

What's that?!

You have learned a little bit about emerald ash borer and want to put your knowledge to the test!

What's that?! is a series of 10 stations with scenarios and photos all about the emerald ash borer, native look-a-likes, and more. Each scenario allows students to put their knowledge to the test and see what they would do in that situation. Each station has an answer included.

Station 1

Trish Hanson, entomologist with Forest, Parks & Recreation, asks you to respond to a call about stressed ash trees on a property in your town. You take a look and, as you approach the tree, you notice brown leaves. When you get closer, you notice the following holes in the bark. How do you respond?



Station 1: Answer

The ash tree does seem to have many of the signs and symptoms of the emerald ash borer including exit holes. However, when examined closely, these exit holes are completely circular. They do not have the diagnostic D-shape exit hole (at right) that emerald ash borer creates. These exit holes are likely from the eastern ash bark beetle.



More about the ash bark beetle:

Adults overwinter in tunnels under the bark of infested branches. In the spring, females begin constructing egg galleries in trees that are typically recently felled or weakened host trees. The egg galleries run perpendicular to the branch or trunk. Eggs are laid along the sides of the galleries. Larvae tunnel between the bark and the wood throughout the summer, feeding away from the egg gallery. There can be one to three generations per year, depending on location.

Generally, the favored breeding material is recently cut or broken trees. Living trees weakened by mechanical damage or disease may also be attacked. Entrance, exit, and breathing holes can be found on the outside of infested trees. In July or August, the leaves on branches that have been girdled will turn yellow and then brown as the branch dies. Management is generally not warranted. As these beetles generally attack much-stressed trees, maintaining tree vigor will reduce impact.



Station 2

A concerned citizen calls thinking they have emerald ash borer exit holes on their tree. They are uncertain of the species of tree. When you arrive you notice that it is a maple tree and see the signs below- how do you respond?



Station 2: Answer

The holes on this tree are likely from the yellow-bellied sapsucker (*Sphyrapicus varius*), a member of the woodpecker family. Although insects make up part of its diet, the sapsucker is better known for its boring of numerous holes in the bark of live trees to obtain sap, the activity from which it gets its name. The yellow-bellied sapsucker is the only member of the woodpecker family to cause this type of injury. More than 250 species of woody plants are known to be attacked. Birch, maple, and hemlock are the preferred species.



Station 3

A community member contacts you about ash trees in general decline on her property. You offer to come out and conduct a site visit. You look up and see the sparse canopy.



She also states that she thinks the decline has been within the last 2 years. When you inspect the trunk near the ground you notice the following. How do you respond?



Station 3: Answer

With all the information provided, this indeed looks like emerald ash borer. Be sure to collect as much information as possible. Take photos, collect a sample, and report it online to VTinvasives.org or call 1-866-322-4512.

Station 4

A neighbor calls with a question on the emerald ash borer. He thinks he found the invasive pest in his garden. He describes it as a shiny backed insect $\frac{1}{2}$ inch long. When you arrive to take a look, you find the insect below. What do you think?



Station 4: Answer

This is the native six spotted tiger beetle (*Cicindela sexguttata*), sometimes mistaken for the emerald ash borer. Although this insect is shiny and green, it has spots on its backs and lacks the 'bullet shape' body of the EAB. Gardeners love to see the six-spotted tiger beetle hanging around, as they feed on the larval and adult stages of other arthropods.



Station 5

You notice the ash trees on the town green have generally declined over the last 2 years. The canopy is sparse. The leaves are pale green or yellowish. Witches' broom sprouts of growth are seen at the base of the tree (below). You can't find any exit hole or galleries. What do you do?



Station 5: Answer

Some people think that if they see a declining ash, it could only be a result of the emerald ash borer. This is far from accurate as ash trees face a variety of issues that cause overall decline and mortality. One such disease is Ash yellows, caused by a phytoplasma. These pathogens are somewhat like virus particles, cannot be cultured in a lab, and are limited to the phloem tissue of the tree. Phytoplasmas are spread by phloem feeding insects. Ash yellows causes substantial growth reduction, decline, and mortality of white ash in the Northeastern United States.

Identifying ash yellows is difficult due to the similarity to symptoms caused by other environmental factors. The presence of witches' brooms (clusters of upright spindly shoots of leaves on lower trunk) is a conclusive indicator that the disease is present, though not all infected trees will present this symptom. The impact of ash yellows can be exacerbated by environmental factors such as drought.

Since ash yellows is so hard to detect, please report suspicious findings on VTinvasives.org.

Station 6

A friend is concerned that his beloved ash tree in decline is afflicted with the emerald ash borer. You offer to take a look. When you arrive you find this on the ground below.



You also note the bark and leaf pattern. What do you tell him?



Station 6: Answer

Although his tree may seem to be in decline, it is not from the emerald ash borer. This is a black walnut tree (*Juglans nigra*) and EAB only affects trees in the *Fraxinus* genus. You can have him consult an arborist to learn more about what is happening with his walnut tree.

