

New Publications

July – September 2002



ROCKY MOUNTAIN
Research Station

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- *Survey of American values*
- *Mistletoes of North America*
- *Nursery proceedings*
- *Forest Vegetation Simulator conference*
- *Circumpolar North proceedings*

. . . and much more

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SUBJECT	ORDER #	TITLE
Invasive plants	11	Linking wilderness research and management—volume 4. Understanding and managing invasive plants in wilderness and other natural areas: an annotated reading list. Osborn, Sophie; Wright, Vita; Walker, Brett; Cilimburg, Amy; Perkins, Alison. 2002. (Wright, Vita, series ed.). Gen. Tech. Rep. RMRS-GTR-79-Vol 4. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 65 p. Nonnative invasive plants are altering ecosystems around the world with alarming speed. They outcompete native plants and ultimately change the composition and function of the ecosystems they invade. This reading list summarizes approximately 250 books and articles and 25 online resources that provide context for making management decisions regarding invasive plants in wilderness and other natural areas, invasive plant ecology, and management planning, ways of preventing, predicting, and finding new invasions, and developing and prioritizing control and eradication strategies.
Ecosystem sampling	12	Integrating ecosystem sampling, gradient modeling, remote sensing, and ecosystem simulation to create spatially explicit landscape inventories. Keane, Robert E.; Rollins, Matthew G.; McNicoll, Cecilia H.; Parsons, Russell A. 2002. Gen. Tech. Rep. RMRS-GTR-92. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 61 p. Presented is a prototype of the Landscape Ecosystem Inventory System (LEIS), a system for creating maps of important landscape characteristics for natural resource planning. This system uses gradient-based field inventories coupled with gradient modeling remote sensing, ecosystem simulation, and statistical analyses to derive spatial data layers required for ecosystem management.
Erosion data	13	Silt happens: gathering erosion data. Robichaud, Peter R.; Storrar, Chapin S. 2002. Gen. Tech. Rep. RMRS-GTR-93-CD. Ogden, UT: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 1 CD-ROM. (Limited supplies available.) An objective of the soil research program has been to measure forest soil erodibility for erosion prediction. This video shows the field research techniques, which include rainfall simulation on plots from 0.5 to 75 m ² . Plot size depends on the soil property (hydraulic conductivity, interrill erodibility, and rill erodibility) of interest. Natural rainfall on small catchments, with runoff flow measuring devices and sediment traps, is used to validate the erosion prediction models by allowing a comparison of observed runoff and sediment delivery to predicted values.

SUBJECT	ORDER #	TITLE
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Silt fences 14 **Silt fences: an economical technique for measuring hillslope soil erosion.** Robichaud, Peter R.; Brown, Robert E. 2002. Gen. Tech. Rep. RMRS-GTR-94. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 24 p.

Measuring hillslope erosion has historically been a costly, time-consuming practice. An easy to install low-cost technique using silt fences (geotextile fabric) and tipping bucket rain gauges to measure onsite hillslope erosion was developed and tested. Equipment requirements, installation procedures, statistical design, and analysis methods for measuring hillslope erosion are discussed.

RPA assessment 15 **Survey results of the American public's values, objectives, beliefs, and attitudes regarding forests and grasslands: a technical document supporting the 2000 USDA Forest Service RPA Assessment.** Shields, Deborah J.; Martin, Ingrid M.; Martin, Wade E.; and Haefele, Michelle A. 2002. Gen. Tech. Rep. RMRS-GTR-95. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 111 p.

The USDA Forest Service completed its Strategic Plan (2000 Revision) in October 2000. The goals and objectives included in the Plan were developed with input from the public, some of which was obtained through a telephone survey. Members of the American public were asked about their *values* with respect to public lands, *objectives* for the management of public lands, *beliefs* about the role the agency should play in fulfilling those *objectives*, and *attitudes* about the job the agency has been doing. This document reports the results of that survey.

Most Similar Neighbor 16 **Users guide to the Most Similar Neighbor Imputation Program Version 2.** Crookston, Nicholas L.; Moer, Melinda; Renner, David. 2002. Gen. Tech. Rep. RMRS-GTR-96. Ogden, UT: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 35 p.

