

Science Application and Integration

The Station has a dedicated staff group that focuses on knowledge exchange and transfer—delivering our science results and tools to resource managers and decision makers, and assuring that managers' needs are incorporated into Station research priorities. The Science Application and Integration staff represents two specialized research, development and application (RD&A) programs:

- Human Factors and Risk Management
- Wildland Fire Management.

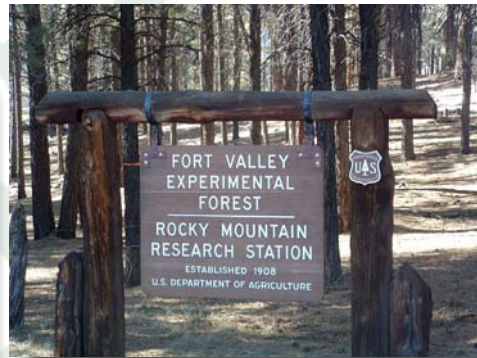
Find out more at www.fs.fed.us/rm/science-application-integration.

Experimental Forests and Ranges

A unique and valuable part of the infrastructure within which we conduct research is a network of experimental forests, ranges and watersheds. They are living laboratories where Forest Service scientists conduct studies and demonstrate research results for our stakeholders.

The Station administers and conducts research on 14 experimental sites. The Fort Valley Experimental Forest near Flagstaff, Arizona, was established in 1908 and is the site of the first Forest Service research investigations in the Nation.

Learn more at www.fs.fed.us/rm/main/expfor.html.



Conservation Education

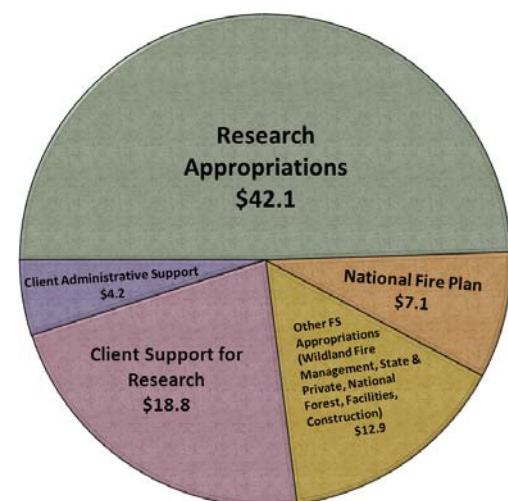
The Station's Conservation Education program helps people of all ages understand and appreciate our country's natural resources and how to conserve those resources for future generations. Our employees are involved in a variety of structured educational programs and activities that enable people to realize how natural resources and ecosystems affect each other and how resources can be used wisely.

The Business Side

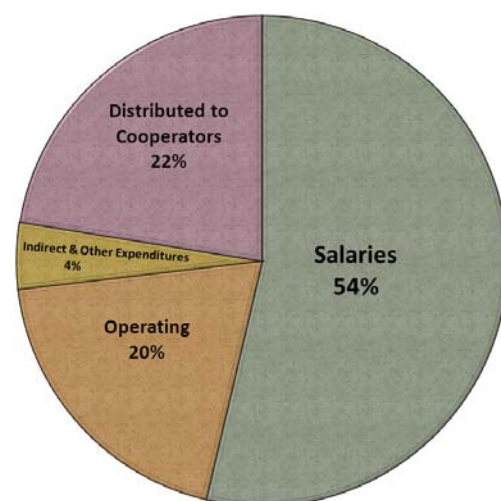
The success of our research programs would not be possible without the critical team support provided by our administrative employees. Most are located at Station headquarters in Fort Collins, Colorado and at the Ogden, Utah Service Center; others work at laboratory locations.

In Fiscal Year 2012, RMRS secured \$85.1 million for research and operations from federal appropriations, partners and clients.

FY 2012 RMRS Incoming Funds - \$85 Million



FY 2012 RMRS Expenditures



(Some differences in incoming and outgoing funds are related to multi-year grants and agreements.)



Rocky Mountain Research Station

Science for Our Nation's Forests and Rangelands

Annual Report
2012-2013

George S. Foster
Station Director

The Rocky Mountain Research Station is one of seven regional units that make up the USDA Forest Service Research and Development organization—the most extensive natural resources research organization in the world. We maintain 12 field laboratories throughout a 12-state territory encompassing the Great Basin, Southwest, Rocky Mountains, and parts of the Great Plains (see inside map).

Our research program serves the Forest Service as well as other federal and state agencies, international organizations, Tribes, academia, non-profit groups, and individuals. Research results and products are made available through a variety of technical reports, journals and other publications, and via web sites, webinars, seminars, symposia, demonstrations, exhibits and personal consultations.

Our work helps resource managers and planners balance economic, social and environmental demands for forest and rangeland resources worldwide.

