

Missoula Technology and Development Center (MTDC)
5785 Hwy. 10 West; Missoula, MT 59808-9361
Phone: 406-329-3900 • Fax: 406-329-3719
Forest Service Intranet Web site: <http://fsweb.mtdc.wo.fs.fed.us>

Number 2
2004

San Dimas Technology and Development Center (SDTDC)
444 East Bonita Ave.; San Dimas, CA 91773-3198
Phone: 909-599-1267 • Fax: 909-592-2309
Forest Service Intranet Web site: <http://fsweb.sdtdc.wo.fs.fed.us>

Internet Web site: <http://www.fs.fed.us/t-d> • Username: t-d Password: t-d

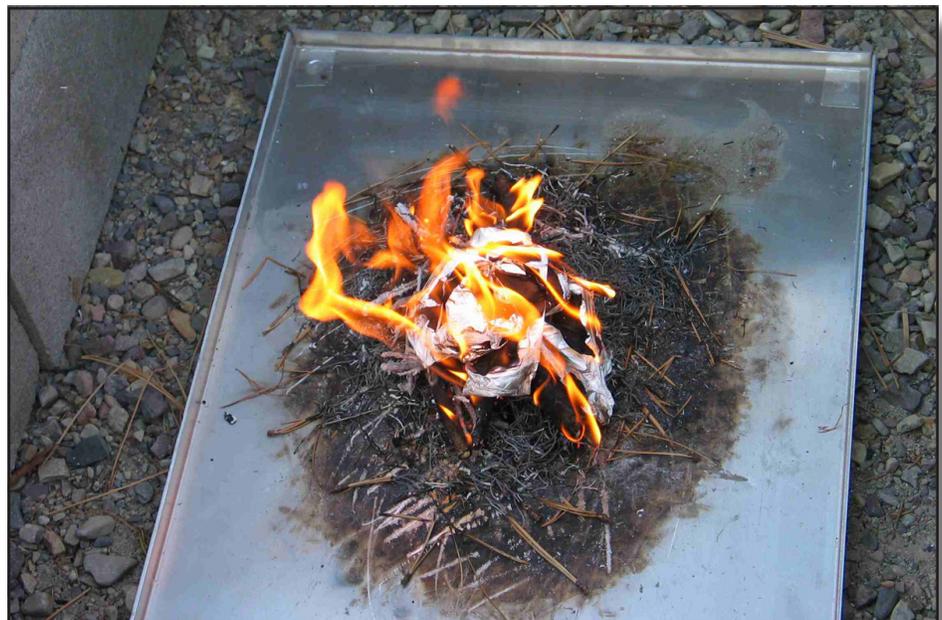
Recreation

Campfire Toxins

Building a campfire is part of the outdoor experience. Campfires not only provide light and warmth, they also appear to offer an easy means to dispose of discarded items. Rather than packing out cardboard boxes, sandwich bags, and baby diapers, many campers add these items to their campfires, not realizing that harmful toxins may be released into the air or left in the ashes when the campfire has burned down.

The tech tip, *What's Burning in Your Campfire? Garbage In, Toxics Out* (0423-2327-MTDC), provides information from an informal study by the Missoula Technology and Development Center (MTDC) of gas emissions and ash content from 27 products that are commonly burned in campfires.

The Rocky Mountain Research Station fire chemistry unit in Missoula, MT, used a gas chromatograph-mass spectrometer to analyze smoke samples. The study found campfires that just burn wood release a significant amount of air pollutants. When garbage is added to a campfire, the air pollutants increase.



Campfire Toxins (continued)

Ash samples also were collected. The University of Montana geology department analyzed the ash samples. Ash from a campfire that burns wood alone is essentially nontoxic, but when garbage is added to the fire, increased levels of toxic materials are left in the ash.

For more information on campfire toxins, contact Mary Ann Davies, project leader (phone: 406-329-3981; e-mail: mdavies@fs.fed.us).

USDA Forest Service and U.S. Department of the Interior Bureau of Land Management employees can view this tech tip on the USDA Forest Service's internal computer network at:

http://fsweb.mtdc.wo.fs.fed.us/php/library_card.php?p_num=0423%202327

Others can view the tech tip over the Internet (username: t-d, password: t-d)

http://www.fs.fed.us/t-d/php/library_card.php?p_num=0423%202327

To order the tech tip, contact Cailen Hegman, MTDC publications (phone: 406-329-3978; e-mail: cahegman@fs.fed.us).

A Modified Rock Crusher for Trails

The San Dimas Technology and Development Center (SDTDC) conducted a product search to find a mobile rock crusher with 6- to 8-inch adjustable jaws that could be operated by the hydraulic system of a trail dozer.

