



NEWSLETTER

70 YEARS OF INNOVATION

The Forest Service's National Technology and Development Program

BY SUNNI BRADSHAW, ADAM MCCAWE AND BOB BECKLEY



A HISTORY OF ADVANCING TECHNOLOGY The Missoula Technology and Development Center on the Forest Service campus, adjacent to the Missoula International Airport. The campus includes the Fire Sciences Laboratory, Aerial Fire Depot and Smokejumper Center. *(Scott Hawk)*

FOR 7 DECADES THE U.S. DEPARTMENT OF AGRICULTURE, Forest Service's National Technology and Development Program, has provided practical solutions to problems identified by its employees and partners. The program helps the Forest Service manage the nation's natural resources efficiently and safely. Other agencies and private groups have adopted many of the program's solutions.

The National Technology and Development Program (T&D) operates two centers -- one in Missoula, Montana and the other in San Dimas, California. The combined staff of 107 people works on about 250 projects each year.

SAN DIMAS TECHNOLOGY AND DEVELOPMENT CENTER: After World War II, Forest Service employees began consolidating equipment development activities, including the modification of surplus military equipment

at the Arcadia Fire Equipment Development Center in Arcadia, California. In the late 1940s a conference of Forest Service range managers and researchers recognized the need to improve, develop and adapt equipment for range seeding.

In 1965, fire activity in Southern California, evolving industrial and academic centers, and an available Forest Service facility, provided the opportunity to move the Arcadia center to San Dimas, California.

MISSOULA TECHNOLOGY AND DEVELOPMENT CENTER: During the late 1940s Forest Service employees at the Aerial Fire Depot in Missoula, Montana began working on more effective ways to use aircraft for fighting fires in remote areas. When aircraft detected a forest fire, dispatchers quickly sent smokejumpers and cargo to be dropped on the fire. The success of these techniques

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The **NEWSLETTER** is published quarterly for the members and supporters of the National Museum of Forest Service History, a non-profit corporation dedicated to preserve the history of the Forest Service and conservation.

MEMBERSHIP DUES

Student	\$15
Individual	\$30
Family	\$55
Contributing	\$150
Sustaining	\$300
Organization	\$100
Lifetime	\$1,000

MUSEUM NEWS

NEW PRESIDENT-ELECT - During the January 2015 board meeting, the directors adopted new by-laws to establish the position of President-elect. **Tom Thompson** was elected by the board to this position. Tom will become the museum president on January 1, 2016. The terms for all officers were changed to a variable term of 3 to 5 years. Other officers elected include: Vice-President **Dave Stack**, Secretary **Beryl Johnston** and Treasurer **Mike Paterni**.

BUNGALOW OPEN HOUSE - The Bungalow Ranger Station cabin was open to visitors during the 75th Anniversary Smokejumper Reunion last July. Historical photographs and artifacts from U.S. Forest Service history were on display; including a wedding dress made from a nylon parachute in 1949. Executive Director **Dave Stack** was interviewed on a Missoula morning TV program and public service announcements aired in the local media advertising the event. Over 60 people visited the bungalow ranger station during the open house. Thanks to our volunteers: **Tom and Barbara Schenarts, Earl Reinsel, Jack and Lois Puckett and Dave Graham**. Tom Schenarts and Earl Reinsel, as Bungalow District Rangers, lived in the residence with their families. The Bungalow Ranger Station was a remote in-and-out District on the **Clearwater National Forest** that moved twice a year to and from **Orofino, Idaho**.



LOCAL TV Dave Stack is interviewed by Megan Boykoff for ABC/FOX news. (Scott Hawk)

BOOK READING - The museum, along with the **University of Montana**, will co-host a book reading by **Jim Furnish**

on September 17th from 7-8:30 pm for his book **Toward a Natural Forest: The Forest Service in Transition**. In it Jim chronicles his experiences during his Forest Service career, culminating with his final assignment as Deputy Chief. The event will be held in room 105 of the Native American Studies Building on the UM Campus. **Toward a Natural Forest** offers an insider's view of a turbulent time during the 1990s -- presenting twin tales of transformation; both in the agency and in the author's evolving environmental consciousness. The museum's role as historians is to gather history from many sources. The museum's interpretive policy stresses the importance of telling the whole story from all viewpoints. Our goal is to be historically accurate and nonjudgmental -- We don't avoid controversial subjects. But as a museum we are unable to endorse proposals advocating changes to current Forest Service policy or management. Executive Director **Dave Stack** will make a statement on museum policy and offer information about the museum at the start of the book reading.

