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Research Station

April–June 2005



# New Publications

## Second Quarter 2005

### What's Inside . . .

- *Wilderness monitoring*
- *Biodiversity assessments*
- *Fire behavior fuel models*
- *Wyoming's forest products industry*
- *Montana logging utilization*

. . . and much more

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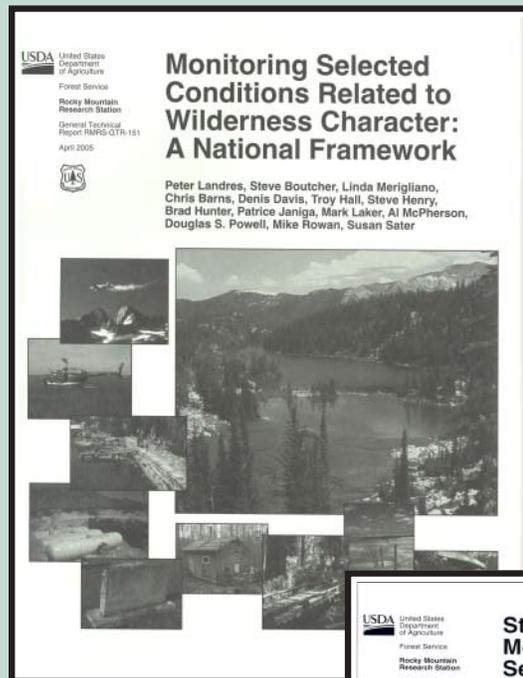
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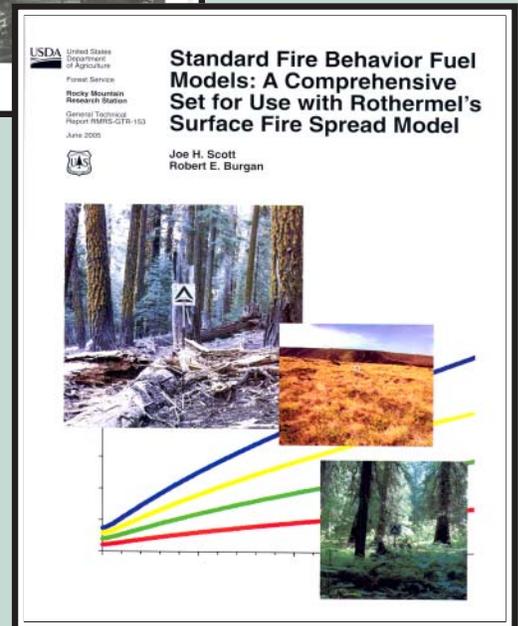
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	Order No.	
<b>Bankfull stage identification</b>	8	<p><b>Guide to identification of bankfull stage in the northeastern United States.</b> 2005. Gen. Tech. Rep. RMRS-GTR-133-CD. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 4 CD-ROM set.</p> <p>Consistent identification of bankfull stage is essential to watershed analysis, stream evaluation, stream restoration, fish habitat assessment, and stream-related design and construction. This training program demonstrates basic techniques of bankfull identification on a range of stream types typically found in the northeastern United States. A historical perspective on bankfull determination is provided and the scientific principles upon which it is based are reviewed. Bankfull determination is discussed within the context of the Rosgen Stream Classification System. Uses of bankfull stage information in practical applications are demonstrated and a catalogue of stream sites is included as a self-test of bankfull determination skills. Training material is presented in a series of learning modules on four CD-ROM disks and includes video clips recorded at 20 different stream sites in the northeastern United States.</p>
<b>Wilderness monitoring</b>	9	<p><b>Monitoring selected conditions related to wilderness character: a national framework.</b> Landres, Peter; Boutcher, Steve; Merigliano, Linda; Barns, Chris; Davis, Denis; Hall, Troy; Henry, Steve; Hunter, Brad; Janiga, Patrice; Laker, Mark; McPherson, Al; Powell, Douglas S.; Rowan, Mike; Sater, Susan. 2005. Gen. Tech. Rep. RMRS-GTR-151. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 38 p. Available: <a href="http://www.fs.fed.us/rm/pubs/rmrs_gtr151.html">http://www.fs.fed.us/rm/pubs/rmrs_gtr151.html</a></p> <p>This document, developed by the Forest Service Wilderness Monitoring Committee, lays the conceptual foundation for a national assessment of how wilderness character is changing over time. The purpose of this monitoring is to provide managers a tool they can use to answer key questions about wilderness character and wilderness stewardship: (1) What is the current state of wilderness character? (2) How is wilderness character changing over time? (3) How are stewardship actions affecting wilderness character? (4) What stewardship priorities and decisions would best preserve wilderness character?</p>