The electric Badger Jaw Crusher, from Braun Instrument Corp., was determined to be the most suitable of the crushers reviewed because it can crush a 6-inch rock, it weighs less than the typical rock crusher, and has a hopper that shields workers from rock fragments. After evaluating the electric Badger Jaw Crusher, the project leader suggested modifications to produce $\frac{3}{4}$ - to 2-inch crushed rock. The tech tip, Portable Rock Crusher for Trails (0423-1301P-SDTDC), describes the product search and performance testing of the modified crusher.

Electronic versions of the tech tip can be found at: <http://www.fs.fed.us/eng/pubs/html/04231301/04231301.html>

Printed copies of the tech tip can be ordered from the U.S. Department of Transportation Federal Highway Administration at: <http://www.fhwa.dot.gov/environment/retrails/trailpub.htm>



For more information on the modified Badger Jaw Crusher, contact Ellen Eubanks, project leader (phone: 909-599-1267, ext. 224; e-mail: eeubanks@fs.fed.us).

Two New Systems for Pumping Out Vault Toilets

While septic tank service companies pump out most USDA Forest Service vault toilets, these companies do not serve remote locations. USDA Forest Service personnel empty vault toilets in remote areas, often with unsuitable or outdated equipment. SDTDC developed specifications for a small vacuum pump service unit that will empty vault toilets.

A tech tip, Portable Vault Toilet Service Unit (0423-1304P-SDTDC), describes two different trailer-mounted vacuum pump systems available commercially that can do the job. Both feature a 500-gallon waste tank. One system has a 200-gallon clean water tank; the other system has a 500-gallon clean water tank.

Electronic versions of the tech tip can be found at:
<http://www.fs.fed.us/eng/pubs/html/04231304/04231304.html>

For more information about these portable vault toilet service systems, contact Brenda Land, project leader (phone: 909-599-1267, ext. 219; e-mail: bland@fs.fed.us).



A Better Way to Clean Recreational Sites

A high-pressure, low-volume portable pressure washer can help clean recreational structures and toilets more quickly, efficiently, and safely than brooms, mops, and brushes, or high-pressure water pumped by a fire engine. A portable pressure washer also can help reduce employee contact with hazardous chemicals. SDTDC was asked to find a high-pressure, low-volume portable washer to help clean recreational structures and toilets.

The tech tip, Portable Pressure Washer for Cleaning Recreational Sites (0423-1305P-SDTDC), describes four skid-mounted pressure washers available from commercial sources that meet USDA Forest Service needs. The new washers slip on

A Better Way to Clean Recreational Sites

(continued)

and off a pickup truck easily. Unlike fire engines, portable pressure washers are available during fire season.

Electronic versions of the tech tip can be found at: <http://www.fs.fed.us/eng/pubs/html/04231305/04231305.htm>

For more information about portable pressure washers, contact Dave Erlenbach, project leader (phone: 909-599-1267, ext. 264; e-mail: derlenbach@fs.fed.us).



Rigging Training for Trail Workers

Trail maintenance and construction require moving heavy objects in a variety of settings. Using a system of ropes, cables, and hoists (collectively known as rigging), trail workers can move heavy objects safely and efficiently. Training for the combined activities of tree climbing (needed



to attach anchors) and rigging is not offered by either the USDA Forest Service or the U.S. Department of the Interior Bureau of Land Management. MTDC was asked to locate sources of high-quality rigging training.

The MTDC tech tip, Advanced Tree Climbing and Rigging Training for Trail Workers (0423-2303-MTDC), provides information about a class offered by the California Department of Parks and Recreation.

Rigging Training for Trail Workers (continued)

Two Nez Perce National Forest employees, Susan Jenkins and Ian Barlow, attended the class, which combines classroom instruction with hands-on experience. The class, open to a limited number of Federal employees, is offered every 2 years.

For more information on advanced tree climbing and rigging training for trail workers, contact Bob Beckley, project leader (phone: 406-329-3996; e-mail: rbeckley@fs.fed.us).

USDA Forest Service and U.S. Department of the Interior Bureau of Land Management employees can view the tree climbing and rigging training tech tip on the USDA Forest Service's internal computer network at:

<http://fsweb.mtdc.wo.fs.fed.us/pubs/htmlpubs/htm04232303>

Others can view the tech tip over the Internet (username: t-d, password: t-d) <http://www.fs.fed.us/t-d/pubs/htmlpubs/htm04232303>

To order the tech tip, contact Caileen Hegman, MTDC publications (phone: 406-329-3719; e-mail: cahegman@fs.fed.us).