CORPORATE PARTNERS - We welcome **Mason, Bruce & Girard, Inc.** as a new corporate partner. The Corporate Partner is a new program with the objective to develop working relationships with organizations that are a part of the history of the United States Forest Service. Other corporate partners include: **Arch Coal, Mason, Steamboat Ski & Resort Corporation** and **Winter Park Resort**. We are currently working with **Stephen E. Fairweather**, President of MB&G, to develop a virtual museum exhibit on "**Jim Girard** - Legendary Timber Cruiser."

2014-2015 ANNUAL REPORT - The annual museum report will be available on our website. The report provides an update on museum programs, accomplishments and plans for the future. It also will include a list of donors to the capital campaign. ■



2015

Rally on the Rio

ALBUQUERQUE, NM

**NATIONAL FOREST SERVICE
RETIRES REUNION
ALBUQUERQUE, NEW MEXICO
OCTOBER 11-16, 2015**

Join us for the **2015 National Forest Retirees Reunion** in Albuquerque, New Mexico at the *Marriott Pyramid* on October 11-16, 2015.

Co-sponsored by the **National Museum of Forest Service History**, the event is taking place the week after the Albuquerque International Balloon Fiesta -- so come early to enjoy the festivities!

We're anticipating over 1,000 retirees from all over the United States to

attend the event. If you'd like to join us, we'd love to see you! This year's events include cultural and historical presentations along with oral histories from selected individuals.

Reunion registration and hotel reservations are now open! Visit the www.2015.fsreunions.org for more information.

**NATIONAL MUSEUM OF
FOREST SERVICE HISTORY
ANNUAL MEMBERSHIP MEETING
OCTOBER 15, 2015**

The National Museum of Forest Service History **annual membership meeting**

will be held at the National Forest Service Reunion, *Rally on the Rio*.

Join us October 15, 2015 at 1:30 pm in the Cancun Room at the *Marriott Pyramid North Hotel*, 5151 San Francisco Road NE, Albuquerque, New Mexico 87109.

Be sure to look inside your reunion registration packet for details about the museum and a **1925 Forest Ranger Examination**. Take the exam and turn it in at our display to be eligible for prizes.

The board of directors meeting will be held at the *Reunion Hotel* on Monday, October 12, at 3:00 pm in the Coronado Room. Members and non-members are welcome. ■



INCREASED OPERATING FUNDS NEEDED FOR EXPANDING PROGRAMS

The National Museum of Forest Service History continues to operate as a functioning museum as we raise funds for the 30,000 sq. ft. National Conservation Legacy and Education Center to be located in Missoula, Montana. We provide services for the care and storage of historic artifacts, access for researchers, loaning artifacts and create traveling exhibits.

Operating funds pay for normal organization costs; such as programs and services, insurance, repository and

office supplies, annual meetings and reports, member recruitment, this newsletter, financial audits, mail, utilities, and salary for our administrative assistant.

The operating fund budget for 2015 is \$43,000. This does not include funds for Executive Director **Dave Stack**, who has served as a full-time volunteer for 12 years, which is an annual in-kind donation of \$50,000. Dave will step down from his role as executive director on December 31, 2015 and continue as Vice President and manager of the repository.

An Executive Director is vital to continuing museum programs; such as the repository, traveling exhibits, virtual museum, education, and communication

See *FUNDS*, page 6



FIGHTING WILDFIRES Employees ready a 3/4 ton fire truck at the Marcel Ranger Station on the Chippewa National Forest in 1940; equipped with a hose, pump and water tank. (NARA)

led to the establishment of Missoula Aerial Equipment Development Center in 1953.

Center employees worked at a variety of locations before operations moved to Fort Missoula during the 1960s. In 2002, the Missoula Technology and Development Center moved to its own facility on the Forest Service campus, adjacent to the Missoula International Airport. The campus also includes the Fire Sciences Laboratory, Aerial Fire Depot and Smokejumper Center.

EXPANDING THE T&D PROGRAM'S ROLE

In 1987, the names of both centers were changed from Equipment Development Centers to Technology and Development Centers recognizing their expanding roles in solving issues nationally. Today, the two centers operate as one National Technology and Development Program.

A HISTORY OF ADVANCING TECHNOLOGY & PRESERVING TRADITION

THE 1940S

TESTING OF FIRE ENGINES: In T&D's early days the first projects involved improving firefighting equipment. T&D continues to improve all manner of fire equipment, helping fire-

fighters better manage wildland fires.