This report presents an introductory discussion of Most Similar Neighbor imputation and shows how to run the program. An example taken from a forest inventory application is presented with notes on other applications and experiences using MSN. Technical details of the way MSN works are included. Information on how to get and install the program and on computer system requirements is appended.



SUBJECT	ORDER #	TITLE
Black Hills	17	Ecology, silviculture, and management of Black Hills ponderosa pine. Shepperd, Wayne D.; Battaglia, Michael A. 2002. Gen. Tech. Rep. RMRS-GTR-97. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 112 p. <p>This paper presents a broad-based synthesis of the general ecology of the ponderosa pine ecosystem in the Black Hills. This synthesis contains information and results of research on ponderosa pine from numerous sources within the Black Hills ecosystem. We discuss the silvical characteristics of ponderosa pine, natural disturbances that govern ecosystem processes, wildlife habitat and management, various silvicultural methods to manage ponderosa pine forests, and watershed management of the Black Hills.</p>
Mistletoes of NA conifers	18	Mistletoes of North American conifers. Geils, Brian W.; Cibrián Tovar, Jose; Moody, Benjamin, tech. coords. 2002. Gen. Tech. Rep. RMRS-GTR-98. Ogden, UT: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 123 p. <p>Mistletoes of the families Loranthaceae and Viscaceae are the most important vascular plant parasites of conifers in Canada, the United States, and Mexico. The presence of mistletoe plants, and the brooms and tree mortality caused by them, have significant ecological and economic effects in heavily infested forest stands and recreation areas. These effects may be either beneficial or detrimental depending on management objectives. Assessment concepts and procedures are available. Biological, chemical, and cultural control methods exist and are being developed to better manage mistletoe populations for resource protection and production.</p>
Landbird migration	19	Stopover ecology of landbirds migrating along the middle Rio Grande in spring and fall. Yong, Wang; Finch, Deborah M. 2002. Gen. Tech. Rep. RMRS-GTR-99. Ogden, UT: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 52 p. <p>This research represents the first comprehensive summary of our study of stopover ecology of migratory landbirds in riparian habitats along the middle Rio Grande of central New Mexico. We report results from mist-netting operations conducted during spring and fall migration in 1994, 1995, and 1996. Habitat loss and disturbance along the middle Rio Grande could affect not only local breeding landbird populations, but also many Neotropical and temperate migratory individuals that may use the area for only a few days each migration season.</p>



SUBJECT	ORDER #	TITLE
Santa Rita Experimental Range	20	Santa Rita Experimental Range digital database: user's guide. McClaran, Mitchel P.; Angell, Deborah L.; Wissler, Craig. 2002. Gen. Tech. Rep. RMRS-GTR-100. Ogden, UT: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 13 p. Long-term measurements and repeat photograph collections have been collected in a systematic manner on the approximately 21,000 ha Santa Rita Experimental Range (SRER) since its establishment in 1903. To facilitate the preservation of the long-term data collected on the SRER and to increase access to the data, we developed a digital archive that is accessible on the World Wide Web at http://ag.arizona.edu/SRER . The digital archive contains 10 databases; the information in these databases is available in five formats (ASCII text, Excel spreadsheet *.xls, ARCINFO *.e00, tagged image *.tif, and graphical interchange *.gif) that can be easily used in analytic, word processing, graphic, and geographic information system software.
Riparian restoration	21	Management and techniques for riparian restorations: roads field guide. Vol. I and II. Roads/Riparian Restoration Team. 2002. Gen. Tech. Rep. RMRS-GTR-102 Vol. I and II. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 38 p. Improperly constructed or maintained roads near riparian and wetland areas may degrade these valuable sites. This field guide presents information in a practical, user friendly format to help resource managers and professionals. This two-volume field guide covers the management and techniques for riparian restoration near roads. The field guides cover the following topics: (1) riparian area considerations, (2) monitoring, (3) planning projects, (4) laws and regulations, and (5) techniques to use in the field.
Nursery proceedings	22	National proceedings: forest and conservation nursery associations—1999, 2000, and 2001. Dumroese, R. K.; Riley, L. E.; Landis, T. D., tech. coords. 2002. Proceedings RMRS-P-24. Ogden, UT. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 403 p. The national proceedings contains articles presented at regional meetings during 1999, 2000, and 2001. The 1999 meeting of the Northeastern and Western Forest and Conservation Nursery Associations was held in Ames, IA, and the theme of the conference was <i>Nursery Challenges for the New Millennium</i> . The year 2000 saw three conferences: the Southern Forest Nursery Association was held in Mobile, AL, with the theme of <i>Growing Green in the New Millenium</i> ; the Northeastern Nursery Conference held in Spring Green, WI, whose theme was <i>Nurseries for the Future</i> ; and the Forest and Conservation Nursery Association meeting held in Kailua-Kona, HI. Two nursery conferences were hosted in 2001: The Northeastern Nursery Conference held in State College, PA, titled <i>Sustainable Nurseries – Sustainable Forests</i> ; and the Western Forest and Conservation Nursery Association held in Durango, CO.



