USDA Forest Service
U.S. DEPARTMENT OF AGRICULTURE

FS-1177 | July 2021

Research & Development
AT A GLANCE | FISCAL YEAR 2021

Mission

U.S. Department of Agriculture (USDA), Forest Service Research and Development (R&D) is a world leader in forestry research. Integral to the mission of the Forest Service since the agency's inception in 1905, R&D studies the most pressing natural resource management issues of our day, generating science findings and tools that help sustain the health, diversity, and productivity of our national forests and grasslands—and ultimately enhance the rigor and impact of the entire agency.

Research

R&D organizes its program of work around research priorities, reflecting areas of current importance, alongside foundational research, which represents long-term research needs. Forest Service R&D delivers innovations and discoveries, forest inventories and assessments, and decision support tools.

Research Priorities

- Applied science to improve forest conditions and support shared stewardship
- Forest inventory and trend analysis
- Improving wildland fire decision support
- Wood product and market innovations

Foundational Research

- Forest and grassland health
- Forest soils, air quality, and hydrology
- Silviculture and ecology

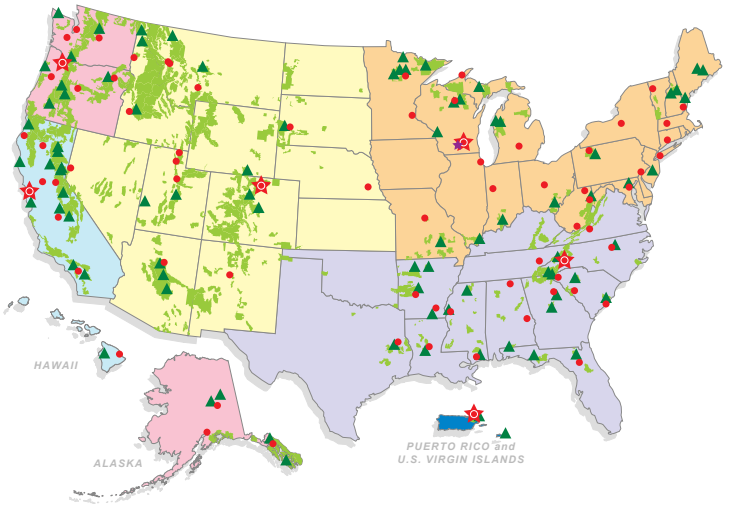
R&D's Work Is Essential

Applied Science To Improve Forest Conditions and Support Shared Stewardship. Forest Service R&D supports the sustainable management and restoration of Federal, State, and private forests and grasslands. R&D informs strategies that improve the quality and quantity of water on National Forest System (NFS) lands. National forests provide clean drinking water to more than 60 million people and are the largest source of municipal water in the United States. Forest Service R&D helps the Nation strategically fight fires, reduce fuel hazards, forecast smoke, restore burned ecosystems, and advise homeowners in the wildland-urban interface. R&D addresses cross-boundary and long-term land management questions by collaborating with land managers, scientists, other Government agencies, Tribes, industry, stakeholders, local communities, and other sectors in every stage of the research process. The result is cutting-edge research and the creation of real-time risk management and decision support tools.

Forest Inventory and Trend Analysis. As the Nation's forest census, the Forest Inventory and Analysis (FIA) program provides data on all ownerships needed to assess America's forests. These data are used to evaluate the sustainability of management practices, support investment decisions, and are integral to science products and models. FIA data also directly contribute to the Resources Planning Act (RPA) Assessment which provides status and projections of renewable resources.

Improving Wildfire Decision Support. Climate change has altered fire regimes, increasing the frequency and severity of wildfire. Forest Service R&D is a world leader in wildfire research. Scientists have pioneered fire behavior and prediction technology, improved firefighter safety, developed novel spatial planning and risk management tools, and worked with communities to improve protections against catastrophic fire.

Wood Product and Market Innovations. R&D develops innovative wood products that contribute creative new materials for construction; furniture production; consumer products; and the automotive, aerospace, electronics, and medical device industries. These contributions increase efficiency, decrease waste, provide sustainable products that can sequester carbon, and create jobs for Americans supporting business development and expansion.



R&D Supports the Administration's Priorities

Climate change is a defining challenge of this century and Forest Service scientists are at the forefront. Our agency provides data and adaptive management and mitigation strategies that make forests and grasslands more resilient, communities more prepared, and green markets and initiatives more viable. Forest Service R&D, along with our vast network of partners and collaborators, is committed to addressing the threat of climate change by providing research for the needs of today and the issues of tomorrow. Forest Service R&D also serves as the lead for the USDA Climate Hubs, linking USDA research and program agencies in their regional delivery of timely and authoritative tools and information to agricultural and forestry producers and professionals.

In response to the **COVID-19 pandemic,** R&D scientists have developed real-time risk assessments and mitigation measures to reduce the spread of COVID-19 in fire camps. Scientists have applied innovative wildlife modeling techniques to help public health officials understand trends in localized transmission of COVID-19.

Urban field stations promote **racial equity and environmental justice** through community partnerships. For example, an R&D partnership in Baltimore, MD will rehabilitate blighted neighborhoods through the Urban Wood Project and restore a local forest for community use in a neighborhood challenged by flooding, heat waves, and inequity.

R&D innovations are **promoting rural economies** by providing new uses and technologies for wood products, such as biochar, cross-laminated timber, mass timber buildings, and salvage logging science.

Learn More

For more information contact Dr. Alex Friend, Deputy Chief for Research and Development, at alexander.friend@usda.gov or (202) 205–1665. Or visit us online at www.fs.fed.us/research.

Budget

In fiscal year (FY) 2021, the Forest Service restructured its budget. In the new budget structure, there is a dedicated budget line item (BLI) for employee salaries and personnel-related expenses, with funds for salaries and expenses having been shifted from program BLIs (i.e., Forest and Rangeland Research, Forest Inventory and Analysis) to the R&D Salaries and Personnel-Related Expenses BLI. Adding together spending from R&D Salaries and Personnel-Related Expenses and Forest Inventory and Analysis, the Forest Inventory and Assessment program's budget remained level between FY 2020 and FY 2021.

FY 2021 Budget

Budget Line Items (BLI)	FY 2019 Enacted	FY 2020 Enacted	FY 2020 Enacted (translated to new budget structure)	FY 2021 Enacted (enacted in new budget structure)
Forest Inventory & Analysis (FRFI)	$77 M	$77 M	$17 M	$18 M
Joint Fire Science Program (FRJF)	$3 M	$3 M	$3 M	$3 M
Forest and Rangeland Research (FRRE)	$220 M	$225 M	$39 M	$38 M
R&D Salaries and Personnel-Related Expenses (FRSE)	N/A	N/A	$200 M	$200 M
Total	$300 M	$305 M	$259 M	$259 M

R&D FY 2021 Enacted Totals

Innovation & Discovery	Forest Inventory & Assessment	Science Delivery & Decision Support
$64 M	$87 M	$108 M

Research & Development
BY THE NUMBERS

1,596 Total Employees

421 Research Scientists Across 31 Disciplines

81 Experimental Forests and Ranges

5 Research Stations

2 Research Centers

Research Stations: Northern, Southern, Rocky Mountain, Pacific Southwest, and Pacific Northwest
Research Centers: Forest Products Laboratory and International Institute of Tropical Forestry