



Field trip to Ghost Lake, Mount St. Helens National Volcanic Monument, by Keith Routman

LEARNING EVENTS

Symposia, Workshops, and Tours

- 1,167 people participated in symposia and workshops
- 1,373 people went on field trips
- 3,268 people participated in conservation education activities

THE PNW RESEARCH Station sponsors scientific and technical events each year, many with the help of partners including nongovernmental organizations, state and federal agencies, and universities. Below is a description of some of these events.

Adapting to Climate Change: At this 2-day short-course, about 30 scientists and land managers gathered at H.J. Andrews Experimental Forest to develop a climate change educational package. On day 1, scientists presented different aspects of climate change relating to natural resource management, and land managers suggested ways to present the information in a more accessible manner and address specific needs. On day 2, scientists delivered modified presentations which were filmed. These will be available as an electronic short-course at <http://www.fs.fed.us/ccrc>.

Airborne Laser Mapping for Forest Measurement: At this half-day workshop in Colville, Washington, station scientists presented the basics of airborne laser mapping (LIDAR) and its use for forest terrain and vegetation mapping to 40 attendees, including managers and specialists from the Colville National Forest, Washington Department of

Natural Resources, Washington Department of Fish and Wildlife, Homeland Security, county commissioners, Confederated Tribes of the Colville Reservation, Spokane Tribe, and several private forest owners and forestry consultants.

Audubon Society: Forty-five members of the Vancouver, Washington, chapter toured Mount St. Helens National Volcanic Monument and learned about ecosystem recovery after the Mount St. Helens eruptions. Another 35 members of the Kittitas chapter attended a “Nature of Night” presentation by a station scientist, and about 50 members of the Portland chapter learned about the nocturnal behavior of red tree voles from another station scientist.

BlueSky Stakeholders’ Meeting: About 50 people attended the annual meeting held this year in Boise, Idaho. New developments to the smoke modeling framework were presented, and users provided feedback about their experiences using the BlueSky framework.

BlueSky Training: At the request of the National Weather Service and the Pacific Northwest Coordination Center, station

scientists conducted a special training session for eight incident meteorologists. Participants learned how to use and interpret output from the BlueSky framework at this training held at the Pacific Wildland Fire Science Laboratory in Seattle, Washington.



John Laurence

Brown Bag Seminars: The Olympia Forestry Sciences Lab hosted a bimonthly brown bag seminar series for 120 natural resource professionals in the Puget Sound area.

Climate Change Short Course for Forest Service Managers: Station scientists presented an overview of climate change, climate models, and focused on vegetation models that might be useful for predicting the effects of climate change on ecosystems. In Denver, Colorado, 40 participants attended 2 days of informal lectures, group exercises, and open discussions aimed at identifying practical solutions to the agency mandate to include climate change in forest planning.



Fiber Optic Workshops: The H.J. Andrews Experimental Forests hosted two workshops where 80 scientists and technical specialists learned about distributed temperature sensing—a process that uses fiber optics to measure water temperature, airflow and the dynamics of snowmelt.

Fish and Fire Practitioner Workshop: Fifteen land managers and fire practitioners identified their information needs for managing for fish in fire-prone areas and managing for fire in areas with important fish habitat at this 2-day workshop in Portland, Oregon.

Fish and Fire Scientist Workshop: During this 2-day workshop in Portland, Oregon, 15 scientists explored the management questions posed by land managers and fire practitioners. Scientists shared their perspectives and suggested topics for synthesis

and new research. The workshop yielded a summary of the eight main management issues and outlined a research program that will help policymakers, managers, and practitioners make more informed choices when critical decisions are needed.

Forest Inventory and Analysis (FIA) Client Meeting: FIA updated 30 clients in Anchorage, Alaska, and 50 clients in Sacramento, California, on its activities over the past year and shared research findings. Clients also shared results from their research based on FIA data.