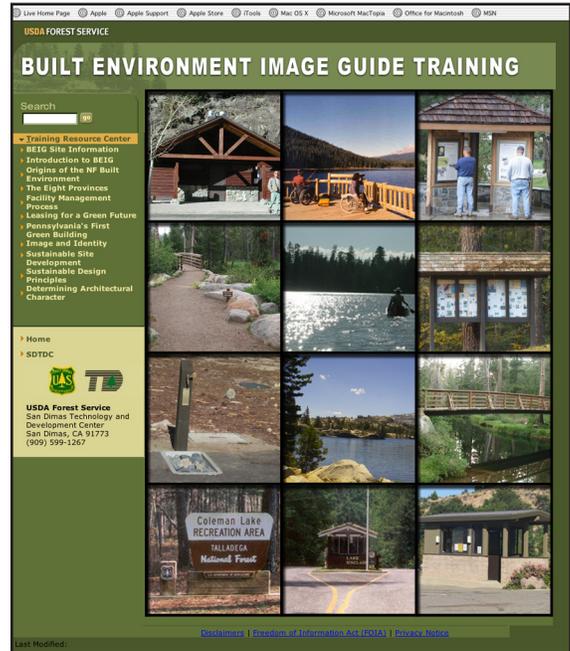
Built Environment Image Guide on the Web

While there is no substitute for traditional training with other students, a new SDTDC Web site provides an easy way to learn about the Built Environment Image Guide. For designing recreation and administrative facilities, this guide offers an approach that highlights key elements of the USDA Forest Service's national identity and image while ensuring that the facilities "fit" within their ecological, physical, and cultural surroundings.

The training information is organized into 10 chapters. Seven of the chapters are Flash movies, similar to automated PowerPoint presentations that are narrated; three of the chapters are videos. Each chapter is broken into segments for viewer convenience. Specific sections of interest can be accessed, skipped over, or repeated. Viewers can stop training and resume later where they left off.

USDA Forest Service and U.S. Department of the Interior Bureau of Land Management employees can view the training on the USDA Forest Service's internal computer network at:

http://fsweb.sdtc.wo.fs.fed.us/beig/BEIG_Training/default.htm



Vehicle and Bicycle Traffic Counts Accessed Remotely

Working with MTDC, SDTDC set up a system that uses the USDA Forest Service radio network to transmit visitor count data from the field to the office. Employees can access visitor counts and know when visitors are entering and leaving particular sites. The information is transmitted to the office automatically at predetermined times. Recreation managers also can request that data be transmitted at any time.



A prototype system has been set up at the Land Between the Lakes National Recreation Area in Kentucky and Tennessee. Vehicle traffic counters and telemetry equipment allow traffic count data to be downloaded automatically to a USDA Forest Service desktop computer. Mountain bike counters help monitor trail use. Counts include the date and time a visitor passes the site.

This project is sponsored by the Inventory and Monitoring Steering Committee. Additional information on the project can be found on the USDA Forest Service's internal computer network at:
<http://fsweb.sdtc.wo.fs.fed.us/programs/im/fy04/remotelyaccessed.shtml>

For more information about the remotely accessed visitor counting system, contact George Broyles, project leader (phone: 909-599-1267, ext. 277; e-mail: gbroyles@fs.fed.us).

Improving Monitoring of Heritage Sites

Thousands of heritage sites are found or monitored annually during field work. In most cases, information such as the site's contents, age, condition, National Register significance, size, and location is transcribed from handwritten field notes. The USDA Forest Service is field testing a mobile computing toolkit, which can save time and improve accuracy by providing electronic copies of field information in addition to the handwritten notes. The toolkit includes a handheld PC (iPAQ), a global positioning system unit, a digital camera, a laser rangefinder, and a SmartPad.



The SmartPad allows notes written on paper to be recorded with a special pen that transmits the information to the hand-held PC.

Other field tests are being conducted by the U.S. Department of the Interior Bureau of Land Management, the University of Georgia, and the University of Alabama. The toolkits cost about \$5,400, or \$2,500 excluding software, such as Pathfinder Office and Arc View, which are already licensed for USDA Forest Service users. A user's guide and a report on the toolkit are scheduled for publication in 2005.

For further information about the toolkit, contact Ellen Eubanks, project leader (phone: 909-599-1267, ext. 225; e-mail: eeubanks@fs.fed.us).

Forest Health Protection

A portable vehicle washer developed by MTDC can be used to remove weed seeds from vehicles and heavy equipment in remote locations.

The MTDC portable vehicle washer is a closed-loop system that uses a high volume of water under high pressure to remove dirt, fragments of vegetation, spores, and weed seeds from vehicles. The system recycles and filters the wash water, eliminating the need for a continuous supply of water.

