Rocky Mountain Research Station

New Publications

July–September 2007

Integrated Science Working For You

Air, Water, & Aquatic Environments

Aldo Leopold Wilderness Research Institute

Fire, Fuels, & Smoke

Forests & Woodland Ecosystems

Grasslands, Shrublands, & Desert Ecosystems

Inventory, Monitoring, & Analysis

Social, Economic, & Decision Sciences

Wildlife & Terrestrial Habitats

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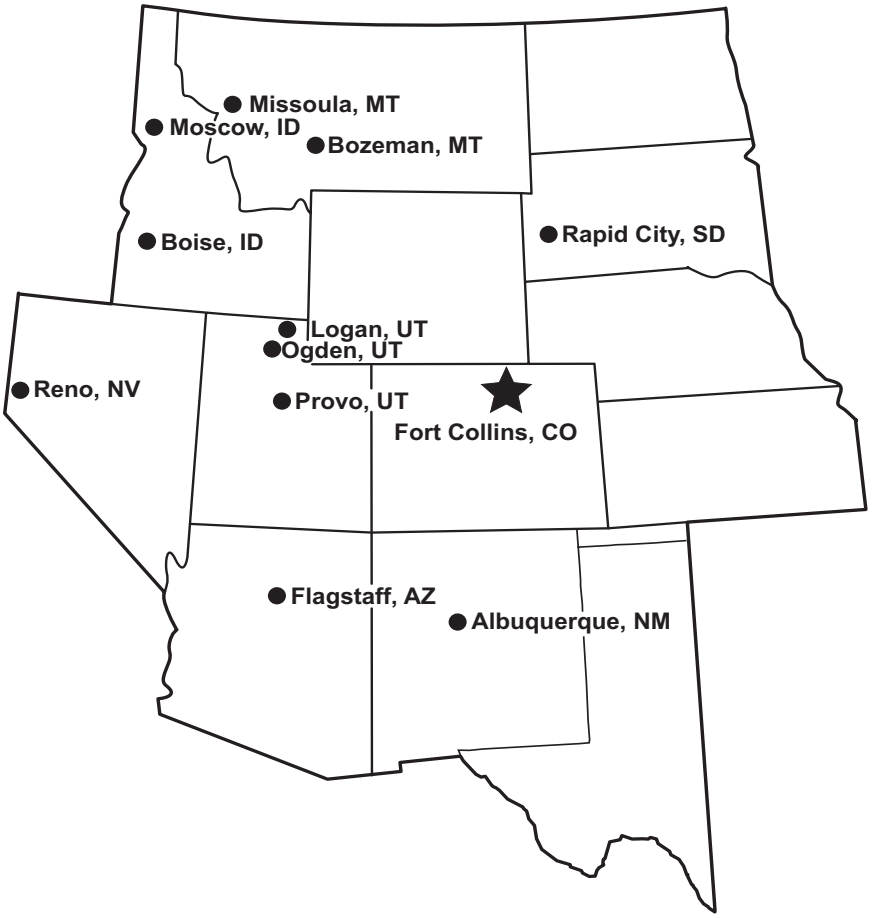
The Rocky Mountain Research Station



The Rocky Mountain Research Station is one of five regional units that make up the USDA Forest Service Research and Development organization—the most extensive natural resources research organization in the world. We maintain 14 research locations throughout a 14-state territory encompassing the Great Basin, Southwest, Rocky Mountains and parts of the Great Plains. The Station employs over 400 permanent full-time employees, including more than 100 research scientists

Scientists conduct research that spans an area containing 52% of the nation's National Forest System lands (54 National Forests and Grasslands). In the lower 48 states, our territory also includes 55% of the nation's BLM lands; 48% of the designated wildernesses; 37% of National Park Service lands; numerous other public and tribal lands; and 41% of the non-urban/rural private lands.

We administer and conduct research on 14 experimental forests, ranges and watersheds while maintaining long-term databases for these areas. We also oversee activities on more than 260 Research Natural Areas and lead ecosystem management and research partnership projects in Arizona, Montana, New Mexico and Nevada.