GIS Day 2007 Seminar: About 50 adults attended a seminar and poster session at Oregon State University about uses of geographic information systems (GIS). GIS Day is a global event with the goal of educating millions of children and adults about how geography and GIS make a difference in our lives.

Landscape Workshop: Eight scientists toured the Starkey Experimental Forest and Range to discuss climate change and how it might impact the deeply carved mountainous areas of the interior Pacific Northwest such as the Blue Mountains.

Large-Scale Management Experiments in Western Oregon: As part of the Society of American Foresters 2007 national convention, 35 resource managers, academics, and scientists visited the Green Peak Study Site in Benton County, Oregon, to observe various silvicultural approaches to managing young, second-growth Douglas-fir stands for development of late-successional forest habitat attributes.

Managing Fire With Fire in Alaskan Black Spruce Ecosystems: About 30 scientists and fire and resource managers attended this conference at the University of Alaska,

Fairbanks, to discuss findings from the Joint Fire Science Program on fire in black spruce ecosystems.

Meeting Complex Silvicultural Objectives Through Uneven-Age Management in the Douglas-Fir Region: There were 91 attendees at this workshop in Vancouver, Washington, which reviewed the latest concepts and applications for managing Douglas-fir west of the Cascades in uneven-aged stands for wildlife habitat, diverse forest products, and ecosystem services.

Molalla Forest Productivity Study Tour: Scientists from the station and Oregon State University met with the Silviculture Instructors Group of the Society of American Foresters and forest managers from Port Blakely Tree Farms LP to discuss strategies for managing logging debris and competing vegetation to enhance Douglas-fir productivity and soil resource sustainability. There were 66 participants.

Olympic Habitat Development Study Tour: Station scientists hosted a tour of the study area near Forks, Washington, for 20 natural resource professionals.

Prince of Wales Island Tour: Five members of a watershed restoration working group toured restoration sites on the island in

southeast Alaska and discussed opportunities to coordinate restoration activities with scientific studies designed to develop new effectiveness monitoring tools. A second tour on the island involved 15 people who discussed restoration effectiveness monitoring and ways to include nongovernmental environmental agencies and a broader range of Forest Service managers and research scientists in the working group.



John Laurence

RapidSpot Workshops: The workshops demonstrated a new training approach to fuel treatment planning. Teams worked on real data from home units rather than data prepared for a standardized training session. Teams also worked in a collective atmosphere to identify and solve analysis problems within a larger community of planners. Thirty participants attended the workshop in Portland, Oregon, 27 attended in Missoula, Montana, 25 attended in Berkeley, California, and 15 attended the workshop on the Fremont-Winema National Forest.

Riparian Recreation Management Workshop and Field Trip: Sixteen researchers and managers from Washington, Oregon, and Alaska met in Cle Elum, Washington, to discuss the challenges of managing for recreation and biophysical objectives in riparian and coastal environments. They also discussed policy, research, and case-study examples that highlight appropriate and defensible decisions regarding multiple riparian values.

Spotted Owl Field Tour and Bird Walks: As part of their annual meeting, 22 members of the American Ornithologist's Union viewed northern spotted owls in the Oregon Coast Range and discussed ecology and management of owls and old forests in western Oregon. Seven other bird walks were conducted with 88 people participating.

Water Resources Training for Line Officers: About 40 forest supervisors and district rangers attended this course in Sedona, Arizona. The session led by a station scientist addressed adaptation strategies for managing water resources in a changing climate.



The Rocky Mountain Elk Foundation Habitat Council tours the Starkey Experimental Forest and Range.

Conservation Education

Experimental Forests and Ranges: Lands for Learning

THE 11 EXPERIMENTAL AREAS within the Pacific Northwest Research Station provide a wide range of learning opportunities for everyone from the scientist emeritus to the kindergartner. A few of the fieldtrips and learning events held at these unique areas for long-term research are mentioned below.

- **The Caribou-Poker Creek Research Watershed** near Fairbanks, Alaska, hosted four classes of kindergartners who learned about the landscape of interior Alaska and invasive species.