The washer's major components consist of a high-pressure/high-volume diaphragm pump powered by a 25-horsepower Kohler engine, with two 175-gallon settling tanks, two bag-type filter systems, a 550-gallon holding tank for supply water, an industrial containment mat that catches the used wash water, and miscellaneous sump pumps and plumbing parts. The entire system is mounted on an 18-foot, tandem-axle trailer that can be pulled by a ¾-ton pickup truck.

Wands are used to wash most of the vehicle. Operators should concentrate on the wheels, wheel wells, bumpers, axles, suspension parts, and inside of the wheels where mud and seeds can collect. Additionally, the vehicle drives over an underbody washer when driving onto the containment mat and over another when driving off to help remove debris from the vehicle's undercarriage.

An illustrated report, MTDC Portable Vehicle Washer (0434-2819-MTDC), describes the system's development. An operator's manual, MTDC Portable Vehicle Washer System Operator's Manual (0434-2826-MTDC), also has been prepared.



Stop the Spread of Weeds With a Portable Vehicle Washer

(continued)

For more information on the portable vehicle washer system, contact Andy Trent, project leader (phone: 406-329-3912; e-mail: atrent@fs.fed.us).

To order the report, MTDC Portable Vehicle Washer (0434-2819-MTDC), contact Cailen Hegman, MTDC publications (phone: 406-329-3719; e-mail: cahegman@fs.fed.us).

USDA Forest Service and U.S. Department of the Interior Bureau of Land Management employees can view the report on the USDA Forest Service's internal computer network at:

<http://fsweb.mtdc.wo.fs.fed.us/pubs/pdfpubs/pdf04342819/pdf04342819dpi72.pdf>

Others can view the report over the Internet (username: t-d, password: t-d) <http://www.fs.fed.us/t-d/pubs/pdfpubs/pdf04342819/pdf04342819dpi72.pdf>

USDA Forest Service and U.S. Department of the Interior Bureau of Land Management employees can view the report, MTDC Portable Vehicle Washer System Operator's Manual (0434-2826-MTDC), on the USDA Forest Service's internal computer network at:

<http://fsweb.mtdc.wo.fs.fed.us/pubs/pdfpubs/pdf04342826/pdf04342826dpi72.pdf>

Others can view the report over the Internet (username: t-d, password: t-d) <http://www.fs.fed.us/t-d/pubs/pdfpubs/pdf04342826/pdf04342826dpi72.pdf>

Fire

New Headlamp and Improved Face and Neck Shroud

A new headlamp and an improved face and neck shroud are available for wildland firefighters. The MTDC tech tip, New Headlamp for Wildland Firefighters (0451-2317-MTDC), details the device's features, including a computer chip that

helps regulate power and light output, a brighter bulb with variable light levels, a push button that controls light output and turns the device on and off, a battery pack quick-disconnect, a contoured battery holder, and a rubber headband that fits any size helmet or can be worn directly on the head.

The MTDC tech tip, Improved Face and Neck Shroud for Wildland Firefighters (0451-2323-MTDC), provides information on a detachable shroud that helps protect firefighters from radiant heat without compromising work performance or comfort. The shroud was designed with the same Nomex material as the yellow shirts worn by wildland firefighters, attaches easily to a hardhat, and meets requirements set by the National Fire Protection Association (NFPA) Standard 1977, Protective Clothing and Equipment for Wildland Firefighters.

For more information on the new headlamp for wildland firefighters, contact Dennis Davis, project leader (phone: 406-329-3929; e-mail: ddavis02@fs.fed.us).

USDA Forest Service and U.S. Department of the Interior Bureau of Land



New Headlamp and Improved Face and Neck Shroud (continued)

Management employees can view the headlamp tech tip on the USDA Forest Service's internal computer network at:

<http://fsweb.mtdc.wo.fs.fed.us/pubs/htmlpubs/htm04512317>

Others can view the tech tip over the Internet (username: t-d, password: t-d)

<http://www.fs.fed.us/t-d/pubs/htmlpubs/htm04512317>

For more information on the improved face and neck shroud for wildland firefighters, contact Tony

Petrilli, project leader (phone: 406-329-3965; e-mail: apetrilli@fs.fed.us).

USDA Forest Service and U.S. Department of the Interior Bureau of Land Management employees can view the face and neck shroud tech tip on the USDA Forest Service's internal computer network at:

<http://fsweb.mtdc.wo.fs.fed.us/pubs/htmlpubs/htm04512323>

Others can view the tech tip over the Internet (username: t-d, password: t-d)
<http://www.fs.fed.us/t-d/pubs/htmlpubs/htm04512323>

To order MTDC tech tips, contact Cailen Hegman, MTDC publications (phone: 406-329-3978; fax: 406-329-3719; e-mail: cahegman@fs.fed.us).



