

SUCCESS

REGIONS 1 & 4, STATE AND PRIVATE FORESTRY

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The devastation that mountain pine beetles have inflicted on lodgepole, ponderosa, and whitebark pine forests is readily apparent in many places throughout the western United States.

Financial support to national forests to help pay for mountain pine beetle treatments at high value sites like campgrounds and trail heads comes in part from Forest Health Protection funding.

Forest Health Protection contributed roughly \$2.1 million in fiscal year 2011 to treat over 5,900 acres of national forests in northern Idaho and Montana with carbaryl spray, verbenone, or through thinning

Protecting High Value Forest Sites

In the face of a mountain pine beetle epidemic, Forest Service entomologists are working with national forest managers to protect trees in high value recreation sites.

Entomologists in the Missoula Field Office of Forest Health Protection are working with staff from national forests to mitigate impacts of the mountain pine beetle epidemic in high value, high use areas, places like campgrounds and trail heads in national forests across northern Idaho and Montana.



Picnic area within mature lodgepole pine stand

Dr. Brytten Steed, an entomologist based in the Missoula Field Office says protecting and maintaining high value sites against the potential onslaught of mountain pine beetles includes both protecting vulnerable trees individually or as a group, and by considering the site as a whole, developing short and long range plans for managing vegetation.

That combination of vegetation planning and direct treatment can be the key to maintaining features that make high value sites popular with many users—trees.

The two primary direct treatments used by site managers for suppressing mountain pine beetle populations are insecticide spray and anti-attractant pheromones (chemicals produced by mountain pine beetles).

To be effective, treatments must be completed *before* pine trees are attacked by the mountain pine beetle.

The most effective method of protecting individual trees from pine beetle attack is to spray the tree bole with an insecticide registered for that use, such as carbaryl.

If applied properly, ensuring all bark crevices are treated with the insecticide, carbaryl treatments generally provide 2 years of protection for most tree species.

Another direct treatment to prevent pine beetle attack is the application of the pheromone verbenone.

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Spraying carbaryl on lodgepole pine at risk to mountain pine beetle attack

This pheromone gives the message to pine beetles that the tree is occupied and it is not worth stopping there to feed or reproduce.

The verbenone used in direct treatments is produced in laboratories and packaged in small pouches stapled to trees prior to beetle flight. Brytten notes that while verbenone works well in some situations, other times there may be less than a 60 percent success rate annually. Where carbaryl can't be used, for example in buffer zones along waterways, verbenone is often the only direct treatment tool available.

Planning is another factor in protecting and maintaining high value sites. A vegetation management plan for a developed recreation site describes how vegetation at the site should be managed over time to provide the desired setting and experiences.

To assist in that vegetation planning effort, Forest Health Protection and recreation staff within the Forest Service's Northern Region worked together to develop a guide to vegetation management planning for developed recreation sites. Financial

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To identify projects to fund, Forest Health Protection issues an annual request for project proposals. Forest Health Protection staff visit proposed sites, preferably in August or September after beetle flight has begun, to assess the feasibility of proposals before they are funded. The sites are monitored to track the success of the treatment and to discuss future actions.

Brytten says while Forest Health Protection provides a wide range of services, her participation in efforts to preserve mature, green trees in recreation areas is particularly satisfying.

As she notes: "These are the areas where many members of the public come to connect with the outdoors. Not only do we contribute to protecting trees on the sites they love, but it is an opportunity for us to share information on the biology of mountain pine beetle and their host pine trees."

In many cases campgrounds and other recreation sites were established in places having a long history of use. The large, older trees that attracted users are now even older, with many reaching the end of their lives. Their weakened condition in old-age makes them attractive to many insects and diseases.

The recreation site planning process encourages national forest recreation managers, silviculturists, and other specialists to visit recreation sites together, to come to agreement on the desired future condition of vegetation at the site and identify actions to achieve those desired conditions.

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*Brytten Steed,
Forest Service
entomologist*