



Birdwatcher's Field Guide to Holes in Trees (v2.11.2014)

During the Christmas Bird Count and Great Backyard Bird Count, you can help scientists track new or expanding infestations of invasive forest insects by looking for, and reporting, certain types of holes in trees. Bring this photo field guide with you for **quick reference on three types of holes in trees** you may encounter:

- Typical sapsucker and woodpecker foraging (*not usually a sign of invasive insects*)
- Damage caused by woodpeckers foraging on invasive insect larvae
- Damage from two high priority invasive insects themselves

Typical Foraging: examples of holes made by sapsuckers and woodpeckers



photo credit: Robert Anderson, US Forest Service

Yellow bellied sapsucker

- Round and semi-round shallow holes
- Nearly always in a horizontal line

Several species of sapsuckers found in North America will cause similar damage, making horizontal lines of holes (like this photo) and at other times "grids" of holes. These foraging patterns are not likely indicative of invasive species infestations and are considered typical foraging.

Pileated woodpecker

- Deep irregular or oval holes with ragged edges
- Holes vary between 1" deep to sometimes leading all the way through to a rotted out interior of trunk

Damage by large (Pileated) and smaller (Downy, Hairy, and many others) woodpeckers can vary greatly. Most will have a hole that narrows or flattens out as the damage goes deeper into the tree. These foraging patterns are not likely indicative of invasive species infestations, with the exception of extensive foraging on ash trees- which can be a sign of emerald ash borer infestation.

Foraging on Invasive Species: holes and damage caused by woodpeckers



photo credit: David Cappaert, Michigan State University

Emerald ash borer (EAB) exit hole on left, and woodpecker foraging hole on right - likely seeking adjacent EAB larvae

- Emerald ash borer exit holes are D shaped, about 1/8" across, and always in **ash trees**.
- Heavy woodpecker foraging activity on any ash tree should be considered a strong sign of potential emerald ash borer presence.

For information on reporting this pest and others, see reverse.

Emerald ash borer "blonding" of ash bark by woodpeckers

- Shallow stripping off of surface of ash tree bark by woodpeckers seeking emerald ash borer larvae
- May be combined with intermittent larger woodpecker foraging holes

The "bark flicking" foraging pattern seen in this photo may be indicative of emerald ash borer. For information on reporting this pest and others, see reverse. For a detailed guide to EAB and woodpecker damage, visit

www.vtinvasives.org/group/woodpecker-watch



photo credit: Jennifer Forman Orth, MDAR

Holes and damage caused directly by invasive species



photo credit: Pennsylvania DCNR

Emerald ash borer (EAB) exit hole on an ash sapling

- Emerald ash borer exit holes are D shaped, about 1/8" across, and in **ash trees** or rarely **white fringetree**.
- **Goldspotted oak borer**, an insect native to Arizona but considered invasive in S. California, also makes D shaped, about 1/8" across, holes in **oak trees**.
- *Two lined chestnut borers are a native insect in the Eastern half of the US and Canada. They may cause similar looking damage in **weakened oak trees** but will not infest ash trees.*

Suspected emerald ash borer damage should be reported at www.emeraldashborer.info/call.cfm, as should **suspected goldspotted oak borer** damage at www.GSOB.org. *Two lined chestnut borer does not need to be reported.* When in doubt, take photos of any suspicious small D shaped holes in trees, and report them to a state agricultural or forestry official.



photo credit: Jennifer Forman Orth, MDAR



photo credit: Michael Bohne, USFS

Asian longhorned beetle exit holes and egg laying sites

- Asian longhorned beetle exit holes are perfectly round, have a clean edge, and are about the size of a dime (between ¼" and ½" across)
- Asian longhorned beetle exit holes go very straight and fairly deep into the tree- they neither turn nor taper as they enter the wood
- Asian longhorned beetle egg laying sites are shallow pits or divots chewed into trees by the egg laying female beetles. They can be orange or reddish when newly chewed, or they can blend into the undamaged bark (as in the two pits pit pictured at bottom- old grey pit to the left, new red-orange pit to the right)

Perfectly round holes in deciduous trees are a potential sign of Asian longhorned beetle infestation- report them at www.asianlonghornedbeetle.com/report-your-findings/ Take close up photos of any suspicious round holes in trees- especially holes in maples, elms, birch and willows- and include them in the report.

How to report potential findings of forest pests:



Before you go, visit apps.bugwood.org to see if you have an app for reporting invasive species in your state or region.



If you can't find an app or if you don't have a smartphone, you can use **specific reporting websites for each pest**. Visit www.healthytreeshealthycities.org/report to find a list of links for the most problematic invasive forest pests.



Take a photo with your smart phone or digital camera of any insects, holes, or signs you may find. If what you can see with your binoculars is too far up in a tree to be visible with your camera, **take a photo of the tree itself**. Use these photo(s) with either your app, or website, based report.