

N.J. fights back as invasive beetle wipes out ash trees

By Greg Wright on November 14, 2016 at 7:00 AM

TRENTON — An invasive beetle called the emerald ash borer has been killing New Jersey's 50 million ash trees in droves since it was first found in Bridgewater in May of 2014.

"It spreads like wildfire," Paul Kurtz, lead entomologist for the state's Emerald Ash Borer Task Force, said. "Our mission now is to slow the spread."

Since the discovery, the bug, known as EAB in science circles, has spread to 32 municipalities and nine counties, but its destruction shows that it was in the state a few years before being identified, Kurtz said.

New Jersey is not alone in the fight. The beetle was first found in Michigan in 2002 and has since spread to 28 states and Canada, according to the U.S. Department of Agriculture. "This year alone we added a few more states," Kurtz says.

Kurtz is no stranger to fighting off invasive species. He was the entomologist who headed the state's 11-year battle that led to the extermination of the invasive Asian longhorned beetle in N.J.

In Asia, the emerald ash borer's potential for destruction is kept in check by its predators, but in the U.S. the insects are largely absolved of hierarchical food chain concerns — surprising, given that Kurtz personally attests the larvae taste exactly like Honey Nut Cheerios.

But with humans and most other animals reluctant to grab a bowl and spoon, the state launched the Emerald Ash Borer Task Force in 2014 and began a triage plan to save what ash trees they can.

What's at stake?

The most immediate threat is that ash trees not treated for the pest will die, which presents a serious risk to homes, property and people, Pam Zipse, a task force member from Rutgers University's Urban Forestry Program, said.

"99.7 percent of untreated trees die," Kurtz said.

"The tree will die and it will become a danger," Zipse said.

The plan to combat the pest hinges on members of the task force being able to convince municipalities that identifying and chemically treating or removing infested trees sooner rather than later, will save money and curtail damage, says Kurtz.

The state has about 24 million ash trees on public lands and the same amount on forested lands, says Kurtz.

"A lot of municipalities need to set aside money for tree removal and treatment," he said, but at the same time, many trees are better off being treated rather than removed.

The task force uses a tree benefit calculator developed by Cliff Sadof of Purdue University to help municipalities and private residents 'play what-if' to determine which trees should be treated or removed at the greatest cost benefit, says Sadof.

Sadof says that generally the bigger the ash tree the more that should be done to save it, and that's because trees save municipalities surprising amounts of money through the ecosystem services they provide.

"It turns out, that a 20-inch diameter ash tree processes 2,600 gallons of stormwater runoff in a year," Sadof explained. If the tree weren't there to filter the water, the city would have to pay for the treatment before the water can be returned to waterways.

"It makes the most sense to save ash trees that are 12 inches in diameter or greater," he said.

Feeding frenzy

The only living wood in a tree is a thin layer between the bark and the inner rings of the trunk, Kurtz says. That layer houses the trees xylem and phloem which transports water and sugar, respectively, throughout the tree.

Emerald ash borers deposit their eggs near the tops of trees and then the larvae burrow into the tree and begin feasting on the living wood in a serpentine pattern, cutting off the supply of nutrients to the tree as they feed from the top down.

Several years later they reach the bottom where the infestation becomes visible — by then it's too late for the tree, says Kurtz.

Slowing the spread

To slow the spread the task force has developed a three step plan, based on what other states have done to successfully impede the pest.

"Treat, remove and biocontrol" he said.

Trapping involves setting up purple sticky traps that entice the bug, but, due to difficulties replicating the bug's pheromones, these traps don't work like your typical roach trap.

"We're lucky to get a couple insects in the trap," Kurtz says. Their main purpose is to monitor any nearby emerald ash borers for the purpose of identification.

Treating and removal refers to either eradicating the pest from an infested tree or chopping the tree down before it dies.

Biocontrol is the other 'tools in the toolbox' is a type of stingless wasp that kills the beetle's eggs or larvae by injecting its own eggs using it as a food for its young says Kurtz.

But due to population dynamics and release protocols the areas they are permitted to be released in must meet specific acreage and ash tree populations, their usage areas are limited for now.

"In time these wasps will help reduce EAB populations throughout the state," Kurtz.

Axes and allies

Some trees can't be saved. So the task force has implemented a technique to use select trees slated for removal as martyrs for the cause.

Those trees are stripped of the layer of living wood at the base of the tree, which quickly starves the tree causing the decaying tree to release sugars that the bugs love, Kurtz says.

After the EAB swarms the tree, it's chopped down and destroyed — killing the pests.

So far, four bird species native to the U.S. have discovered that the larvae are as tasty as Kurtz claims. Walter Koenig of Cornell University compared bird populations near areas where EAB was first detected that are suffering high ash tree mortality rates.

"We found evidence for significant effects on all four of the species in response to the emerald ash borer invasion," Koenig's study says. Red-bellied woodpeckers, white-breasted nuthatches, downy woodpeckers and hairy woodpeckers all showed population increases after adding the insect to their diet.

Kurtz says that local woodpeckers have even altered their feeding habits by hitting trees at angles to simply flake off the bark and eat the larvae.

However the study notes that the birds' feeding habits will not be enough to prevent the bugs' numbers from increasing.

Declining diversity

"Species diversity is important for resiliency against the next pest," Zipse said. "We did lose the chestnut and elm," she said in reference to two species of tree that were once abundant, but have been severely affected by insect and disease.

"It's going to be a really long time before we can go back to planting ash trees in New Jersey," she said. The long-term implications of that are disruptions in local food chains that could lead to the die off of certain moths that rely specifically on ash trees.

That could cause other parts of the food chain to fall too.

"The thing I really want to stress for anyone who has an ash tree is that, if left untreated — it is going to die," she said. "You can't choose to do nothing."

http://www.nj.com/mercer/index.ssf/2016/11/invasive_beetle_leads_to_ash_tree_triage_in_nj.html#incart_most_shared-mercer