- **The H.J. Andrews Experimental Forest** in Oregon hosted field trips and outdoor school for more than 400 elementary school children, middle schoolers, and university students. A common theme of these outings was teaching participants how to conduct research and write about their findings. An additional 840 visitors from around the world toured the forest in 2008 to learn about ongoing research. Five writers spent a week in the forest and 40 more participated in writing workshops.
- **At the Starkey Experimental Forest and Range** a variety of groups toured the elk handling facilities and learned about past and ongoing research projects. Fifteen people with the Oregon Parks and

Recreation Commission Advisory Group toured the experimental area to learn about the all-terrain-vehicle and hunting study. Sixteen students from the Union High School science club also toured the facilities, as did 8 people with La Grande Ranger District, 40 people with the Oregon Fish and Wildlife Commission and Oregon Department of Fish and Wildlife, 51 people with the Rocky Mountain Elk Foundation Habitat Council, and 3 congressional staffers.

- **The Wind River Experimental Forest** also hosted several activities include a pre-meeting tour associated with the Society of American Foresters National Convention, where station scientists provided an overview of the experimental forest and several silvicultural trials for 57 participants.

2008 Canon Envirothon: At this event, high school students learned about the connections between quality of life and the quality of the environment. Activities



2008 Canon Envirothon near Fairbanks, Alaska.



Glen Ahrens

Forest Camp near Lebanon, Oregon.

were geared to help them develop an understanding of forestry, soils, aquatic ecology, and wildlife. The event for 75 students was held at Chena Hot Springs Resort, near Fairbanks, Alaska.

Amphibians of Clark County: About 65 high school students learned about the life history and ecology of amphibians native to Clark County, Washington.

Bark Beetle Short Course: A PNW scientist presented a course titled “Bark beetles: how they communicate and why it’s important” to 20 students participating in Tree School East. This event, sponsored by Oregon State University and the station, was held at Eastern Oregon University in La Grande, Oregon.

Cool Careers in Science: Station scientists talked with elementary and high school students and their families about science careers with the Forest Service, particularly for women and minorities, at an event hosted by University of Washington-Bothell. Approximately 150 people attended.

Forest Camp: This outdoor learning event hosted by the Siuslaw National Forest in Lebanon, Oregon, taught 250 sixth graders about the web of life. This camp also featured an added segment on the role fungi play in forest ecosystems.

Forest Camp—Project Learning Tree:

Fifth and sixth graders near Sweet Home, Oregon, learned about the ecology of forests and the web of life, a concept illustrating the links among biotic and abiotic elements of forest ecosystems. Several station scientists contributed a day of instruction to 120 students.

Fungi in Our Forests: On this tour of a tree farm in Astoria, Oregon, 300 sixth graders from Clatsop County learned about the role fungi play in healthy forest ecosystems.

GIS Day 2007 Hike: About 450 students, teachers, and parents from schools in Corvallis and Portland, Oregon, participated in a global positioning systems hike around Oregon State University and attended a lecture about using GIS technology for climate mapping.



Diane Rainsford

GIS Day.



Keith Routman

Cedar Flats Research Natural Area, Washington.

Live Science Video Conference: About 450 high school students throughout Washington watched this live video conference and learned about the recovery of animal populations after the 1980 eruption of Mount St. Helens.

Natural History of Prairies: As part of a cooperative arrangement with New Market Skills Center, a vocational high school in Washington's Thurston County School District, 18 students visited the

Olympia Forestry Sciences Laboratory five times and learned about the natural history of prairies and forests. The students helped maintain a prairie garden, an oak savanna, and a forest trail.

Natural Resource Management: A PNW scientist presented two lectures to 40 high school students at New Market Skills Center in Washington. He talked about forest science, forest management, and the spotted owl.

Northwest Science Expo: The station sponsored "Outstanding Forest Science" awards that are given to a high school and middle school student at the Northwest Science Expo. This science fair for young scientists, engineers, and mathematicians, was held at Portland State University in March, and station scientists served as judges.