For more information, please visit us on the Web at: http://www.fs.fed.us/rmrs/

USDA

New RMRS Series Publications

Rapid response fire research

Order 18

Research Areas:

Value and challenges of conducting rapid response research on wildland fires. Lentile, L.; Morgan, P.; Hardy, C.; Hudak, A.; Means, R.; Ottmar, R.; Robichaud, P.; Kennedy Sutherland, E.; Szymoniak, J.; Way, F.; Fites-Kaufman, J.; Lewis, S.; Mathews, E.; Shovik, H.; Ryan, K. 2007. Gen. Tech. Rep. RMRS-GTR-193. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 11 p.

Rapid Response Research is conducted during and immediately after wildland fires, in coordination with fire management teams, in order to collect information that can best be garnered *in situ* and in real-time. This publication provides recommendations for safer and more effective rapid response research. Science guided by questions that are important to managers is essential to improving both the understanding of wildland fire dynamics and developing strategies to address fire risk, rehabilitation, and restoration, yet researchers must be aware of the challenges of conducting research on active wildland fires.

Online: http://www.fs.fed.us/rm/pubs/rmrs_gtr193.html

History of forest entomology

Order 19

Research Area:

A history of forest entomology in the Intermountain and Rocky Mountain areas, 1901 to 1982. Furniss, Malcolm M. 2007. Gen. Tech. Rep. RMRS-GTR-195. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 40 p.

This account spans the time from A.D. Hopkins' trip to the Black Hills, SD, in 1901 to the author's retirement in 1982. The focus is on personnel and the work of the Division of Forest Insect Investigations, USDA, and the Forest Service experiment stations in the Rocky Mountain and Intermountain areas. Information for the Intermountain and Northern Rocky Mountain station areas is derived from the author's experience there and as chairman of the history committee of the Western Forest Insect Work Conference (WFIWC). Information on the Rocky Mountain and Southwestern station areas came primarily from the WFIWC archives, University of Idaho, and from retired forest entomologists.

Online http://www.fs.fed.us/rm/pubs/rmrs_gtr195.html

Valles Caldera National Preserve

Order 20

Research Area:

More than a scenic mountain landscape: Valles Caldera National Preserve land use history. Anschuetz, Kurt F.; Merlan, Thomas. 2007. Gen. Tech. Rep. RMRS-GTR-196. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 277 p.

This study focuses on the cultural-historical environment of the Valles Caldera National Preserve (VCNP) over the past four centuries of Spanish, Mexican, and U.S. governance. It presents a cultural-historical framework of VCNP land use that will be useful to land managers and researchers in assessing the historical ecology of the property. It provides VCNP administrators and agents the cultural-historical background needed to develop management plans that acknowledge traditional associations with the Preserve, and offers managers additional background for structuring and acting on consultations with affiliated communities.

Online: http://www.fs.fed.us/rm/pubs/rmrs_gtr196.html

Monitoring post-fire effects

Order 21

Research Areas:

Photographic handbook for comparing burned and unburned sites within a dry forested and grassland mosaic: a tool for communication, calibration, and monitoring post-fire effects. Jain, Theresa; Juillerat, Molly; Sandquist, Jonathan; Ford, Mike; Sauer, Brad; Mitchell, Robert; McAvoy, Scott; Hanley, Justin; David, Jon. 2007. Gen. Tech. Rep. RMRS-GTR-197. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 57 p.

This photograph handbook describes characteristics and burn severity of a dry forested and grassland mosaic that burned within the last decade. We show photographs of different burned and unburned sites to help compare fire occurrence in similar stands. The handbook provides local land managers with a quick, inexpensive, and efficient way to evaluate effects of prescribed fire, wildfire, or a combination of the two, based on current conditions of unburned sites. This handbook can be used as a communication, calibration, or monitoring tool. It also contains a CD (RMRS-RP-67) that documents the vegetation and soil effects from prescribed, wild, and combined fire effects in our study.

