



## CALIFORNIA

### FOREST SERVICE RESEARCH AND DEVELOPMENT

STATE FUNDING HISTORY	Enacted FY 2003 (\$)	Enacted FY 2004 (\$)	Pres. Budg. FY 2005 (\$)
<b>ALBANY</b>			
PSW-4502 Chem Ecol/Mgmt of Forest Insects	2,793,000	2,784,000	2,825,000
PSW-4651 Pacific Northwest Forest Plan	853,000	0	0
<b>ALBANY TOTAL</b>	<b>3,646,000</b>	<b>2,784,000</b>	<b>2,825,000</b>
<b>ARCATA</b>			
PSW-4251 Timber/Wildlife Interactions	1,269,000	1,816,000	1,843,000
PSW-4351 Hillslope Processes and Fisheries	1,151,000	1,469,000	1,744,000
<b>ARCATA TOTAL</b>	<b>2,420,000</b>	<b>3,285,000</b>	<b>3,587,000</b>
<b>DAVIS</b>			
PSW-4103 Institute of Forest Genetics	1,824,000	1,831,000	1,858,000
PSW-4202 Sierra Nevada Research Center	2,953,000	2,964,000	3,512,000
PSW-4952 Effects of Urbanization on Forest Ecosys	589,000	591,000	600,000
<b>DAVIS TOTAL</b>	<b>5,366,000</b>	<b>5,386,000</b>	<b>5,970,000</b>
<b>REDDING</b>			
PSW-4155 Ecol/Mgmt of Western Forests	2,542,000	2,551,000	2,588,000
<b>RIVERSIDE</b>			
PSW-4402 Wildland Fire Mgmt RD&A Prog	885,000	888,000	901,000
PSW-4403 Prescribed Fire and Fire Effects	1,810,000	1,350,000	1,756,000
PSW-4451 Air Pollution/Global Change Impacts	1,340,000	1,345,000	1,365,000
PSW-4902 Wildland Rec/ Urban Cultures	724,000	727,000	641,000
<b>RIVERSIDE TOTAL</b>	<b>4,759,000</b>	<b>4,310,000</b>	<b>4,663,000</b>
<b>CALIFORNIA TOTAL</b>	<b>18,733,000</b>	<b>18,316,000</b>	<b>19,633,000</b>

**RESEARCH & DEVELOPMENT**, a division of the USDA Forest Service (FS R&D), strives to be the "go to" organization for information and solutions to sustain forests and rangelands and the values they provide people. FS R&D has the flexibility to address today's issues effectively and to respond

to tomorrow's needs. Among the world's leaders in forest conservation research, scientists contribute to the stewardship of land, real property and society by providing research results that help create jobs and affordable homes, and improve the health of trees, forests and forest ecosystems.

Innovative research products permit the Forest Service and other public and private land managers to monitor and manage forest responses to environmental change, contributing significantly to the sustainability of the nation's forests and rangelands and improving human health.

FS R&D operates six research stations, the Forest Products Laboratory, and the International Institute of Tropical Forestry located in Puerto Rico. It employs over 500 scientists and hundreds of technical and support personnel at 67 field sites throughout the nation. The FY 2005 President's Budget includes \$280,654,000 for Forest and Rangeland Research.

The **Pacific Southwest Research Station** is responsible for research, development, and applications in California and Hawaii; the Station's headquarters is in Albany, CA. Research is conducted in 13 Research Work Units, 12 of which are in California. The FY 2005 President's Budget for the Pacific Southwest Research Station is \$22,888,000, with \$19,633,000 in California.

#### **ALBANY**

**PSW-4502, Chemical Ecology and Management of Forest Insects.** Scientists investigate the ecological roles and impacts of insects (primarily bark beetles and termites) affecting western forests and deterioration of wood. In 2005 the unit will continue a newly created emphasis in forest pathology, focusing on the cause, spread, and mitigation of Sudden Oak Death And other critical invasive species.

#### **ARCATA**

**PSW-4251, Timber Management/Wildlife Interactions.** Research addresses wildlife distributions, habitat requirements, monitoring strategies, and the influence of land management on wildlife in the Coastal and Intermountain West.

**PSW-4351, Management Effects on Hillslope Processes, Fisheries, and Stream Environments.** Research in this unit provides improved understanding of natural and human-caused disturbances on land stability, water quality, and effects on aquatic habitats at the scales of river basins, watersheds, and individual sites. This research supports new technology for best management practices used in land management.

#### **DAVIS**

**PSW-4103, Institute of Forest Genetics.** This unit identifies and describes genetic structure and function of forest plants to increase growth and yields of trees, and to support conservation practices.

**PSW-4202, Sierra Nevada Research Center.** The Center seeks to ensure the biological integrity and ecological sustainability of ecosystems in the Sierra Nevada. Scientists describe linkages among biological, physical, and human components of forest ecosystems, and evaluate forest management strategies aimed at sustaining plant, animal, and fish communities. This unit also provides methods for use or improved utilization of small diameter trees in the absence of commercial markets to reduce fuel levels for wildfire. Invasive species control along the wildland-urban interface is a priority.