Oregon State University Extension Outdoor School: In Astoria, Oregon, 150 middle school students learned about the ecology of riparian zones through field and classroom sessions.

Petri Dish Experiment: By participating in an activity called "Growing fungi and bacteria from the dirt on our hands," 70 third graders from Liberty Elementary School District in Albany, Oregon, learned about the scientific method. The children rubbed dirty hands on an agar petri plate and then clean hands on another to see what sort of fungus and bacteria would grow.

Poster distribution: The station distributed approximately 2,200 posters related to Mount St. Helens, invasive species, fish, oak communities, old-growth forests, and sequoias. Most of these posters went to teachers in the Pacific Northwest, but teachers throughout the United States and overseas have also requested them.

Society and Natural Resources: A PNW scientist was invited to lecture on “One hundred years of landscape change: inland Northwest forests in transition.” Ten students attend this event at Wenatchee Valley Community College in Wenatchee, Washington.

Streams to Sea: In Juneau, Alaska, 40 first and second graders from Harborview Elementary learned about the hydrology of southeast Alaska. On the field trip they saw the flow paths of water from point of origin to streams and to the ocean.

Tour of Mount St. Helens National Volcanic Monument: Forty-five youth with the National Association for the Advancement of Colored People toured the monument and through hands-on lessons learned about the aquatic ecology at Mount St. Helens.

Training for Mount St. Helens National Volcanic Monument Interpreters and Staff: A PNW scientist led a training workshop for 30 interpreters and staff with the national volcanic monument, focusing on key messages to share with public.

Washington State Science and Engineering Fair: The station gave an “Outstanding Forest Science Project Award” to a 10th-grade student at the Washington State Science and Engineering Fair at Olympic College, Bremerton, Washington, in April. Station scientists also served as judges.



Students on a field trip near Mount St. Helens.

Wolfree: Station employees participated in ecology programs with Portland and Vancouver area middle and high schools. About 100 students were involved. The station also contributed funds for supplies and equipment.



Rowena State Park, Oregon, © Miles Hemstrom

HONORS AND AWARDS

Alaska Region Excellence in Science and Technology Award

Gordon Reeves, a research fish biologist with the Aquatic and Land Interactions Program, was honored by the USDA Forest Service Alaska Region for his spirit of partnership, which has fostered collaboration between research and management to develop projects and products that are critical to effectively managing natural resources throughout southeast and south-central Alaska.

Excellence of Service

Bruce Marcot, a research wildlife biologist with the Ecosystem Processes Program, received a Unit Award for Excellence of Service from the Secretary of the Interior for his work as a member of the International Polar Bear Science Team. He was honored for his outstanding contribution in providing timely information to the U.S. Fish and Wildlife Service for use in its decision to list the polar bear as a threatened species.

Honorary Doctorate

Roger D. Ottmar, a research forester with the Managing Disturbance Regimes Program, received an honorary Ph.D. in natural resources from University of Idaho. Ottmar was honored for pioneering work on the physical properties of wildland fuels and how they contribute to fire behavior, smoke production, and atmospheric pollution. Ottmar's data collection in fires and fuel treatments provided the empirical basis for developing tools such as the Natural Fuels Photo Series and CONSUME software. He also created the Fuel Characteristic Classification System, which greatly advanced the understanding and management of wildland fuels in the United States.

Letter of Recognition

Martin G. Raphael, a research wildlife biologist with the Ecosystem Processes Program, received a letter of recognition from the Director of the USDI Fish and Wildlife Service Pacific Region for his advice and service to the northern spotted owl recovery team as it developed a final spotted owl recovery plan.

Society for Technical Communications Awards

The Communications and Applications Group received top honors from the Puget Sound Chapter of the Society for Technical Communication for its second edition of the station's media guide, *Sources and Science: A Guide to Experts at the Pacific Northwest Research Station*.

