



NEWS

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San Dimas Technology and Development Center

Road Maintenance Video Series

The San Dimas Technology and Development Center (SDTDC) is distributing a five-part video series that focuses on environmentally responsible ways to maintain low-volume roads. These videos were developed for equipment operators and produced with the help of experienced road crews from the Coos Bay District of the Bureau of Land Management (BLM), and the Boise, Apache-Sitgreaves, and Coronado National Forests. An interdisciplinary team of Forest Service engineers, road managers, hydrologists, biologists, and soil scientists developed the scripts.

Video 1: *Forest Roads and the Environment* is an overview of how roads and environment interact. It highlights how the proper maintenance of low-volume roads helps maintain or improve fish habitat, maintain water temperature, and prevent the loss of aggregate surfacing material.

Video 2: *Reading the Traveled Way* focuses on understanding road conditions and provides insights on how to avoid costly repairs. Subjects covered include potholes, rutting, washboarding, damaged or filled cattle guards, and cracking.



The Road Maintenance video set focuses on environmentally responsible ways that equipment operators can maintain low-volume roads.

Video 3: *Reading Beyond the Traveled Way* shows that properly maintaining roads requires understanding what is happening beyond the road surface. Considering the natural functions before beginning maintenance operations can minimize impacts to the road. Topics include gullies, roadside ditches, ditch relief culverts, cracks, and slumps.

Video 4: *Smoothing and Reshaping the Traveled Way* covers smoothing and shaping of crowned roads, inslope roads, outslope roads, and transition sections.

Video 5: *Maintaining the Ditch and Surface Cross Drains* contains comprehensive instructions on maintaining ditches, culverts, and various surface cross drains. Subjects include heeling the ditch, pulling the ditch, rolling drain dips, interceptor bars, and earthen water bars.

For more information on this comprehensive road maintenance video series, contact Tony Edwards, project leader (phone: 909-599-1267, ext. 235; fax: 909-592-2309; e-mail: aedwards@fs.fed.us).

San Dimas Technology and Development Center

Measuring Ground Water Tables



An electronic water table logger helps provide more frequent and more accurate water table data.

Those who have measured ground water tables by hand know that a single measurement takes a lot of effort. Land-use plans and resource inventories are demanding more frequent and more accurate water table data. SDTDC investigated alternatives to manual data collection and compiled the information in the Inventory and Monitoring section of the SDTDC FSWeb site (accessible only to Forest Service and Bureau of Land Management employees): <http://fsweb.sdtc.wo.fs.fed.us/programs/im/fy01/summary01.shtml>

Three PowerPoint presentations provide test results from ground water measuring systems, brief pictorial instructions, and tips for persons who are measuring ground water tables. These products will usher in a new era of accuracy, reliability, and efficiency in projects requiring water table monitoring.

For further information about electronic water table loggers, contact Ryan Becker, project leader (phone: 909-599-1267, ext. 260; fax: 909-592-2309; e-mail: ryanbecker@fs.fed.us).

Technology Toolbox Project

As the Technology Toolbox project gets underway this summer, San Dimas will be evaluating several field data recorders and their software at the center and in field locations across the country.

The devices being evaluated range from ruggedized units like the Symbol and DAP recorders to consumer-quality Compaq and Casio units. All use the Windows CE (Pocket PC 2002) operating system. The National Cruise Data Entry (NATCDE) and Common Stand Exam (CSE) programs will be field tested on these recorders. GPS and mapping software will also be evaluated. Comparative results, including costs, capabilities, and the utility of the equipment, will be posted on the Forest Service's internal computer network as the evaluations are completed. Forest Service and BLM employees may access the Technology Toolbox page at: <http://fsweb.sdtc.wo.fs.fed.us/programs/fm/fy02/Techno/tech.html>



The Technology Toolbox project will be evaluating GPS-related equipment and software this year.

The Forest Management Steering Committee funds the Technology Toolbox project.

For more information about the project, contact George Broyles, project leader (phone: 909-599-1267, ext. 277; fax: 909-592-2309; e-mail: gbroyles@fs.fed.us).

San Dimas Technology and Development Center

Recreational Trail Traffic Counters

To help provide more accurate estimates of visitor use on National Forest lands, the Inventory and Monitoring Steering Committee has funded an evaluation of commercially available trail counters. SDTDC will work with the Missoula Technology and Development Center (MTDC) and the National Visitor Use Monitoring program (NVUM) to conduct this evaluation.

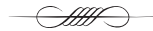


The San Dimas Technology and Development Center will be evaluating different trail traffic counters under a variety of climatic conditions beginning in the fall of 2002.

