

# EMERALD ASH BORER

The emerald ash borer (EAB) is an introduced insect from China that is destroying ash trees across the eastern US and Canada. Through the movement of infested firewood and nursery stock the beetle's range has expanded rapidly.

South Dakota is heavily dependent on ash trees for urban and shelterbelt trees.

The tree is also a common riparian tree across the state.

EAB was first discovered in South Dakota in May of 2018 in northern Sioux Falls.

The economic impact on communities and landowners across the state will be enormous.



**Adult emerald ash borer**

**For more information on  
the emerald ash borer, visit:**

**[www.emeraldashborer.info](http://www.emeraldashborer.info)**

or contact the  
Division of Resource Conservation & Forestry  
South Dakota Department of Agriculture  
523 E Capitol Ave  
Pierre, SD 57501-3182  
605-773-3623

or contact the SDSU Cooperative  
Extension Service at  
605-688-4737

In accordance with Federal law and U.S. Department of Agriculture policy, this institution is prohibited from discriminating on the basis of race, color, national origin, sex age or disability. (Not all prohibited bases apply to all programs. To file a complaint of discrimination: write USDA, Director, Office of Civil Rights, Room 326-W, Whitten Building, 1400 Independence Avenue SW, Washington D.C. 20250-9410 or call (202) 720-5964 (voice and TDD). USDA is an equal opportunity provider and employer. This publication made possible through a grant from the USDA Forest Service.



**Slowing the  
Spread of  
Emerald Ash  
Borer in  
South Dakota**

## Emerald Ash Borer: a potential threat to South Dakota trees



Emerald ash borer (*Agrilus planipennis*) is a serious threat to all ash trees in North America. This small boring beetle

was accidentally introduced into Michigan several years ago in ash crates from China. Since that time the beetle has been responsible for the loss of millions of ash trees in the eastern United States and Canada.

The insect, a close relative to the bronze birch borer, is an aggressive killer of all ash species, including green ash, white ash, black ash, blue ash and Manchurian ash and their many cultivars and hybrids. No ash can be considered safe from infestation.

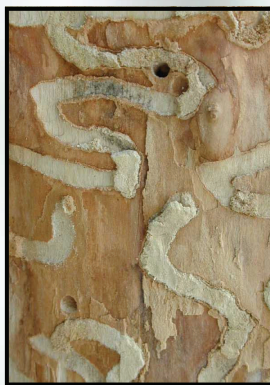
The beetle can fly up to several miles to find a suitable host but its rapid spread across Michigan and into other states has been through the movement of infested firewood and nursery stock.

### The life cycle of the Emerald Ash Borer

The adults are slender, green metallic beetles about 1/2 inch long. They began emerging from infested trees and wood in early summer. The adults fly to a nearby ash and deposit eggs on the bark. The larvae hatch in about a week or two, burrow into the inner bark of the tree, and begin to feed.



**EAB larvae feeding on tree tissue**



**Tunnels created by EAB larvae feeding on tree tissue**

The larvae are legless, white, segmented and will reach a length of 1-inch long by fall. The larvae create S-shaped galleries or tunnels just beneath the bark and these galleries are packed with a saw-dust like material. The S-shaped galleries cut off the movement of food from the leaves to the roots and this interruption results in the tree's decline and eventual death.

The larvae form a whitish pupa just beneath bark in the spring and the new formed adult emerges in a few weeks.

### How to identify infested trees

The first indication that a tree is infested is yellowing and thinning of the foliage. Later, often within the same season, the upper branches will begin to dieback. This progressive dieback continues until the tree dies, a process that may take one to several years. Sometimes the tree forms epicormic sprouts - long, thin, fast-growing shoots - along the trunk during the advanced stages of decline.



**EAB infested tree with dieback at the top**

Another indicator of an infestation is the presence of woodpecker activity on the declining tree. These birds are searching for the borer larvae that are inside the tree. Woodpeckers will search for any insect beneath the bark so this is not a definite indicator of the insect.

The best indicator that the tree is infested with emerald ash borer is the presence of small D-shaped holes on the bark of the tree. These holes are created as the adult emerald ash



**The distinctive D-shaped exit holes made by emerging adult EAB**

borer emerges from the tree or log and flies to another tree to lay eggs. These 1/8-inch D-shaped holes are not usually present on the lower trunk until the tree is near death or has already died. A tree can be infested for several years before the holes occur low enough on the trunk to be detected.

### What to do if you find an infested tree

Any suspected infested trees should be brought to the attention of your local forester. They may need to inspect the tree to determine if it is infested with the beetles. In many instances the tree may be dying from other problems or insects.

### How to slow the spread of the beetle throughout the state

Ash firewood may contain the larvae of the emerald ash borer. Since the adults emerge from infested wood during the summer months, any logs or firewood, containing the larvae can become the source for a new infestation. Campers bringing firewood may be inadvertently carrying this destructive insect, or other recently introduced pests such as the banded elm bark beetle. It is important that all firewood brought in from areas where EAB is found be promptly destroyed or burned.