

It isn't a pretty sight. Since the late 1990s, throughout the Rocky Mountain West, majestic high country vistas that were recently carpeted with green forests have been rapidly transformed into millions of acres of red rust and yellow-tinged

dead and dying pine trees over a massive region that extends from New Mexico to British Columbia.

The culprit is a tenacious little native pest known as the mountain pine beetle that measures no larger than a pencil eraser. But, despite its diminutive size, this insect has proven to be nearly unstoppable in its ability to chew through vast tracts of mature lodgepole, ponderosa, Scotch and limber pine trees. Beyond the visual devastation of barren landscape that is undoubtedly impacting wildlife, mountain tourism and real estate values, these tinder-dry dead forests pose a major threat of fueling a massive forest fire that could threaten lives, water quality and property in many mountain communities in Colorado and southern Wyoming.

Two of Tri-State's member co-ops, Mountain Parks Electric (Granby, Colo.) and Carbon Power & Light (Saratoga, Wyo.), have been seriously impacted by this forest devastation, prompting costly

emergency right-of-way tree cutting to keep falling dead trees from damaging lines and causing fires. United Power (Brighton, Colo.) has also worked closely with the U.S. Forest Service in stepping up its right-of-way management efforts in its Coal Creek Mountain District, where the pine beetle has begun to kill trees near its distribution lines.

To a lesser extent, Tri-State also has been impacted. Although the G&T has ownership in several lines traversing beetle-impacted federal forest lands, it only has maintenance responsibility for one line in the tree-kill zone. That's the 22-mile, 115-kilovolt, Fraser-Mill transmission line in Grand County, Colo., which has already survived one fire that caused minor damage to the power path last fall.

A growing problem

In order to get a feel for the size of the footprint that these insects are carving out of the western forests, one only needs to take a drive through Grand County, where a majority of the mature pine forests are now dead. But, a recently compiled Forest Service assessment paints an even bleaker picture. An aerial survey conducted last fall shows that since 2009, beetles ravaged 550,000 more acres in Colorado and southern Wyoming, moving from

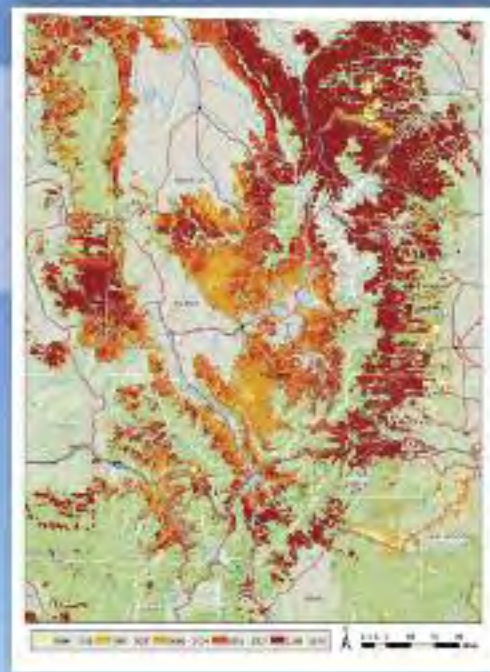


Many of Mountain Parks Electric's distribution lines are threatened by dead and dying lodgepole pine trees that can fall on conductor, knock out power and possibly cause a major wildfire. Photo by Les Shankland of Mountain Parks Electric.

PINE BEETLE

infestation whittling down western forests

Story by Charlie Powell



Tri-State, several member co-ops impacted



lodgepole pines into ponderosa and other kinds of trees.

These new infestations bring the total number of beetle-infested acres in the two states since 1996 to 4.6 million. Of that amount, 4 million acres have been killed by pine beetles and 650,000 acres have been wiped out by the related spruce beetle.

The hardest hit new areas in Colorado include forests along the northern Front Range west of Boulder and Fort Collins and in southwestern Colorado. And, some forestry experts are now concerned that this epidemic may spread to trees along Colorado's Front Range.

In Wyoming, state foresters say that 85 to 90 percent of the mature lodgepole pine — about 750,000 acres — will be dead in the Medicine Bow Mountains of southern Wyoming in the next three to five years.

As staggering as those numbers may seem, it is really just a small part of much larger problem. In British Columbia, foresters have already seen 40 million acres of their pine wilderness decimated by this insect.

Why is this happening?

Opinions vary on the cause of what some experts are calling a "catastrophic event to our forests." Beetle populations that occur naturally in the Rocky Mountain forests soared during the 1990s, amid drought and warm temperatures. Forests already weakened due to fire suppression practices were further compromised by the insect infestation. Some say that the "perfect storm" recipe for the beetle epidemic is a lack of cold winters (extreme cold — minus 34 degrees — kills the beetles) that has allowed the insects to thrive. Others contend that logging restrictions have left forests too densely packed with century-old lodgepole pines, which happen to be the beetles' favorite food.

Whatever the reason, little can be done to save a tree that becomes infested with pine beetles other than cut it down and haul it away to keep the tiny bark borers from spreading to nearby trees.

The nature of the pest — death of a tree

Mountain pine beetles spend most of their lives inside lodgepole, ponderosa or limber pine trees. The beetle generally attacks large trees (8 to 10 inches in diameter) that are weak from drought,

"A catastrophic event to our forests."