Online: http://www.fs.fed.us/rm/pubs/rmrs_gtr197.html

Fire effects on soil and vegetation

Included with Order No. 21

Research Areas:

Vegetation and soil effects from prescribed, wild, and combined fire events along a ponderosa pine and grassland mosaic. Jain, Theresa; Juillerat, Molly; Sandquist, Jonathan; Ford, Mike; Sauer, Brad; Mitchell, Robert; McAvoy, Scott; Hanley, Justin; David, Jon. 2007. Res. Pap. RMRS-RP-67CD. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 39 p. NOTE: This CD is included when you order RMRS-GTR-197.

We describe the efficacy of prescribed fires after two wildfires burned through and around these fires located in eastern Montana within the Missouri River Breaks. Our objective was to evaluate post-fire tree density, herbaceous cover, soil surface, and burn severity to determine if the prescribed fires fulfilled management objectives and if they affected post-wildfire outcomes. This CD describes detailed results and outcomes among the different fires and the unburned sites, and its accompanying photograph handbook (RMRS-GTR-197) provides examples of burned and unburned sites to use as a communication, calibration, and/or monitoring tool. Although the information is unique to a series of fires, the concepts and methods we used are applicable in other locales required to evaluate efficacy of fuel treatments.

Online: http://www.fs.fed.us/rm/pubs/rmrs_rp067.html

Ponderosa pine fuels treatment practices

Order 22

Research Areas:

A comprehensive guide to fuels treatment practices for ponderosa pine in the Black Hills, Colorado Front Range, and Southwest. Hunter, M. E.; Shepperd, W. D.; Lentile, J. E.; Lundquist, J. E.; Andreu, M. G.; Butler, J. L.; Smith, F. W. 2007. Gen. Tech. Rep. RMRS-GTR-198. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 93 p.

We synthesized existing knowledge from the peer-reviewed literature and administrative studies and acquired local knowledge through a series of discussions with fuels treatment practitioners. Specific treatments, the circumstances under which they can be applied, and treatment effects are described, along with recommendations related to where, how, and how often fuels treatments may be prescribed to achieve desired outcomes.

Online: http://www.fs.fed.us/rm/pubs/rmrs_gtr198.html

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Douglas-fir post-fire mortality

Order 23

Research Areas:

Assessing post-fire Douglas-fir mortality and Douglas-fir beetle attacks in the northern Rocky Mountains. Hood, Sharon; Bentz, Barbara; Gibson, Ken; Ryan, Kevin; DeNitto, Gregg. 2007. Gen. Tech. Rep. RMRS-GTR-199. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 31 p. Includes supplement.

Douglas-fir has life history traits that greatly enhance resistance to injury from fire, thereby increasing post-fire survival rates. Tools for predicting the probability of tree mortality following fire are important components of both pre-fire planning and post-fire management efforts. This guide is intended for use in development of post-fire management and prescribed burn plans. Included are descriptions of both models and variables that significantly influence post-fire Douglas-fir mortality and bark beetle attack.

A supplemental field guide provides photographs of a range of levels for each fire-related injury and descriptions for measuring each characteristic in the field. Also provided are discussions on how to interpret Douglas-fir mortality and bark beetle attack models for use in management decision-making regarding wild and prescribed fires in the northern Rocky Mountains.

Online: http://www.fs.fed.us/rm/pubs/rmrs_gtr199.html

National Fire Plan

Order 24

Research Areas:

National Fire Plan Research and Development 2004-2005 accomplishment report. Hilbruner, Michael W.; Keller, Paul, eds. 2007. Gen. Tech. Rep. RMRS-GTR-200. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 73 p.

This report highlights accomplishments achieved by USDA Forest Service National Fire Plan Research and Development projects from 2004 through 2005 in four key areas: fire fighting, rehabilitation and restoration, hazardous fuels reduction, and community assistance. These highlights illustrate the broad range of knowledge and tools introduced and generated by the National Fire Plan Research and Development program.

Online: http://www.fs.fed.us/rm/pubs/rmrs_gtr200.html

Wildland fire: annotated reading list

Order 25

Research Areas:

Using social science to understand and improve wildland fire organizations: an annotated reading list. Larson, Gregory; Wright, Vita; Spaulding, Cade; Rossseto, Kelly; Rausch, Georgi; Richards, Andrea; Durnford, Stephanie. 2007. Gen. Tech. Rep. RMRS-GTR-201. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 82 p.

