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Rocky Mountain Research Station | Montana State Fact Sheet | July 2025

Improving Lives and Landscapes in Montana

The Rocky Mountain Research Station (RMRS) contributes to dynamic land management needs across Federal, State, and private land in Montana. Innovation and research centered around local solutions and partnerships offer new methods for adapting and shaping land management decisions.

Timber and Forest Management

Forest Inventory and Analysis (**FIA**) data supports forest planning decisions, silviculture prescriptions, timber harvest, and data estimates about industry and wood products. This inventory data **guides significant financial investments** for timber mills, wood products plants, and helps identify landscapes at risk of wildfire. FIA data and tools are offered on a geospatial webpage. The Station's TreeMap model and tools combine inventory and LANDFIRE data to provide spatial information on forest characteristics, including live and dead trees, biomass, and carbon.

This report for the Kootenai Complex Landscape high-risk fireshed offers **specific fuel reduction treatment** locations and strategies to overcome operational challenges to mechanical treatments.

Our research helps forest managers predict which trees will die and subsequently plan for timber salvage and other management activities. This research is used to develop postfire tree-marking guidelines for timber-marking crews laying out salvage sales.

Scientists studied postfire logging watershed effects after major fires on the Lolo National Forest and used this data to create a **decision support tool to deliver practical guidance for post-fire salvage logging**.

The Adaptive Silviculture project examines various silviculture prescriptions, thinning, and reforestation strategies designed to **build forest resistance to drought and fire in Rocky Mountain forests**. A key study site is located in the Coram Experimental Forest and will help inform management **of western larch-mixed conifer forests** across the region.

Diseases, like **Tomentosus root disease**, can make trees susceptible to windthrow, creating serious safety hazards. RMRS is researching ways to rapidly detect the fungal pathogens causing the disease so managers can act quickly to remove hazard trees and reduce pathogen spread.

Fire Preparation, Response, Recovery

The Wildfire Risk to Communities website is a vital resource for communities to learn what factors contribute to the risk of fire in their communities and actions they can take to reduce risk. A Statewide snapshot of Montana's risk is available here.

Wildfire Adapted Missoula is an example of a **collaborative effort to prioritize fuel treatments to reduce wildfire intensity**, structure ignition, and negative impacts to natural resources.

The Wildland Fire Decision Support System (WFDSS) is an **interagency resource to plan incident response**, evaluate and visualize risks on the landscape, and manage fires.

WindNinja helps emergency responders predict local wind conditions, while the WildfireSAFE app provides **real-time weather and fire behavior**, and national fire danger classes, **information critical to first responders and citizens planning visits** to forests during wildfire season.

The Wildfire Hazard Potential Map identifies areas for fuel treatments to **strategically reduce future wildfire severity**,

Tree planters planting whitebark pine seedlings on the Flathead National Forest, Montana. USDA Forest Service photo by E. Williams.

focusing on places where wildfires might be harder to control.

FuelCalc, a canopy fuel calculator and model, helps forest managers calculate fuel characteristics and simulate potential treatments.

Fuel treatment studies at the Lick Creek Demonstration-Research Area on the Bitterroot National Forest show thinning and prescribed burning **reduce wildfire risks and promote forest resilience** to fire, drought, and pests, offering practical strategies for sustainable wildfire management and ecosystem health.

RMRS is working with sagebrush practitioners on the Sagebrush Conservation Design project to provide comprehensive resources for **managing sagebrush biomes**. This work helps managers prioritize efforts and provides a way to track outcomes to improve the health and resilience of these ecosystems. New research also prioritizes areas where conifer management supports core sagebrush landscapes in Montana.

Wildlife and Recreation

New research demonstrates that grizzly bears use timber harvest for cover after salvage logging, showing the benefits of silviculture for grizzlies. **RMRS is supporting national forest system managers in response to a February 2025 lawsuit decision** by mapping unauthorized recreation in grizzly bear closures.

RMRS has studied Canada lynx habitat selection, foraging behavior, and responses to forest management, showing that lynx tolerate low-density recreation and rely on specific forest structures for denning and prey availability. This research **reduces conflicts over habitat conservation and timber activities** and can inform recreation planning and help address legal challenges.

The eDNA program helps expedite Endangered Species Act (ESA) consultation and **provides cost-efficient methods to detect species**. This kind of information supports timber sale planning helping to **alleviate legal challenges and target forest restoration activities to reduce wildfire risk to critical habitat areas**. For example, the Lolo National Forest used eDNA to confirm the presence and absence of ESA-listed bull trout in multiple forest drainages, facilitating fuel treatments and thinning on over 60,000 acres.

RMRS Facilities in Montana

Missoula Fire Sciences Laboratory is a unique facility with a 75 year history, using equipment specifically designed to study wildland fire behavior, prevention, and suppression.

Aldo Leopold Wilderness Research Institute is **the sole U.S. Federal research collaboration dedicated to wilderness stewardship**.

The National Genomics Center for Wildlife and Fish Conservation is a leader in genetic and genomic research.

Experimental Forests: Coram (on the Flathead National Forest) focuses on regeneration, ecology, and management of **western larch-mixed conifer forests** and Tenderfoot Creek (on the Lewis and Clark National Forest) focuses on **productivity and health of lodgepole pines and water yield**. RMRS scientists, in conjunction with forest and university partners, have studied **fuel treatments for over three decades** at the Lick Creek Demonstration-Research Forest.

Future Collaboration Opportunities

- Supporting emerging markets for wood by-products through innovations like biochar and alternative energy
- Adapting silviculture practices, forest genetics, and planting techniques to improve timber productivity under future climate conditions
- Research aiding responsible energy development to sustain habitat, water quality, and grazing in prairies and grasslands
- Developing partnerships across States, Tribes, and communities to support proactive forest management and reduce litigation
- Resolving issues related to recreation and wildlife interactions or concerns, particularly around grizzly bears, lynx, and forest birds

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https://research.fs.usda.gov/rmrs