Two Chiefs' Partnership Award

Nathan Poage, a research forester with the Resource Management and Productivity Program, shared this award with other members of the Clackamas Stewardship Partners—a collaborative group connecting managers from the Mount Hood National Forest with conservation groups, environmental groups, and a local watershed council. The group received this award from Natural Resources Conservation Service Chief Arlen Lancaster and Forest Service Chief Gail Kimball.

USDA Secretary's Honor Award

Ralph Alig and **Eric White** were honored for their contributions toward development of the Forest Service's open space conservation strategy. They share this award with 22 other members of the Open Space Conservation Team.



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PRINT AND WEB PUBLICATIONS

Print Publications

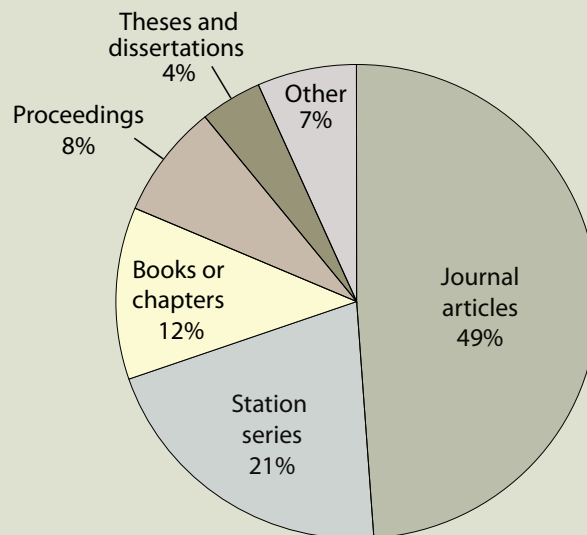
- 360 total publications. (Includes station series publications, journal articles, proceedings, books or book chapters, theses and dissertations, and other publications.)
- 195,007 hardcopies of station series publications distributed.
- 1,734 station publications available online via the station's Web site and Tresearch (<http://www.treearch.fs.fed.us>).
- 9 issues of *PNW Science Findings*; about 9,800 copies distributed each issue.
- 3 issues of *PNW Science Update*; about 9,800 distributed each issue.

Number of Publications

Journal articles	176
Station series	75
Books or chapters	42
Proceedings	28
Theses and dissertations	15
Other	24

Types of Publications

360 total publications for FY2008



Web Presence

Beyond Print—The Pacific Northwest Research Station uses multiple media to disseminate research findings to diverse audiences around the world. All publications published by the station are available online.

Receive notification or an electronic edition of new publications by signing up for a Really Simple Syndication (RSS) feed at <http://www.fs.fed.us/pnw/RSS/index.shtml>

The interested reader can sign up for electronic subscriptions, either for specific publications or by a particular topic area, and receive the publication electronically as soon as it is available.

Additionally, the station's Web sites offer multimedia presentations, such as tutorials about climate change or culvert installation to name a few. Acknowledging the increasing number of people who turn

to the Web for information, the station's Web pages feature research syntheses and case studies, as well as other tools developed for and in partnership with land managers.

New Multimedia Presentations

The station published 27 multimedia presentations online. Links to these are available on the supplemental CD-ROM found inside the back cover of this report. A sampling of these presentations include the following:

- Eighteen videos related to climate change, including the 11-part *Climate 101 Short Course* series:
<http://www.fs.fed.us/ccrc/video/>
- An interactive tutorial for procedures for inventory and assessment of road-stream crossings for aquatic organism passage:
http://www.fs.fed.us/pnw/pep/PEP_inventory.html
- Two videos on identifying the bankfull stage in a stream or river in which water begins to flow over the flood plain:
<http://www.stream.fs.fed.us/publications/videos.html>

New PNW Web sites

The Climate Change Resource Center—This joint effort by the Pacific Northwest, Southwest, and Rocky Mountain Research Stations is a reference Web site for resource managers and decision-makers who need information and tools to address climate change in planning and project implementation on forest lands in the West.

<http://www.fs.fed.us/ccrc/>

Pacific Northwest Global Change Research—This site provides links to ongoing climate-related research by station scientists.