This annotated reading list summarizes approximately 270 books, articles, and online resources that address scientific and management concepts helpful for understanding the human side of fire management. It is divided into three sections: (1) Human Factors and Fire fighting, (2) Foundations for Understanding Organizations, and (3) Understanding Organizations in High Risk Contexts. The publication concludes with Internet resources available for those interested in the management of fire organizations.

Online: http://www.fs.fed.us/rm/pubs/rmrs_gtr201.html

Fire environment conference proceedings

Order 27

Research Areas:

The fire environment—innovations, management, and policy; conference proceedings; 26–30 March 2007; Destin, FL. Butler, Bret W.; Cook, Wayne, comps. 2007. Proceedings RMRS-P-46CD. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 662 p. CD-ROM.

Over 450 attendees participated in the Fire Behavior and Fuels conference in Destin, Florida. These proceedings present papers from the conference on the latest innovations in wildland fire management, examples of successful and maybe not so successful management practices, current and potentially future wildland fire policy, and recent advances in wildland fire science. Special sessions focused on smoke management, wildland urban interface, fire induced tree mortality, and live fuels.

Papers by RMRS authors:

Butler, B. W.; Anderson, W. R.; Catchpole, E. A. *Influence of slope on fire spread rate*: 75–82.

Forthofer, Jason; Butler, Bret. *Differences in simulated fire spread over Askervein Hill using two advanced wind models and a traditional uniform wind field*: 123–128.

Frankman, David; Webb, Brent W.; Butler, Bret W. *Influence of radiation absorption by environmental water vapor on radiation transfer in wildland fires*: 129–142.

Harrington, Michael G.; Noonan-Wright, Erin; Doherty, Mitchell. *Testing the modeled effectiveness of an operational fuel reduction treatment in a small western Montana interface landscape using two spatial scales*: 301–314.

Jimenez, Dan; Forthofer, Jason; Reardon, James; Butler, Bret. *Fire behavior sensor package remote trigger design*: 499–506.

Sopko, Paul; Latham, Don; Grenfell, Isaac. *Verification of the WFAS lightning efficiency map*: 539–544.

Online: http://www.fs.fed.us/rm/pubs/rmrs_p046.html

Shrubland dynamics proceedings

Order 28

Research Areas:

Proceedings: Shrubland dynamics—fire and water; 2004 August 10-12; Lubbock, TX. Sosebee, Ronald E.; Wester, David B.; Britton, Carlton M.; McArthur, E. Durant; Kitchen, Stanley G., comps. 2007. Proceedings RMRS-P-47. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 173 p.

The 26 papers in these proceedings are divided into five sections. The first two sections are an introduction and a plenary session that introduce the principles and role the shrub life-form in the High Plains, including the changing dynamics of shrublands and grasslands during the last four plus centuries. The remaining three sections are devoted to: fire, both prescribed fire and wildfire, in shrublands and grassland-shrubland interfaces; water and ecophysiology shrubland ecosystems; and the ecology and population biology of several shrub species.

Papers by RMRS authors:

McArthur, E. Durant; Kitchen, Stanley G. *Shrubland ecosystems: importance, distinguishing characteristics, and dynamics*: 3–10.

Spaeth, Kenneth E.; Pierson, Frederick B.; Robichaud, Peter R.; Moffet, Corey A. *Hydrology, erosion, plant, and soil relationships after rangeland wildfire*: 62–68.

Pendleton, Rosemary L.; Pendleton, Burton K.; Warren, Steven D.; Johansen, Jeffrey R.; St. Clair, Larry L. *Shrub establishment in the presence of cheatgrass: the effect of soil microorganisms*: 136–141.

Hild, Ann L.; Muscha, Jennifer M.; Shaw, Nancy L. *Emergence and growth of four winterfat accessions in the presence of the exotic annual cheatgrass*: 147–152.

Meyer, Susan E.; Carlson, Stephanie L. *Seed germination biology of Intermountain populations of fourwing saltbush* (*Atriplex canescens*: *Chemopodiaceae*): 153–162.