SUBJECT	ORDER #	TITLE
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**Forest
Vegetation
Simulator**

- 23 **Second Forest Vegetation Simulator Conference; 2002 February 12–14; Fort Collins, CO.** Crookston, Nicholas L.; Havis, Robert N., comps. 2002. Proceedings RMRS-P-25. Ogden, UT: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 208 p.

The Forest Vegetation Simulator (FVS) is a computer program that projects the development of forest stands in the United States and British Columbia, Canada. The proceedings of the second FVS conference includes 34 papers dealing with applications of FVS that range from the stand-level through full-scale landscape analyses. Forecasts ranging from wildlife habitat indicators through economic returns on investments take into account the effects of insects, pathogens, and fire. Also presented are recent advances in computer visualization technology, the analysis of model prediction uncertainty, model development techniques, software support tools, and the reconstruction of historical stand conditions.

**Circumpolar
North**

- 24 **Wilderness in the Circumpolar North: searching for compatibility in ecological, traditional, and ecotourism values;** 2001 May 15–16; Anchorage, AK. Watson, Alan E.; Alessa, Lilian; Sproull, Janet, comps. 2002. Proceedings RMRS-P-26. Ogden, UT: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 143 p. **NOTE:** Due to budget uncertainties, this publication will not be available as a paper copy until after December 2002, but is currently available on our Web site: http://www.fs.fed.us/rm/pubs/rmrs_p026.pdf

There are growing pressures on undeveloped (wild) places in the Circumpolar North. Among them are pressures for economic development, oil and gas exploration and extraction, development of geothermal energy resources, development of heavy industry close to energy sources, and lack of appreciation for “other” orientations toward wilderness resources by interested parties from broad geographical origins. An international seminar in Anchorage, Alaska, in May of 2001, was the first step in providing basic input to an analysis of the primary set of values associated with Circumpolar North wilderness and the constraints and contributors (factors of influence) that either limit or facilitate receipt of those values to various segments of society.

**Mountain pine
beetle**

- 25 **Diesel fuel oil for increasing mountain pine beetle mortality in felled logs.** Mata, S. A.; Schmid, J. M.; Leatherman, D. A. 2002. Res. Note RMRS-RN-13. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 4 p.

Diesel fuel oil was applied to mountain pine beetle (*Dendroctonus ponderosae* Hopkins) infested bolts of ponderosa pine (*Pinus ponderosa* Lawson) in early June. Just prior to the fuel oil application and 6 weeks later, 0.5 ft² bark samples were removed from each bolt and the numbers of live beetles counted. Beetle survival was 8.3 percent in bolts arranged in a single layer and 4.8 percent in bolts arranged in 2 layers.