Care and Maintenance of Forest Service Chain Saw Chaps

The tech tip, Inspecting, Cleaning, Repairing, and Retiring USDA Forest Service Chain Saw Chaps (0451-2324-MTDC), offers information to help properly care for, maintain, and repair chain saw chaps. Proper maintenance will increase the life of the chaps and help them protect chain saw operators.

Guidelines will help chain saw operators recognize when chain saw chaps need to be repaired or replaced. This tech tip replaces Inspecting and Repairing Your Chain Saw Chaps (8267-2505-MTDC).



Care and Maintenance of Forest Service Chain Saw Chaps (continued)

Since 1965, the USDA Forest Service has provided specifications for cut-resistant, protective chaps that have prevented thousands of serious injuries. MTDC has tracked chain contact injuries and accidents for 35 years and has used the information to improve the design and effectiveness of chain saw chaps.

For more information on the proper care and maintenance of chain saw chaps, contact Tony Petrilli, project leader (phone: 406-329-3965; e-mail: apetrilli@fs.fed.us).

USDA Forest Service and U.S. Department of the Interior Bureau of Land Management employees can view the chain saw chaps tech tip on the USDA Forest Service's internal computer network at:

<http://fsweb.mtdc.wo.fs.fed.us/pubs/htmlpubs/htm04512324>

Others can view the tech tip over the Internet (username: t-d, password: t-d) <http://www.fs.fed.us/t-d/pubs/htmlpubs/htm04512324>

To order the tech tip, contact Cailen Hegman, MTDC publications (phone: 406-329-3978; e-mail: cahegman@fs.fed.us).

Wildland Firefighter Health and Safety Report

Issue No. 8 of the Wildland Firefighter Health and Safety Report (0451-2802-MTDC)

focuses on efforts to maintain immune function in wildland firefighters. The report includes:

- Summaries of recent field studies related to immune function.
- Proven strategies for maintaining immune function during wildland fire suppression.
- Guidelines for selecting liquid and solid energy supplements to maintain immune function in firefighters working in arduous conditions.

For more information on immune function, contact Brian Sharkey, project leader (phone: 406-329-3989; e-mail: bsharkey@fs.fed.us).

USDA Forest Service and U.S. Department of the Interior Bureau of Land Management employees can view the report on the USDA Forest Service's internal computer network at:

<http://fsweb.mtdc.wo.fs.fed.us/pubs/pdfpubs/pdf04512802/pdf04512802dpi72.pdf>

Others can view the report over the Internet (username: t-d, password: t-d) <http://www.fs.fed.us/t-d/pubs/pdfpubs/pdf04512802/pdf04512802dpi72.pdf>

To order a copy of the report, contact Cailen Hegman, MTDC publications (phone: 406-329-3719; e-mail: cahegman@fs.fed.us).

Wildland Firefighter Health & Safety Report
Spring 2004 Missouri Technology and Development Center No. 8

In this issue:

- Immune Function
- Field Studies
- Operational Strategies
- Maintaining Immune Function
- Energy Supplement Guidelines

Immune Function

The Wildland Firefighter Health and Safety project was outlined during a national conference summarized in the report, *Wildland Firefighter Health and Safety: Recommendations of the April 1999 Conference* (9951-2841-MTDC). One of the scientific presentations at the conference was on "Wildland Firefighting and the Immune Response." The featured topic in this issue of the *Wildland Firefighter Health and Safety Report* outlines current efforts

to maintain immune function in wildland firefighters, including the use of immune function as an objective measure for determining shift length and the length of an assignment. The section on research provides summaries of recent field studies related to immune function. The risk management section outlines proven strategies for maintaining immune function during wildland fire suppression activities. The field notes section presents guidelines for selecting liquid and solid energy supplements to maintain immune function in wildland firefighters.

Background

This report, the eighth in a series, reviews activities related to the Missouri Technology and Development Center (MTDC) project on wildland firefighter health and safety. The project focuses on three main areas:

Work, Rest, and Fatigue
Determination of work/rest guidelines, recommended assignment lengths, and fatigue countermeasures for crews and overhead personnel.

Energy and Nutrition
Improvement of the energy intake, nutrition, immune function, and health of wildland firefighters.

Fitness and Work Capacity
Use of work capacity and medical standards to ensure the health, safety, and productivity of wildland firefighters.

A firefighter collects an immune function sample (salivary immunoglobulin).

TD 0451-2802-MTDC

Evaluating Water Rakes

Firefighters use water rakes during mopup operations. The tech tip, Water Rakes (0451-1306P-SDTDC), describes how SDTDC evaluated two water rakes, the Hydro-Rake and the Rhines Rake, in field locations.

The Hydro-Rake weighs 7 pounds and is 61 inches long.