Online: http://www.fs.fed.us/rm/pubs/rmrs_p047.html

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New RMRS Web Publication

Impacts of wildfire on communities

Online only

Research Areas:

Fuels planning: science synthesis and integration: social issues fact sheet 19: Impacts of wildland fire on communities. 2007. Res. Note RMRS-RN-21 -19-WWW. Fort Collins, CO: U.S. Department of Agriculture, Rocky Mountain Research Station. 2 p.

Large fires can result in a series of disasters for individuals and communities in the wildland-urban interface. They create significant disruptions to ongoing social processes, result in large financial losses, and lead to expensive restoration activities. By being aware of the impacts of wildland fire on local residents, fire managers can bring added value to them and help smooth agency-community tensions. This fact sheet discusses activities that can have serious impacts on communities and local residents during a wildland fire.

Online: http://www.fs.fed.us/rm/pubs/rmrs_rn021_19pdf

Modeling snag dynamics

Online only

Research Areas:

Modeling snag dynamics in northern Arizona mixed-conifer and ponderosa pine forests. Ganey, Joseph L.; Vojta, Scott C. 2007. Res. Pap. RMRS-RP-66WWW. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 15 p.

Snags (standing dead trees) are important components of forested habitats that contribute to ecological decay and recycling processes as well as providing habitat for many life forms. As such, snags are of special interest to land managers, but information on dynamics of snag populations is lacking. We modeled trends in snag populations in mixed-conifer and ponderosa pine (*Pinus ponderosa*) forests in northern Arizona using a Leslie matrix model developed by Raphael and Morrison (1987). The models described here were derived from snag data averaged over large landscapes and a wide range of stand conditions within forest types. These models thus are not suitable for modeling snag dynamics at the stand level, but rather provide a means for coarse-scale modeling of snag dynamics over large landscapes. Future inventories of snags on these plots (planned at five-year intervals) will provide a means to both test and improve model predictions.

Online: http://www.fs.fed.us/rm/pubs/rmrs_rp066.html

Journals and Other Publications

Obtain the following publications through university libraries, the publisher, or other outlets. Forest Service employees may request these items from the National Forest Service Library at FSLibrary-DocsFC@fs.fed.us or telephone: (970) 498-1205.

Air, water, and aquatic environments

Amphibians and disease: implications for conservation in the Greater Yellowstone Ecosystem. Corn, Paul Stephen. 2007. Yellowstone Science. 15(2): 11–16. Online: http://leopold.wilderness.net/pubs/606.pdf

Avifaunal responses to fire in southwestern montane forests along a burn severity gradient. Kotliar, Natasha B.; Kennedy, Patricia L.; Ferree, Kimberly. 2007. Ecological Applications. 17(2): 491–507. Online: http://www.treesearch.fs.fed.us/pubs/27696

A comparison of sap flux-based evapotranspiration estimates with catchment-scale water balance. Ford Celcy R.; Hubbard, Robert M.; Kloeppel, Brian; Vose, James M. 2007. Agricultural and Forest Meteorology. 145: 176–185. Online: http://www.treesearch.fs.fed.us/pubs/28381

Effects of habitat loss and fragmentation on amphibians: a review and prospectus. Cushman, Samuel A. 2006. Biological Conservation. 128(2): 231–240. Online: http://www.treesearch.fs.fed.us/pubs/27842

Emerging concepts for management of river ecosystems and challenges to applied integration of physical and biological sciences in the Pacific Northwest, USA. Rieman, Bruce E.; Dunham, Jason B.; Clayton, James L. 2006. International Journal of River Basin Management. 4(2): 85–97. Online: http://www.treesearch.fs.fed.us/pubs/23862

Have brook trout (*Salvelinus fontinalis*) displaced bull trout (Salvelinus confluentus) along longitudinal gradients in central Idaho streams? Rieman, Bruce E.; Peterson, James T.; Myers, Deborah L. 2006. Canadian Journal of Fisheries and Aquatic Sciences. 63(1): 63–78. Online: http://www.treesearch.fs.fed.us/pubs/23861

