Rocky Mountain Research Station

New Publications

January–March 2008

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Inventory, Monitoring, & Analysis

Human Dimensions

Wildlife & Terrestrial Habitats

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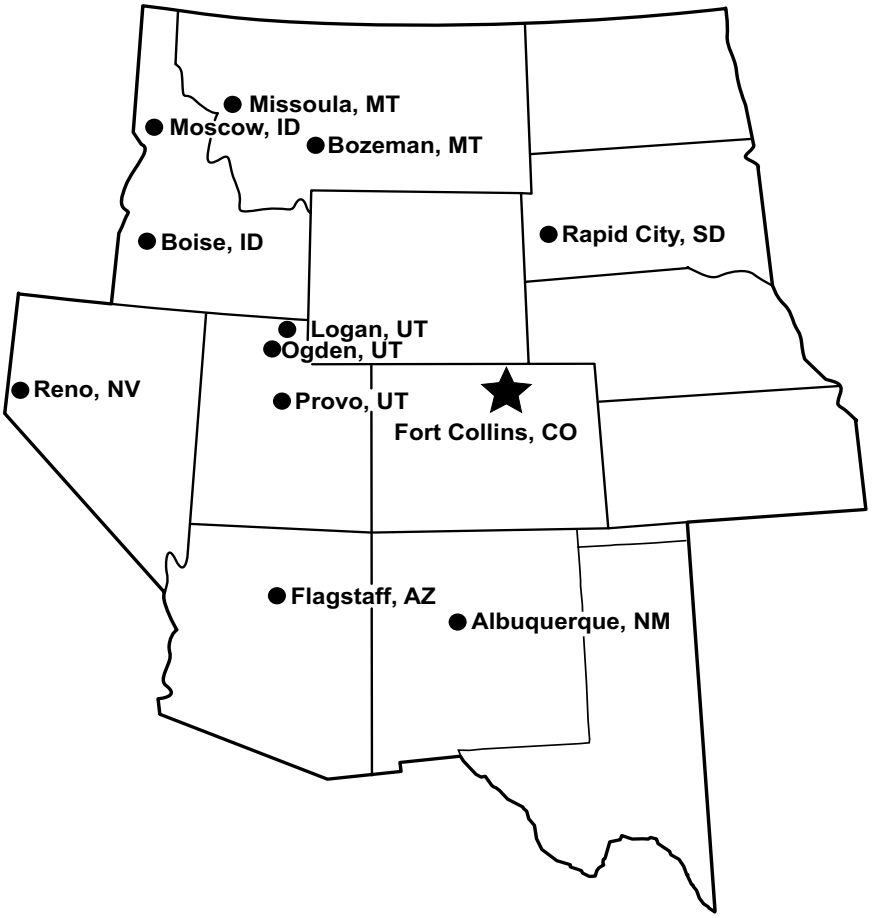

The Rocky Mountain Research Station is one of five regional units that make up the USDA Forest Service Research and Development organization—the most extensive natural resources research organization in the world. We maintain 14 research locations throughout a 14-state territory encompassing the Great 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.

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USDA

New RMRS Series Publications

Riparian buffer design guidelines

Order 77

Riparian buffer design guidelines for water quality and wildlife habitat functions on agricultural landscapes in the Intermountain West. Johnson, Craig W.; Buffler, Susan. 2008. Gen. Tech. Rep. RMRS-GTR-203. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 53 p.

This study reviewed the riparian buffer literature, including protocols used to determine optimum buffer widths for water quality and wildlife habitat functions. This handbook provides the user with a step-by-step protocol for determining optimal (variable) buffer widths for water quality and wildlife that maximize riparian ecosystem benefits and minimize the loss of productive farm and ranch land. It also includes a companion CD including a case study, data forms, worksheets, reference appendices, and other informational material to assist the user.

Online: http://www.fs.fed.us/rm/pubs/rmrs_gtr203.html

Great Basin management

Order 78

Collaborative management and research in the Great Basin—Examining the issues and developing a framework for action. Chambers, Jeanne C.; Devoe, Nora; Evenden, Angela, eds. 2008. Gen. Tech. Rep. RMRS-GTR-204. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 66 p.

The Great Basin is one of the most imperiled regions in the United States. Sustaining its ecosystems, resources, and human populations requires strong collaborative partnerships among the region's research and management organizations. This GTR is the product of a workshop on "Collaborative Watershed Research and Management in the Great Basin" held in Reno, Nevada in 2006. Individual issues papers describe critical research and management issues facing the Great Basin, and include summaries of workshop sessions on (1) developing collaborative management and research programs and (2) devising mechanisms for organization and communication.