SUBJECT	ORDER #	TITLE
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- Lodgepole pine** 26 **Relationship of seed microsite to germination and survival of lodgepole pine on high-elevation clearcuts in northeastern Utah.** Page-Dumroese, Deborah S.; Dumroese, R. Kasten; Carpenter, Connie M.; Wenny, David L. 2002. Res. Note RMRS-RN-14. Ogden, UT: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 4 p. **NOTE:** Due to budget uncertainties, this publication will not be available as a paper copy until after December 2002, but is currently available on our Web site: http://www.fs.fed.us/rm/pubs/rmrs_rn014.pdf

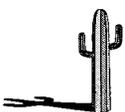
On two high-elevation sites (~3,000 m) in northeastern Utah, lodgepole pine (*Pinus contorta* var. *latifolia*) seeds germinated best (53 percent) on large mineral microsites (5 x 5 m), and percentage survival of germinating seeds was best on microsites covered with forest floor material. Seed predation was severe at both study sites; protecting seeds increased germination three to ten times. On harvested sites dependent on natural regeneration for seedling establishment, some predation control may be necessary to achieve rapid and complete stocking. After harvesting, maintenance of a combination of mineral soil and forest floor is critical for long-term seedling success.

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- Rock climbers** 27 **Effective recreation visitor communication strategies: rock climbers in the Bitterroot Valley, Montana.** Borrie, William T.; Harding, James A. Res. Note RMRS-RN-15. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 11 p. **NOTE:** Due to budget uncertainties, this publication will not be available as a sampling paper copy until after December 2002, but is currently available on our Web site: http://www.fs.fed.us/rm/pubs/rmrs_rn015.pdf

A four-stage model of decisionmaking was investigated in the context of low-impact practices among rock climbers in the Bitterroot Valley of Montana. Previous research has suggested that knowing what to do to minimize environmental and social impacts may not be the only factor limiting compliance with recommended visitor behaviors. Summary recommendations for effective natural resource communications focus not just on what visitors are being asked to do, but also when, why, and how it is socially appropriate for them to do so.



SUBJECT	ORDER #	TITLE
Sagebrush	28	Bird counts of burned versus unburned big sagebrush sites. Welch, Bruce L. 2002. Res. Note RMRS-RN-16. Ogden, UT: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 6 p. NOTE: Due to budget uncertainties, this publication will not be available as a paper copy until after December 2002, but is currently available on our Web site: http://www.fs.fed.us/rm/pubs/rmrs_rn016.pdf I selected burned big sagebrush sites paralleled with unburned big sagebrush sites in the States of Oregon, Idaho, Utah, Wyoming, and Montana. Oregon data were collected in 2000, and data from the remaining States were collected in 2001. Selected sites had to meet the following criteria: length of bird flushing transect 1 mile, buffer width 300 ft between the two types of sites (burned and unburned), burned sites dominated by perennial grasses, and at least 20 percent canopy cover of big sagebrush on unburned sites. I found that that big sagebrush is a “nursing mother” to a host of organisms ranging from microscopic to large mammals, and as this study shows, birds.
Workman Creek Watershed	29	Snowpack-runoff relationships for mid-elevation snowpacks on the Workman Creek Watersheds of Central Arizona. Gottfried, Gerald J.; Neary, Daniel G.; Ffolliott, Peter F. 2002. Res. Pap. RMRS-RP-33. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 9 p. This study shows that statistical relationships exist between peak snowpack accumulations and snowmelt runoff quantities or resulting peak mean daily flows for the Main Dam and Middle Fork installations at Workman Creek for the period of available record. Further testing is necessary to confirm how well these relationships can be used to predict other hydrological parameters. Watershed managers could use this information to determine the effects of snowmelt runoff on stream channels, riparian vegetation, fishery resources, and status of mountain lakes and ponds.
Stripcut-thinning	30	Stripcut-thinning of ponderosa pine stands: an Arizona case study. Ffolliott, Peter F.; Baker, Malchus B., Jr. 2001. Res. Pap. RMRS-RP-34. Ogden, UT: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 7 p. Growth and structural changes in ponderosa pine (<i>Pinus ponderosa</i>) stands were studied over a 25-year posttreatment period to determine the impacts of a combined stripcut-thinning treatment. Trees on one-third of a watershed in north-central Arizona had been removed in clear-cut strips. Trees in the “leave” strips were thinned. Number of trees, basal area, and volume growth have increased since the leave strips were thinned and will likely continue to increase as the residual trees increase in size.



