



## Beetles shaping Montana's forest lands

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By **PERRY BACKUS** of the *Missoulian*

Montana's forests are under attack.

Hundreds of thousands of acres across the state are falling prey to hordes of hungry beetles not much bigger than a pencil eraser.

The beetles' spread is being fueled by a deadly combination of prolonged drought, overstocked and even-aged forest stands, and trees weakened by wildfire. Their march is marked by timbered hillsides pocked with differing shades of gray, red and pale green in stands of Douglas fir, lodgepole and whitebark pine.

And there's pitifully little anyone can do to stop it.

The U.S. Forest Service estimates that nearly 90,000 acres of Douglas fir trees in Montana were infested with Douglas fir beetles last year. An estimated half-million acres of lodgepole and ponderosa pine are under attack by mountain pine beetles. The whitebark pine faces a double threat from both the mountain pine beetle and a deadly blister rust fungus. In some cases, stands of whitebark pine have suffered losses nearing 95 percent.

There are a variety of reasons for the onslaught, said Greg Denitto, group leader of the Forest Service's Northern Region forest health protection team.

Nearly a century and a half of relatively successful fire suppression has allowed stands to grow old and close together. In the Bitterroot National Forest and elsewhere around the state, wildfires left thousands of trees along the edge of the hottest blazes in a weakened state. On top of that, a prolonged drought has further sapped trees of their ability to fight off the invader.

Even global warming might be playing a role, especially for the mountain pine beetle, which is especially vulnerable to long cold snaps in the winter months.

The beetles attack their host trees by boring under the bark and laying eggs. The ensuing larvae feast on the inner bark and eventually kill the tree. Healthy trees can sometimes defend themselves by pushing the beetle back out of its hole with a good dose of pitch.

It takes some time for a tree to show it's been attacked. By the end of the first year, the tree typically starts to pale in color.

"It doesn't know that it's dead yet at that point," said Denitto. "Once that happens, there is nothing that can be done to save it. It's a dead tree. I can guarantee you that it won't turn green again."

During the second year, the needles on the tree turn red. Once those needles drop, the tree looks gray. It's not that unusual to be able to see all three stages in a stand of trees being worked over by beetles.

The latest infestation of Douglas fir beetles began in earnest the winter of 1995-96 following a fierce ice storm that swept through the region. North Idaho was especially hard hit.

The storm left a lot of Douglas fir on the ground - "that initiated the cycle. Douglas fir beetles love downed logs," said Denitto.

By 1998, the infestation was on the upswing and moving across western Montana.

In a normal cycle, the beetles' numbers would increase for maybe three or four years following a disturbance and then begin to decline.

"They're really not that aggressive of a beetle," said Denitto.

But this time around, conditions on the ground favored an explosion, especially in places like the Bitterroot forest where there were thousands of acres of 100-year-old-plus Douglas fir in heavily stocked stands weakened by the fires of 2000 and years of drought.

"There were just a lot of susceptible trees and that's helped continue the cycle," Denitto said.

In areas like the West Fork of the Bitterroot, virtually every tributary that has stands of Douglas fir shows signs of beetle-killed trees. Officials estimate that nearly 62,000 Douglas fir trees were killed in 2003 alone on the Bitterroot forest.

In an annual report on forest insect and disease conditions, scientists said new Douglas fir beetle infestations may actually be slowing on the Bitterroot, but not for lack of effort by the beetles. There just aren't enough trees left to attack.

"They're literally eating themselves out of house and home in some cases," said Denitto. "What we're seeing in some sites is there's just no habitat left and the local population of beetles is going away."

Statewide, the Douglas fir beetle is still very active around Butte and Helena.

Butte is also a hot spot for the mountain pine beetle. The west side of the Lolo National Forest is also seeing more than its share of the bug.

In 2004, the Forest Service estimated that more than 500,000 acres of lodgepole pine forests are infested, the highest total since 1988 - the year that much of Yellowstone National Park burned. Back then, nearly

3 million acres of forest were infected.

Entomologists don't expect to see those kind of numbers again, said Denitto.

"We simply don't have that many acres of suitable habitat left," he said. "They were all killed the last time around."

Even with that, Denitto said there are still plenty of acres of lodgepole pine nearing the end of their lifespan. Lodgepole pine are old at the century mark. In some places, there are huge expanses of lodgepole pine that have reached life's end.

"They are either going to get killed by the mountain pine beetle or they're going to burn up," he said. "That's the ecology of that species. They are relatively short-lived and are dependent on fire or heat to regenerate."

Denitto said the fact that forests are dynamic is something people sometimes forget.

Forests are always changing - "they don't stand still," he said. "People living in or around the forest may not see that on a daily basis. But if they could take a look today and then go back and look again in 15 years, I can guarantee they'd see a difference."

Denitto sometimes gets phone calls from people who live in the forest wanting to know what they should do about beetles attacking the trees around their home.

"I have to tell them that they're 10 years too late," he said. "When you're managing a forest, you need to look ahead more than just next week or next year. People need to understand that doing nothing doesn't mean that the forest will always remain the same."

A century and a half of fire suppression has created a difficult situation on the landscape.

Even if there were a way to knock back the current onslaught of beetles, Denitto said that wouldn't address the bigger

issues facing the overall health of the forest.

Overstocked stands make it difficult for trees to compete for a limited source of nutrients and water. In some places, Douglas fir and other species have taken over sites more suitable to widely spaced ponderosa pine. A single age class dominates stands of lodgepole and Douglas fir.

The beetles are just a symptom of the larger problem facing forests across the West, he said.

"Mother Nature is going to change things whether we like it or not," Denitto said. "The question that we all face is what do we want, because things are going to continue to happen out there. We have to decide if we want to influence that or not."

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