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Forest Health: Bark Beetles and Fire

Rocky Mountain National Park
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Fire Update 2009 Newsletter

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Bark Beetles and Fire

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While the beetle epidemic is a reminder of nature's ability to dramatically change the landscape, recovery is already being seen on the western slope with the emergence of the next generation forest. Future evolution of the forest may reveal the current epidemic is actually a benefit to the overall long term health of the ecosystem.



Websites for more information

<http://www.nps.gov/romo/naturescience/fire.htm>

www.frontrangepinebeetle.org

www.firewise.org

Mike Lewelling

Mike Lewelling
Fire Management Officer
Rocky Mountain National Park

We Need Your Input on Park's Fire Management Plan

Rocky Mountain National Park staff are beginning the process of preparing a new Fire Management Plan for the park. The current Fire Management Plan was approved in 1992, and does not fully address the challenges the park now faces with the bark beetle epidemic, other forest health issues, and community wildland fire protection.

Park staff would like to hear your ideas about what the new Fire Management Plan should include. If you are interested in learning more about the plan please call (970) 586-1206.

Dear Neighbor:

Miles of dead, red needled trees dominate the west side of the park, covering entire mountainsides or showing as rust colored swatches among the remaining green trees. These dead trees have captured the public's attention and become one of the top issues for managers in Rocky Mountain National Park. I am writing to you today to shed some light on some of these issues and invite you to learn more about the bark beetle epidemic and its relation to fire.

Who is the culprit? Tree death is caused by a tiny insect, the mountain pine beetle, which bores into lodgepole, ponderosa, and limber pines. Native to North America, the beetle has coexisted with the forest, having periodic small outbreaks. However, the scale of the current beetle epidemic is unprecedented in historic times, with millions of acres of trees being affected throughout the West from Mexico to British Columbia.



The beetle outbreak is well established on the west side of the park. Grand County has been involved with beetle mitigation for numerous years, and the beetles continue to expand north through the Kawuneeche Valley. This past summer, stands of red needled trees revealed the beetle's expansion east of the Continental Divide. The beetles are now well established in the Estes Valley and the Highway 7 corridor towards Allenspark. Park managers expect the number of red trees seen on the east side of the park to dramatically increase this summer. Experts are unclear as to whether the outbreak will be as severe in ponderosa as it has been in lodgepole pine.

Is there a greater risk of a "catastrophic" fire? Periodic large high-intensity wildland fires are a normal part of the ecosystem of Rocky Mountain National Park, most researchers and fire behavior experts agree that beetle killed trees increase the susceptibility of a forest stand to have crown fires. Dead dry needles, which may remain on a tree for up to five years, are highly flammable. There is still uncertainty about the fire risk in the years following an outbreak, but as the dead trees fall, more fuel becomes available on the forest floor.

What is the park doing about the beetle outbreak? Only Mother Nature can halt the beetle's spread across the landscape. Since the task is enormous, the park's priorities for mitigation of the effects of beetles are focused on removing hazard trees and by protecting high value trees by spraying them with a low concentration insecticide. High value trees are in front country locations such as campgrounds, historic landscapes, picnic areas and visitor centers. They are important for shade, visual screening, cultural significance, and outstanding visual quality.

Beetle killed trees become a serious hazard when trees die and become susceptible to falling. This is especially true on windy days and in places where visitors spend a lot of time such as in campgrounds, trailheads, and picnic areas. Green trees are also falling hazards when surrounding beetle-killed trees are cut down. Providing for visitor safety means park managers must mitigate the hazard (cut trees down), or close the site. In order to keep as many park facilities open as possible, crews are cutting down hazard trees in high visitor use areas. This is an enormous and costly task, with over 300 locations identified for hazard tree mitigation. The public should expect major changes in many areas, especially Glacier Basin and Timber Creek Campgrounds where the majority of the lodgepole trees will be cut down. (continued on page 4)

Beetle Mitigation



Hazard trees removed at Glacier Basin Campground and Timber Creek Campground. Many public use areas will look much different after beetle mitigation has taken place.



An infected tree will have pitch tubes on its trunk and boring dust (frass) at the base of the tree. Sometimes the tree will be successful in repelling or "pitching out" beetles and beetles are occasionally found imbedded in a pitch out. Solely relying on pitch tubes to determine if a tree contains live beetles is not always reliable. Frass found at the base of a tree that contains pitch tubes indicates beetles were successful in entering the tree, and it is very likely the tree will succumb to the beetle attack.



The air curtain burner is a tool managers use to dispose of cut beetle killed trees and slash. It significantly reduces smoke and particulate emissions from burning trees.



A sawyer works to cut down a beetle infested hazard tree. This is a costly, time consuming and hazardous task. In the park's developed areas, over 20,000 trees have been identified for removal in the next several years.



The spraying of high value trees in front country areas of the park has been very effective in preventing beetle attacks in those trees. However, spraying is only effective when it is applied directly to trunks and the tree must be sprayed every year. Broadcast spraying is not effective. There can be adverse impacts with chemical spraying, therefore, we are highly selective and limit use of this chemical treatment. We do not spray near water courses or wetlands.

Prescribed Fire

The mission of the fire program at Rocky Mountain National Park is, "to balance the ecological role of fire and other natural disturbances with the protection of human life and safety." Natural fire has been one of the most significant and frequent forces of change in the Rocky Mountains for centuries. It has formed the vegetative landscape around us and is a key natural process in maintaining healthy ecosystems. However, as people have moved into the wildland urban interface there is more risk to human life and property. The dilemma for managers is how to protect human life and property while providing for a healthy ecosystem, on a landscape scale.



Fire crews use "drip torches" to ignite a prescribed fire.

One of the most effective tools managers use in these areas is prescribed fire. Strategically placed prescribed fires are used to invigorate the ecosystem, while simultaneously reducing hazardous accumulations of forest fuels. The park has been successfully reducing hazardous fuels along the boundary and near developed areas for many years by using a combination of mechanical thinning and small prescribed burns. The park plans to increase these hazardous fuels treatments by utilizing prescribed fire to the greatest extent practicable.

Last fall the park treated nearly 600 acres using prescribed fire in Upper Beaver Meadows. This was a successful example of this type of applied treatment. In 2009, another similar project of 500 acres is scheduled near North Lateral Moraine. Additionally, the park is embarking on a new pilot project using prescribed fire to reduce the crowns of trees that were impacted by the Mountain Pine Beetle. This may help create fuel breaks managers can use to better balance the mission of protecting human life and property while striving to maintain a healthy ecosystem.

Fire, Smoke, and Air

Fire is an inevitable natural process. Along with fire, there is smoke.

Living in forested mountain communities, the public can expect periodic events of fire and smoke, both through the natural start of fire and prescribed fire implementation.

During catastrophic fire events, communities can be impacted with smoke for weeks, and sometimes months. By establishing fire on the landscape through the management of lightning-ignited fires and prescribed burn implementation, reduction of hazardous fuels occurs. With less burnable material on the ground, less smoke will be produced during unwanted events.

The Fire Management staff at the park works closely with the Colorado Department of Public Health to ensure air quality standards are met and to keep smoke impacts minimal when prescribed fires are enacted.

For more information and to better understand smoke impacts please read the following: <http://www.arb.ca.gov/smp/progdev/pubeduc/wfgv8.pdf>



Slash burning generates minimal amounts of smoke.



Smoke from the Horseshoe Park prescribed burn.

For information on fire projects within Rocky Mountain National Park call the park information office at 970-586-1206 or email at romo_information@nps.gov