SUBJECT	ORDER #	TITLE
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Comandra blister rust 31 **Frequency of comandra blister rust infection episodes on lodgepole pine.** Jacobi, William R.; Geils, Brian W.; Taylor, Jane E. 2002. Res. Pap. RMRS-RP-36. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 13 p.

We examined comandra blister rust outbreaks for three areas in the Central Rockies—Beaverhead in southwestern Montana, Shoshone in western Wyoming, and Medicine Bow in south-central Wyoming. A consistent pattern between meteorological and canker age data indicates that infection occurs frequently enough across the Central Rocky Mountains that comandra blister rust can be considered a continuing threat where populations of comandra and lodgepole coexist.

Wood products 32 **Opportunities for making wood products from small diameter trees in Colorado.** Lynch, Dennis L.; Mackes, Kurt H. 2002. Res. Pap. RMRS-RP-37. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 11 p.

Colorado's forests are at risk to forest health problems and catastrophic fire. Forest areas at high risk to catastrophic fire, commonly referred to as Red Zones, contain 2.4 million acres in the Colorado Front Range and 6.3 million acres Statewide. The authors used a previous study, "Wood Use in Colorado at the Turn of the Century," to identify potential products that might be manufactured from small diameter trees removed in restoration thinnings. The report concludes that future restoration programs must be designed to provide a consistent supply of raw material to processors. It also recognizes that there is no single product that will utilize all small diameter trees from Red Zone areas. Instead, a stable, diverse wood industry appears to be the most desirable future.

Forest Service 33 **The USDA Forest Service—the first century.** Williams, Gerald W. 2000. FS-650. Washington, DC: U.S. Department of Agriculture, Forest Service. 154 p.

The founding of the National Forest System and the Forest Service has its roots in the last quarter of the 19th century and was directly related to three visionary men: Franklin B. Hough, Bernhard E. Fernow, and Gifford Pinchot. The Forest Service has evolved into a 35,000-employee agency that manages the national forests and grasslands for a number of multiple uses, including timber, wilderness, recreation, minerals, water, grazing, and wildlife.



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Atmosphere/climate

Analytical differentiation of the differential-absorption-lidar data distorted by noise. Kovalev, Vladimir A. 2002. *Applied Optics*. 41(6): 1156–1162.

Application of a stable near-end solution to determine the extinction coefficient of smoke aerosols from biomass fires. Kovalev, Vladimir A.; Susott, Ronald A.; Eichinger, William E.; Hao, Wei Min. 2002. In: Bissonnette, Luc R.; Roy, Gilles; Vallée, Gilles, eds. Lidar remote sensing in atmospheric and earth sciences; proceedings, 21st international laser radar conference; 2002 July 8–12; Quebec, Canada. Quebec: DRDC-Valcartier: 247–250.

Are old forests underestimated as global carbon sinks? Carey, Eileen V.; Sala, Anna; Keane, Robert; Callaway, Ragan M. 2001. *Global Change Biology*. 7: 339–344.

Complex effects arising in smoke plume simulations due to inclusion of direct emissions of oxygenated organic species from biomass combustion. Mason, Sherri A.; Field, Richard J.; Yokelson, Robert J.; Kochivar, Michael A.; Tinsley, Mark R.; Ward, Darold E.; Hao, Wei Min. 2001. *Journal of Geophysical Research*. 106(D12): 12,527–12,539.

Distribution of ozone and other air pollutants in forests of the Carpathian Mountains in central Europe. Bytnerowicz, A.; Godzik, B.; Frazek, W.; [and others]. 2002. *Environmental Pollution*. 116: 3–25.

Effects of branch height on leaf gas exchange, branch hydraulic conductance and branch sap flux in open-grown ponderosa pine. Hubbard, Robert M.; Bond, Barbara J.; Senock, Randy S.; Ryan, Michael G. 2002. *Tree Physiology*. 22: 575–581.

Elimination of asymmetry in the two-angle lidar-equation solution for aerosol extinction profiles. Kovalev, Vladimir A.; Pahlow, Markus; Parlange, Marc B. 2002. In: Bissonnette, Luc R.; Roy, Gilles; Vallée, Gilles, eds. Lidar remote sensing in atmospheric and earth sciences; proceedings, 21st international laser

radar conference; 2002 July 8–12; Quebec, Canada. Quebec: DRDC-Valcartier: 621–624.