Station 7

Your cousin who lives in Massachusetts is coming up to Vermont camping for the week. She is going to bring her own firewood. She says there are no signs of insects or diseases on the wood. What do you tell her?

Station 7: Answer

Tiny insect eggs, or microscopic fungus spores, can elude even experts. These tiny threats are enough to disrupt an entire ecosystem. Never assume wood that “looks safe” is safe to move. In addition, Vermont passed a law in 2016 prohibiting the importation of untreated firewood into Vermont. This law regulates only firewood (defined as wood processed for burning and less than 48 inches in length) and does not include wood chips, pellets, pulpwood, or wood for manufacturing purposes. Firewood treated to the USDA Standard of 160 degrees F (71 C) for at least 75 minutes at a certified treatment facility and accompanied by a certification of treatment is allowed. By written request, the Commissioner may waive this prohibition under conditions which ensure that the firewood poses minimal threat to forest health. Violations may result in confiscation of firewood and/or a civil citation.

Station 8

A student who is doing research on invasive pests calls you. She asks, “What is something I can do to help prevent the spread of invasive forest pests?” What do you say?

Station 8: Answer

Firewood can carry invasive insects and diseases that can kill native trees. New infestations of these insects and diseases can destroy our forests, decrease property values, and cost a great deal of money to monitor, manage, and control. The best way to protect Vermont against invasive insects and diseases is to obtain local firewood where it will be burned. When we say local firewood, we are referring to the closest convenient source of wood that you can find. That might be from down the street or a state forest in your county. As a general rule of thumb, 10 miles or less is best, and more than 50 miles is too far.

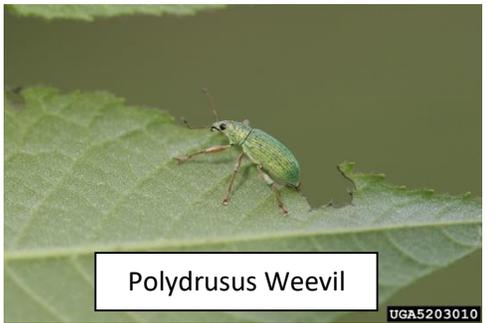
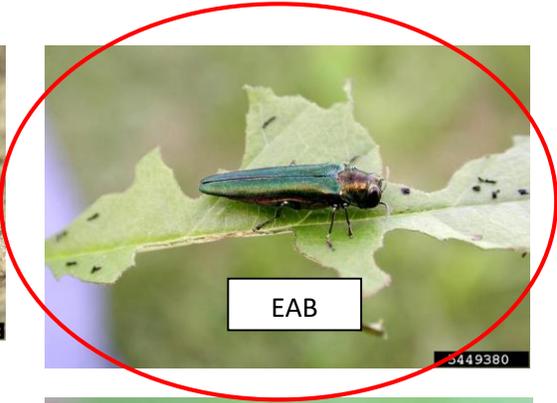
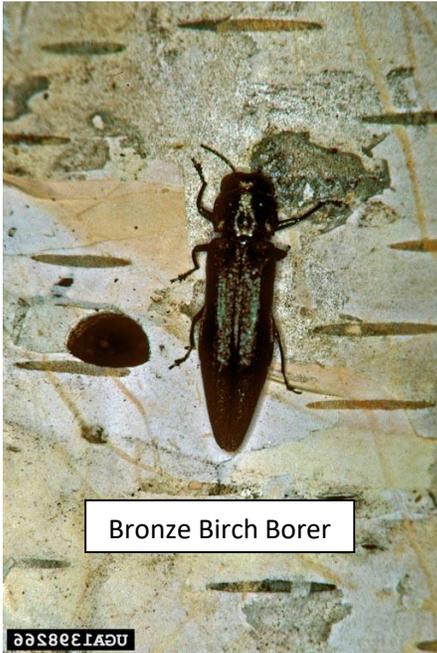
The short answer: Don't Move Firewood!

Station 9

Find the EAB!



Station 9: Answer



Station 10

You are out for a nice Sunday afternoon drive with a close friend. You turn down a dirt road lined with tall, gorgeous trees. Your friend points to something purple hanging in the tree saying, "What's that?"



Station 10: Answer

What your friend saw is an emerald ash borer survey trap (or “purple trap”). Purple traps are made of corrugated plastic folded into a prism shape. The shape mimics the trunk of a tree and researchers found that the emerald ash borer is most attracted to the color purple. A scented lure placed within the trap sends out the scent of a stressed ash tree. The outside of the trap is coated with a non-toxic but VERY sticky glue that ‘traps’ insects of all sorts if they touch it.

The traps are set in May, serviced once in July to change the lures and screen for any EABs, and then taken down and screened in September at the end of the flight time of EABs.