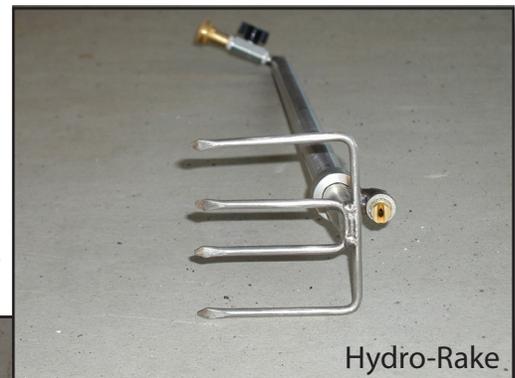
The length is good for mopup, but makes the Hydro-Rake difficult to store. The rake has stiff tines to penetrate deep duff and move

smoldering timber. Water sprays from the tips of the rake's tines at 10 gallons per minute. The rate can be reduced by using nozzles with a lower flow rate. This rake should be used primarily as a mopup tool in brush and bare soil. The rake is most effective in pine needles and light fuels. It is not recommended for digging fireline, although the manufacturer suggests that use.

The Rhines Rake weighs 3 pounds, about half as much as the Hydro-Rake, and is slightly longer (63 inches). The rake can only scratch the surface of the ground because its tines bend with minimal force. Firefighters find it difficult to mix dirt and burning embers, because the rake only can be used with a pulling motion. The rake often seizes during field use, but it works well in duff and needles when ground debris is shallow. A modification kit makes the rake easier to use and only increases its weight to 4 pounds.

For more information about water rakes, contact Ralph Gonzales, project leader (phone: 909-599-1267, ext. 212; e-mail: rhgonzales@fs.fed.us).

Electronic versions of the water rakes tech tip can be found at: <http://www.fs.fed.us/eng/pubs/html/04511306/04511306.html>



Hydro-Rake



Rhines Rake

Slash Bundler CD

The CD, Forest Residues Bundling Project (0451-2CO2-MTDC), presents information from a study conducted in the summer of 2003 by the USDA Forest Service to evaluate new technology for collecting and compressing forest residues into bundles. Forests in the United States contain millions of tons of biomass. Using this biomass to generate heat and electricity has great potential in the Western States. The challenge is to find ways to remove biomass from forests economically and without causing environmental damage.



Slash Bundler CD (continued)

The CD contains a full copy of the New Technology for Residue Removal Report in both HTML and Acrobat formats. A 15-minute video presents an overview of the study. A gallery of pictures suitable for use in PowerPoint presentations also is included.

For more information on the slash bundling project, contact Bob Rummer, project leader (phone: 334-826-8700; e-mail: rrummer@fs.fed.us).

To order the CD, contact Cailen Hegman, MTDC publications (phone: 406-329-3719; e-mail: cahegman@fs.fed.us).

Aviation

Conducting Aerial Drop Tests

The USDA Forest Service's aerial delivery project has developed procedures for conducting drop tests to quantify retardant drop patterns produced by rotary and fixed-wing airtanker retardant delivery systems. Drop testing serves as the most accurate means of measuring retardant ground patterns.

Basically, a grid of cups is laid out and the airtanker drops the retardant over the grid. Cups with retardant are capped and weighed, and the data collected during the weighing process are used to produce ground pattern contour plots and to calculate the coverage area. Examples of test matrices and grid setup instructions are provided in the report, along with a sample list of equipment used in a drop test.

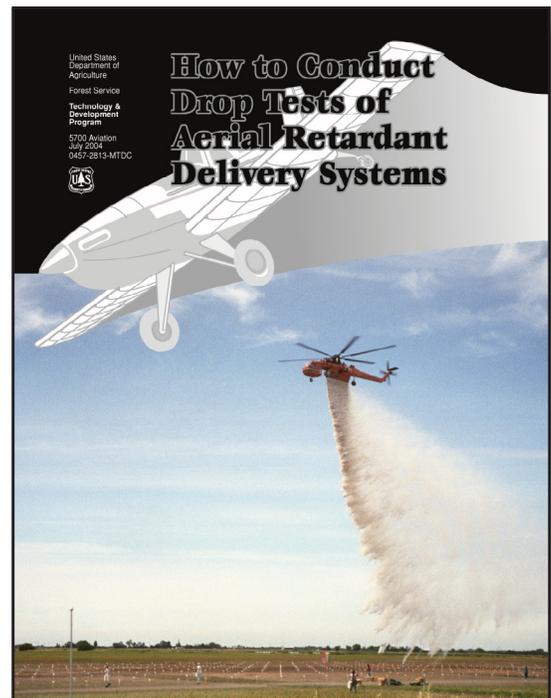
Data from drop testing are used to quantify performance of retardant delivery systems, to define performance requirements set by the Interagency Airtanker Board, to establish a relationship between drop parameters (particularly flow rate) and drop pattern (coverage levels), and to compare the performance of different retardant delivery systems.

