Common Problems of Ash Trees

Ash trees (*Fraxinus* spp.) are no longer recommended for planting in the Midwest because of the threat of the emerald ash borer (EAB), a highly-destructive wood-boring insect pest. However, ash trees remain important as up to 6 percent of woodland trees and up to 70 percent of urban trees are ash species.

Other ash problems are often mistaken for emerald ash borer infestation, so ash trees may be needlessly removed or treated with pesticides as a result. This diagnostic guide is intended to help you distinguish emerald ash borer injury from other common problems of ash.

Ash Tree IDENTIFICATION

1. Leaves are compound and composed of 5 to 11 leaflets.

2. Seeds on female trees are paddle shaped.

3. Branches and buds are in pairs directly across from each other (opposite branching).

4. Mature bark has diamond-shaped ridges.

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SYMPTOMS AND SIGNS of Emerald Ash Borer

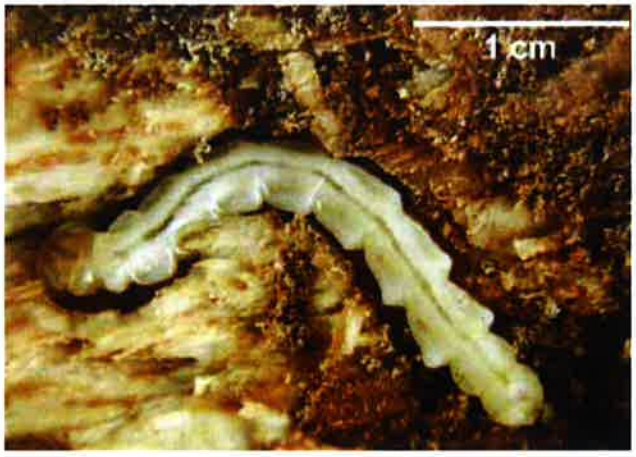
5. Branches in canopy decline and die.

6. Suckers grow on trunk and branches below EAB activity.

7. EAB adult beetle.

8. D-shaped 1/8 inch exit holes are made through bark by EAB adults.

9. Winding tunnels under the bark are caused by EAB larvae.



10. Fully-grown EAB larva in gallery under bark as it would appear in the fall.

Ash trees have other problems in addition to EAB including decline, other insects, and diseases.

Decline

- **A gradual, generally irreversible decline in tree health. Symptoms include reduced growth, branch dieback, and a thinning canopy.**
- **Environmental stress and poor site conditions may contribute to decline.**
- **To prevent decline avoid injuring the trunk, soil compaction, and disturbance near the tree.**
- **If a tree is in decline, have it evaluated periodically by a trained arborist to make certain it is not a hazard.**

PROBLEMS that can be confused with Emerald Ash Borer

11. Weed trimmer damage to trunk.

12. Damage by vehicle and poor site conditions.

13. Planting too deeply can lead to decline. The trunk should flare out like a bell where it meets the ground.

14. Limited rooting area and site disturbances such as construction activity can lead to decline.

BORERS

In addition to EAB, there are native insects that feed beneath the bark of ash. These borers tend to attack only stressed ash trees, unlike EAB that also will attack healthy trees. Symptoms and signs include tree decline, exit holes, and insects under the bark.

Prevention: Keep the tree healthy by providing water during dry periods, removing dead or storm-injured branches, and by reducing or preventing stress.
Control: Insecticides do not provide good control of wood-boring insects. Have the tree evaluated by an arborist to determine if it is a hazard tree.

15. Ash/lilac borer larvae create deep tunnels low in the trunks and limbs of ash, lilac, and privet. This insect causes a gradual decline of the tree over several years.

16. Ash bark beetles are small insects that create winding tunnels beneath ash tree bark and buckshot-size exit holes in the bark.

17. Flatheaded appletree borers are white, legless larvae that feed under the bark, hollowing out the inner bark in a small area. Adults leave a D-shaped exit hole that is larger in size than the EAB. Flatheaded appletree borers can kill newly transplanted, young trees.