<http://www.fs.fed.us/pnw/research/climate-change/index.shtml>

Western Wildland Environmental Threat Assessment Center—

The mission of the Western Wildland Environmental Threat Assessment Center is to generate and integrate knowledge and information to provide credible prediction, early detection, and quantitative assessment of environmental threats in the Western United States.

<http://www.fs.fed.us/wwetac/index.html>

Updated Web sites

Biology and Culture of Forest Plants Team:

<http://www.fs.fed.us/pnw/rmp/bcftp/>

Demonstration of Ecosystem Management Options Study:

<http://www.fs.fed.us/pnw/rmp/demo/>

Experimental Forests in Oregon, Washington, and Alaska:

<http://www.fs.fed.us/pnw/exforests/index.shtml>

FishXing:

<http://www.stream.fs.fed.us/fishxing/case.html>

Forest Inventory and Analysis:

<http://www.fs.fed.us/pnw/fia/>

Long-Term Ecosystem Productivity:

<http://www.fs.fed.us/pnw/ecop/ltep/>

Land Use and Land Cover Dynamics:

<http://www.fs.fed.us/pnw/hnri/lulcd/>

MAPSS (Mapped Atmosphere-Plant-Soil System):

<http://www.fs.fed.us/pnw/mdr/mapss/>

Web Statistics

People from 160 countries visited the station's main Web site during fiscal year 2008. Of the 70,268 visits, the majority—84 percent—came from the United States, followed by Canada with 4 percent.



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FINANCES AND WORKFORCE

Finances and Workforce

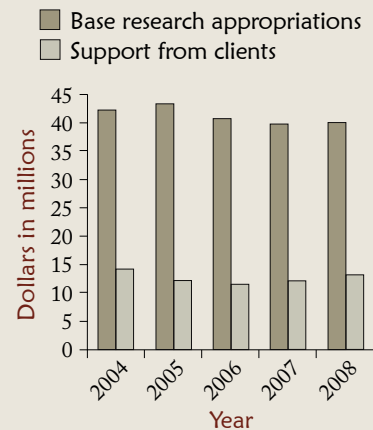
Two sources of funding support the work of the Pacific Northwest Research Station: federal appropriations, which contribute the greatest percentage of funds; and direct client support, which comes from organizations in need of scientific information.

2008 PNW Research Station finances and workforce, by the numbers:

Fiscal year 2008: October 1, 2007, to September 30, 2008

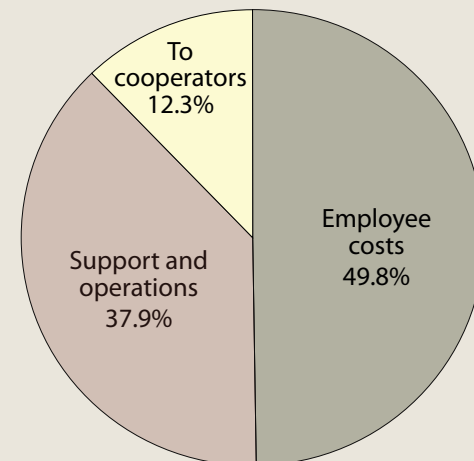
Incoming funding

- Base research appropriations: \$40.2 million
- Client support: \$13.2 million
- Total funding: \$53.4 million



Distribution of funds

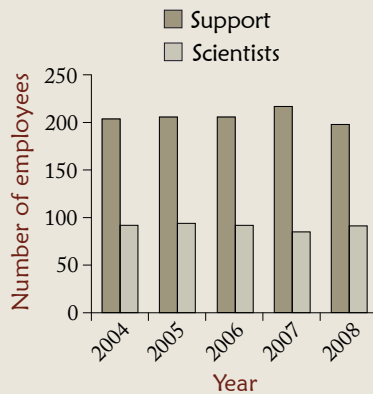
- Permanent employee costs: (\$26.6 million)—49.8%
- Support and operations: (\$20.3 million)—37.9%
- Distributed to cooperators: (\$6.6 million)—12.3%
 - Of \$6.6 million to cooperators, 89.7% went to educational institutions



