001 April 2–5; Fort Collins, CO*. Fort Collins: Colorado State University: 106–121.

Fire

Fire and amphibians in North America. Pilliod, David S.; Bury, R. Bruce; Hyde, Erin J.; Pearl, Christopher A.; Corn, Paul Stephen. 2003. *Forest Ecology and Management*. 178: 163–181.

Fire and riparian ecosystems in landscapes of the Western USA. Dwire, Kathleen A.; Kauffman, J. Boone. 2003. *Forest Ecology and Management*. 178: 61–74.

Flagstaff's wildfire fuels treatments: prescriptions for community involvement and a source of bioenergy. Farnsworth, Allen; Summerfelt, Paul; Neary, Daniel G.; Smith, Tattersall. 2003. *Biomass and Bioenergy*. 24: 269–276.

How would a 24-hour pay system affect suppression costs? Gebert, Krista M.; Schuster, Ervin G.; Hessein, Hayley. 2003. *Fire Management Today*. 63(2): 31–34.

Impacts of fire on watershed resources. Neary, Daniel G.; Gottfried, Gerald J.; DeBano, Leonard F.; Teclé, Aregai. 2003. *Journal of the Arizona-Nevada Academy of Sciences*. 35(1): 23–41.

Landscape-scale controls over 20th century fire occurrence in two large Rocky Mountain (USA) wilderness areas. Rollins, Matthew G.; Morgan,

Penelope; Swetnam, Thomas. 2002. *Landscape Ecology*. 17: 539–557.

Technical Note: a technique for conducting small-plot burn treatments. Korfmacher, John L.; Chambers, Jeanne C.; Tausch, Robin J.; Roundy, Bruce A.; Meyer, Susan E.; Kitchen, Stanley. 2003. *Journal of Range Management*. 56: 251–254.

Water and soils

Alteration of soil water content consequent to root-pruning at a windbreak/crop interface in Nebraska, USA. Hou, Qingjiang; Brandle, James; Hubbard, Kenneth; Schoeneberger, Michele; Nieto, Carlos; Francis, Charles. 2003. *Agroforestry Systems*. 57: 137–147.

Controls on patterns of coarse organic particle retention in headwater streams. Brookshire, E. N. Jack; Dwire, Kathleen A. 2003. *Journal of North American Benthological Society*. 22(1): 17–34.

Cryptogamic crust metabolism in response to temperature, water vapor, and liquid water. Stradling, Dorothy A.; Thygerson, Tonya; Walker, Jillian A.; Smith, Bruce N.; Hansen, Lee D.; Criddle, Richard S.; Pendleton, Rosemary L. 2002. *Thermochimica Acta*. 394: 219–225.

Differences in native soil ecology associated with invasion of the exotic annual chenopod, *Halogeton glomeratus*. Duda, Jeffrey J.; Freeman, D. Carl; Emlen, John M.; Belnap, Jayne; Kitchen, Stanley G.; Zak, John C.; Sobek, Edward; Tracy, Mary; Montante, James. 2003. *Biology and Fertility of Soils*. 38(2): 72–77.

Potential for travertine formation: Fossil Creek, Arizona. Malusa, John; Overby, Steven T.; Parnell, Roderic A. 2003. *Applied Geochemistry*. 18: 1081–1093.

Silviculture

Pinyon-juniper woodlands in Zion National Park, Utah. Harper, Kimball T.; Sanderson, Stewart C.; McArthur, E. Durant. 2003. *Western North American Naturalist*. 63(2): 189–202.

Available Elsewhere

Obtain the following publications through university libraries, the publisher, or other outlets. Forest Service employees in RMRS, R-2, R-3, and R-4, and some selected WO-Detached units may request these items from the RMRS Library at cbatt@fs.fed.us or telephone: (970) 498-1205.

Disturbance ecology

Vegetation of chained and non-chained seedings after wildfire in Utah. Ott, Jeffrey E.; McArthur, E. Durant; Roundy, Bruce A. 2003. *Journal of Range Management*. 56: 81–91.

Range management

Range plant development in Utah: a historical view. Harrison, R. Deane; Chatterton, N. Jerry; McArthur, E. Durant; Ogle, Dan; Asay, Kay H.; Waldron, Blair L. 2003. *Rangelands*. 25(4): 13–19.

Restoration of riparian meadows degraded by livestock grazing: above- and belowground responses. Martin, David; Chambers, Jeanne. 2002. *Plant Ecology*. 163: 77–91.

Watershed and riparian

Arizona watershed management program. Ffolliott, Peter F.; Baker, Malchus B., Jr.; DeBano, Leonard F. 2003. *Journal of the Arizona-Nevada Academy of Science*. 35(1): 5–10.

Future outlook of watershed management. Teclé, Aregai; Ffolliott, Peter F.; Baker, Malchus B., Jr.; DeBano, Leonard F.; Neary, Daniel G.; Gottfried, Gerald J. 2003. *Journal of the Arizona-Nevada Academy of Science*. 35(1): 81–87.

Management of natural resources in riparian corridors. DeBano, Leonard F.; Rinne, John N.; Baker, Malchus B., Jr. 2003. *Journal of the Arizona-Nevada Academy of Science*. 35(1): 58–70.

Restoring riparian corridors with fire: effects on soil and vegetation. Blank, Robert R.; Chambers, Jeanne C.; Zamudio, Desiderio. 2003. *Journal of Range Management*. 56(4): 388–396.

Restoring riparian meadows currently dominated by *Artemisia* using alternative state concepts—above-ground vegetation response. Wright, Michael, J.; Chambers, Jeanne C. 2002. *Applied Vegetation Science*. 5: 237–246.

Role of snow hydrology in watershed management. Baker, Malchus B., Jr.; Ffolliott, Peter F. 2003. *Journal of the Arizona-Nevada Academy of Science*. 35(1): 42–47.

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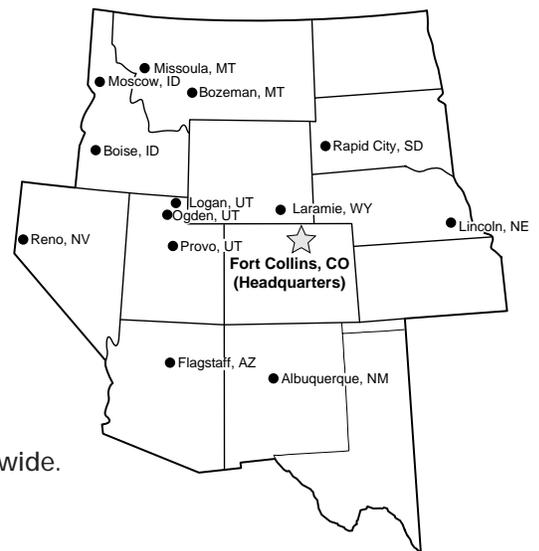
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