The primary goal is to identify counters that will work well in various environmental conditions, especially in winter. Each unit's success in counting vehicles, snowmobiles, skiers, hikers, and horse traffic will be analyzed. Counters will also be rated for their ease of use. In the fall of 2002, evaluations will begin at NVUM sampling sites on the Gallatin and San Bernardino National Forests. At the end of the project, a PowerPoint presentation will be available to help Forest Service personnel choose the best counter to fit their needs and environmental conditions. Forest Service and BLM employees can find more information on the evaluation of recreation traffic counters at: <http://fsweb.sdtcdc.wa.fs.fed.us/programs/im/fy02/reccounters/reccounters.html>

A field user's guide will be developed for distribution at a later date.

For more information on the trail counter evaluation program, contact George Broyles, project leader (phone: 909-599-1267, ext. 277; fax: 909-592-2309; e-mail: gbroyles@fs.fed.us).



Missoula Technology and Development Center

New Fire Shelter Selected

On June 7, 2002, the Federal Fire and Aviation Leadership Council, which includes the fire directors of all Federal wildland firefighting agencies, announced the selection of a new improved fire shelter. This new shelter, developed by the Missoula Technology and Development Center, will be distributed to wildland firefighters throughout the Forest Service and other land management agencies, replacing the current shelter. When this improved design is exposed to radiant heat, it shows a 22-percent decrease in temperature rise compared to the current shelter, and an 81-percent decrease when tested in direct flame. It will be easier to deploy and has wider floor panels for better protection. The rounded shape of the new shelter reduces its surface-area-to-volume ratio, minimizing radiant heat absorption while maximizing interior volume.



A new improved fire shelter developed by MTDC will soon be distributed to wildland firefighters throughout the Forest Service and other land management agencies.

Many new lightweight flame-retardant materials were evaluated during testing that began in 1998. Private industry, Federal agencies, and scientific sources were consulted for material and design ideas. Seventeen different materials or material combinations underwent full-scale testing. One manufacturer submitted a complete fire shelter design for testing alongside the MTDC prototypes.

The new shelter is made of two separate laminates. The outer material is foil laminated to a silica-based cloth, while the inner material is foil and fiberglass. The new shelter is slightly bulkier and heavier than the current design, weighing 4 pounds compared to the current shelter's 3.4 pounds. Of the new shelters tested, the chosen design exhibited the best combination of protective performance and strength.

For more information about the new fire shelter, contact Leslie Anderson, project leader (phone: 406-329-1043, fax: 406-329-3719, e-mail: landerson@fs.fed.us).

Missoula Technology and Development Center

Fuel Cell Project

The Missoula Technology and Development Center and a variety of partners and cooperators are installing a solid oxide fuel cell system at the Big Goose Ranger Station near Sheridan, WY. Big Goose is at an elevation of 7,700 feet and is 8 miles from the nearest electric power line. The station now relies on an aging propane generator for electricity and wood stoves for heat.

Fuel cell technology is rapidly advancing. While these precommercial units are not yet economically competitive with other existing power sources, fuel cells will someday give the Forest Service a clean, quiet, and efficient power source for isolated facilities.



MTDC and a group of cooperators are working together to provide the Big Goose Ranger Station with a fuel cell power system.

The Big Goose system consists of two 5-kilowatt, solid oxide propane-powered fuel cells. As this system is designed, installed, and monitored, MTDC will be publishing information on its cost effectiveness, how to determine if fuel cells are suitable for a particular site, how to obtain funding, and how to design and install them. Operational costs and maintenance requirements will also be examined.

For more information on the fuel cell program, contact Kathie Snodgrass, project leader (phone: 406-329-3922, fax: 406-329-3719, e-mail: ksnodgrass@fs.fed.us).

Portable Vehicle Washer

Wildfire suppression vehicles can unintentionally transport unwanted material, such as weed seeds, soil microorganisms, and fungal spores, to new locations. To reduce that possibility, a portable high-pressure, vehicle-washing system is being developed for use near fire operations. This system would have to effectively dislodge material from the vehicle's body, frame, and wheel wells without damaging electrical wiring or other parts.



Portable vehicle-washing systems will reduce the amount of weed seed and other undesirable material spread by vehicles operating on Forest Service roads.

Missoula Technology and Development Center

Portable Vehicle Washer *(continued)*

The system would have to be easy to transport and set up at wildland fire base camps. Additionally, wash water would have to be captured for cleaning and reuse.

