



HAWAII

FOREST SERVICE RESEARCH AND DEVELOPMENT

STATE FUNDING HISTORY	Enacted FY 2002 (\$)	Pres. Budg. FY 2003 (\$)	Pres. Budg. FY 2004 (\$)
HONOLULU			
PSW-4154 Institute of Pacific Islands Forestry	2,310,000	2,202,000	3,110,000
HAWAII TOTAL	2,310,000	2,202,000	3,110,000

RESEARCH & DEVELOPMENT, a division of the USDA Forest Service (FS R&D), serves society by developing and communicating the scientific information and innovative technology required to manage, protect, use and sustain our nation's forests. Among the world's leaders in forest conservation research, results produced by division scientists contribute to the stewardship of land, real property and society by providing more affordable housing, creating jobs, and improving the health of trees, forests and forest ecosystems. Innovative research applications permit the Forest Service and other public and private land managers to monitor and manage forest responses to environmental change, contributing immeasurably 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 in Puerto Rico. It employs 524 scientists and hundreds of technical and support personnel at 66 field sites throughout the nation. The FY 2004 President's Budget includes \$252,170,000 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, one of which is in Hawaii. The FY 2004 President's Budget for the Pacific Southwest Research Station is \$22,428,000, a net increase of \$3,529,000 from FY 2003. This includes a \$3,564,000 increase for research on Sudden Oak Death, Hawaiian invasive species and forest restoration, and fuel treatment/wildlife interactions. A stationwide increase of \$523,000 in fixed costs was accommodated by a reduction of \$558,000 in lower priority research.

HONOLULU

The Pacific Southwest Research Station has responsibility for all Forest Service programs, exclusive of Fire & Aviation Management and

Forest Inventory & Analysis, in Hawaii and U.S.-affiliated islands throughout the Pacific. The station's programs are conducted by the Institute of

Pacific Islands Forestry, with headquarters in Honolulu and small field offices in Hilo and Volcano (Hawaii), and Yap (Federated States of Micronesia).

The Institute's Research & Development funding in FY 2004 (\$3,110,000) includes a \$300,000 increase for invasive species and ecosystem restoration research. The Institute's work is conducted by a unique structure of four multi-disciplinary teams that include both scientists funded by Research & Development and professionals funded through the State & Private Forestry and International Programs branches of the Forest Service. The Institute's three research-focused teams deal with (1) ecosystem restoration, (2) forested wetlands, and (3) invasive species. The missions of these teams are to:

1. Develop and deliver information needed to restore forest processes, services and goods to Pacific island landscapes.
2. Provide Pacific islanders with the understanding they need to be able to appreciate and conserve their forested wetlands and to determine the best management practices that contribute to sustainable patterns of use.
3. Provide new information on the ecology of invasive plant species; their impacts on health, management and restoration of native forested ecosystems of Hawaii and the Pacific islands; and ways in which their populations might be limited by development of biological control agents and effective land management.

FY 2004 PROPOSED PROGRAM CHANGES:

- The FY 2004 President's budget for Hawaii includes a \$300,000 increase which will be used to further develop research on control of invasive weeds and on forest restoration. Work on invasive weeds will focus on understory shrubs and overstory trees, two weed groups that are extremely important yet under-studied. Some of that research will be directed at understanding the comparative ecology and impacts on ecosystem processes of invasive plants in Hawaiian habitats as well as their ecosystems of origin. Other work will emphasize the evaluation of pests from the native range of targeted weeds as possible biological control agents in Hawaii. Joint work on invasive plants and restoration will include study of invasive grasses that impede forest recovery because they are prone to wildfire and compete with native plants for water. The silviculture of native Hawaiian forests will be studied in cooperation with private landowners in an attempt to demonstrate that good conservation can go hand-in-hand with good economics.
- Research will be intensified on biological control efforts for invasive weeds with collaborators in Brazil and Costa Rica; development of a system of assessing the risks posed by possible introductions of new species to Hawaii; expansion of forest restoration research from high-elevation landscapes to dry forests and high-value mid-elevation forests; and increased knowledge of forested wetland functioning and values, and delivery of those findings to the public and local policy makers.

SIGNIFICANT RESEARCH PRODUCTS:

- **WEED RISK ASSESSMENT** – A system for assessing the risk posed by possible introductions of plants to Pacific islands was developed, patterned after a system used in Australia and New Zealand. Following public outreach sessions to explain the finding, the weed risk assessment system is being strongly considered for formal implementation by Hawaii’s nursery industry and the state’s departments of Agriculture and Land & Natural Resources.
- **WETLAND PROCESSES AND VALUES** - By studying the composition, hydrology, and regeneration of mangrove and freshwater swamp forests, scientists were able to demonstrate the tenuous linkages that bind these ecosystems. Those linkages are especially vulnerable to disruption by road construction (underway on many Pacific islands). Furthermore, the economic values of wetlands proved to be much higher than anticipated. Policy makers in the Federated States of Micronesia are using these findings to make decisions about road construction and harvesting schedules for mangrove crabs.
- **FOREST MANAGEMENT** – Silvicultural research emphasizing Hawaii’s high-value koa tree has opened the way to sustainable management of forests on Hawaii Island. This research and demonstration effort, conducted in partnership with The Nature Conservancy, has convinced ranchers to maintain their forests for economic gain while restoring and preserving the forest cover needed for conservation of native plants and birds.

- **INTERNS** - Since 1995, the Hawaii program has hosted 55 summer interns, comprised of Native Hawaiian, American Samoan, and Micronesian college students. This effort, which led to the Chief’s award for multi-cultural efforts in 2002, will result in more natural resource specialists and a better-informed citizenry throughout the U.S.-affiliated Pacific islands.

SOME CLIENTS AND COLLABORATORS:

- Hawaii Division of Forestry and Wildlife
- The Nature Conservancy
- National Park Service
- USGS Biological Resource Division
- Hawaii Department of Agriculture
- Coordinating Group on Alien Pest Species
- Hawaii Conservation Alliance
- University of Hawaii
- USDOI Fish and Wildlife Service
- Louisiana State University
- Organization for Tropical Studies, Inc.