	Order No.	
<b>Fire behavior models</b>	10	<p><b>Regional data to support biodiversity assessments: terrestrial vertebrate and butterfly data from the Southwest.</b> Bender, Darren J.; Flather, Curtis H.; Wilson, Kenneth R.; Reese, Gordon C. 2005. Gen. Tech. Rep. RMRS-GTR-152. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 42 p. + DVD. Available: <a href="http://www.fs.fed.us/rm/pubs/rmrs_gtr152.html">http://www.fs.fed.us/rm/pubs/rmrs_gtr152.html</a></p> <p>We have compiled extant data on predicted species distributions and more than 680,000 occurrence records for terrestrial vertebrates and butterflies into a single digital database for general use in conducting geographically broad biodiversity assessments across a two-state area (Arizona and New Mexico) that defines the Southwestern Region of the USDA, Forest Service. We report on three case studies that illustrate how the data can be used to generate simple distribution maps using both point locations and predicted ranges, describe the patterns of species richness for selected taxa across the Southwest, and provide an example of how managers may use the data to identify where potential resource conflicts may be particularly important on National Forest System lands.</p>
<b>Biodiversity assessments</b>	11	<p><b>Standard fire behavior fuel models: a comprehensive set for use with Rothermel's surface fire spread model.</b> Scott, Joe H.; Burgan, Robert E. 2005. Gen. Tech. Rep. RMRS-GTR-153. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 72 p. Available: <a href="http://www.fs.fed.us/rm/pubs/rmrs_gtr153.html">http://www.fs.fed.us/rm/pubs/rmrs_gtr153.html</a></p> <p>This report describes a new set of standard fire behavior fuel models for use with Rothermel's surface fire spread model and the relationship of the new set to the original set of 13 fire behavior fuel models. To assist with transition to using the new fuel models, a fuel model selection guide, fuel model crosswalk, and set of fuel model photos are provided.</p>
<b>Wyoming's forest product industry</b>	12	<p><b>Wyoming's forest products industry and timber harvest, 2000.</b> Morgan, Todd A.; Spoelma, Timothy P.; Keegan, Charles E., III; Chase, Alfred L.; Thompson, Mike T. 2005. Resour. Bull. RMRS-RB-5. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 25 p. Available: <a href="http://www.fs.fed.us/rm/pubs/rmrs_rb005.html">http://www.fs.fed.us/rm/pubs/rmrs_rb005.html</a></p> <p>This report traces the flow of Wyoming's 2000 timber harvest through the primary wood-using industries; provides a description of the structure, capacity, and condition of Wyoming's primary forest products industry; and quantifies volumes and uses of wood fiber. Historical wood products industry changes are discussed, as well as changes in harvest, production, and sales.</p>
<b>Montana logging</b>	13	<p><b>Montana logging utilization, 2002.</b> Morgan, Todd A.; Spoelma, Timothy P.; Keegan, Charles E.; Chase, Alfred L.; Thompson, Michael T. 2005. Res. Pap. RMRS-RP-52. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 12 p. Available: <a href="http://www.fs.fed.us/rm/pubs/rmrs_rp052.html">http://www.fs.fed.us/rm/pubs/rmrs_rp052.html</a></p> <p>A study of logging utilization in Montana during 2002 provided logging and product utilization data for sawlog and veneer log harvests in Montana. Results of the study indicate a shift toward greater utilization of smaller diameter material, as 78 percent of the harvested volume in Montana during 2002 came from trees less than 17 inches diameter at breast height. The study also provided factors for converting volumes to and from Scribner and International 1/4-inch rule log scales, as well as to and from cubic foot volumes.</p>

	Order No.	
<b>Good fire bad fire</b>	14	<p><b>Good fire, bad fire: how to think about forest land management and ecological processes.</b> Kaufmann, Merrill R.; Shlisky, Ayn; Marchand, Peter. 2005. [Miscel. Publ.]. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 12 p. Available: <a href="http://www.fs.fed.us/rm/pubs_other/rmrs_2005_kaufmann001.html">http://www.fs.fed.us/rm/pubs_other/rmrs_2005_kaufmann001.html</a></p> <p>The first rule of tinkering is to save all the parts, according to forester, philosopher, and hunter Aldo Leopold. Leopold was thinking about wildfire 50 years ago when he also was questioning his own role in exterminating large predators, wondering how their removal might affect forest ecosystems in the future. Leopold was well ahead of his contemporaries in ecological thought. Like predators, fire cleans and regenerates the systems it touches. A generation later, we're seeing the dramatic consequences of excluding fire from fire-adapted ecosystems. This publication discusses the consequences of fire, fire as process, the changing landscape, and the task of realigning ideals with ecological reality.</p>

