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April–June 2008

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Contents

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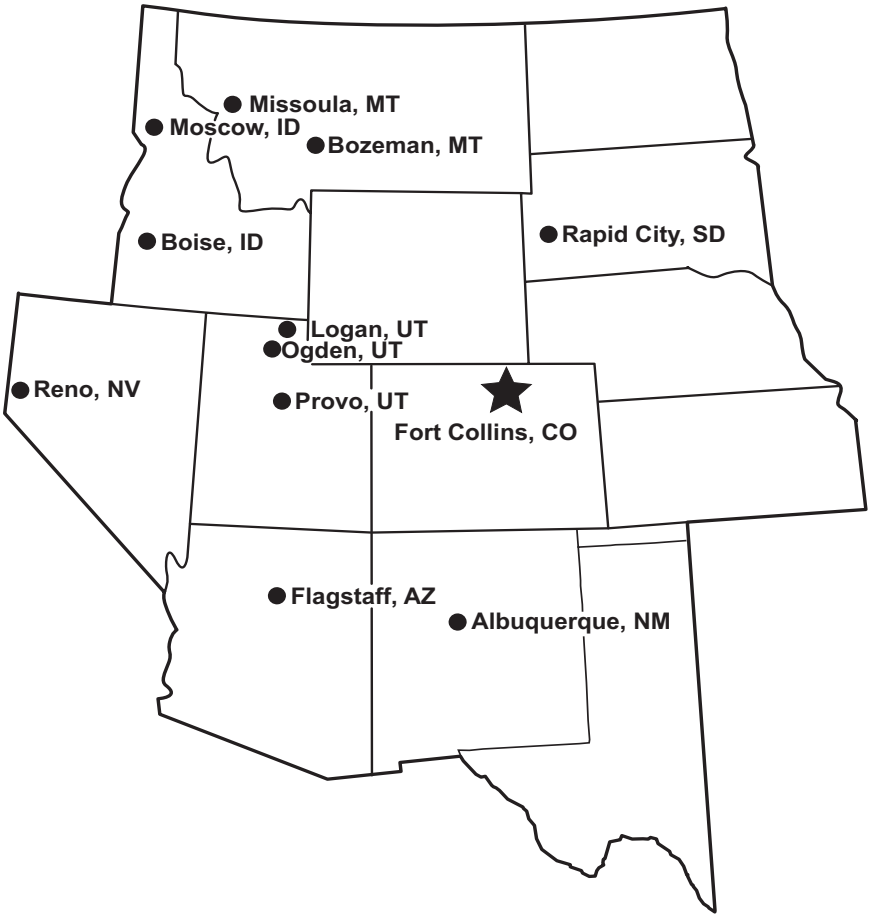

The Rocky Mountain Research Station is one of five regional units that make up the USDA Forest Service Research and Development organization—the most extensive natural resources research organization in the world. We maintain 14 research locations throughout a 14-state territory encompassing the Great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

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USDA

New RMRS Series Publications

Western white pine ecosystems

Order 1

Death of an ecosystem: perspectives on western white pine ecosystems of North America at the end of the twentieth century. Harvey, Alan E.; Byler, James W.; McDonald, Geral I.; Neuenschwander, Leon F.; Tonn, Jonalea R. 2008. Gen. Tech. Rep. RMRS-GTR-208. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 10 p.

The effective loss of western white pine (*Pinus monticola* Dougl.) in the white pine ecosystem has far-reaching effects on the sustainability of local forests and both regional and global forestry issues. Continuing trends in management of this forest type has the potential to put western white pine, as well as the ecosystem it once dominated, at very high risk in the future. Societal issues associated with natural resource management must be resolved early in the 21st century to allow restoration of this ecosystem so that the Interior Northwest's most productive forests can be sustainable at levels near their historical potential.

Online: http://www.fs.fed.us/rm/pubs/rmrs_gtr208.html

Geographic patterns of at-risk species

Order 2

Geographic patterns of at-risk species: A technical document supporting the USDA Forest Service Interim Update of the 2000 RPA Assessment. Flather, Curtis H.; Knowles, Michael S.; McNees, Jason. 2008. Gen. Tech. Rep. RMRS-GTR-211. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 21 p.

This technical document supports the Forest Service's requirement to assess the status of renewable natural resources as mandated by the Forest and Rangeland Renewable Resources Planning Act of 1974. It updates past reports on the trends and geographic patterns of species formally listed as threatened or endangered under the Endangered Species Act of 1973. We compare the geographic occupancy of threatened and endangered species at the county-level against the geographic occupancy of a broader set of species thought to be at risk of extinction. Here we document whether past trends and geographic occupancy patterns have changed over time.

Online: http://www.fs.fed.us/rm/pubs/rmrs_gtr211.html

SW rare and endangered plants

Order 3

Southwestern rare and endangered plants: Proceedings of the Fourth Conference; March 22–26, 2004; Las Cruces, New Mexico. Barlow-Irick, P.; Anderson, J.; McDonald, C., tech eds. 2007. Proceedings RMRS-P-48CD. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 135 p. CD

These contributed papers review the current status of plant conservation in the southwestern United States.

Online: http://www.fs.fed.us/rm/pubs/rmrs_p048.html

Fire effects on Gambel oak

Order 4

Fire effects on Gambel oak in southwestern ponderosa pine-oak forests. Abella, Scott R.; Fulé, Peter Z. 2008. Res. Note. RMRS-RN-34. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 6 p.

