

Emerald ash borer larvae are the destructive stage of this invasive insect's life cycle.



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Emerald Ash Borer Moves Closer to North Dakota

By Sarah Tunge

A looming threat to millions of North Dakota ash trees is one state closer, with the recent discovery of the emerald ash borer in Minnesota. This invasive tree pest has the potential to cause more damage than Dutch elm disease, which basically eliminated elm trees in the state.

A native of eastern Asia, this small, metallic-green beetle was first discovered in the Detroit, Michigan area in 2002. Researchers believe the insect hitched a ride into the country on infested ash crating or pallet materials. Despite strict quarantine regulations, the ash borer has spread from Michigan to Ohio, Indiana, Illinois, Maryland, Pennsylvania, West Virginia, Ontario and Quebec, Canada. Other recent discoveries were during the summer of 2008 in Missouri, Virginia and Wisconsin.

Green Ash in North Dakota

The green ash, *Fraxinus pennsylvanica*, is an important tree in North Dakota, especially in native stands in hardwood draws in the badlands and in riparian areas, but also in urban and conservation plantings. "The green ash has been a primary tall tree species used in conservation plantings," according to Greg Morgenson, manager of the Lincoln-Oakes Nursery, Bismarck. "Soil conservation districts around the state have begun to explore other options to complement or replace green ash in their conservation plantings."

The North Dakota Forest Service is currently conducting an inventory of ash in the state. During the 2008 summer field season, crews recorded data at

100 rural plots and 200 urban plots, including species present, diameter, height and general condition of the trees. The survey indicates that green ash is the most prevalent tree in both rural and urban areas of North Dakota, with approximately 33.5 million ash trees recorded, about 190,000 of which are found in community and urban plantings.

Ash Borer Biology

Emerald ash borer larvae create feeding tunnels under the bark's surface, disrupting the flow of nutrients to the tree, causing it to begin dying from the top down.

The emerald ash borer lifecycle begins in mid-summer when adults lay eggs on the bark of ash trees. In several weeks the eggs hatch, the juveniles or larvae bore into the bark of the tree and take up residence. This is when most of the damage to the tree is inflicted.

Larvae spend the winter under the bark and in the spring will pupate or change into adult beetles, which emerge through D-shaped exit holes in early summer.

Research has shown that the adult beetles can fly up to two miles a day. How does an insect that flies at most two miles in a day spread through 11 states and two Canadian provinces so rapidly?

It is especially important to note that infested trees or even firewood may not have visible signs of the insect as the larvae feed beneath the surface of the bark and remain largely unseen.

"Vacationers should leave all firewood at home to prevent the unintentional spread of this devastating pest," says Larry Kotchman, North Dakota Forest Service State Forester. "Most recreation areas in the state provide firewood for purchase on site. The best way to slow the spread of this pest is to follow the rule, 'Don't Move Firewood.'"

In states where ash borers are present, movement of firewood is regulated by state departments of agriculture, and also federal agencies. Currently, statewide firewood quarantines exist in Michigan, Illinois, Indiana, Ohio, Pennsylvania, Maryland, West Virginia and Ontario, Canada.

Detection Efforts

Along with inventory work last summer, large traps were also placed around the state as part of the U.S. Department of Agriculture Animal and Plant Health Inspection Service's trapping initiative. "I was asked questions about the traps, including if they were kites stuck up in the tree, this presented a great learning opportunity for us to explain what the traps were



DAVID CAPPAERT, MICHIGAN STATE UNIVERSITY

The emerald ash borer gets its name from its shimmering green appearance.

While once introduced to an area the ash borers likely spread mostly on their own, people sometimes give this pest a helping hand by unknowingly transporting infested ash trees, products or firewood into new areas or even across state lines. This makes the threat of emerald ash borer very real in our recreation-oriented state, as it could be introduced at any time.

and how they were being used," said Amy Schimetz, coordinator of the Lake Metigoshe Outdoor Learning Center at Lake Metigoshe State Park.

The traps are a three-dimensional triangle with a sticky nontoxic glue on the outside. To increase their effectiveness, traps are baited with a lure made of Manuka oils, which researchers have shown closely



JOSEPH O BRIEN, USDA FOREST SERVICE

Trees infested with ash borers begin dying from the top down, indicated by leafless branches.



After initial discovery in Michigan, the emerald ash borer (highlighted in green) has spread out in every direction.



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The telltale sign of ash borer presence is distinct feeding tracks or tunnels under the bark.

mimics the chemicals released by ash trees that are distressed. To date, no traps in North Dakota have had any emerald ash borers present. In 2009, APHIS will put out an additional 50 traps around the state as part of continuing monitoring efforts.

Since October 2007, state forestry agencies in Kansas, Nebraska, North Dakota and South Dakota have worked together to prepare for the arrival of invasive species, like emerald ash borer, in the Great Plains. The joint efforts focus on determining and addressing the potential impacts of invasives to our resources, creating public awareness and promoting species diversity. The project, the *Great Plains Tree and Forests Invasives Initiative*, is funded in part by a \$500,000 seed grant from the USDA Forest Service.

The Future?

Residents can help prevent the spread of emerald ash borer to North Dakota. Currently, no adequate controls exist for this highly destructive pest and the only response is to remove and destroy infested trees. “Since there are no cost-effective control measures for this pest, many cities are faced with a financial burden that could be as high as several million dollars to remove and dispose of ash trees if this insect is found in the state, so prevention is the key,” Kotchman stated.

North Dakotans are encouraged to diversify their tree plantings. This applies to counties, cities and individuals. Tree plantings with multiple species are more resilient when faced with destructive forces including climate, disease and insects.

The most important factor is not moving firewood, especially from out of state. People traveling to North Dakota should leave their firewood at home and use only local wood. When purchasing firewood, check its origin to make sure it is locally harvested.

For more information about identifying ash trees and emerald ash borer, visit the websites for the North Dakota Forest Service (www.nd.gov/forest) or emerald ash borer (www.emeraldashborer.info).

Anyone who suspects emerald ash borer in their trees should contact the North Dakota Department of Agriculture at (800) 242-7535 or the National EAB Hotline at (866) 322-4512.

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