An evaluation of two models for estimation of the roughness height for heat transfer between the land surface and the atmosphere. Su, Z.; Schmutge, T.; Kustas, W. P.; Massman, W. J. 2001. *Journal of Applied Meteorology*. 40(11): 1933–1951.

Long-term [Long-term] ecological research and air pollution impacts in the Retezat Mountains, Romania. Bytnerowicz, Andrzej; Badea, Ovidiu; Popescu, Flaviu; Barbu, Ion; Postelicu, Daniela; Vasile, Cristian; Musselman, Robert; [and others]. 2002. *Ekológia (Bratislava)*. 20(Supplement 2/2002): 34–42.

Preliminary background ozone concentrations in the mountain and coastal areas of Bulgaria. Donev, E.; Zeller, K.; Avramov, A. 2002. *Environmental Pollution*. 117: 281–286.

Seasonal respiration of foliage, fine roots, and woody tissues in relation to growth, tissue N, and photosynthesis. Vose, James M.; Ryan, Michael G. 2002. *Global Change Biology*. 8: 182–193.

The Southern African regional science initiative (SAFARI 2000): overview of the dry season field campaign. Swap, R. J.; Annegarn, H. J.; Suttles, J. T.; [and others]. 2002. *South African Journal of Science*. 98: 125–130.

Fire

Condition of live fire-scarred ponderosa pine trees six years after removing partial cross sections. Heyerdahl, Emily K.; McKay, Steven J. 2001. *Tree-Ring Research*. 57(2): 131–139.

Dynamic interactions between forest structure and fire behavior in boreal ecosystems. Ryan, K. C. 2002. *Silva Fennica*. 36(1): 13–39.

Power-law behaviour and parametric models for the size-distribution of forest fires. Reed, William J.; McKelvey, Kevin S. 2002. *Ecological Modelling*. 150: 239–254.



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The role of fire in juniper and pinyon woodlands: a descriptive analysis.

Miller, Richard F.; Tausch, Robin J. 2001. In: Galley, K. E. M.; Wilson, T. P., eds. Proceedings of the invasive species workshop: the role of fire in the control and spread of invasive species. Misc. Publ. 11. Tallahassee, FL: Tall Timbers Research Station: 15–30.

The smoke management imperative.

Hardy, Colin C.; Hermann, Sharon M.; Core, John E. 2001. In: Hardy, Colin C.; Ottmar, Roger D.; Peterson, Janice L.; Core, John E.; Seamon, Paula, eds./comps. Smoke management guide for prescribed and wildland fire 2001 edition. PMS 420-2. NFES 1279. Boise, ID: National Interagency Fire Center: 21–24. Available: <http://www.nwcg.gov>

Terminology and biology of fire scars in selected central hardwoods.

Smith, Kevin T.; Sutherland, Elaine Kennedy. 2001. *Tree-Ring Research*. 57(2): 141–147.

Testing the sensitivity of a MODIS-like daytime active fire detection model in Alaska using NOAA/AVHRR infrared data.

Seielstad, C. A.; Riddering, J. P.; Brown, S. R.; Queen, L. P.; Hao, W. M. 2002. *Photogrammetric Engineering & Remote Sensing*. 68(8): 831–838.

Vibrational spectroscopy in the study of fires.

Yokelson, Robert J.; Bertschi, Isaac T. 2002. In: Chalmers, John M.; Griffiths, Peter R., eds. Handbook of vibrational spectroscopy vol. 4: applications in industry, materials and the physical sciences. Chichester: John Wiley & Sons Ltd: 1–6.

The wildland fire imperative.

Hardy, Colin C.; Hermann, Sharon M.; Mutch, Robert E. 2001. In: Hardy, Colin C.; Ottmar, Roger D.; Peterson, Janice L.; Core, John E.; Seamon, Paula, eds./comps. Smoke management guide for prescribed and wildland fire 2001 edition. PMS 420-2. NFES 1279. Boise, ID: National Interagency Fire Center: 11–19. Available: <http://www.nwcg.gov>

Water

Base flow trends in the upper Verde River revisited. Neary, Daniel G.; Rinne, John N. 2001. In: proceedings of the 2001 meetings of the hydrology section Arizona-Nevada Academy of Science; 2001 April 14; Las Vegas, NV. *Hydrology and Water Resources in Arizona and the Southwest*. 31: 37–43.