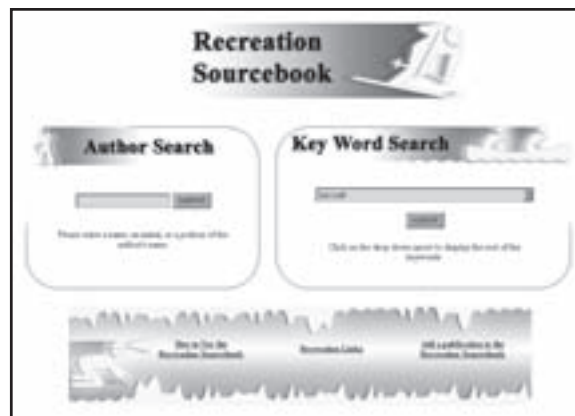
MTDC has designed and built a prototype system. This system uses a large mat with berms to contain the wash water and moving spray nozzles that clean the undercarriage. The entire system is mounted on a single trailer and can be towed by a ¾-ton pickup. In initial tests, this system successfully washed about 100 vehicles ranging in size from a pickup to a school bus. The current filtration system will trap spore-size particles. An investigation will be conducted into the use of ultraviolet light, ozone gas, or other methods to kill fungi and soil pathogens.

For more information on the portable vehicle-washing system, contact Dick Karsky, program leader (phone: 406-329-3921, fax: 406-329-3719, e-mail: rkarsky@fs.fed.us).

Recreational Impact Documents Available Online

A collection of documents dealing with backcountry and dispersed recreation impact and conflict issues is available online. This collection includes documents dealing with management concerns about recreation impacts and guidelines relating to seasons of use, physical settings, and carrying capacities. Author or keyword searches can help you find the information you need. Abstracts are available for most documents and some documents are available electronically. Forest Service and BLM employees can order printed copies directly from the Recreation Sourcebook FSWeb site at: <http://fsweb.mtdc.wo.fs.fed.us/servlets/recsrc>. Printed copies are mailed from the Rocky Mountain Research Station Library or the Aldo Leopold Research Institute.

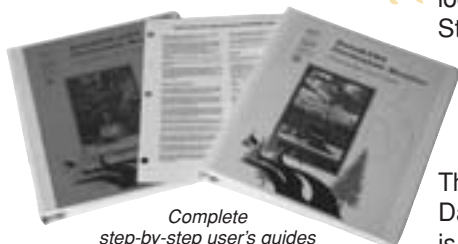
For more information about the Recreation Sourcebook Web site, contact Mary Ann Davies, project leader (phone: 406-329-3981, fax: 406-329-3719, e-mail: mdavies@fs.fed.us).



Documents dealing with backcountry and dispersed recreation issues are now available online.

Missoula Technology and Development Center

Smoke Particulate Monitor User's Guide



Complete step-by-step user's guides are designed to help personnel set up and operate particulate smoke monitors.

Forest Service user's guides for the DataRAM 2000 and DataRAM4 particulate monitors are now available. These guides provide helpful information for both the beginner and the experienced operator. They include instructions on where to best locate the DataRAM to collect local smoke data and how to assemble the instrument. Step-by-step operational instructions include:

- Starting a data collection run
- Stopping a run
- Downloading the data to a laptop
- Transferring the data to a spreadsheet

The guides help the operator set up the remote satellite telemetry system, configure the DataRAM for communication with the telemetry system, and confirm that the system is sending data to the Internet site. Laminated quick sheets (single-sheet field summaries) are also available.

For more information about the DataRAM user's guides and the particulate monitoring program, contact Mary Ann Davies, project leader (phone: 406-329-3981, fax: 406-329-3719, e-mail: mdavies@fs.fed.us).

To order a copy of 'DataRAM 2000 Particulate Monitor: Forest Service User's Guide' (0225-2803-MTDC) or 'DataRAM4 Particulate Monitor: Forest Service User's Guide' (0225-2801-MTDC), contact Jody Faircloth, MTDC publications (phone: 406-329-3978, fax: 406-329-3719, e-mail: jfaircloth@fs.fed.us).

MTDC Dedicates Its New Building

The Missoula Technology and Development Center held an open house June 20 to dedicate its new building. National and local dignitaries attended the event, including Director of Engineering Vaughn Stokes and Northern Regional Forester Brad Powell. Hundreds of Forest Service friends and center retirees enjoyed tours of the building. The new facility is just west of the Missoula International Airport next to the Northern Region Aerial Fire Depot and Missoula Fire Sciences Laboratory. MTDC employees worked in seven separate locations around Missoula before moving to the new building this spring. Having all shops, labs, field support facilities, and offices at one location will enhance the efficiency and effectiveness of the organization.



Retirees, friends of the Forest Service, and national and local dignitaries attended MTDC's open house and dedication.

The new building was designed with recycling and resource conservation in mind. Recirculating ground water cools the building, eliminating the use of air-conditioning units. This system saves energy and uses no refrigerants that could contribute to global warming. Natural light keeps most of the building bright and cheery without the need for electricity. Urinals that do not require flushing save an estimated 60,000 gallons of water a year, and pressed boards made from wheat straw (a waste product) are used extensively in the walls, balconies, and other areas. Sweeping laminated wood beams support the roof and are themselves a display of the modern use of forest products.

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