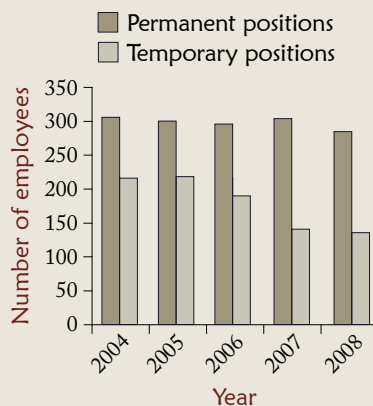
Workforce statistics:

- Permanent workforce: 285 employees
 - Of the permanent workforce, 31 percent, or 89 employees, are scientists
- Temporary workforce: 136 employees
- Total station workforce: 421 employees

Permanent employees by type



Total number of employees



Funding Partners for 2008

Cooperators Who Received Funding for Studies From the PNW Research Station

Educational Institutions

Board of Trustees of the University of Illinois
 Desert Research Institute
 Loyola University
 Michigan State University
 Oregon State University
 Southern Illinois University
 Trustees of Indiana University
 University of Alaska Fairbanks
 University of Idaho
 University of Maine
 University of Montana (Missoula)
 University of Oregon
 University of Redlands
 University of Washington
 University of Wisconsin
 Virginia Polytechnic Institute and State College
 Virginia Tech University
 Western Washington University

Other Federal Agencies

Department of Commerce, National Institute of Standards and Technology
 Department of Commerce, National Oceanic and Atmospheric Administration, Storm Prediction Center
 Department of Defense, Navy Systems Management Activity
 Department of the Interior, Bureau of Land Management
 Department of the Interior, Geological Survey, Forest and Rangeland Ecosystem Science Center

State Agencies

Oregon Department of Agriculture

Nongovernmental Organizations

Defenders of Wildlife
 Earth Systems Institute
 Society of American Foresters

Clients Who Provided Funding for Studies to the PNW Research Station

Educational Institutions

Idaho State University
 Oregon State University
 Regents of the University of California

Other Federal Agencies

Department of Agriculture, Agricultural Research Service
 Department of Defense, U.S. Army, Fort Lewis
 Department of Defense, U.S. Army, Corps of Engineers
 Department of Energy
 Department of the Interior, Bureau of Land Management
 Department of the Interior, Fish and Wildlife Service

Department of the Interior, Geological Survey, Forest and Rangeland Ecosystem Science Center
 Department of the Interior, National Park Service, Mount Rainier National Park
 Environmental Protection Agency
 National Aeronautics and Space Administration, Goddard Space Flight Center (University of Maryland)

State Agencies

Hawaii Division of Forestry and Wildlife
 Oregon Watershed Enhancement Board
 Washington Department of Fish and Wildlife
 Washington Department of Natural Resources

Nongovernmental Organizations

National Fish and Wildlife Foundation
 Northwest Power and Conservation Council
 The Nature Conservancy



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The attached CD-ROM contains the following:

- 2008 Science Accomplishments
- PNW Research Program Reports
- PNW Directory for Research Programs
- 2008 PNW Research Station publications
- 2008 PNW Research Station multimedia presentations

Credits

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Managing editor—Rhonda Mazza

Writer—Rhonda Mazza

Art direction and production management—
Frank Vanni

Graphic design—Keith Routman and
Rhonda Mazza

Photographs—see credit with each photo

All uncredited photos—U.S. Forest Service staff

The Forest Service of the U.S. Department of Agriculture is dedicated to the principle of multiple use management of the Nation's forest resources for sustained yields of wood, water, forage, wildlife, and recreation. Through forestry research, cooperation with the States and private forest owners, and management of the national forests and national grasslands, it strives—as directed by Congress—to provide increasingly greater service to a growing Nation.

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