Invasion by nonnative brook trout in Panther Creek, Idaho: Roles of habitat quality, connectivity, and biotic resistance. Benjamin, J. R. 2006. Boise, ID: Boise State University. Thesis. Online: www.fs.fed.us/rm/boise/publications/ fisheries/rmrs_2007_benjaminj001.pdf

A multiscale curvature algorithm for classifying discrete return LiDAR in forested environments. Evans, Jeffrey S.; Hudak, Andrew T. 2007. Transactions on Geoscience and Remote Sensing. 45(4): 1029–1038. Online: http://www.cnr.uidaho.edu/watershed/OWLX/papers/Evans_2007_IEEE.pdf

Topographic, meteorologic, and canopy controls on the scaling characteristics of the spatial distribution of snow depth fields. Trujillo, Ernesto: Ramirez, Jorge A.; Elder, Kelly J. 2007. Water Resources Research. 43: W07409, doi: 10.1029/2006WR005317. Online: http://www.fs.fed.us/rm/pubs_other/rmrs_2007_trujillo_e001.html

Fire, fuels, and smoke

Delivering the Science Synthesis: FuelsTools. Black, Anne; Perin, Sue. 2007. Journal of Forestry. 105(4): 192–200. Online: http://leopold.wilderness.net/pubs/605.pdf

Estimating suppression expenditures for individual large wildland fires. Gebert, Krista M.; Calkin, David E.; Yoder, Jonathan. 2007. Western Journal of Applied Forestry. 22(3): 188–196. Online: http://www.treesearch.fs.fed.us/pubs/27726

Forest bioenergy system to reduce the hazard of wildfires: White Mountains, Arizona. Neary, Daniel G.; Zieroth, Elaine J. 2007. Biomass and Bioenergy. 31: 638-645. Online: http://www.treesearch.fs.fed.us/pubs/28619

Integrating social science into forestry in the wildland/urban interface. Brooks, Jeffrey J.; Brenkert, Hannah; Serby, Judy E.; Champ, Joseph G.; Simons, Tony; Williams, Daniel R. 2006. Fire Management Today. 66(2): 35–43. Online: http://www.treesearch.fs.fed.us/pubs/27844

Lessons learned from rapid response research on wildland fires. Lentile, Leigh; Morgan, Penny; Hardy, Colin; Hudak, Andrew; Means, Robert; Ottmar, Roger; Robichaud, Peter; Sutherland, Elaine; Way, Frederick; Lewis, Sarah. 2007. Fire Management Today. 67(1): 24–31. Online: http://forest.moscowfsl.wsu.edu/engr/library/Robichaud/Robichaud2007g/2007g.pdf

Mastication: A fuel reduction and site preparation alternative. Halbrook, Jeff; Han, Han-Sup; Graham, Russell T.; Jain, Theresa B.; Denner, Robert. 2006. In: Chung, W.; Han, H. S., eds. The 29th Council on forest engineering conference; July 30–August 2, 2006; Coeur d'Alene, ID. Moscow: University of Idaho: 137–146.

Measuring the efficacy of a wildfire education program in Colorado Springs. Donovan, Geoffrey H.; Champ, Patricia A.; Butry, David T. 2007. Journal of Emergency Management. 5(3): 33–37. Online: http://www.treesearch.fs.fed.us/pubs/28380

Postfire invasion potential of rush skeletonweed (*Chondrilla juncea*). Kinter, Cecilia Lynn; Mealor, Brian A.; Shaw, Nancy L.; Hild, Ann L. 2007. Rangeland Ecology and Management. 60(4): 386–394. Online: http://www.treesearch.fs.fed.us/pubs/28621

Predicting postfire Douglas-fir beetle attacks and tree mortality in the northern Rocky Mountains. Hood, Sharon; Bentz, Barbara. 2007. Canadian Journal of Forest Research. 37: 1058–1069. Online: http://www.usu.edu/beetle/documents/Hood_Bentz2007.pdf

Predicting wildfires. Andrews, Patricia; Finney, Mark; Fischetti, Mark. 2007. Scientific American. August: 47–55.

