



Millions of Beetles Are Wiping Out Forests All Across the World

The pest are eating away at trees as climate change warms winters. Infestations have the potential to worsen future emissions.

By Jen Skerritt

August 17, 2020, 4:00 AM CDT

A plague of tiny mountain pine beetles, no bigger than a grain of rice, has already destroyed 15 years of log supplies in British Columbia, enough trees to build 9 million single-family homes, and are chewing through forests in Alberta and the Pacific Northwest. Now, an outbreak of spruce beetles is threatening to devour even more trees in North America just as similar pests are decimating supplies in parts of Europe, creating a glut of dead and dying logs.

The bugs are thriving as climate change warms winters that would normally keep them at bay, destroying a swath of the world's timber supplies. That may eventually spur shortages for the global housing market. Right now, lumber prices are soaring to record highs thanks to a surge in pent-up repair, renovation and housing demand sparked by the coronavirus pandemic.

All told, the beetles felled 730 million cubic meters of pine between 2000 and 2015 in British Columbia, Canada's largest exporter of timber to the U.S. housing market. That's erased more than a decade of lumber supplies and will reduce the allowable production in the B.C. Interior by a staggering 40%, said David Elstone, owner of Vancouver-based Spar Tree Group. Provincial modeling indicates about 55% of B.C.'s marketable pine trees will be dead by 2020.

Squashing these bugs is no easy feat, according to Caroline Whitehouse, a forest health specialist for the province of Alberta. Helicopters scour areas of Alberta's northern timberland looking for signs a pine tree's green needles have turned a ghastly red. Whitehouse's team on the ground then ferrets out pines oozing a creamy, reddish resin to confirm the beetles have bored into the bark and overwhelmed their host.

Finally, infected trees are cut down with chainsaws before they are chopped into bits and burned with fuel to destroy any chance the larvae could spread.

SENT TO LSU AGCENTER/LOUISIANA FOREST PRODUCTS DEVELOPMENT CENTER - FOREST SECTOR / FORESTY PRODUCTS INTEREST GROUP
“You’ve got to utilize these dramatic, very effective techniques of cut and burn,” said Whitehouse, noting Alberta’s efforts have reduced the area that could have been impacted by the mountain pine beetle by 30%. Still, the pests have affected more than 2.2 million hectares (5.4 million acres) and the outbreak is unlikely to subside for another five or six years. “Certainly it’s a difficult thing. When you have an outbreak you have millions and millions and millions upon millions of beetles in the forest.”



A forestry worker at the Bavarian State Forests looks at the crown of a tree marked for felling due to beetle infestation in Egmating, Germany on August 9, 2018.

Photographer: Lino Mirgeler/picture alliance via Getty Images

Decades ago, the mountain pine beetle was part of the forest’s normal cycle of death and regrowth. The pests would feast on mature trees, providing fuel for forest fires that would then spur new growth. But by 1950, humans became very good at putting out forest fires, leaving a ‘smorgasbord’ of older trees for the insects to attack, said Allan Carroll, professor of insect ecology and director of the Forest Sciences Program at the University of British Columbia.

Temperatures have climbed in the province more quickly than across the world in general. The nighttime minimum average temperature in winter rose by 3.1 degrees Celsius (5.6 degrees Fahrenheit) between 1900 and 2013, according to provincial records. As winters warmed, more of the beetles were able to survive and extend their reach into areas that used to be too cold to live.

SENT TO LSU AGCENTER/LOUISIANA FOREST PRODUCTS DEVELOPMENT CENTER - FOREST SECTOR / FORESTY PRODUCTS INTEREST GROUP
The wily insects chew through the bark and convert the tree's only defense mechanism—a toxic sticky, resin—into pheromones to alert thousands of their friends to join in on the mass attack, using it as a place to lay their eggs and eventually killing it.

The only way to stop the rapid spread is to find and destroy infected trees. The epidemic, which took off in the early 2000s, spurred a massive salvage operation in B.C. as sawmills raced to process and export timber before the dying trees lost market value. Since 2005, about 40 sawmills have gone out of business following the collapse of the U.S. housing market and as timber shortages emerged from the fallout of the bugs. Further closures are expected to occur in the coming years, Elstone said.