HELICOPTER RAPPELLING AND SHORT HAUL:

Since their introduction to firefighting in 1947, helicopters have delivered firefighters and gear to inaccessible terrain by landing in roadless areas or by rappelling when no landing areas are available. T&D tests cargo nets, rappelling ropes and descenders to ascertain their effectiveness and safety for use. The Forest Service recently adopted short haul techniques (suspending humans beneath a helicopter) to assist in extracting seriously injured employees from the fireground.

THE 1950S

TESTING SPARK ARRESTERS: Off-highway vehicles, motorcycles and chainsaws can start forest fires if their exhausts throw sparks. In 1952, T&D initiated spark arrester testing. Today, T&D continues to test and qualify spark arresters for use on lands administered by the Forest Service and other federal agencies.

TESTING FIRE SHELTERS: T&D began testing fire shelters carried by wildland firefighters in the 1950s. In the early 2000s, T&D developed a new version of the fire shelter. Although no shelter can protect firefighters from all conditions, the resulting fire shelters provide additional protection. Their fire shelters have saved the lives of more than 300 firefighters and prevented many more injuries.

THE 1960S

TESTING OF WILDLAND FIRE CHEMICALS: Since the early 1960s the T&D's Wildland Fire Chemicals group has provided detailed information on fire suppression and retarding chemicals. Once a product qualifies for use, the Forest Service adds it to the Qualified Products List (QPL).

FIREFIGHTER HEALTH AND SAFETY: In 1962, T&D and the University of



CLEARING SLASH Employees use a Bitterroot Mini Yarder, a low cost and mobile cable yarding system. The Bitterroot Mini Yarder is trailer mounted and pulled behind a pickup truck. (USDA)

Montana Human Physiology Laboratory began researching the wellbeing of wildland firefighters. Today, T&D tracks firefighter nutrition, fitness, heat stress, hearing conservation, smoke exposure, and job demands.

FIRE RESISTANT CLOTHING: The first product, a shirt treated with fire retardant chemicals, was issued in 1962. Trousers did not appear until 1974. The early shirts were made from an orange fabric. Yellow shirts were introduced in the late 1960s, after studies showed yellow to be more visible in dark and smoky environments.

THE 1970S

AERIAL DELIVERY SYSTEMS: T&D's Aerial Delivery Systems program began in the mid-1970s by evaluating fixed-wing and helicopter retardant delivery systems. T&D conducts drop tests for aircraft performance and provides support to fire and aviation management personnel.

AERIAL AND GROUND IGNITION: In the late 1970s, the Forest Service began using aerial ignition; such as gelled fuel delivered by helicopter, to reduce ground fuels. Currently, T&D is working on a spark-ignited utility-terrain vehicle torch to ignite ground fuels.

THE 1980S

IMPROVED LOGGING SYSTEMS: In the early 1980s, T&D developed the miniyarder that allows loggers to pull small-diameter logs from the forest. Unlike commercial yarders, the Bitterroot Miniyarder is small enough to haul in the bed of a pickup truck.

THE 1990S

SMOKEJUMPING EQUIPMENT: In the early 1990s, T&D worked with a private contractor to design a next generation Forest Service round parachute. The design eventually became the FS-14 parachute, which replaced the FS-12. U.S. Special Forces adopted the FS-14, which became the military's SF-10A parachute. In 2016, the Forest Service will begin transitioning to a Ram-air parachute system.

THE 2000S

ACCESSIBILITY: T&D develops equipment and guidebooks to help make campgrounds and recreation areas usable by people of all ages and abilities.

TREEMARKING PAINT: In the early 2000s, T&D facilitated the change from oil-based paint to water-based paint. T&D manages the tree marking paint contract to ensure that the Forest Service, U.S. Department of Interior and Bureau of Land Management are using the most effective and safe products available.

BRIDGE, ROAD AND EROSION RESOURCES: The National Forest System currently contains about 371,000 miles of roads that cross a



THE RIGHT STUFF A smokejumper tests a FS-14 parachute at the Technology and Development Center in Missoula, Montana. (USFS)

variety of ecosystems. T&D supplies resources to help managers maintain the integrity of road systems and surrounding areas.

THE 2010S

CHIEF INFORMATION OFFICE: In 2010, T&D began a program dedicated to supporting the Forest Service Chief Information Office (CIO). T&D provides a bridge between CIO and field personnel -- supplying valuable field requirements, pilot testing, and evaluation of new technologies; such as mobile and field data collection hardware and software.