Gambel oak (*Quercus gambelii*) is ecologically and aesthetically valuable in southwestern ponderosa pine (*Pinus ponderosa*) forests. Fire effects on Gambel oak are important because fire may be used in pine-oak forests to manage oak directly or to accomplish other management objectives. We used published literature to: (1) ascertain historical fire regimes in pine-oak forests, (2) discern prescribed burning effects on Gambel oak survival and diameter growth, and (3) provide suggestions for using fire to manage oak. We conclude that fire can be used to manage Gambel oak densities and growth forms, and that large oaks can be maintained during low-intensity burning.

Online: http://www.fs.fed.us/rm/pubs/rmrs_rn034.html

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Surface fuel litterfall and decomposition

Order 5

Surface fuel litterfall and decomposition in the northern Rocky Mountains, U.S.A. Keane, Robert E. 2008. Res. Pap. RMRS-RP-70. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 22 p.

Surface fuel deposition and decomposition rates are important to fire management and research because they can define the longevity of fuel treatments in time and space and they can be used to design, build, test, and validate complex fire and ecosystem models useful in evaluating management alternatives. We determined rates of surface fuel litterfall and decomposition for a number of major forest types that span a wide range of biophysical conditions in the northern Rocky Mountains, U.S.A. Deposition and decomposition rates are summarized by plot, cover type, and habitat type series. We also present various temporal and spatial properties of litterfall and decomposition fluxes across the six fuel components.

Online: http://www.fs.fed.us/rm/pubs/rmrs_rp070.html

Mexican spotted owls

Online only

Estimating canopy cover in forest stands used by Mexican spotted owls: Do stand-exam routines provide estimates comparable to field-based techniques? Ganey, Joseph L.; Cassidy, Regis H.; Block, William M. 2008. Res. Pap. RMRS-RP- 72WWW. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 8 p.

Canopy cover has been identified as an important correlate of Mexican spotted owl (*Strix occidentalis lucida*) habitat, yet management guidelines in a 1995 U.S. Fish and Wildlife Service recovery plan for the Mexican spotted owl did not address canopy cover. These guidelines emphasized parameters included in U.S. Forest Service stand exams, and canopy cover typically is not sampled in these inventories. Algorithms exist to estimate canopy cover from stand-exam data, but the accuracy of resulting estimates is unknown. We compared existing field data on observed canopy cover within forest stands used by radio-marked Mexican spotted owls with estimates derived from those analysis routines. Based on arbitrary criteria for minimum canopy cover, we also estimated proportions of these stands that would be misclassified by derived estimates. We conclude that existing algorithms for estimating canopy cover from stand-exam data are not useful in forest habitat for Mexican spotted owls.

Online: http://www.fs.fed.us/rm/pubs/rmrs_rp072.html

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Air, water, and aquatic environments

A comparison of coarse bedload transport measured with bedload traps and Helley Smith samplers. Bunte, Kristin; Abt, Steven R.; Potyondy, John P.; Swingle, Kurt W. 2008. Geodinamica Acta. 21(1-2):53-66.

The effects of climate change on agriculture, land resources, water resources, and biodiversity in the United States. Walsh, Margaret, ed. 2008. Synthesis and Assessment Product 4.3. Washington, DC: U.S. Environmental Protection Agency, Climate Change Science Program. 362 p. Online: http://www.climatescience.gov/Library/sap/sap4-3/final-report/default.htm#EntireReport

Executive summary. Backlund, P.; Janetos, A.; Schimel, D.S.; Hatfield, J.; Ryan, M.G.; Archer, S.R.; Lettenmaier, D. 2008. In: Walsh, Margaret, ed. 2008. The effects of climate change on agriculture, land resources, water resources, and biodiversity in the United States. Synthesis and Assessment Product 4.3. Washington, DC: U.S. Environmental Protection Agency, Climate Change Science Program: 1-10. Online: http://www.climatescience.gov/Library/sap/sap4-3/final-report/default.htm#EntireReport

Foliar and ecosystem respiration in an old-growth tropical rain forest. Cavaleri, Molly A.; Oberbauer, Steven F.; Ryan, Michael G. 2008. Plant, Cell and Environment. 31: 473–483. Online: http://www.treesearch.fs.fed.us/pubs29758

Forest disturbance and North American carbon flux. Goward, S.N.; Masek, J.G.; Cohen, W.; Moisen, G.; Collatz, G.J.; Healey, S.; Houghton, R. A.; Huang, C.; Kennedy, R.; Law, B.; Powell, S.; Turner, D.; Wulder, M.A. 2008. EOS, Transactions, American Geophysical Union. 89(11): 105–116. Online: http://www.treesearch.fs.fed.us/pubs29859

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Land resources. Ryan, M.G.; Archer, S.R.; Birdsey, R.A.; Dahm, C.N.; Heath, L.S.; Hicke, J.A.; Hollinger, D.Y.; Huxman, T.E.; Okin, G.S.; Oren, R.; Randerson, J.T.; Schlesinger, W.H. 2008. In: Walsh, Margaret, ed. 2008. The effects of climate change on agriculture, land resources, water resources, and biodiversity in the United States. Synthesis and Assessment Product 4.3. Washington, DC: U.S. Environmental Protection Agency, Climate Change Science Program: 75-120. Online: http://www.climatescience.gov/Library/sap/sap4-3/final-report/default.htm#EntireReport

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Fire, fuel, and smoke

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Susceptibility of ponderosa pine, *Pinus ponderosa* (Dougl. Ex Laws.), to mountain pine beetle, *Dendroctonus ponderosae* Hopkins, attack in uneven-aged stands in the Black Hills of South Dakota and Wyoming USA. Negrón, José F.; Allen, Kurt; Cook, Blaine; Withrow, John R., Jr. 2008. Forest Ecology and Management. 254: 327–334. Online: http://www.treesearch.fs.fed.us/pubs/29477

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