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State wins against gall wasp

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The state is declaring victory in the fight against an invasive species that killed thousands of Hawaii's trees - thanks to some scientific detective work that took one entomologist all the way to Tanzania to enlist a natural enemy of the gall wasp.

You could say the wiliwili war is won.

Back in 2005, the state Department of Agriculture discovered that gall wasps were infesting Hawaii's wiliwili trees. The pest threatened the native species with extinction and had already killed its imported cousins - coral trees and the tall erythrina often used in windbreaks - in parks, golf courses, neighborhoods and forests throughout the state.

But, after much study and an estimated 11,000-mile journey to east Africa, members of state entomologist Neil Reimer's small team managed to track down a natural predator that they hoped would be the answer to the gall wasp problem.

Extensive testing followed in Hawaii, and eventually about 5,000 of the tiny predators - *eurytoma erythrinae* - were released.

Today, Reimer is ready to call the counterattack a success, with wiliwili trees and coral trees statewide growing healthier and leafier by the day.

Over the past 100 years, more than 240 alien species have been purposely introduced in Hawaii to help control pests - not always with good results.

But this is the latest success story in the state's biocontrol efforts.

"We really had the possibility of losing one of our native trees," Reimer said. "I feel really good about that - saving the species."

During the worst of the blight, native and imported trees were dropping leaves and dying by the hundreds. The situation grew so dire that scientists saved seeds from the wiliwili, in case the trees died out completely.

The gall wasp lays its eggs inside the tissue of leaves, and its larvae form galls - sac-like chambers in which the wasps mature. The galls severely deform leaves and cause them to fall, which, in many cases, then kills the tree.

Although Reimer doesn't have an official estimate of the total number of trees lost, he said the problem was huge, with losses clearly numbering in the thousands statewide.

"Every related tree in the state was affected originally," he said, although he worried most about the potential extinction of the native species.

Scientists say the gall wasp is one of the most environmentally damaging and costly invasive species to creep into the islands in decades.

On Oahu alone, nearly 2,000 trees died at city parks and golf courses, said city spokesman Bill Brennan.

City parks Director Lester Chang said the loss of the mature trees is still being

felt, and there's no way to estimate the eventual cost of trying to replant.

"It will take years to replace all of them and for the trees to grow to substantial size but in this case it took only a few months for a parasite to kill hundreds," Chang said.

Exploratory entomologist Mohsen Ramadan traveled to the east African nation of Tanzania to find the wasp's natural enemy after studying what part of the world might hold the answer to the scientific puzzle by comparing plants that fall prey to the gall wasp.

Although he rejects comparisons to the fictional Indiana Jones character, Ramadan traveled to remote and rugged locations where even the local guides agreed it could be dangerous.

"Sometimes they would not go without asking for a guard with a firearm," Ramadan said. He recalled nine-hour bus rides from the capital of Dar es Salaam to the dryland villages where the insects can be found.

"You have to really scout and go to the wilds," Ramadan said. "Some sites were not easy to reach and not safe."

Ramadan, a native of Egypt, tracked down the natural enemy - which is about the size of a black sesame seed - and brought it to Hawaii in late 2005 for two years of extensive research, testing, monitoring and permitting to ensure that the new import would not attack any other insect or plant.

In November 2008, the first of the tiny eurytoma were released in Honolulu, Ramadan said.

The female eurytoma attacks gall wasps by inserting its egg into a gall inhabited by a wasp larva. Once the egg hatches, it feeds on the larva.

Within a few months, trees began to recover, said entomologist Juliana Yalem, who has been monitoring the insects and trees in the field.

"We saw from the beginning how fast they (the gall wasps) were dying off," she said. "For something to come in and start working quite fast, it was very exciting for me and for everybody else who was involved with the project."

Monitoring will continue, she said.

Ramadan worries that future travel won't be allowed because of the state budget crunch that has already halted most out-of-state travel.

He said he thinks biological controls may be possible with other pests - such as fireweed - and said he believes he can get grants to pay for the travel.

State spokesman Russell Pang said such travel isn't banned, but "it's evaluated on a case-by-case basis" and usually is approved if it can be paid for with special funds or federal money rather than from the state's hard-hit general fund treasury.

Meanwhile, Reimer is confident that the measures taken against the gall wasp have the pest under control.

"We're really comfortable in saying it's been very effective," he said. The gall wasp is "not coming back."

Now, Reimer's Plant Pest Control branch is hearing from scientists in Samoa, Taiwan, Fiji and other places with similar problems.

"We've got a lot of other countries talking to us now," Reimer said. "They want us to help them out by sharing this natural enemy with them."

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