The report, *How to Conduct Drop Tests of Aerial Retardant Delivery Systems* (0457-2813-MTDC), describes the procedures for conducting drop tests.

For more information on aerial drop testing, contact Greg Lovellette, project leader (phone: 406-329-4815; e-mail: glovellette@fs.fed.us).

USDA Forest Service and U.S. Department of the Interior Bureau of Land Management employees can view the report on the USDA Forest Service's internal computer network at:

http://fsweb.mtdc.wo.fs.fed.us/php/library_card.php?p_num=0457%202813



Conducting Aerial Drop Tests (continued)

Others can view the report over the Internet (username: t-d, password: t-d) http://www.fs.fed.us/t-d/php/library_card.php?p_num=0457%202813

To order the report, contact Cailen Hegman, MTDC publications (phone: 406-329-3719; e-mail: cahegman@fs.fed.us).

Safety and Health

Safety and Health Displays

For years, the USDA Forest Service has taken displays to meetings, conferences, and even county fairs to highlight important programs. Now a portable national safety and health display is available for special events. The display comes in two sizes: a table model and a floor model.



The display was unveiled at the 2004 USDA Forest Service Safety and Health Conference in Philadelphia.

The safety and health displays can be reserved by contacting Gary Hoshide at least 2 weeks in advance (phone: 406-329-1029; fax: 406-329-3719; e-mail: ghoshide@fs.fed.us).

The requesting unit and MTDC will share shipping charges.

Engineering

People In, Rodents Out

The chill of fall has many rodents scurrying to find a comfortable, warm place to spend the winter. When USDA Forest Service employees clean structures in the spring, they may be exposed to hantavirus pulmonary syndrome, a potentially fatal illness transmitted in rodent droppings.



People In, Rodents Out (continued)

The tech tip, Controlling Rodents in Forest Service Facilities: Reports From the Field (0471-2332-MTDC), summarizes the issue before describing steps employees can take to help keep rodents out, to control rodents that get in, and to inspect and sanitize facilities.

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

USDA Forest Service and U.S. Department of the Interior Bureau of Land Management employees can view the tech tip on the USDA Forest Service's internal computer network at:

<http://fsweb.mtdc.wo.fs.fed.us/pubs/htmlpubs/htm04712332>

Others can view the tech tip over the Internet (username: t-d, password: t-d) <http://www.fs.fed.us/t-d/pubs/htmlpubs/htm04712332>

Sediment Production From Aggregates Used for Road Building

Careful selection of local aggregate materials for road building can minimize construction and maintenance costs and reduce the detrimental effects of sedimentation, such as stream degradation. The Rocky Mountain Research Station, working with the Willamette National Forest, investigated the sediment production of different aggregates. The aggregates included nine basalts, three quartzites, two welded tuffs, two alluvial, one glacial outwash, and one limestone. A range of performance tests, including simulated rainstorms and heavy truck traffic from a logging truck simulator, were used to evaluate each aggregate.



Simulated heavy truck traffic.

A tech tip discussing test methods and results, Sediment Measurements From Multiple Aggregate Sources: Not All Aggregates Perform Identically (0477-1308P-SDTDC), is available at:

<http://www.fs.fed.us/eng/pubs/html/04771308/04771308.htm>

The complete study was presented at the 2003 Low Volume Roads Conference. It is available at:

<http://forest.moscowfsl.wsu.edu/cgi-bin/engr/library/searchpub.pl?pub=2003c>

For further information on this study, contact Mike Mitchell, civil engineer (phone: 909-599-1267, ext. 212; e-mail: mrmitchell@fs.fed.us) or Randy B. Foltz, research engineer, at the Rocky Mountain Research Station (phone: 208-883-2312; e-mail: rfoltz@fs.fed.us).

2003 USDA Forest Service Engineering Technician of the Year

SDTDC mechanical engineering technician Joseph D. Fleming was selected as Engineering Technician of the Year as part of the 2003 Engineer of the Year awards. Fleming was honored in Washington, DC at the U.S. Department of Agriculture 2003 Forest Service Engineer of the Year award luncheon on April 5, 2004. Director of Engineering Vaughn Stokes presented a special plaque and cash award to Fleming. Other winners and a summary of their accomplishments appear in Engineering Field Notes (volume 36, issue 1).



