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NEWS

Beautiful and very hard to kill, the emerald ash borer can live up to four months underwater.

Beetle Decimating Environment in North America

Debra Utacia Krol • February 28, 2011

The emerald ash borer is surprisingly beautiful, as beetles go. It has a pleasingly streamlined bullet-shape, a bright, metallic emerald green shell, and a bright red, metallic dorsal surface. But you may be seeing it soon on "wanted" posters, because this tiny insect is the cause of a looming environmental and cultural disaster in the northeastern quarter of the North American continent.

The emerald ash borer, which is just one-half-inch long, is busily wiping out more than a billion ash trees in the United States and Canada, wreaking ecological havoc on watersheds and forests, as well as the economies of more than 10 states and provinces, and doing incalculable damage to Northern Woodlands tribal cultures. Kelly Church, a member of the Grand Traverse Band of Ottawa and Chippewa Indians and a nationally acclaimed basket weaver, is one of the leaders of the battle against the emerald ash borer. She's determined to preserve Northeastern tribes' cultural traditions against this onslaught, even if it takes generations.

Known as EAB, the beetle was accidentally imported from Eastern Asia in the late 1990s, possibly in cargo pallets. Since then, the minuscule insect has made itself at home in the U.S.'s vulnerable ash trees. (Asian ash trees are resistant to the borer's effects.) EAB females bore into an ash's bark and lay eggs. The resultant larvae bore further into the tree and into the cambium, the area between the bark and wood where nutrient levels are high. The larvae kill the trees by destroying the water- and nutrient-conducting tissues under the bark. Once an infestation is noticed—an obvious sign is the thinning of a tree's canopy—it's already too late: The tree is doomed. So far, researchers are unable to halt the infestation, and mortality is virtually 100 percent. EAB has killed tens of millions of trees in Michigan alone.

"The Michigan basket weavers were the first to discover EAB," Church says. Northeastern basket makers and basket

weavers create baskets from the rings of the black ash tree, an arduous process which includes pounding the growth rings apart, splitting and slicing the rings to size before a single weave can begin. Church organizes an annual EAB symposium for local communities, works with the U.S. Department of Agriculture (USDA), Michigan State University (MSU) and other tribes to raise awareness of the deadly pest, and tirelessly works to educate young basket weavers on how to preserve wood and prepare for the day when the ash trees will disappear. “This past summer, I harvested my first EAB-infested tree north of Traverse City,” she says. The borers ate through at least six growth rings. Church says that weavers plan to harvest all the good trees in the area soon, which will help preserve this invaluable cultural resource. Basket weavers were trained in how to safely move logs from infested areas and in how to detect the pest through several clinics put on by the USDA, says Philip Bell, a senior program manager for the USDA.

Other tribes, including the St. Regis Mohawk Tribe (SRMT) in New York, have entered the fight. The St. Regis tribe recently received a grant from the National Endowment for the Humanities to preserve black ash basketry knowledge and collections. “I will be donating 20 years of documents to our library,” says Les Benedict, assistant director of the SRMT’s environment division. “This includes photographs and correspondence that I have accumulated while working with the Akwesasne Task Force on the Environment on black ash.”

Maine weaver Eldon Hanning splits off strips of brown ash.

Maine Indian Basketmakers Alliance Executive Director Theresa Secord says that the EAB hasn’t yet appeared in her state, but adds that basket makers and researchers are getting ready for it. “We don’t have the large contiguous stands of ash trees that are found in the Midwest,” she says. However, Maine tribes, for whom the ash tree plays a central role in origin stories, are preparing for the worst. “Some of our younger basket makers are already innovating and using new materials like cedar,” says Secord, a Penobscot. But she’s fearful: “We have worked so hard to overcome so many obstacles in reviving basket making, including the art nearly dying out in the past two decades, only to face being stopped like this.”

Firewood is a prime vector for spreading the insidious beetle, and Bell says that governments, researchers and communities have banded together to enact regulatory controls to prevent firewood from being transported out of infested areas. Ash stands are constantly monitored for signs of beetle activity using traps, by examining trees for the distinctive D-shaped hole made by EAB, and by monitoring Cerceris wasp nests—female wasps hunt for EABs to feed to their larvae.

MSU researchers also search for ways to preserve ash wood for the day when it won’t be available from living trees. “MSU is immersing logs under water to preserve them and to kill the borers,” Church says, noting that there’s just one flaw with this plan: “The bugs can live for up to four months underwater.” Insecticides available to treat infested trees, containing the active ingredients imidacloprid, dinotefuran or emamectin benzoate, are helping halt the spread; however, handling wood treated with systemic insecticides may pose a health hazard. A paper released by MSU in February states that the chemicals have low toxicity and have been cleared for agricultural use.

Church says her group also searches for the rare tree that survives an infestation. “Even in areas with 100 percent infestation, we find one or two that survive.”

But foresters and tribal culture bearers aren’t content to wait for that one tree in a million that survives the beetle plague:

The National Seed Storage Laboratory in Fort Collins, Colorado has developed a storage and seed germination protocol that bodes well for the future. Many Native families and tribal communities are participating in gathering seeds and sending them to the seed bank. Each family will receive the seedlings for replanting 25 years after the last ash tree has perished. But that's a cold comfort to weavers making baskets now. "In September, I let myself accept the reality that I might not be able to replant in my lifetime," Church says. "It's probably going to be the next two generations [of weavers] who will be able to replant ash trees." In the meantime, she says it's vital to teach tribal youth all aspects of ash care and to keep the art going for the day when ash splints will again be available.

Comments

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