Researchers from Alberta Environment and Parks examine a tree infested with mountain pine beetles in a forest near Whitecourt, Alberta, Canada on June 4, 2015.

Photographer: David Ryder/Bloomberg

The beetles have spread to neighboring Alberta, where they have destroyed chunks of forest normally harvested for timber in addition to valuable caribou habitat. At the same time, the bug's cousin, the spruce beetle, is threatening to take a bite out of B.C.'s spruce tree supplies.

The situation is even worse in Europe, where several years of hot summers and dry winters has left drought-stressed trees ripe for the spread of bugs. About a dozen European countries have outbreaks of the spruce bark beetle, including significant infestations in Germany and the Czech Republic, said Russ Taylor, managing director of FEA Canada. The amount of lumber destroyed in the outbreak could surpass

SENT TO LSU AGCENTER/LOUISIANA FOREST PRODUCTS DEVELOPMENT CENTER - FOREST SECTOR / FORESTY PRODUCTS INTEREST GROUP
how much the mountain pine beetle killed in B.C. should existing climate conditions persist, according to an FEA report.

This Tiny Bug Could Put a \$625 Million Hole in Sweden's Forests

“In the Czech Republic the beetle kill is bigger than their total harvest capacity,” Taylor said. “They’re fighting a losing battle.”

It’s a vicious cycle. As a result of climate change, forests are more easily attacked and killed by beetles as older, more mature trees are the most affected by drought, Taylor said. The bugs in turn, impact the ability of forests to absorb carbon and emit oxygen, indirectly creating more climate change and carbon dioxide in the atmosphere.

The situation has already upended normal trade flows. Central Europe is now one of the world’s lowest cost suppliers, sending a surge of cheap, damaged timber to China. Eventually, Europe will be in the same boat as B.C., tightening supplies just as U.S. housing starts recover and need more wood, Taylor said.



Juice Custom Cutting employee Dylan Lewis loads boards cut from mountain pine beetle-killed trees into a resaw at the outdoor saw mill near Deer Lodge, Montana on Sept. 12, 2019. Nicknamed 'blue pine,' the wood turns a blueish hue because of the fungus carried by the insect. Photographer: Chip Somodevilla/Getty Images

SENT TO LSU AGCENTER/LOUISIANA FOREST PRODUCTS DEVELOPMENT CENTER - FOREST SECTOR / FORESTY PRODUCTS INTEREST GROUP

To be sure, there is still an ample supply of lumber down in the southern U.S. and forest inventory could grow as parts of the world become more adept at using technology to plant and grow faster-maturing trees, said Mark Wilde, an analyst at BMO Capital Markets in New York. Right now, it can take as many as 80 years for a pine tree in B.C. to reach maturity.

Canadian producers have already shifted their sights to the U.S. South, where they have bought mills and expanded their operations. Less than half of Canfor's lumber capacity comes from Canada, down from 88% just seven years ago, according to a company spokeswoman.



Mountain pine beetle larvae. Alberta Agriculture and Forestry

Meanwhile, scientists like Carroll say increased climate variability and warmer temperatures are going to boost the number of outbreaks of beetles and other insects in the decades to come. The bugs are able to thrive as forests become stressed and the markets often don't accommodate what he calls the solid and beautiful truth: "ecology trumps all."

"I'm astonished how an animal the size of a grain of rice could alter the ecological landscape," Carroll said. "That's the craziness of this whole thing."



21 August 2020



SENT TO LSU AGCENTER/LOUISIANA FOREST PRODUCTS DEVELOPMENT CENTER - FOREST SECTOR / FORESTY PRODUCTS INTEREST GROUP

Richard P. Vlosky, Ph.D.
*Crosby Land & Resources Endowed Professor of Forest Sector Business Development
Director, Louisiana Forest Products Development Center
Room 227, School of Renewable Natural Resources
Louisiana State University, Baton Rouge, LA 70803
Phone (office): (225) 578-4527; Mobile Phone: (225) 223-1931
Web Site: www.LFPDC.lsu.edu*