Dead pine beetle infested trees are winter logged on this Carbon Power & Light right-of-way until the late spring when they can be hauled away for disposal. Photo by David Cutbirth of Carbon Power & Light.

damage or disease. In late summer, adult beetles fly away from the tree where they developed in search of a mate and a proper nursery for their young. A beetle pair bores under the bark of its chosen tree and builds a vertical tunnel where it lays about 75 eggs.

“It’s a huge problem in our territory.”

If the beetles’ attack is successful, there will be little sign of infestation except for a bit of wood dust in the bark crevices or at the base of the tree. Meanwhile, the eggs develop into munching larvae and fungus spreads from the adults’ bodies throughout the wood, staining it blue and clogging the tree’s water and nutrient transport system. The tree slowly dies, its needles turning from green to straw yellow to rust red and, by the end of the following summer, another generation of adult beetles flies away to lay their own eggs and continues the destruction of the forest.

Numerous and costly impacts

The impacts from the loss of the forest canopy are numerous and costly to the region’s infrastructure. Dead trees are going to fall. The region affected by the beetle kill encompasses more than 550 miles of power lines and more than 3,000 miles of roads. A tree falling can close a road and a tree that hits a powerline can interrupt service to thousands of people and possibly cause a fire that could be very difficult to stop considering the available fuel. To compound the crisis, a portion of the affected region serves as a watershed for much of the West. A large fire could seriously damage the water supply for millions of people.

Co-ops step up to manage the problem

Of course, the impacted forests will eventually regenerate and the hope is that a more diverse species of trees will populate the forests and more effective management practices may result in a new generation of vegetation that is more resistant to the beetle infestations. In the meantime, Tri-State’s member co-ops are actively stepping up to the plate to protect their power supply systems.

“For the past four years Mountain Parks has been spending between \$500,000 and \$800,000 on line clearance work to try and prevent trees from getting in our lines,” said Joe Pandy, manager of the Granby-based cooperative. “It’s a huge problem in our territory. Essentially all of our forested lands have been impacted by this infestation.”

Pandy said Mountain Parks recently received approval from the Forest Service under an “Emergency Powerline Clearance Project,” to allow expansion of right-of-way tree cutting from 20 feet (10 feet on either side of the line) to 150 feet (75 feet on either side of the line). However, the detailed plan is still under review by the federal agency. But, in at least one instance because the Forest Service did not move fast enough on their plan the co-op was forced to obtain an emergency permit from the local forest ranger to cut dead trees on a line that serves Winter Park Ski Area.

“We explained that this line was at risk and we wouldn’t be able to ensure power to the ski area if they didn’t let us trim back the right-of-way. Within a week we received a modification of our existing permit that allowed us to get that done,” said Pandy.

In the heart of the beetle-impacted forests of southeastern Wyoming, Carbon Power & Light is the first co-op in the nation to receive permission from the U.S. Forest Service to expand its right-of-way trimming on federal lands to a maximum of 150 feet.

“Over a three-year process of studies and an Environmental Assessment with the Forest Service, we were finally able to begin cutting trees on federal land last summer,” said David Cutbirth, operations director for the co-op. “We are more than half done with about 34 miles of affected right-of-ways and hope to complete the project by this fall.” Cutbirth said the process has gone well, but it hasn’t come cheap. “By the end of the project we will have spent about \$2 million,” he said.

Diana Leiker, environmental planner for Tri-State, said the association has been vigilant in its efforts to remove dangerous trees within the Fraser-Mill transmission right-of-way, as well as those adjacent to the right-of-way that pose a hazard to the line. “The stands of dead and dying beetle kill trees also have created a significant safety hazard to our maintenance personnel,” said Leiker.

“We are planning to approach the Forest Service this spring to gain approval for a project to conduct more substantial vegetation management along this transmission line corridor, which includes addressing fuel loading within the line’s right-of-way. It is important for utilities and the Forest Service to work cooperatively to mitigate wildfire risk that could impact public lands and critical infrastructure,” Leiker added.

Lemonade from lemons

While there’s no shortage of bad news associated with the pine beetle infestation, there have been a few entrepreneurs who have found marketable uses for the diseased trees. Rocky



Mountain Pellet Co. of Walden, Colo., and Confluence Energy in Kremmling, Colo., which are both electrically served by Mountain Parks Electric, crank out a combined 200,000 tons a year of fuel pellets used in home heating from the pine beetle kill trees. Mountain Parks Electric also utilizes a pellet-fueled boiler to heat its 25,000 square-foot warehouse and service center.

The unique denim blue stain created by the fungus that kills the pine trees also has been transformed into many attractive wood products, including interior residential flooring, paneling and table tops. And, it’s probably a safe bet that the raw material for these products will be available for some time to come.

About 30 employees from the U.S. Forest Service visit a recently cut Carbon Power & Light distribution right-of-way near the northern Colorado border. Photo by David Cutbirth.



Contract heli-logging doesn’t come cheap, but is necessary in some of the less accessible right-of-way wilderness areas like this one shown in Mountain Parks Electric’s service territory. Photo by Les Shankland.