

# **Policing the forest, one insect at a time**

## **The hunt is on to root out destructive invasive species**

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By Megan Woolhouse, Globe Staff | November 28, 2005

STOW -- Standing in Sudbury State Forest, Charlie Burnham inspected his catch. A state forestry worker, he's collected hundreds of dead insects by luring them into pheromone-scented traps designed to simulate a dead tree.

He laid the traps in forests throughout the state this summer and checked them routinely through the fall.

He searched particularly for bark beetles, tiny bugs the size of a caraway seed, that are capable of destroying entire forests.

"They're little," Burnham said, "and they're dangerous."

It's a quest for a beetle in a haystack.

As global trade has expanded, so have the number of exotic plants and insects finding their way into Massachusetts. Some are harmless, while others are invasive species that have taken over, destroying native plants and causing millions of dollars in economic damage.

On Jan. 1, state agricultural officials will begin enforcing a ban on the importation of as many as 140 foreign plants used by landscapers and backyard gardeners -- hoping to cut off the supply of foreign invaders. The proposed list, still under review by the state agricultural commissioner, includes the winged euonymus (or burning bush) and *Anthriscus sylvestris* (wild chervil), as well as trees like the Norway maple (see [www.mnla.com/invasive\\_plants.htm](http://www.mnla.com/invasive_plants.htm) for a complete list).

In the meantime, Burnham and his assistant -- a part-time college intern -- continue to police the forests seasonally as part of an "Early Detection/Rapid Response Program" funded by a \$15,000 grant from the US Department of Agriculture.

But even advocates of the efforts have reservations.

"You're facing an uphill battle at the very least," said Harvard Forest ecologist David Orwig. International trade is hard to control, approaches differ from state to state, and past efforts to control bugs with other bugs have sometimes proven disastrous.

The newest strategy to fight the spread enlists the help of forest experts and alert civilians. Federal officials now circulate "Pest Alerts" -- fliers with photos and descriptions of unwanted insects and bugs.

One notice for the Asian longhorned beetle asks residents to collect it in a jar, freeze it, and immediately notify state officials.

Some bugs are worth fighting, Orwig said. For others, it may be too late. Orwig said researchers at Harvard Forest in Petersham have found evidence of a pest known as the hemlock woolly adelgid. Originally from Asia, the bug hitched a ride to the United States in the 1950s on an ornamental hemlock imported for a private garden in Richmond, Va. Since then, it has spread a fungus that has wiped out hemlock trees forests along the East Coast.

In Vermont, state officials undertook a massive campaign to eradicate the insect, spending millions to remove it, while Harvard Forest officials have decided to let "nature take its course," he said.

"The thing is, it's already throughout the Massachusetts landscape," Orwig said. "It's very costly to treat trees. You could get large spraying equipment or arborists to inject the trees. But it's hard to do all that in a forest."

Historically, state officials have introduced new species to help control new populations, but those efforts have grown less popular in recent years. To eradicate gypsy moths, for example, state officials have introduced "literally thousands of bacteria, fungi, and parasites," said Tom French, who oversees the endangered species program for the state Division of Fisheries and Wildlife.

"It was the so called shotgun approach -- bring in a whole bunch of things and see if they work," he said.

Officials introduced a fly to combat the gypsy moth, which had devoured trees in Massachusetts and from New York to Canada. The fly was supposed to lay its eggs on the moth's larvae. Instead, it ended up changing its patterns and extinguishing dozens of other native moth and butterfly species -- except the gypsy moth.

In another instance, the related brown tail moth in its caterpillar form munched on hardwood trees and shrubs, defoliating more than 60,000 square miles at its peak, according to the US Department of Agriculture. Wildlife officials fought back with pesticides, predators, and parasites. Some municipalities even paid a bounty to people who brought in branches holding their winter webs.

Now, for reasons that are unclear to federal researchers, the population appears to be nearly gone.

"You never know how an exotic will behave," said Kevin Dodds, an entomologist with the USDA Forest Service in Durham, N.H. "It's come to the point where we need a highly aware public to help us out with these things."

The key, said Kent Lage, assistant commissioner of agricultural resources for Massachusetts, is to keep the pests from coming to the state in the first place. He said the proposed plant ban will secure the state's borders.

"There's no question this can be won," Lage said. "If you stop the introduction of these things into the

environment it will allow the natural plants a chance to survive."

Armed with his pheromone-scented tree and coffee filters used to collect bugs, Burnham is on the front lines of the effort. The veteran state forestry worker spent much of last summer drag-netting Massachusetts' forests for bark beetles. He sorted through thousands of dead bugs and insects, mailing his suspicious findings to taxonomist Richard Hoebecke at Cornell University for identification.

One type of beetle -- *Xyleborus seriatus* -- had never been found in North America before.

It doesn't appear to be an ecological threat, but Hoebecke said not much else is known about its life or habits in the United States yet.

"Our borders are like sieves, and there are so few resources available sometimes you begin to wonder, is it worth it?" Hoebecke said. "We have to make some effort."

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