## New to Our Web Site

These publications have recently been made available electronically on our Web site:  
<http://www.fs.fed.us/rm/main/pubs/electronic.html>

### Photo series

**Colorado Front Range fuel photo series.** Battaglia, Michael A.; Dodson, Jonathan M.; Shepperd, Wayne D.; Platten, Mark J.; Tallmadge, Owen M. 2005. Gen. Tech. Rep. RMRS-GTR-155WWW. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 40 p. Available: [http://www.fs.fed.us/rm/pubs/rmrs\\_gtr155.html](http://www.fs.fed.us/rm/pubs/rmrs_gtr155.html)

This photo series was developed to help fire managers estimate ground and surface fuel loads that exist in cover types of the Southern Colorado Front Range wildland-urban interface. Photos and associated data representing low, medium, and high fuel loadings from this study are presented by forest type, along with examples of typical or median fuel loadings that were encountered.

### Fuels planning

**Fuels planning: science synthesis and integration; economic uses fact sheet 9: Mechanical treatment costs.** 2005. Res. Note RMRS-RN-20-9-WWW. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 2 p. Available: [http://www.fs.fed.us/rm/pubs/rmrs\\_rn020\\_09.pdf](http://www.fs.fed.us/rm/pubs/rmrs_rn020_09.pdf)

Although fuel reduction treatments are widespread, there is great variability and uncertainty in the cost of conducting treatments. Researchers from the Rocky Mountain Research Station, USDA Forest Service, have developed a model for estimating the per-acre cost for mechanical fuel reduction treatments. Although these models do a good job of identifying factors that influence the costs of treatments, individual fuel treatments are unique, and the associated costs remain highly variable. Therefore, these cost estimates should only be used as a rough first estimate.

## Government publications still available while supplies last

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- 15 **North American science symposium: toward a unified framework for inventorying and monitoring forest ecosystem resources**; 1998 November 2–6; Guaadalajara, Mexico. Aguirre-Bravo, Celedonio; Franco, Carlos Rodriguez, comps. 1999. Proc. RMRS-P-12. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 533 p.
- 16 **Personal, societal, and ecological values of wilderness: sixth World Wilderness Congress proceedings on research, management, and allocation, volume I**; 1997 October; Bangalore, India. Watson, Allan E.; Aplet, Greg H.; Hendee, John C., comps. 1998. Proc. RMRS-P-4. Ogden, UT: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 158 p.
- 17 **Personal, societal, and ecological values of wilderness: sixth World Wilderness Congress proceedings on research, management, and allocation, vol. II**; 1998 October 24–29; Bangalore, India. Watson, Alan E.; Aplet, Greg H.; Hendee, John C., comps. 2000. Proc. RMRS-P-14. Ogden, UT: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 248 p.
- 18 **Seed and soil dynamics in shrubland ecosystems: proceedings**; 2002 August 12–16; Laramie, WY. Proc. RMRS-P-31, Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 216 p.
- 19 **Visitor use density and wilderness experience: proceedings**; 2000 June 1–3; Missoula, MT. Freimund, Wayne A.; Cole, David N., comps. 2001. Proceedings RMRS-P-20. Ogden, UT: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 67 p.
- 20 **Wilderness science in a time of change conference—Volume 1: Changing perspectives and future directions**; 1999 May 23–27; Missoula, MT. Cole, David N.; McCool, Stephen F.; Freimund, Wayne A.; O'Loughlin, Jennifer, comps. 2000. Proceedings RMRS-P-15-VOL-1. Ogden, UT: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 63 p.
- 21 **Wilderness science in a time of change conference—Volume 2: Wilderness within the context of larger systems**; 1999 May 23–27; Missoula, MT. McCool, Stephen F.; Cole, David N.; Borrie, William T.; O'Loughlin, Jennifer, comps. 2000. Proceedings RMRS-P-15-VOL-2. Ogden, UT: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 307 p.
- 22 **Wilderness science in a time of change conference—Volume 3: Wilderness as a place for scientific inquiry**; 1999 May 23–27; Missoula, MT. McCool, Stephen F.; Cole, David N.; Borrie, William T.; O'Loughlin, Jennifer, comps. 2000. Proceedings RMRS-P-15-VOL-3. Ogden, UT: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 275 p.
- 23 **Wilderness science in a time of change conference—Volume 4: Wilderness visitors, experiences, and visitor management**; 1999 May 23–27; Missoula, MT. Cole, David N.; McCool, Stephen F.; Borrie, William T.; O'Loughlin, Jennifer, comps. 2000. Proceedings RMRS-P-15-VOL-4. Ogden, UT: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 273 p.
- 24 **Wilderness science in a time of change conference—Volume 5: Wilderness ecosystems, threats, and management**; 1999 May 23–27; Missoula, MT. Cole, David N.; McCool, Stephen F.; Borrie, William T.; O'Loughlin, Jennifer, comps. 2000. Proceedings RMRS-P-15-VOL-5. Ogden, UT: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 381 p.

