



NEVADA

FOREST SERVICE RESEARCH AND DEVELOPMENT

STATE FUNDING HISTORY	Enacted FY 2003 (\$)	Enacted FY 2004 (\$)	Pres. Budg. FY 2005 (\$)
RENO			
RMRS-4252 Pinyon-Juniper Ecology	297,000	366,000	466,000
RMRS-4655 Great Basin Ecosystem Research	211,000	238,000	363,000
NEVADA TOTAL	508,000	604,000	829,000

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 **Rocky Mountain Research Station (RMRS)**, headquartered in Fort Collins, Colorado, maintains forest and rangeland research and development programs and facilities in 10 states of the Interior West (AZ, CO, ID, MT, NE, NV, NM, SD, UT, and WY) and covers ND and SD. The FY 2005 President's Budget includes \$43,082,000 for the Rocky Mountain Research Station.

The Station currently maintains two research units in Reno that employ 2 scientists and 2 other professionals and support personnel.

RENO

RMRS-4252, Ecology, Paleoecology, and Restoration of Great Basin Watersheds. The unit mission is to increase understanding of the effects of both long-term climate change processes and more recent natural and anthropogenic disturbances on the ecological processes and interactions of Great Basin ecosystems and watersheds, and to use this understanding to

devise meaningful scenarios for their restoration and management.

RMRS-4655, Great Basin Ecosystem Management Project. The unit mission is to achieve a better understanding of the processes controlling riparian ecosystems and watersheds within the central Great Basin, and to develop management guidelines for maintaining or restoring sustainable ecosystems. An interdisciplinary approach is used to examine the geomorphic, hydrologic, and biotic processes within these systems.

FIRE RESEARCH IN NEVADA SUPPORTS THE NATIONAL FIRE PLAN. National Fire Plan funding continues the long tradition of Forest Service Research and Development building and leading federal, state, and local partnerships (the guiding principle of the 10-year Comprehensive Strategy) to develop and deliver the scientific foundation of modern management practices.

National Fire Plan funding for research in Nevada has already produced the following results:

- Fire-adapted invasive species, such as the exotic annual cheatgrass, are increasing in abundance throughout the Great Basin, causing increases in fire frequency, intensity and size. Forest Service scientists are collaborating with land managers and university colleagues to examine ecological and environmental factors (fire, grazing history) that influence cheatgrass invasion and expansion in native shrublands and woodlands. Results will be used to develop protocols to maintain and restore sustainable ecosystems.

FY 2005 PROGRAM CHANGES:

- The President's budget maintains the Station ongoing program of research focused on sustaining healthy forests and rangelands in the Interior West. In response to the President's Healthy Forest Initiative, an additional \$1,725,000 is focused on improving watershed conditions to provide clean and abundant water from western forests and rangelands and funding is provided for addressing the threat invasive species pose to our native ecosystems.
- As part of the President's Budget to improve watershed condition, a \$225,000 increase in Nevada will expand understanding of effects of climate change and natural and human disturbance on Great Basin watersheds and riparian areas, and lead to development of methods for maintaining and restoring sustainable ecosystems. RMRS-4252 (+\$100,000) will focus on uplands, and RMRS-4655 (+\$125,000) will focus on linkages among uplands, stream systems, and riparian areas.
- 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.

SIGNIFICANT RESEARCH PRODUCTS:

- Paleocological research has documented patterns of changes in Great Basin plant communities and geomorphic processes since the Holocene period. Results provide understanding of controls of long-term change in riparian communities and a broad framework for effective management of ongoing changes.
- Research on post-settlement changes in Great Basin ecosystems has documented significant expansion of pinyon-juniper woodlands into former sagebrush steppe ecosystems. An increasing understanding of causes and impacts of this change is leading to development of techniques for land managers to restore and maintain sustainable sagebrush steppe and pinyon-juniper ecosystems.
- Ongoing research on sensitivity of Great Basin watersheds has lead to formulation of a model of watershed sensitivity to change, which is useful to both scientists and land managers.
- Restoration of riparian areas dominated by sagebrush is a key need in Great Basin watersheds. Research indicates that restoration thresholds for these systems can be defined based on water table depth and understory species composition. Knowledge is

being applied to design restoration strategies for creating a mosaic of sagebrush and dry meadow ecosystems that resemble pre-disturbance conditions, and that enhance biodiversity and other resource values.

SOME CLIENTS/COLLABORATORS:

Desert Research Institute-Reno
Environmental Protection Agency
FS Stream Systems Technology Center
Humboldt-Toiyabe National Forest
Lafayette University
Nevada Biodiversity Initiative
Northern Arizona University
Oregon State University
Stanford University
University of Nevada-Reno
USDA, Agricultural Research Service
USDI, Bureau of Land Management
USDI, Fish and Wildlife Service
USDI, Geological Survey
Utah State University
Western Carolina University