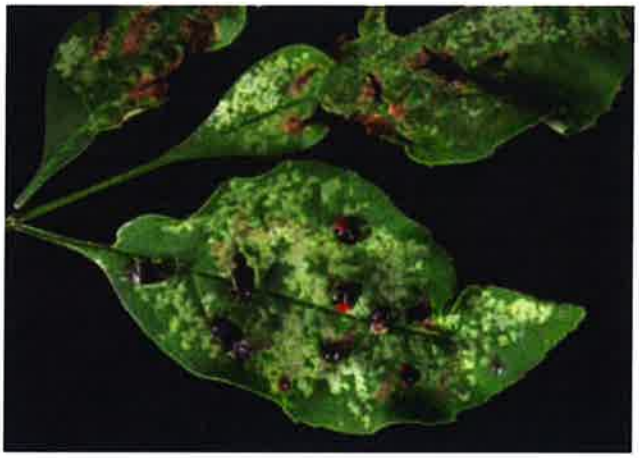
18. Roundheaded borer larvae tunnel deeply into the wood with no apparent pattern. Adults make large round exit holes. Two common roundheaded borers feeding on ash are the redheaded ash borer and banded ash borer.

SAP FEEDERS and GALL MAKERS

Several insects and mites attack ash trees and cause stress, discoloration or deformation. These pests harm only the appearance of trees and do not warrant control measures.

19. Leafcurl ash aphids feed on leaflets as they expand in the spring. The insect's body is covered in white, waxy strands. Feeding causes leaflets to twist and curl. In addition, aphids secrete clear, sticky honeydew, which can speckle anything under the tree. Natural enemies usually control the aphids.

20. Oystershell scales live under a protective waxy cover on the bark of trees and feed on plant sap, producing a sparse canopy, reduced tree growth, and branch dieback. Treatments should be timed with egg hatch in the spring. Treat the infested plant with horticultural oil or insecticidal soap; repeat in 7 days.



21. Ash plant bug adults and nymphs feed on ash leaflets in early May as they unfold, producing speckled areas on the leaflets. Later they appear as brown areas. Severe infestations may cause premature leaf drop, but new leaves are formed by mid-summer.

22. Ash flower gall mites feed on the developing flowers of male ash trees in early spring causing flower buds to form unattractive galls. These galls start out green, then turn brown to black and persist over the winter. These galls are considered harmless because they do not affect the growth or survival of the tree.

23. Ash anthracnose produces irregular brown spots on twisted leaflets.

24. Leaves fall from anthracnose-infected trees in the spring. Trees generally produce another set of leaves in 4 to 6 weeks. No treatments are recommended.

25. Verticillium wilt can be fatal to ash trees. Leaves on affected branches wilt and die, usually in July and August. Branches of infected trees die or decline over several years.

26. Verticillium wilt-infested branches show streaks of green to brown discoloration under the bark. There are no effective treatments. Replace with a tree that is not susceptible to this disease.

27. Ash rust produces slightly raised, bright orange areas on leaves, petioles, and green twigs. No treatments are recommended.

28. Close-up of ash rust sporulating.

Use this chart to compare common symptoms of Emerald Ash Borer infestation with other problems of ash trees.

SYMPTOM COMPARISON CHART

for Emerald Ash Borer infestation and other problems of ash trees

PROBLEMS	SYMPTOMS: Branch dieback	Thinning canopy	Epicormic sprouts	D-shaped exit holes	S-shaped larval galleries	Woodpecker damage
Emerald ash borer	✖	✖	✖	✖	✖	✖
Planted too deeply	✖	✖				
Trunk injury	✖	✖	✖			
Poor site conditions	✖	✖	✖			
Ash anthracnose		✖				
Ash rust						
Verticillium wilt	✖	✖	✖			
Ash decline	✖	✖				
Ash plant bug	✖	✖				
Ash sawfly		✖				
Leafcurl ash aphid		✖				
Ash flower gall mite		✖				
Oystershell scale	✖	✖	✖			
Ash/lilac borers	✖	✖				✖
Eastern ash bark beetle	✖	✖				✖
Flatheaded borers	✖	✖		✖		✖
Roundheaded borers	✖	✖	✖			✖

Check the ISU Extension store for other publications and sources of information. *www.extension.iastate.edu/store*

IC 0415	Scale Insects on Ornamental Plants	PM 2084	Emerald Ash Borer Management Options
IC 0417	Insect Galls on Trees and Shrubs	SUL 2	Understanding Decline in Trees
PM 1280	Anthracnose of Shade Trees	SUL 16	Verticillium Wilt of Woody Plants

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