Production of Landsat ETM + reference imagery of burned areas within southern African savannahs: Comparison of methods and application to MODIS. Smith, A. M. S.; Drake, N. A.; Wooster, M. J.; Hudak, A. T.; Holden, Z. A.; Gibbons, C. J. 2007. International Journal of Remote Sensing. 28(12): 2753–2775.

Protection from erosion following wildfire. Robichaud, Peter R.; Elliot, William J. 2006. Unpublished paper written for presentation at the 2006 ASABE Annual International Meeting, Portland Convention Center, Portland, OR, July 9-12, 2006. ASABE Paper No. 068009. St. Joseph, MI: American Society of Agricultural and Biological Engineers. 7 p. Online: http://www.treesearch.fs.fed.us/pubs/24606

Relation of forest structure to burn severity: The results. Jain, Theresa B.; Graham, Russell T. 2007. In: Powers, Robert, ed. Restoring fire-adapted forested ecosystems. 2005 National silviculture workshop; June 6–10, 2005; Lake Tahoe, CA. Gen. Tech. Rep. PSW-GTR-203. Albany, CA: U.S. Department of Agriculture, Forest Service, Pacific Southwest Research Station: 121–156.

Science information for informing forest fuel management in dry forests of the western United States. McCaffrey, Sarah; Graham, Russell. 2007. Journal of Forestry. 105(2): 73–76.

Forests and woodland ecosystems

Altitudinal genetic variation among *Pinus oocarpa* populations in Michoacan, Mexico: implications for seed zoning, conservation,

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tree breeding and global warming. Saenz-Romero, Cuauhtemoc; Guzman-Reyna, R. Ricardo; Rehfeldt, Gerald E. 2006. Forest ecology and Management. 229(1-3): 340–350. Online: http://www.treesearch.fs.fed.us/pubs/27838

Changes in forest soils as the result of exotic diseases, timber harvest, and fire exclusion and their implications on forest restoration. Graham, Russell T.; Jain, Theresa B. 2007. In: Stanturf, ed. Proceedings of the IUFRO conference on forest landscape restoration; May 14–19 2007; Seoul, Korea. Korea Forest Research Institute: 126–131.

Contribution of actinorhizal shrubs to site fertility in a northern California mixed pine forest. Busse, M. D..; Jurgensen, M. F.; Page-Dumroese, D. S.; Powers, R. F.; 2007. Forest Ecology and Management. 244: 68–77. Online: http://www.treesearch.fs.fed.us/pubs/27714

Ergosterol content of fungi associated with *Dendroctonus ponderosae* and *Dendroctonus rufipennis* (Coleoptera: Curculionidae, Scolytinae). Bentz, Barbara J.; Six, Diana L. 2006. Annals of the Entomological Society of America. 99(2): 189–194. Online: http://www.treesearch.fs.fed.us/pubs/28519

Estimating the probability of mountain pine beetle red-attack damage. Wulder, Michael A; White, J. C.; Bentz, Barbara J; Alvarez, M. F.; Coops, N. C. 2006. Remote Sensing of Environment. 101(2): 150–166. Online: http://www.treesearch.fs.fed.us/pubs/23723

Evaluating silvicultural prescriptions: The likelihood of success. Guldin, James M.; Graham, Russell T. 2007. In: Powers, Robert, ed. Restoring fire-adapted forested ecosystems. 2005 National silviculture workshop; June 6–10, 2005; Lake Tahoe, CA. Gen. Tech. Rep. PSW-GTR-203. Albany, CA: U.S. Department of Agriculture, Forest Service, Pacific Southwest Research Station: 109–120.