## Publications Available From Other Sources

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 [cclay@fs.fed.us](mailto:cclay@fs.fed.us) or telephone: (970) 498-1205.

### Fire

**Development of an advanced one-dimensional stem heating model for application in surface fires.** Jones, Joshua L.; Webb, Brent W.; Jimenez, Dan; Reardon, James; Butler, Bret. 2004. Canadian Journal of Forest Research. 34: 20–30.

**A new set of standard fuel models for use with Rothermel's spread model.** Scott, Joe H.; Burgan, Robert. 2003. In: Second international wildland fire ecology and fire management congress and fifth symposium on fire and forest meteorology; 2003 November 16–20; Orlando, FL. Boston, MA: American Meteorological Society. J3E.2. Available: <http://ams.confex.com/ams/FIRE2003/5FIRE/abstracts/63165.htm>

**Post-wildfire flood generation processes.** Neary, Daniel G. 2002. Hydrology and Water Resources in Arizona and the Southwest. 32: 71–76.

**Prescribed fire impacts on soil carbon and nitrogen.** Neary, Erika L.; Neary, Daniel G.; Overby, Steven T.; Haase, Sally M. 2002. Hydrology and Water Resources in Arizona and the Southwest. 32: 95–101.

**A 12-year, post-wildfire geomorphologic evaluation of Ellison Creek, central Arizona.** Medina, Alvin L.; Royalty, Rebecca K. 2002. Hydrology and Water Resources in Arizona and the Southwest. 32: 77–82.

### Water/soils

**Interpreting, measuring, and modeling soil respiration.** Ryan, Michael G.; Law, Beverly E. 2005. Biogeochemistry. 73: 3–27.

**Seasonal patterns in soil surface CO<sub>2</sub> flux under snow cover in 50 and 300 year old subalpine forests.** Hubbard, Robert M.; Ryan, Michael G.; Elder, Kelly; Rhoades, Charles C. 2005. Biogeochemistry. 73: 93–107.

### Environmental management

**The judged seriousness of an environmental loss is a matter of what caused it.** Brown, Thomas C.; Peterson, George L.; Brodersen, R. Marc; Ford, Valerie; Bell, Paul A. 2005. Journal of Environmental Psychology. 25: 13–21.

### Watershed and riparian

**Hydrology of the upper Parker Creek Watershed, Sierra Ancha Mountains, Arizona.** Gottfried, Gerald J.; Neary, Daniel G. 2002. Hydrology and Water Resources in Arizona and the Southwest. 32: 5–17.

**Perspectives on watershed management in Arizona.** Ffolliott, Peter F.; Baker, Malchus B., Jr.; DeBano, Leonard F.; Neary, Daniel G.; Gottfried, Gerald J. 2002. Hydrology and Water Resources in Arizona and the Southwest. 32: 1–4.

### Fish and wildlife

**Hydrology, geomorphology, and management: implications for sustainability of native Southwestern fishes.** Rinne, John N. 2002. Hydrology and Water Resources in Arizona and the Southwest. 32: 45–50.

**Trap-induced mass declines in small mammals: mass as a population index.** Pearson, Dean E.; Ortega, Yvette K.; Ruggiero, Leonard F. 2003. Journal of Wildlife Management. 67(4): 684–691.



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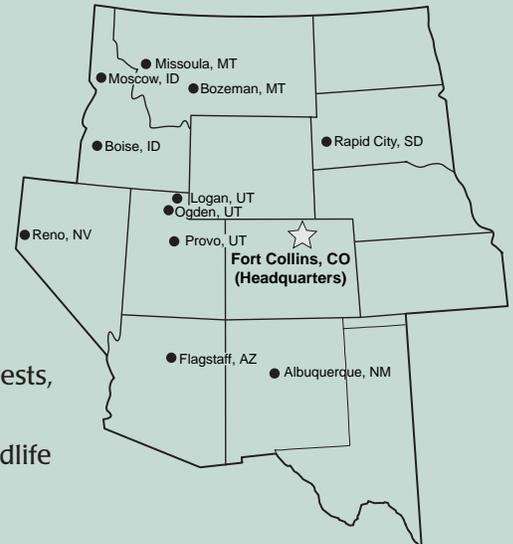
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