Pine Beetle Battle in Denver

Residents of mountain areas must learn to manage the forest, or give in to the mountain pine beetle.

The many Denver people who fled the hectic life during the last five or 10 years in favor of the slower and more relaxed pace in new mountain homes forgot to ask about one of their neighbors— the mountain pine beetle.

When hundreds and thousands of people moved up into their new homes in mountain valley subdivisions or onto their two or five acres further on up, they brought many changes with them. Along with the new homes came better fire protection. And because of that, trees are now growing where they've never grown before in such numbers.

Also new homes and roads rerouted runoff and isolated trees from their normal supplies of water and nutrients. Other roads were packed down over tree roots. Many trees had much of their root systems severed. And with such an increase in tree numbers, the competition between them weakened them all.

Weakened and overcrowded trees are most susceptible to mountain pine beetle destruction, so man created a situation that was ripe for a full-blown beetle infestation. And that's exactly what developed.

Drive up through those residential areas today and you'll see mountain sides checkered with pockets of beetle-killed ponderosa pine. The problem is especially serious in residential and recreational areas because the trees there are worth considerably more than if they were in a remote commercial forest.

Because they are in residential and other developed areas, the International Society of Arboriculture says each tree is worth up to $10 for every inch in diameter. That's an investment homeowners can't afford to overlook.

USDA entomologist Bob Averill working in Roosevelt National Forest outside Boulder, Colo. ties a log infested with mountain pine beetles to a healthy, uninfested tree. The tree will become infested, then will be sprayed to enable researchers to study effectiveness of insecticides, spraying equipment and spraying techniques.

What's being done to stop the beetle? The state of Colorado, along with the U.S. Dept. of Agriculture (USDA), is spending about a half million dollars each year on suppression. Colorado itself had an active control program underway. In that program, infested trees are cut down, stacked in the sun and covered with plastic tarps, then fumigated with ethylene dibromide (EDB) — one of two chemicals labeled for use on the pine beetle, says Ken Lister, a USDA Forest Service entomologist in Denver.

Lister, along with Bob Averill, another USDA entomologist, are both involved with USDA projects aimed at controlling the threatening pest. Presently they are working with a formulation of Sevimol 4 carbaryl insecticide. Called "Pine Tree And Ornamental Spray," the product is formulated and distributed by Balcom Chemical Company in Greeley. Balcom, an agricultural chemical distributor, has a Colorado state registration for use of the material as a preventive spray to control pine beetle. It is the only product currently registered for such use. Union Carbide, Salinas, Calif., manufacturer of Sevimol, hopes to have the insecticide federally registered for control of mountain pine beetle in the near future.

Lindane is also being used against the beetle. It is applied to infested trees as the beetles are leaving them but before they can reach and kill another tree. But both lindane and EDB are being used for direct control. Neither of them are registered for use as a preventive spray for mountain pine beetle. Outside of work by government agencies, homeowners themselves also are actively involved in trying to stop the spread of the mountain pine beetle. A number of forestry cooperatives have sprung up in these new residential areas. And many of these coops are also getting federal-state cost sharing assistance — from 30 to 50 percent of the cost of control being repaid.

But Lister points out that much of the beetle problem could be solved by forest management. "If a

Pine Beetle Battle *continued*

lot of these people had taken out half of their trees, they might not have had an outbreak in the first place." Averill adds that "there are very few forestry consultants in this area. The same is true for custom applicators who are equipped to do such work as applying preventive sprays. There's plenty of room for expansion here," he says.

The fact that homeowners are plenty concerned about the pine beetle was illustrated last summer when a large number of residents drove all the way from Denver or Boulder to Greeley — about 50 miles one way — to obtain one or two gallons of Balcom's "Pine Tree And Ornamental Spray" insecticide. The entomologists say most of these homeowners were applying the preventive spray themselves with small hand sprayers.

"And while they might not have been getting the chemical up as high as they needed to, they were probably getting it up high enough to catch most of the beetles," Averill says. Averill says that homeowners should be saturating the trunk of the tree to a height of about 30 feet. "They need to spray the trunks of trees because that's where the beetle actually enters the tree," he says.

He points out that the two types of sprayers he and Lister have been using in their work — the mist blower and hydraulic pump — perform equally as well. But he also adds that the mist blower has a definite advantage in portability because of a backpack model which is available for less than $500.

The spray should be applied during the first half of July — just before the mature beetles emerge from trees they killed last summer to move to live healthy trees to repeat their deadly life cycle. The female beetle first bores into the ponderosa pine — the main tree species on the front slope of the Rockies — then starts boring out vertical galleries where she then lays her eggs. After they hatch, the young larvae start boring out horizontal galleries.

"It's this physical girdling of the tree that kills it. It takes from only 500 to 1,000 beetles to kill a pine," Lister says. The beetles also can introduce a bluestaining fungus which is capable of killing the trees," Averill says. The fungus is injected into the tree by the salivary secretions of the beetle.

Mid-July to mid-September is when the beetles are attacking new trees. Even though the tree is usually killed within a matter of weeks, it isn't until the next spring that the needles actually start turning brown. The two USDA entomologists say that if these trees are cut down and burned or cut up for firewood, it helps break the beetle's life cycle.

But they point out that eradication is pretty much out of the question. "We have such a large scale infestation going on that there just isn't that many dollars or that much time and interested people available to even try an eradication program," Averill says. "In Colorado alone, we have more than a million infested trees." And even if there were funds and time available to launch an eradication program, it still wouldn't be feasible on large commercial timberlands. "The current price of timber won't justify it," Lister says.

"The cost of the preventive spray will run about 75 cents a tree," he adds. That might not seem like much if you're treating 20 or 30 trees. But when you start talking about 20,000 acres, you're talking about thousands of dollars.

Averill points out, however, that homeowners don't need to apply preventive sprays to every one of their trees. "What they really need to do is sit down with someone who knows what trees have been weakened by roads, homes and other construction. Then they need to identify the trees they want to save. Those trees are the ones I'd treat with a preventive spray," he says. He adds that they have to be sprayed every year until the infestation outbreak subsides. "The homeowner can then take a chance on the other trees or he can cut them down himself," Averill continues.

He concludes by saying that if we don't manage the forest, then insects, disease or fire will do it for us. And he adds that as more people move up into the mountains around Denver it will mean more problems. And that puts even more importance on forest management and preventive spraying. □

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