



# Montana DNR Forestry Division

## FORESTRY ASSISTANCE

Biomass Utilization

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Urban and Community  
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# Forest Pest Management

*Helping to Detect and Manage  
Damaging Insects and Diseases on  
Montana's Forests*



**Montana Department of Natural Resources and Conservation  
Forestry Division  
Forestry Assistance Bureau  
Forest Pest Management**

The Montana DNRC Forest Pest Management (FPM) Program provides services and management tools to help reduce the impacts of insects and diseases on Montana’s state, private, and urban forests. The FPM Program takes a multifaceted approach to managing forest pests that includes education, outreach, and technical assistance for natural resource managers and private landowners; detection and monitoring of forest pests; prevention and restoration activities; and grant support for management activities.

The FPM Program is staffed by an entomologist and part-time pathologist. DNRC Service Foresters also assist in carrying out program activities. With the support of federal funding and in cooperation with the USDA Forest Service Northern Region Forest Health Protection Program, FPM Program staff:

- Diagnose forest health issues on private lands and provide management recommendations
- Offer workshops to train forest professionals, loggers, and landowners in pest identification and management
- Detect and monitor insects and diseases that threaten state, private, and urban forests
- Provide financial assistance for insect and disease prevention and restoration activities
- Coordinate suppression projects
- Provide input to DNRC’s long-term timber sale planning process
- Publish information on insect and disease outbreaks and trends in the annual *Montana Forest Insect and Disease Conditions Report*.

/// Goal ///

Assist state and private entities with management of insect and disease issues on their forested lands.

**Many Montana Forests Are Highly Susceptible to Outbreaks of Forest Pests**

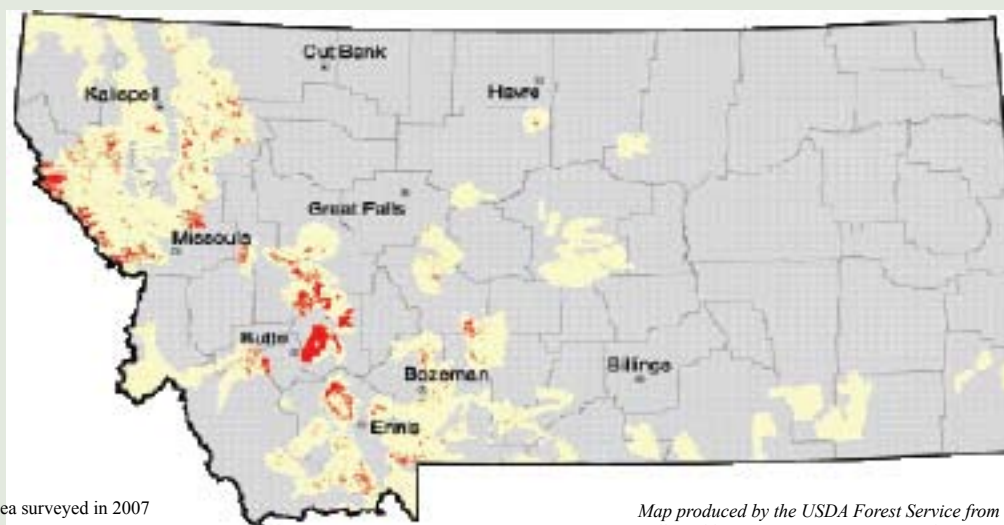
Trees in many of Montana’s forests are overcrowded due to decades of fire suppression, stressed by prolonged drought. These trees are more susceptible to attack by insects and diseases. Bark beetles and root diseases are two pests currently affecting Montana forests at outbreak levels. The damage and mortality caused by bark beetles is apparent to anyone who has seen areas of the rusty red trees killed by beetles. The effects of root disease are not as readily apparent, but actually are a greater cause of mortality and injury to trees in Montana. While these outbreaks can’t be stopped, it is possible to manage timber losses, manage individual stands to enhance vigor and resilience, and reduce fire hazards to landowners. The FPM Program encourages management practices that enhance trees’ resilience to insect and disease activity and help minimize losses to Montana forest resources.