Benthos recovery after an episodic sediment release into a Colorado Rocky Mountain river. Zuellig, Robert E.; Kondratieff, Boris C.; Rhodes, Howard A. 2002. *Western North American Naturalist*. 62(2): 59–72.

Environmental sustainability of forest energy production. Neary, D. G. 2001. In: Richardson, J.; Björheden, R.; Hakkila, P.; Lowe, A. T.; Smith, C. T., eds. *Bioenergy from sustainable forestry: guiding principles and practice*. Dordrecht: Kluwer Academic Publishers: 190–215.

Labor Day storm of 1970 revisited 30 years later. Ffolliott, Peter F.; Baker, Malchus B., Jr. 2001. In: Proceedings of the 2001 meetings of the hydrology section Arizona-Nevada Academy of Science; 2001 April 14; Las Vegas, NV. *Hydrology and Water Resources in Arizona and the Southwest*. 31: 71–75.

Updating hydrologic time-trend response functions of fire impacts. Ffolliott, Peter F. 2001. In: proceedings of the 2001 meetings of the hydrology section Arizona-Nevada Academy of Science; 2001 April 14; Las Vegas, NV. *Hydrology and Water Resources in Arizona and the Southwest*. 31: 21–24.

Silviculture

Assessment of microenvironmental conditions related to the use of synthetic sheet mulches for protecting newly planted trees in semi-arid environments. Stepanek, Laurie J.; Brandle, James R.; Harrell, Mark O. 2002. *Journal of Sustainable Agriculture*. 19(4): 15–34.



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Canopy and hydraulic conductance in young, mature and old Douglas-fir trees. Phillips, Nathan; Bond, Barbara J.; McDowell, Nate G.; Ryan, Michael G. 2002. *Tree Physiology*. 22: 205–211.

The relationship between tree height and leaf area: sapwood area ratio. McDowell, N.; Barnard, H.; Bond, B. J.; [and others]. 2002. *Oecologia*. 132: 12–20.

Return of the giants: restoring western white pine to the Inland Northwest. Fins, Lauren; Byler, James; Ferguson, Dennis; Harvey, Al; [and others]. 2002. *Journal of Forestry*. (June 2002): 20–26.

Agroforestry

Simulating the impact of human land use change on forest composition in the Great Plains agroecosystems with the Seedscape model. Easterling, William E.; Brandle, James R.; Hays, Cynthia J.; Guo, Qinfeng; Guertin, David S. 2001. *Ecological Modelling*. 140: 163–176.

Environmental management

Landscape connectivity: a graph-theoretic perspective. Urban, Dean; Keitt, Timothy. 2001. *Ecology*. 82(5): 1205–1218.

Disturbance ecology

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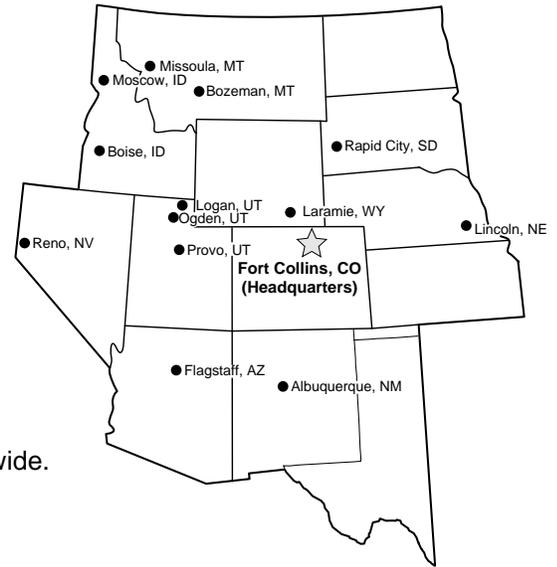
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