



## Emerald Ash Borer

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**Plants Attacked:** Emerald ash borer (EAB) attacks all species of ash trees that grow in Virginia. Only Asian species of ash trees have shown any resistance to this pest. EAB is becoming widespread in Virginia.

**Description of Damage:** The first indication of damage by the emerald ash borer is cracks in the branch's high in the tree followed by canopy dieback. Tunneling by the larvae cause girdling and death of branches and the trunk. Early feeding damage by emerald ash borer will be difficult to detect because trees show few symptoms. Woodpeckers feeding on EAB larvae leave holes in the bark that can be seen by looking up into the tree. As the infestation progresses the trees starts to thin out and branches in the top sections of the tree start to die. Many trees will have a large number of new shoots on the trunk called epicormic branching. Often these branches occur at the junction of the live and dead sections of the trees. Epicormic branching may also occur at the base of the tree after the tree has died. EAB can live in twigs as small as 1 inch in diameter but can also breed in trunks of fully mature trees. It usually takes 2-5 years for damage to be noticed and the EAB damage kills the tree shortly thereafter.



Adult emerald ash borer in larval tunnel. Photo by Eric Day

**Identification:** Adult beetles are about 1/2 inch long and bright metallic green in color. When the wings are spread, the exposed abdomen is purple-red in color. The larvae are creamy white and have a tan head. At the end of the abdomen is a pair of pincher like projection. EAB can also be identified by its damage. As the adult beetle exits its gallery from under the bark it leaves a characteristic "D" shaped exit hole about 1/4 inch in diameter. Removing the dead bark near the exit hole will reveal numerous "S" shaped tunnels under the bark in the cambium area. Woodpeckers will often visit infested trees and leave large jagged holes after they have fed on the EAB larvae. Unfortunately they do not provide complete control for this pest. Coleoptera: Buprestidae, *Agilus planipennis* Fairmaire

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**Life History:** The emerald ash borer has a one to two-year life cycle. The adult beetles start emerging in May and early June and beetle activity peaks between mid-June and early-July. It is possible to see beetles as late as August. Beetles live from about 3-6 weeks, feed on foliage by making small notches on the outer

edge. The female usually lays between 50-100 eggs one at a time in bark cracks and crevices. Eggs hatch in about a week and the newly hatched larvae borer through the bark down into the cambium layer under the bark. Larvae feed under the bark during the summer and they are usually done by fall but stay in the larval stage until spring when they pupate. Newly molted adults remain under the bark for a few weeks until emerging to start their life cycle again. If degree-day information is available, EAB adults start emerging at about 500 degree days (base 50 degrees F.) and the peak is at about 1000 degree days.

**Control:** Infested trees rarely recover and need to be removed and destroyed or chipped as soon as possible. Non-infested ash trees can be treated to avoid infestation but it's hard to predict when the emerald ash borer will arrive in a particular county or city in Virginia. If you live in an infested county or an adjacent county you may want to consider using a systemic insecticide, applied as a soil drench at the base of plant in May or early June before the tree becomes attacked. See Also: Emerald Ash Borer Control for Foresters and Landowners, Va Coop. Extension Publication: ENTO-76NP, <http://pubs.ext.vt.edu/ENTO/ENTO-76/ENTO-76.html> Contact your local Cooperative Extension office to see if your location is infested or near an infested county. Your extension office can also provide the most current information on chemicals labeled for control. Parasitoid wasps have been imported from China and released in numerous locations. As releases continue efficacy of the wasps as biological control agents is being assessed and it is hoped they will contribute to EAB control in combination with other tactics.

**Movement of Firewood:** Emerald ash borer has been detected and moved by firewood in the United States and thus it's important to remove and destroy infested ash trees on site. It's also important when camping to leave firewood at home and purchase firewood at the campground from local sources.

**Remarks:** The emerald ash borer is native to Asia and was found in Michigan in 2002. It is not known how it was brought into this country. The first infestation in Virginia in 2003 was eradicated but it was found again in 2008 and by 2016 was found in 25 counties scattered throughout Virginia.



Infested ash tree. Note epicormic branching on trunk and dead branches. Photo by Eric Day



Trunk of tree girdled and killed by emerald ash borer. Note "S" shaped tunnels. Photo by Eric Day