



COLORADO

FOREST SERVICE RESEARCH AND DEVELOPMENT

STATE FUNDING HISTORY	Enacted FY 2003 (\$)	Enacted FY 2004 (\$)	Pres. Budg. FY 2005 (\$)
FORT COLLINS			
RMRS-4352 Aquatic & Riparian Ecosystem	1,041,000	1,025,000	1,250,000
RMRS-4451 Alpine & Forest Ecosystems	1,848,000	1,819,000	1,889,000
RMRS-4653 CO Front Range Ecosystem	103,000	-0-	-0-
RMRS-4804 Multi-Resource Inventory	670,000	661,000	661,000
RMRS-4851 Wildland Resource Benefits	1,009,000	1,023,000	1,023,000
RMRS-4852 Resource Assessment & Planning	975,000	1,313,000	1,313,000
Hdqtrs - Special Tech. Development Program	69,000	38,000	38,000
Hdqtrs - Joe Skeen Institute	494,000	494,000	494,000
Hdqtrs - Agenda 2020	162,000	162,000	162,000
COLORADO TOTAL	6,371,000	6,535,000	6,830,000

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 KS. The FY 2005 President's Budget includes \$43,082,000 for the Rocky Mountain Research Station.

The Station will maintain five research work units and the Agenda 2020 Sustainable Forestry Program oversight in Fort Collins, Colorado. There are 27 scientists, 27 other professionals and support personnel.

FT. COLLINS

RMRS-4352, Research To Sustain Fish and Watershed Components of Aquatic and Riparian Ecosystems in the Central Rocky Mountains and Northern Great Plains. (Project is co-located at Fort Collins, CO and Laramie, WY). The unit mission is to better understand aquatic and riparian ecosystems, particularly the interactions between vegetation, hydrology, water channels, and aquatic habitat and fisheries, and how they are affected by land and water management practices.

RMRS-4451, Sustaining Alpine and Forest Ecosystems under Atmospheric and Terrestrial Disturbances. The unit mission is to develop and refine the knowledge and technology needed to understand, model and manage vegetation and ecosystem processes that help sustain alpine, forest, and woodland ecosystems.

RMRS-4653, Research on Sustaining Social Biological and Physical Components of Colorado Front Range Ecosystems. The unit mission is to devise strategies to manage public lands along the Colorado Front Range in ways that will sustain ecosystems while addressing the needs and desires of society. **In late FY 2003, this unit was merged with RMRS-4852.**

RMRS-4804, Forest Inventory and Monitoring Environmetrics. The unit mission is to develop, validate, and transfer scientifically credible

methods of mathematical statistics for the Forest Inventory and Analysis programs across the United States to assist in more timely and useful inventory and monitoring of forest lands.

RMRS-4851, Identification and Valuation of Wildland Resource Benefits. The unit mission is to develop new methods and test the validity and reliability of methods currently used to measure people's values for natural resources, including environmental amenities. Research emphasizes the relationships of human values and experiences to attributes of the environment and economic transactions. Scientists also assist resource managers in applying state-of-the-art economic and social science analyses.

RMRS-4852, Natural Resource Assessment, Ecology, and Management Science Research. The unit mission is to provide improved technology and methods for quantitative resource management planning and analysis. Researchers incorporate the dimensions of human-caused and natural disturbances into analysis tools to support forest planning.

Agenda 2020 Sustainable Forestry. A competitive grants/cost-shared program focused on innovative technologies that enhance individual tree and forest productivity and wood biomass utilization for energy efficiency.

FIRE RESEARCH IN COLORADO 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 Colorado has already produced the following results:

- Scientists are providing comprehensive, real-time, high resolution fire weather intelligence and smoke forecasts for the Interior Western U.S. through a website interface.
- Fuels management in western ecosystems is addressed in the *Proceedings of the Fire, Fuels Treatment and Ecological Restoration* workshop. Land managers, scientists, students, and interested individuals from public and private sectors are provided valuable information for managing fuels in the western United States.

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 forest and rangelands and funding is provided for addressing the threat invasive species pose to our native ecosystems.
- RMRS-4451 is increased by \$70,000 to advance study of the invasive white pin blister rust disease and control its impact on high elevation pine trees.
- RMRS-4352 is increased by \$225,000 to better understand natural processes of snow accumulation, interception, redistribution and melt and use of water by vegetation. Such information can be used along with

management techniques to predict and control runoff in watersheds as well as on drought cycles.

- 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:

- An analysis of the 138,000-acre Hayman Fire that occurred along the Front Range provided lessons learned and valuable insights into the social and ecological consequences of large wildfire near urban areas.
- Studies on the values, objectives, beliefs, attitudes and behaviors of Forest Service stakeholders are helping land managers understand public interests.
- *A Primer on Nonmarket Valuation* is a book written for a broad audience, that assists managers with implementing the most common nonmarket valuation techniques for use in land management planning.
- The Cold Land Processes Experiment, primarily funded by NASA, addresses hydrology in cold regions. It is designed to determine the best possible sensors for imaging snowpack and

frozen ground and improve estimates of water yield across large landscapes.

- Historical fire and landscape ecology research is guiding restoration of ponderosa pine/Douglas-fir forests through the Front Range Fuels Treatment Partnership.
- The Sustainable Rangelands Roundtable published *A First Approximation Report on Criteria and Indicators for Sustainable Rangelands*. The Roundtable is a collaborative, open partnership of rangeland managers, ecologists, social scientists, policy and legal experts, environmental advocates, and industry representatives.
- Station entomologists continue to assist our forest health professionals with research to help prevent and control of bark beetles outbreaks.

SOME CLIENTS/COLLABORATORS:

American Forest and Paper Association
USDI, Bureau of Land Management
California State University at Long Beach
Colorado State Parks
Colorado State Forest Service
Colorado State University
Department of Defense
Environmental Protection Agency
Forest Service Air Staff; Regions 2 & 3
Forest Health Protection, S&PF
National Forests: CO, WY, NM, AZ, SD, ID, OR
USDI, National Park Service
National Oceanic & Atmospheric Administration
State of Alaska
University of Arizona
University of Colorado
USDI, Geological Survey