Field assessment of wood stake decomposition in forest soil. Want, Xiping; Page-Dumroese, Deborah; Jurgensen, Martin F.; Ross, Robert J. 2007. Holzforschung. 61: 605-610. Online: http://www.treesearch.fs.fed.us/pubs/28383

First report of the white pine blister rust fungus, *Cronartium ribicola*, on *Pedicularis bracteosa*. Zambino, P. J.; Richardson, B. A.; McDonald, G. I. 2007. Plant Disease. 91: 467. Online: http://www.treesearch.fs.fed.us/pubs/28384

Free selection: A silvicultural option. Graham, Russell T.; Jain, Theresa B.; Sandquist, Jonathan. 2007. In: Powers, Robert, ed. Restoring fire-adapted forested ecosystems. 2005 National silviculture workshop; June 6–10, 2005; Lake Tahoe, CA. Gen. Tech. Rep. PSW-GTR-203. Albany, CA: U.S. Department of Agriculture, Forest Service, Pacific Southwest Research Station: 121–156. Online: http://www.treesearch.fs.fed.us/pubs/25897

Height growth determinants in pines: A case study of *Pinus contorta* and *Pinus monticola*. Chuine, Isabelle; Rehfeldt, Gerald E.; Aitken, Sally N. 2006. Canadian Journal of Forest Research. 36: 1059–1066. Online: http://www.treesearch.fs.fed.us/pubs/28469

How to recover more value from small pine trees: Essential oils and resins. Kelkar, Vasant M.; Geils, Brian W.; Becker, Dennis R.; Overby, Steven T.; Neary, Daniel G. 2006. Biomass and Bioenergy. 30: 316–320. Online: http://www.treesearch.fs.fed.us/pubs/24850

Influlences of disturbance and vegetation on abundance of native and exotic detritivores in an southwestern riparian forest. Smith, D. Max; Kelly, Jeffrey F.; Finch, Deborah M. 2006. Environmental Entomology. 35(6): 1525–1531. Online: http://www.treesearch.fs.fed.us/pubs/27812

Linking parasitic plant-induced host morphology to tritrophic interactions. Mooney, Kailen A.; Geils, Brian W.; Linhart, Yan B. 2006. Annals of the Entomological Society of America. 99(6): 1133–138. Online: http://www.treesearch.fs.fed.us/pubs/28515

Ponderosa pine ecosystems. Graham, Russell T.; Jain, Theresa B. 2006. In: Richie, Martin W.; Maguire, Douglas A.; Youngblood, Andrew, tech. coords. Ponderosa pine: Management, issues, trends; October 18–21, 2004; Klamath Falls, OR. Gen. Tech. Rep. PSW-GTR-198. Albany, CA: U.S. Department of Agriculture, Forest Service, Pacific Southwest Research Station: 1–32. Online: http://www.fs.fed.us/psw/publications/documents/psw_gtr198/psw_gtr198.pdf

Silviculture for the 21st Century—Objective and subjective standards to guide successful practice. Guldin, James M.; Graham, Russell T. 2007. In: Powers, Robert, ed. Restoring fire-adapted forested ecosystems. 2005 National silviculture workshop; June 6–10, 2005; Lake Tahoe, CA. Gen. Tech. Rep. PSW-GTR-203. Albany, CA: U.S. Department of Agriculture, Forest Service, Pacific Southwest Research Station: 109–120. Online: http://www.treesearch.fs.fed.us/pubs/25896

Stand characteristics and *Ips typographus* (L.) (Col., Curculionidae, Scolytinae) infestation during outbreak in northeastern Poland. Hilszczanski, Jacek; Janiszewski, Wojciech, Negron, Jose; Munson, A. Steve. 2006. Folia Forestalia Polonica. Series A - Forestry. 48: 53–64. Online: http://www.treesearch.fs.fed.us/pubs/28386

Using basic geographic information systems functionality to support sustainable forest management decision making and post-decision assessments. McRoberts, Ronald E.; Barbour, R. James; Gebert, Krista M.; Liknes, Greg C.; Nelson, Mark D.; Meneguzzo, Dacia M.; Odell, Susan L.; Yaddof, Steven C.; Stein, Susan M.; Mowrer, H. Todd; Lynn, Kathy; Gerlitz, Wendy M. 2006. Journal of Sustainable Forestry. 23(4): 13–34.

Western gall rust—A threat to *Pinus radiata* in New Zealand. Ramsfield, Tod D.; Kriticos, Darren J.; Vogler, Detlev R.; Geils, Brian W. 2007. New Zealand Journal of Forestry Science. 37(2): 143–152. Online: http://www.treesearch.fs.fed.us/pubs/28382

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