



Dan Coyro/Sentinel

Pete Moerdyke is sounding the alarm about a beetle infestation that has killed more than 100 of his live oak trees.

# Infestation threatens live oaks

## Pastoral symbol of the Golden State falls prey to swarming beetles

By **ROBIN MUSITELLI**

Sentinel staff writer

SCOTTS VALLEY — Pete Moerdyke figures he's already lost more than 100 trees and the worst is yet to come.

Once-majestic California live oaks with huge twisting limbs, some 300 years old, lie on the ground, cut up and covered with clear tarps.

Moerdyke says the corpses are evidence of a beetle infestation moving through Santa Cruz County at an unprecedented and alarming rate.

Moerdyke, owner of Bay Laurel Nursery of Scotts Valley, is prodding city, county and state officials, as well as property owners, to take emergency action to deal with the infestation.

A double environmental crisis is feared — the loss of a native California tree and the resulting fire hazard from a forest full of dry fuel.

What government agencies can do is still uncertain.

But Moerdyke and others say action must be taken in the coming weeks before an enormous new batch of beetles hatches in October.

"This thing really needs to be jumped on," said

Moerdyke. "If nothing is done, this thing is going to make the pitch canker look like a birthday party." That's saying something because pitch canker has killed thousands of Monterey pines.

This much is certain: Tan oaks, a common hardwood tree in coastal forests, have died by the hundreds, if not thousands, this year.

What's killing them isn't known, although a fungus is suspected.

That's not the worst of it. Beetles by the millions then breed in the dead or dying tan oaks, which harbor a menacing army of boring beetles that can then swarm into neighboring groves of California live oaks.

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# Live Oaks

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If not dealt with, the beetles — first Western oak beetles and then oak ambrosia beetles — will kill the live oak tree.

Moerdyke noticed a few dying live oaks on his property a few months ago, but wasn't overly concerned. It wasn't until he learned of an infestation of beetles killing live oaks in Sonoma County that he took a closer look.

What he found was alarming — tree after tree showing signs of advanced infestation.

Moerdyke consulted with Pavel Svihra, horticulture adviser with the UC Cooperative Extension in Marin County, and a leading authority on the infestation. He since has invited arborists, foresters and other experts to see the situation.

They confirmed his worst fears. There was nothing to do to save the heavily infested trees. He would have to cut them down and then, spray the less affected and nearby unaffected trees to save them.

Moerdyke has embarked on a daunting program to identify and mark the status of each of the thousands of live oaks on his land and to cut when necessary.

Moerdyke is also trying to organize a task force. Among his ideas: an information hot line and county-sponsored classes on how to apply the pesticides.

Scotts Valley city officials are among the first to explore what can be done.

"We're just at the beginning stage," said Laura Kuhn of the city's Public Works Department.

Kuhn said Scotts Valley officials hope to work with county officials to set up an information and, perhaps, a pesticide spraying program. A city ordinance requiring that action be taken on heavily infested trees is a possibility, she said.

Santa Cruz County Supervisor Jeff Almquist, who represents the San Lorenzo Valley and Scotts Valley areas, said he, too, is exploring possible government action.

Meantime, Moerdyke is trying to get word to people that they need to act quickly. Beetle populations will peak in the coming month and again in March and April. Although they are indigenous, the beetles normally attack only weakened trees, he said.



Dan Coyro/Sentinel

Trees killed by beetle infestation must be cut and covered in clear plastic for several months to keep the beetles from spreading to other trees.

## Beetle is tree's first pest

**T**HE WESTERN oak beetle is the first to attack the live oaks, says Peter Moerdyke. The first sign is oozing sap, usually low on the trunk. The sap turns dark and will cause a staining of the bark below the wound. Eventually, hard balls of sap form. Once the beetles gain a foothold by disrupting the oaks' vascular system, they have free reign over the area above the initial wounds. This is because the area cannot be supplied with sap that normally would drown out the beetles as they penetrate the trees' vascular systems.

Continued borings above the original wound next show as spots of bark dust deposited on the surface of the tree, especially around the base.

The Western oak beetle, by itself, can girdle and kill a tree. More often, however, the final executioner is the ambrosia beetle, which bores directly into the heartwood.

Like their predecessors, ambrosia beetles are seldom seen.

The bark dust, called frass, that ambrosia beetles produce is lighter than the Western oak beetle's.

The beetles bore galleries from 2 to 6 inches deep into the tree, where the female carves niches for her eggs.

The new generation of beetles emerges from the holes bored by their parents in two main peaks, the first in March and the second in October.

Although the beetles leave their galleries after about three or four months, their symbiotic ambrosia fungus, which acts as their food source, eventually spreads into the tree's vascular system, preventing its function.

The stress of a previous infestation also makes a tree susceptible to continued infestation by a new generation of ambrosia beetles.

But, the explosive population of beetles is now apparently attacking seemingly healthy live oak trees, as well, he said.

Svihra maintains the beetles have unleashed an epidemic of unprecedented proportions.

"If this rate continues, we are going to face a double environmental crisis — loss of these highly valued trees from gardens

and forest, and a serious fire hazard risk from the resulting buildup of dry fuel," he warned in a pest alert.

What's happening in Santa Cruz County is an extension of what began in the summer of 1995 around the Mount Tamalpais-Inverness area of Marin County. Svihra said. By the spring of 1996, the tan oak death rate reached epidemic proportions



## Fighting an infestation

Trees killed by beetle infestation should be cut down to minimize emergence of more beetles. Smaller upper branches may be chipped. All infected wood must be collected around the stump of the cut tree and covered with clear plastic. Black tarps can stretch and the resulting light areas are perceived as weak spots for the beetles to bore through and escape. The clear plastic seems to confuse the beetles so they don't try to bore out.

The edges of the plastic must be sealed by putting soil on them. Wood should remain covered for at least eight months to assure capture of new beetles that might emerge. It can then be uncovered to let it dry, which makes the wood less attractive to beetles.

Insecticides are available to use on trees to diminish existing beetles and prevent further attacks. Astro is available to licensed pesticide applicators. When spraying, it's recommended to remove the leaves at the base of the tree.

Not all uninfected trees need to be sprayed, but it is advisable to treat highly valued uninfected trees as a preventative.

*Sources: Pavel Svihra, horticulture advisor for the UC Cooperative Extension in Marin County and Pete Moerdyke of Bay Laurel Nursery.*

and had spread to Sonoma County and other coastal areas.

The tan oaks appear to die suddenly. The first prominent symptoms are drooped, wilted new shoots of the tree.

With a month to six weeks, the foliage turns brown, but remains clinging to the branches.

The dying and dead tan oaks are finished off by Western oak beetles and ambrosia beetles.

While their brown corpses were noticed, the tan oaks, used primarily for firewood and by wildlife that eat the acorns, didn't have the kind of economic or aesthetic clout to make many people care what was killing them, Moerdyke said.

"There's no funding for it. No one besides Pavel (Svihra) is even publicizing it," he said. "I'm talking to arborists who have no idea of what's going on. It's scary."

Bruce Hagen, who has been informally tracking the problem for state Department of Forestry and Fire Protection, agreed little more than cursory attention has been given.

"The general public, and many in government agencies, tend to think tan oaks aren't an issue," Hagen said. "They're going, 'So what? It's a weed tree.'"

When you tell them live oaks are being killed, they're a little more concerned."

Hagen stopped short of saying the problem is epidemic. "I think there's a potential for a serious outbreak and a very serious problem."

"How many trees are affected, I don't know. How many acres or square miles are infested, I don't know and I don't think anyone knows for sure."

Part 2

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