**Accomplishments  
FY 2008**

Technical assistance on state and private forest lands	154
Training sessions and workshops for private landowners and professional land managers	742
Aerial surveillance for insect and disease activity acres	25,000,000
Gypsy moth surveillance (traps) in Missoula and Granite counties	53



## Areas of Mountain Pine Beetle Infestations, 2007



Area surveyed in 2007  
 Areas of Mountain Pine Beetle Infestation in Montana

*Map produced by the USDA Forest Service from survey data collected by USDA Forest Service Northern Region Forest Health Protection Program and DNRC Forest Pest Management Program.*



*Small insects can cause big problems: The mountain pine beetle (above left; actual size 1/8 - 1/3 inch) can erupt in outbreaks and cause injury and mortality of affected trees. The spruce budworm (larva, above right; actual size up to 1 inch) is a defoliator that can also erupt in outbreaks and cause injury and mortality of trees.*



*Forest with tree mortality caused by mountain pine beetles.*

## Consequences of Insects and Diseases for Montana's Forests

Some forest pests, like bark beetles, are natural parts of the forest ecosystem. Infestations have occurred throughout the history of Western forests with pest activity occurring even in healthy forests. Other insects and diseases, like gypsy moths and white pine blister rust (pictured opposite), are exotic, meaning that they originated outside the U.S. and were accidentally transported here. Because native species did not evolve in the presence of the exotics, their normal defenses often are insufficient to ward off the new pests. A number of pine species are susceptible to white pine blister rust, including whitebark pines, whose seeds are an important food source for grizzly bears, Clark's nutcrackers, and other species. The impacts of blister rust infestation thus are not limited just to the pines, but ripple throughout their ecosystem. Likewise, gypsy moth is a non-native insect that would potentially defoliate expansive landscapes, including pine forests, and severely alter the ecosystem.

The current unhealthy condition of many forests raises the likelihood that outbreaks, even of native insects and diseases, will increase in duration and geographic extent. Pests such as bark beetles usually kill trees quickly, while others such as spruce budworms injure and weaken trees, increasing their susceptibility to other insects and diseases, and reducing their ability to withstand stresses such as drought. Injured trees grow more slowly, resulting in reduced timber production. The dry, dead trees left behind when insects and diseases kill trees are more likely to ignite during wildfires, increasing the severity of fires and increasing risks for residents in the wildland urban interface.



*A pine displaying the fruiting bodies of white pine blister rust, a non-native fungus.*

## Services Provided by the Forest Pest Management Program

### Education and Outreach

The FPM Program conducts insect and disease workshops for private landowners, natural resource managers, loggers, and others. Additional educational materials include brochures and information on the program's website. Information and findings from detection surveys are disseminated to appropriate users and published in the annual *Montana Forest Insect and Disease Conditions Report*.

### Technical Assistance and Service Calls

FPM Program staff respond to inquiries about forest insect and diseases by on-site visits or phone to help identify forest pests and provide management information.

### Financial Assistance

With funding from the USDA Forest Service S & P, grants are awarded to state land managers and private landowners for treatments that minimize the impact of forest insects and diseases.

### Prevention and Restoration Detection and Monitoring

The FPM Program administers federally-funded grants used to support prevention and restoration projects on state and private lands, and is a cooperator in projects involving coordination among diverse ownership entities.



*During an insect and diseases workshop, participants learn to identify pests, methods to help prevent and manage insect and disease infestations, and approaches to restoring areas damaged by infestations.*

Working in conjunction with the USDA, the FPM Program monitors gypsy moth infestations, and other invasive and threatening species. The FPM Program also works with the USDA to prepare response plans for pests such as the emerald ash borer.

## A FPM Program Success Story: Improving Forest Health in Lake County

**L**ike forests in many parts of Montana, those in Lake County have been significantly altered by fire suppression and harvest activities during the last 100 years. Densely crowded Douglas-fir trees in the forest understory are highly susceptible to attack by Douglas-fir beetle. The dense stands of ponderosa pines that have grown up in the absence of fire are highly susceptible to mountain pine beetle. Over 750 acres of forest in Lake Country are currently affected by Douglas-fir beetle, and over almost 20,000 acres are affected by mountain pine beetle.



*Above: A forestry consultant points out a tree killed by mountain pine beetles.*

*Below: Area of Douglas-firs being thinned to reduce susceptibility to beetle attack.*



**W**ith the assistance of funding from the USDA Forest Service State and Private Forestry Program, the FPM Program is working with private forest owners to conduct management activities that will alter stands from a state of high susceptibility to beetle outbreaks to conditions where insect activity is reduced and individual trees are more resilient to attack. Methods include thinning, planting early successional species such as larch and ponderosa pine, slash treatment, and use of pheromone capsules to help protect selected stands. To date, 433 acres have been treated.

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