

perspective

## Lessons to be learned from West's beetle infestations

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Bark beetles have killed more than a billion pines and spruce across western North American in recent years, and now they are spreading into the northern-most forests in Canada.

What's going on?

Several causes are behind the beetle infestations, from fire suppression to drought to global warming, factors that can provide lessons about how to manage our forests in the future.

Across the West, beetles are on a tear, and four species have destroyed enough wood to supply the American housing market for almost five years.

In the Southwest, the engraving beetle has invaded southern California, southern Utah, Arizona, southern Colorado and New Mexico. It has demolished the pinyon pine - the state tree of New Mexico. Ninety percent - tens of millions - of New Mexico's pinyons are dead.

The western pine beetle is also very prevalent in the Southwest. The mountain forests of California, Arizona, Utah, Nevada, New Mexico and Colorado have been infested with this insect for the past decade. Although it favors ponderosa pine, it has also killed western, sugar, Jeffrey and coulter pines.

Ten million dead standing pines can be seen along the San Bernardino Mountains 60 miles from Los Angeles.

In Alaska and the Yukon, spruce bark beetles have spread out over 4.2 million acres, noshing their way through Sitka and white spruce forests.

From British Columbia to western Alberta south into Washington, Oregon, Idaho, Montana, Wyoming, northern Colorado and northern Utah, mountain pine beetles are feasting on lodgepole pine and spreading up into the high-elevation whitebark and limber pines. Most of the 2.5 million acres of White River National Forest - including Summit, Grand and Routt counties - are vulnerable. Moreover, the mountain pine beetles are spilling into the Jack pine forests to the north. These forests have not

likely experienced a bark beetle infestation like this ever before.

From latitude 32 to 60 degrees, the enormity of the bark beetle's wrath is truly unimaginable.

There are several reasons for this devastation. Fire suppression, a hallmark of 20th century forest management, has both created an enormous food supply for these insects and removed nature's check on their populations.

Areas of western North America are experiencing their ninth consecutive year of drought. Drought prevents pine and spruce from producing the gooey pitch that is their only defense mechanism against beetle attacks.

In recent years, parts of the West and Canada haven't had the kind of sustained, extremely cold temperatures needed to kill beetles over the winter. Without such temperatures, the populations of spruce and mountain pine bark beetles have exploded. Only time will tell what happens this winter.

And both spruce and mountain pine beetles have begun to speed up their breeding cycles. Both species traditionally reproduced every second year. Now the spruce beetles are breeding each year, and in southern British Columbia some mountain pine beetle populations are breeding twice in a year.

The beetle infestations are a response to global warming and antiquated fire suppression policies. The forests of the West and elsewhere are well-adapted to the regular occurrence of lightning-induced fires. By stopping fire, forest managers have inadvertently provided more food for beetles.

(But, as recent research from Colorado State University, the University of Colorado and the University of Idaho shows, in the absence of fire, bark beetles are very efficient at creating change on the landscape and allowing tree seedlings an opportunity to recolonize beetle-killed forests.)

Global warming has increased the annual temperature in New Mexico by only 2 degrees Fahrenheit yet just enough to push the pinyon pines over the edge with a helping hand of the bark beetles.

When trees die in semi-arid woodland ecosystems of the Southwest, they are not likely to return soon. Rising temperatures are depleting moisture necessary for their regrowth. Forests in mountainous and subalpine regions will recover from beetle infestations, particularly when some fire is allowed to return to these ecosystems.

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A mountain-pine beetle leaves tracks beneath the bark of a lodgepole pine. (Post / Steve Lipsher)