**PSW-4952, Western Center for Urban Forest Research and Education.** This unit conducts research to describe urban forest structure and the derived benefits and costs, such as improved community energy efficiencies, reductions of carbon dioxide, improvements in air quality, and enhanced protection from wildland fire in the wildland-urban interface.

#### **REDDING**

**PSW-4155, Ecology and Management of Western Forests Influenced by Mediterranean Climate.** Scientists in this unit conduct research on silviculture, fire, and soils to provide improved management practices to affect composition, growth, and development of forest vegetation, and reduction of fire risk. Research includes how site characteristics and soil processes interact to influence forest productivity, and the effects of fire, insects, pathogens, and other disturbances on the sustainability of forest ecosystems.

#### **RIVERSIDE**

**PSW-4402, Wildland Fire Management.** Scientists in this unit develop methods to reduce costs and to improve efficiencies and fire fighter safety through planning, deployment, and directing firefighting activities. Improved weather prediction systems are provided for fire management, planning, and response at national, regional, and local scales.

**PSW-4403, Prescribed Fire and Fire Effects Research.** Scientists develop methods to aid land managers in measuring, modeling, predicting, and fighting wildland fire, and the effects of prescribed fire, wildfire, and other disturbances on southwestern ecosystems.

#### **PSW-4451, Air Pollution and Global Change Impacts on Western Forest Ecosystems.**

Scientists in this unit develop methods to measure and assess the effects of air pollution and climate change on individual tree species and forest ecosystems, and propose strategies for mitigation to maintain healthy forests and watersheds.

#### **PSW-4902, Wildland Recreation and Urban Cultures.**

Scientists evaluate the needs and interests of recreational users, and develop options to meet these needs, while protecting natural resources in high-use wildland recreation areas. New emphasis is on forest recreation benefits to general public health.

#### **THE NATIONAL FIRE PLAN.**

PSW research supports implementation of the National Fire Plan. Proposed funding for FY 2005 is \$3,550,000.

#### **FY 2005 PROPOSED PROGRAM CHANGES:**

- **Watershed Research.** The President's FY2005 budget proposes an increase of \$1,550,000 for watershed research in the PSW Research Station, of which \$1,300,000 will go to California. Proposed research will: (a) expand research in Southern California to examine the life history and habitat requirements of selected T&E plant and animal species and provide management guides for forest managers to restore habitats and ensure viability in fire adapted ecosystems, (b) integrate climate change and its ecological and social consequences into resource planning in the Sierra Nevada, and (c) provide for improved management of riparian forests based on

watershed-scale understanding of riparian function and watershed processes.

- **Science-based Technology Transfer.** Forest Service Research and Development will lead an Agency-wide effort to optimize the delivery and practical use of research findings. This is essential to successful implementation of Forest Service priorities, including the President's Healthy Forest Initiative. Opportunities have been identified that leverage current science and technology applications efforts in healthy forests applied science, watershed management, invasive species, hazardous fuels utilization and management, and community preparedness. New funds in FY 2005 will be targeted to leading-edge technical assistance on a competitive basis.
- The budget includes an increase of \$331,000 which will cover fixed costs for all research units.

#### **SIGNIFICANT RESEARCH PRODUCTS:**

**Research in Support of the National Fire Plan** includes:

- A fire weather forecasting model that provides monthly predictions of fire danger that are posted on the web bi-weekly.
- An aircraft-based fire mapper, providing managers with real-time displays of fire position, distribution, and temperature.
- A prototype "Firewise" landscape design tool for community fire planning and protection.
- A cost analysis tool that estimates sediment movement to evaluate the importance of post-fire soil stabilization.

**Science Support for Land Management Planning.**

- Scientifically defensible analytical monitoring and technical support tools addressing uncertainties surrounding response of ecosystem features, including species of concern, to forest management practices related to fuels management and silvicultural options for ecological stability.
- Technical support for the design and evaluation of proposed forest management actions for public lands in the Sierra Nevada, including, assessing viability of plant and animal species under proposed scenarios, projecting ecological responses and effects of management actions, and developing scientifically-sound study plans for adaptive management. Results will develop a stronger scientific foundation for future national forest planning and management.

**Sudden Oak Death (SOD) and Other Invasive Species.** Scientists working under the SOD Research and Development Program will further describe the causal pathogen, routes of transmission, new hosts, potential controls, and deliver this information to managers for improved management and regulatory policies and implemented actions to examine spread potential to other forest systems. Research and technology transfer on reducing impacts from invasive species continues in the wildland-urban interface and riparian zones.

**SOME CLIENTS/ COLLABORATORS:**

- Agricultural Research Service
- California Department of Natural Resources
- California State University
- Environmental Protection Agency
- National Forests
- National Marine Fisheries Service
- University of California
- USGS, Biological Resources Division
- USDI, Bureau of Land Management
- USDI, Bureau of Reclamation
- USDI, Fish and Wildlife Service
- USDI, National Park Service