USDA Forest Service and U.S. Department of the Interior Bureau of Land Management employees can view Engineering Field Notes on the USDA Forest Service's internal computer network at:

<http://fsweb.mtdc.wo.fs.fed.us/pubs/htmlpubs/htm04713806>

Others can view Engineering Field Notes over the Internet (username: t-d, password: t-d) <http://www.fs.fed.us/t-d/pubs/htmlpubs/htm04713806>

Controlling Erosion With Wood Strands

A new tech tip from SDTDC, Wood Strands as an Alternative to Agricultural Straw for Erosion Control (0423-1302P-SDTDC), discusses using wood strands as an alternative to agricultural straw for controlling erosion.



Wood that can be converted to wood strands often is available in areas where disturbed soil is subject to erosion, such as burned areas, timber harvest landings, decommissioned roads, and road cuts and fills. Straw also is used to control erosion, but straw must be transported to such areas and may include weed seeds.

Tests conducted in a rainfall simulator by the Rocky Mountain Research Station show that wood strand material is statistically equivalent to straw in reducing runoff and sediment production.

Electronic versions of the wood strands tech tip can be found at: <http://www.fs.fed.us/eng/pubs/html/04231302/04231302.html>

For more information on testing wood strand material for erosion control, contact L'Tanga Watson, project leader (phone: 909-599-1267, ext. 206; e-mail: lwatson02@fs.fed.us) or Randy B. Foltz, research engineer, at the Rocky Mountain Research Station (phone: 208-883-2312; e-mail: rfoltz@fs.fed.us).

New Faces



Tammy Petersen joined MTDC as a financial technician in March 2004. Tammy began her USDA Forest Service career as a clerk-typist at the Helena National Forest in 1988. She has an associate's degree in accounting from the University of Montana-Helena College of Technology and has worked as a resource clerk in timber, a computer technician, a purchasing agent, a financial assistant, and an accounting technician during her 16-year career.



Rhonda Zamora joined SDTDC in April 2004 as the business management assistant. She started her government career in 1982 performing administrative and secretarial duties in the Staff Judge Advocate and Management Analysis office, part of the U.S. Department of Defense at the Marine Corps Logistic Base in Barstow, CA. In 2001, she took a position as a secretary to the research leader of the Soil Physics and Pesticides Unit of the U.S. Salinity Laboratory, USDA Agricultural Research Service, in Riverside, CA.



Kendall Mingey joined MTDC as a Web intern in June 2004. Kendall graduated from Cornell University in 2001 with a bachelor's degree in fine arts (sculpture) and will be attending the University of Montana this fall in pursuit of her master's degree. Kendall has worked at the Black Mountain Ranch in McCoy, CO, where her responsibilities included maintaining and updating the ranch's Web site.



Connie McMichael joined MTDC as the new electronics lab technician in August 2004. Her career with the USDA Forest Service began in 1998 as a radio technician on the Clearwater National Forest. Originally from the Louisiana Delta, Connie has 23 years of experience working on diverse electronics, avionics, and mechanical systems for the Federal Government.

Forest Service Technology & Development Program

PROJECT PROPOSAL

Project Name/Title:



Date: _____

Submitted by: _____

Unit: _____

Address: _____

Phone: _____ E-mail: _____

OVERALL PROBLEM/OBJECTIVE STATEMENT *(Describe the problem, how the work is currently being done, and why improvement is needed):*

PROPOSED TECHNOLOGY & DEVELOPMENT WORK *(Describe your concept of the end product, such as a new equipment design, a PowerPoint presentation, a video, a handbook, Web site, CD, etc.):*

POTENTIAL BENEFITS *(Describe how this project will reduce cost, save time, improve safety, increase efficiency, or improve resource management):*

Center Manager
San Dimas Technology & Development Center
444 East Bonita Ave.
San Dimas, CA 91773-3198
Phone: 909-599-1267
Fax: 909-592-2309



Center Manager
Missoula Technology & Development Center
5785 Hwy. 10 West
Missoula, MT 59808-9361
Phone: 406-329-3900
Fax: 406-329-3719

Return address

Stamp

TECHNOLOGY AND
DEVELOPMENT
PROGRAM



USDA Forest Service
Missoula Technology and Development Center
5785 Hwy. 10 West
Missoula, MT 59808-9361

The Forest Service, United States Department of Agriculture (USDA), has developed this information for the guidance of its employees, its contractors, and its cooperating Federal and State agencies, and is not responsible for the interpretation or use of this information by anyone except its own employees. The use of trade, firm, or corporation names in this document is for the information and convenience of the reader, and does not constitute an endorsement by the Department of any product or service to the exclusion of others that may be suitable.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, sex, religion, age, disability, political beliefs, sexual orientation, or marital or family status. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD).

To file a complaint of discrimination, write USDA, Director, Office of Civil Rights, Room 326-W, Whitten Building, 1400 Independence Avenue, SW, Washington, D.C. 20250-9410, or call (202) 720-5964 (voice and TDD). USDA is an equal opportunity provider and employer.