Our Science Programs

Air, Water and Aquatic Science

(www.fs.fed.us/rmrs/research/programs/air-water-aquatics)

Fire, Fuel and Smoke

(www.fs.fed.us/rmrs/research/programs/fire-fuels-smoke)

Human Dimensions

(www.fs.fed.us/rmrs/research/programs/social-economics-decision)

Grassland, Shrubland and Desert Ecosystems

(www.fs.fed.us/rmrs/research/programs/grassland-shrubland-desert)

Inventory and Monitoring

(www.fs.fed.us/rmrs/research/programs/inventory-monitoring-analysis)

Wildlife and Terrestrial Ecosystems

(www.fs.fed.us/rmrs/research/programs/wildlife-terrestrial-habitats)

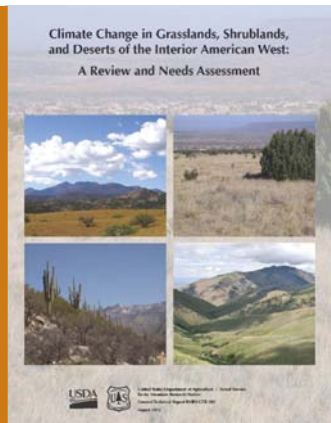
Forest and Woodland Ecosystems

(www.fs.fed.us/rmrs/research/programs/forest-woodlands-ecosystems)

The USDA is an equal opportunity provider and employer.



▲ Research on the threatened Mexican spotted owl in the Southwest helps estimate trends in owl populations and reproduction and survival rates. Findings allow managers to integrate conservation objectives with forest restoration and fire management efforts.
<http://tinyurl.com/a7t15le>



▲ Climate Change in Grasslands, Shrublands and Deserts of the Interior American West: A Review and Needs Assessment, addresses animal, plant and invasive species, and decision support tools for restoring and managing these lands.
<http://tinyurl.com/b4348kp>



▲ Scientists and collaborators developed a wildfire risk assessment framework and other tools that help decision makers identify areas of greatest risk, and implement cost-effective treatments to mitigate the risks—leading to healthier landscapes, reduced impacts to human communities, and decreased fire suppression costs.
<http://tinyurl.com/axkhfcp>



▲ A new prototype for performing genetic inventories of fish, such as this threatened bull trout, and amphibians enables agencies to identify climate related change in fish species; satisfy mandates under the Forest Service Planning Rule; and demonstrate accountability to Congress and the public on biodiversity monitoring.
<http://tinyurl.com/b27o6m3>



◀ Scientists investigated the impacts of mastication—the on-site disposal of shrubs and small trees through chipping and shredding. They found that mastication increases surface fuels 2-3 times more than in untreated forests, but does not negatively impact plant cover (note seedling growing through wood chips) or soil nitrogen. This study provides a better understanding of the ecological impacts of mastication on site productivity, soil nutrients and plants.
<http://tinyurl.com/adz1bnb>



◀ Researchers modeled the effect of increasing temperatures on the likelihood of spruce beetle infestation, shown here, over time. They found that under all climate change scenarios, the percentage of forest likely to be infested increased. The increase was most pronounced during 2080 when up to 32.3 percent of forests in the Interior West could be infested. Findings are being incorporated into management guidelines.
<http://tinyurl.com/aquqegh>



- ★ Station Headquarters
- Station Territory
- Lab Location
- ▲ Experimental Forest
- Experimental Range
- Experimental Site



▲ Inventory of lodgepole pine stands infested with mountain pine beetle, such as this part of the Colorado State Forest, assists forest managers in making critical decisions regarding the preservation and restoration of these forests.
<http://tinyurl.com/agnjk8b>



▲ Forest fuels treatments produce around 41 million tons of unmerchantable residues annually in the U.S. A recent study found that delivery and burning residue biomass in a boiler for the thermal energy reduced greenhouse emissions by 46 percent and particulate matter emissions by 94 percent compared to onsite pile burning and using coal, oil or natural gas for the equivalent energy.
<http://tinyurl.com/a3e6nf4>



▲ Studies on the effectiveness of wood shreds in reducing erosion, damaging floods and debris flows following fire show that wood shreds are just as effective as straw mulch. Wood shreds can be made on site from native materials, and generally stays on the site longer than straw.
<http://tinyurl.com/aks5o2z>



▲ Portable battery-powered monitors help researchers evaluate ozone (O₃) at remote high-elevation sites in the Rockies. Findings allow national forests to determine ozone levels in areas where air quality related values are unknown, determine if ozone exceeds the federal standard, and examine long-term changes in ozone in remote regions.
<http://tinyurl.com/b6ssgd5>



▲ RMRS recently partnered with the Wyoming Game and Fish Department to study the effects of energy development on the productivity and distribution of ferruginous hawks and golden eagles. Results help managers develop conservation programs for these birds in areas of energy development.
<http://tinyurl.com/a4uyqzz>



▲ Scientists and partners developed a proactive strategy to sustain high elevation white pine forests and mitigate the impacts of the white pine blister rust disease. Their efforts provide managers with timely information and technologies to make informed decisions.
<http://tinyurl.com/bckg4dv>



▲ Improved wildfire emission inventories and air quality models used by land managers and air quality regulators help minimize and mitigate the impacts of wildfire emissions on human health, economic concerns and scenic integrity.
<http://tinyurl.com/al8q8ek>

Details on these and other science projects are available at

www.fs.fed.us/rmrs/about/research-accomplishments/2012/