HERITAGE PRESERVATION RESOURCES: Historic buildings are a significant part of the Forest Service recreation program. T&D helps preserve Forest Service heritage by developing guides for historic preservation and administration.

FOR MORE INFORMATION

Visit the T&D website at www.fs.fed.us/t-d or call the Missoula Technology and Development Center @ (406) 329-3900 or the San Dimas Technology and Development Center @ (909) 599-1267.

ABOUT THE AUTHORS

Sunni Bradshaw, Adam McCaw and Bob Beckley are staff members of the U.S. Forest Service Missoula Technology and Development Center. ■

BOOKS AVAILABLE MUSEUM STORE



Home on the Range: Montana's Eastside Ranger Stations By Vicky MacLean

MacLean describes the work of early forest rangers and their families as Montana's National Forest Ranger Stations, east of the Continental Divide, were established then changed over time. Information collected from the U.S. Forest Service archives and individuals. 140 pages. \$20 plus \$3.00 S&H.

FUNDS continued

conservation history. We need to increase our operating funds to hire a new Executive Director and expand our existing programs.

How much money is needed and what are the sources? At a minimum, the museum needs an additional income of \$60,000 a year to allow for the hiring of a full-time Executive Director. Additional income sources include an increase in membership, museum member donations, corporate partners and foundation grants.

Tom Petersen, our grant writer, has submitted 16 grant proposals this year. We're hopeful that we will receive several grants.

If you are a member and have not sent a gift to the museum this year, please consider making a donation of \$100 or \$500. We need to raise \$30,000 from our members to allow the hiring of an executive director.

Thank you for your generous support of the museum! ■



WELCOME Volunteers Tom & Barbara Schenarts talk with visitors at the Bungalow Ranger Station Open House last July. Over 60 people came to view artifacts and photographs on display. *(Dave Stack)*

DONATIONS

5/15/2015 - 8/18/2015

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HONOR ROLL NAMES

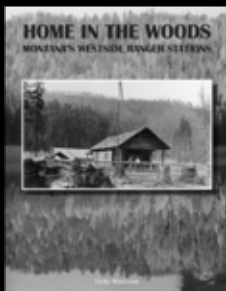
Arvin White
Randall Warner
Harvey P. "Hoot" Gibson

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Sid Haggard
Jerry E. Schmidt
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NEW LIFE MEMBERS

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Home in the Woods: Montana's Westside Ranger Stations
By Vicky MacLean

MacLean describes the work of early forest rangers and their families as Montana's National Forest Ranger Stations, west of the Continental Divide, were established then changed over time. Information collected from the U.S. Forest Service archives and individuals. 142 pages. \$20 plus \$3.00 S&H.

HOW TO ORDER

Send a check along with your order to:

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or visit

www.forestservicemuseum.org/store

MUSEUM REPOSITORY - LANTERN SLIDES

Bert Schoss of Oakhurst, California donated 51 Forest Service glass lantern slides in 1992. Most of the hand tinted color slides are of California locations and have outstanding color. These slides were not individually cataloged and scanned until this summer. The Forest Service used lantern slides in public

presentations about a ranger's work and conservation messages. The slides (3.25" X 4.0") were produced by black and white photography. The colored slides were colored by hand, since color photography was not widely available during the peak production of lantern slides. ■



A Stearman Biplane used for fire patrol, Santa Barbara National Forest, c. 1932.



Mt. Elwell Lookout Molly Ingolsby, Plumas National Forest, 1922.



Employees use a Type SP Radio on a fire line, Plumas National Forest, c. 1934.



Two men use a heliograph, Mendocino National Forest, c. 1910.

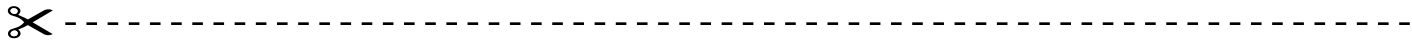


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MEMBERSHIP APPLICATION

Become a member of the National Museum of Forest Service History and help us preserve the history of the U.S. Forest Service. Fill out, detach and mail this form to P.O. Box 2772, Missoula, Montana 59806-2772.

YES - SEND THE NEWSLETTER TO MY EMAIL. NEW RENEWAL GIFT

Mr. ___ Ms. ___ Dr. ___ Name: _____

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|--------------------------------------|------|--|--------|
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| <input type="checkbox"/> Individual: | \$30 | <input type="checkbox"/> Sustaining: | \$300 |
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