Online: http://www.fs.fed.us/rm/pubs/rmrs_gtr204.html

White pine blister rust

Order 79

Options for the management of white pine blister rust in the Rocky Mountain Region. Burns, Kelly S.; Schoettle, Anna W.; Jacobi, William R.; Mahalovich, Mary F. 2008. Gen. Tech. Rep. RMRS-GTR-206. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky mountain Research Station. 26 p.

This publication synthesizes current information on the biology, distribution, and management of white pine blister rust (WPBR) in the Rocky Mountain Region. Long-term management strategies and management options for sustaining ecosystems and preserving high-value trees are presented, providing forest managers with knowledge and resources needed to detect WPBR, evaluate impacted stands, and develop management strategies that are applicable in the Rocky Mountain Region.

Online: http://www.fs.fed.us/rm/pubs/rmrs_gtr206.html

Post-fire soil water repellency

Order 80

New procedure for sampling infiltration to assess post-fire soil water repellency. Robichaud, P. R.; Lewis, S. A.; Ashmun, L. E. 2008. Res. Note. RMRS-RN-33. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 14 p.

Thousands of paired WDPT and MDI tests were applied at burned sites throughout the Western United States, and the data were significantly correlated ($r = 0.64$). A classification tree analysis was used to group the MDI test results into "degree of soil water repellency" categories (strong, weak, and none) that correspond to similar categories established for the WDPT test. The MDI test protocol and sampling method described in this Research Note were developed for post-fire assessment, and provide a practical evaluation of burned soil infiltration characteristics in a limited time.

Online: http://www.fs.fed.us/rm/pubs/rmrs_rn033.html

Piñon-juniper woodlands

Order 81

Age structure and expansion of piñon-juniper woodlands: a regional perspective in the Intermountain West. Miller, Richard F.; Tausch, Robin J.; McArthur, E. Durant; Johnson, Dustin D.; Sanderson, Stewart C. 2008. Res. Pap. RMRS-RP-69. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 15 p.

Numerous studies have documented the expansion of woodlands in the Intermountain West; however, few have compared the chronology of expansion for woodlands across different geographic regions or determined the mix and extent of presettlement stands. We evaluated tree age structure and establishment for six woodlands in four ecological provinces in the central and northern Great Basin. Since 1860, the area occupied by piñon and or juniper has increased 125 to 625 percent. The majority of woodlands are still in the early to mid phases of stand closure, which means they often support an understory of shrubs and herbaceous vegetation. This has implications for future changes that will occur within these woodlands in the next 30 to 50 years. In the absence of disturbance or management, the majority of these landscapes will become closed woodlands resulting in the loss of understory plant species and greater costs for restoration.

Online: http://www.fs.fed.us/rm/pubs/rmrs_rp069.html

Montana's forest products

Order 82

Montana's forest products industry and timber harvest, 2004. Spoelma, Timothy P.; Morgan, Todd A.; Dillon, Thale; Chase, Alfred L.; Keegan, Charles E., III; DeBlander, Larry T. 2008. Res. Bull. RMRS-RB-8. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 36 p.

This report traces the flow of Montana's 2004 timber harvest through the primary wood-using industries; provides a description of the structure, capacity, and condition of montana's primary forest products industry; and quantifies volumes and uses of wood fiber. Historical wood products industry changes are discussed, as well as changs in harvest, production, employment, and sales.

Online: http://www.fs.fed.us/rm/pubs/rmrs_rb008.html

Colorado River cutthroat trout

Online only

Colorado River cutthroat trout: a technical conservation assessment. Young, Michael K. 2008. Gen. Tech. Rep. RMRS-GTR-207-WWW. Fort Collins, CO: USDA Forest Service, Rocky Mountain Station. 123 p.

The Colorado River cutthroat trout (*Oncorhynchus clarkii pleuriticus*) was once distributed throughout the colder waters of the Colorado River basin above the Grand Canyon. About 8 percent of its historical range is occupied by unhybridized or ecologically significant populations. It has been petitioned for listing under the Endangered Species Act and is accorded special status by several state and federal agencies. Habitat fragmentation exacerbated by climate change is an emerging threat. A strategic, systematic approach to future conservation is likely to be the most successful.

Online: http://www.fs.fed.us/rm/pubs/rmrs_gtr207.html

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Air, water, and aquatic environments

Aeolian and fluviolacustrine landforms and prehistoric human occupation on a tectonically influenced floodplain margin, the Méma, central Mali. Makaske, B.; De Vries, E.; Tainter, J. A.; McIntosh, R. J. 2007. Netherlands Journal of Geosciences. 86(3): 241-256. Online: http://www.treesearch.fs.fed.us/pubs/29506

Carbon allocation in forest ecosystems. Creighton, M. Litton; Raich, James W.; Ryan, Michael G. 2007. Global Change Biology. 13: 2089–2109. Online: http://www.treesearch.fs.fed.us/pubs/29491

Climate change effects on historical range and variability of two large landscapes in western Montana, USA. Keane, Robert E.; Holsinger, Lisa M.; Parsons, Russell A.; Gray, Kathy. 2008. Forest Ecology and Management. 254: 375–389. Online: http://www.treesearch.fs.fed.us/pubs/29481

Climate drivers of regionally synchronous fires in the inland Northwest (1651–1900). Heyerdahl, Emily K.; McKenzie, Donald; Daniels, Lori D.; Hessl, Amy E.; Littell, Jeremy S.; Mantua, Nathan J. 2008. International Journal of Wildland Fire. 17: 40–49. Online: http://www.treesearch.fs.fed.us/pubs/29482

Climate effects on historical fires (1630-1900) in Utah. Brown, Peter M.; Heyerdahl, Emily K.; Kitchen, Stanley G.; Weber, Marc H. 2008. International Journal of Wildland Fire. 17: 28-39 Online: http://www.treesearch.fs.fed.us/pubs/29486

Ecology of whirling disease in arid lands with an emphasis on *Tibufex tubifex*. Du Bey, Robert James. 2006. Las Cruces, NM. New Mexico State University. 101 p. Thesis. Online: http://www.treesearch.fs.fed.us/pubs/29471

First direct landscape-scale measurement of tropical rain forest Leaf Area Index, a key driver of global primary productivity. Clark, David B.; Olivas, Paulo C.; Oberbauer, Steven F.; Clark, Deborah A.; Ryan, Michael G. 2008. Ecology Letters. 11: 163–172. Online: http://www.treesearch.fs.fed.us/pubs/29364

Geologic influences on Apache Trout habitat in the White Mountains of Arizona. Long, Jonathan W.; Medina, Alvin L. 2006. Journal of the Arizona-Nevada Academy of Sciences. 38(2): 88-101. Online: http://www.treesearch.fs.fed.us/pubs/29496

Hillslope erosion rates in the oak savannas of the southwestern borderlands region. Kauffman, Aaron T.; Stropki, Cody L.; Ffolliott, Peter F.; Gottfried, Gerald J.; Neary, Daniel G. 2007. Hydrology and Water Resources in Arizona and the Southwest. 37:15–18. Online: http://www.treesearch.fs.fed.us/pubs/29465

Hydrology of southwestern encinal oak ecosystems: A review and more. Gottfried, Gerald J.; Ffolliott, Peter F.; Neary, Daniel G. 2007. Hydrology and Water Resources in Arizona and the Southwest. 37: 19–30. Online: http://www.treesearch.fs.fed.us/pubs/29467

Production and carbon allocation in a clonal *Eucalyptus* plantation with water and nutrient manipulations. Stape, Jose Luiz; Binkley, Dan; Ryan, Michael G. 2008. Forest Ecology and Management. 255: 920–930. Online: http://www.treesearch.fs.fed.us/pubs/29474

The scotopic visual sensitivity of four species of trout: A comparative study. Rader, Russell B.; Belish, Timberley; Young, Michael K.; Rothlisberger, John. 2007. Western North American Naturalist. 67(4): 524–537. Online: http://www.treesearch.fs.fed.us/pubs/29502

Fire, fuels, and smoke

Assessing accuracy of point fire intervals across landscapes with simulation modeling. Parsons, Russell A.; Heyerdahl, Emily K.; Keane, Robert E.; Dorner, Brigitte; Fall, Joseph. 2007. Canadian Journal of Forest Research. 37: 1605–1614. Online: http://www.treesearch.fs.fed.us/pubs/29503

Comparison of fire scars, fire atlases, and satellite data in the northwestern United States. Shapiro-Miller, Lauren B.; Heyerdahl, Emily K.; Morgan, Penelope. 2007. Canadian Journal of Forest Research. 37: 1933–1943. Online: http://www.treesearch.fs.fed.us/pubs/29499

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Preparing the landscape for invasion—Early intervention approaches for threatened high elevation white pine ecosystems. Schoettle, Anna W.; Sniezko, Richard A.; Burns, Kelly S.; Freeman, Floyd. 2007. In: Goheen, E. M.; Sniezko, R. A., tech. coords. Proceedings; Whitebark pine: A Pacific Coast perspective; 2006 August 27–31; Ashland, OR. R6-NR-FHP-2007-01. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Region: 72–75. Online: http://www.treesearch.fs.fed.us/pubs/29501

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Grasslands, shrublands, and desert ecosystems

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