



Protecting nature. Preserving life." nature.org/tennessee





About the Initiative

The Healthy Trees, Healthy Tennessee Initiative is a program to improve the health of Tennessee city trees by engaging people in early pest detection, healthy tree monitoring, and tree-planting and stewardship.

Spotting & Reporting Pests

When you identify worrisome tree damage or a pest:

- · Take a picture and note the location
- · Report your findings to officials in Tennessee by calling (615) 837-5520 or emailing Protect.TNForests@tn.gov
- You can also report online at: http://protecttnforests.org
- · Download the EDDMAPS phone application for iPhone or Android and report your findings: http://apps.bugwood.org/healthytrees



Scan this QR code with your smartphone to download the app!

Asian Longhorned Beetle (ALB)



How to Identify

- · Large 1 1 1/2 inch long body, with six legs
- · Shiny black with approximately 20 white spots
- · Very long white and black striped antennae
- · Can have blue-ish feet
- · Beetles most often seen in late summer (July and August)
- $\cdot\,$ Larvae are white, about 2 inches long, and found deep in the tree's wood

How to Spot Symptoms

- · Dime-sized exit holes chewed into trees
- · Eggs are found in small oval depressions chewed in trunks
- · Exit holes are easier to find than egg-laying sites
- · Damage is easiest to spot in the sun
- · Trees usually die back first along the center & top branches
- · The rest of the canopy dies as the infestation moves into the
- · Can cause patches of trunk to appear black and covered in sap
- Sawdust may accumulate at the holes, the base of tree or in the branch crotches

Threatened Trees (ordered by threat level)

- · Maples (most common)
- · Horse Chestnut
- Box Elder
- · Buckeye
- · Willows (most common)
- Elm
- Aspen

- · Ash · Birch
- Katsura
- · London Planetree
- · European Mountain Ash
- Poplar (Cottonwood)
- · Mimosa



Emerald Ash Borer (EAB)



How to Identify

- · Small 1/2 inch long beetle
- · Bright metallic green color · Coppery-red underside
- · Larvae are flat, white, and approximately one inch long
- Adults usually emerge during late spring and summer

How to Spot Symptoms

- · D-shaped exit holes
- Splits or cracks in bark and larval tunnels under bark (caused by larvae feeding on inner bark)
- Thinning and dead patches in upper third of tree
- · Leafy, misplaced sprouts at base of the tree or roots
- · Abundant woodpecker activity
- · Wilting and yellowing leaves

Threatened Trees

- · North American Ash (all)*
- ' Mountain ash isn't a true ash and cannot be infested with FAB

Hemlock Woolly Adelgid (HWA)



How to Identify

- · Eggs look like small cottony masses
- · Adults sometimes produce white woollike covering
- After hatching, nymphs feed on twigs near base of needles

How to Spot Symptoms

- · White woolly mass at base of tree's needles (or underside of needles)
- "Wool" is easier to spot in low light, shady or overcast days
- Look for "wool" or nymphs on trees with graying and dying branches
- Reddish-brown nymphs can be found on twigs at the base of needles during hot months

Threatened Trees

· Eastern and Carolina Hemlock



Gypsy Moth



How to Identify

- · Eggs are buff-colored velvety masses
- Caterpillars are 1 ½-2 ½ inches long with dark tufts of hair on each segment and blue and red dots on backs
- Male moths have 1 ½ inch wingspread with light tan to brown wings with dark wavy bands
- Female moths have a 2 ½ inch wingspan and are off white (they are flightless despite their wings)

How to Spot Symptoms

- Eggs can be found stuck to outdoor objects such has rocks, trees, cars, etc.
- · Up to 1,000 eggs can hatch in April or May
- · Small holes in leaves chewed by young larvae
- · Older larvae consume entire leaves except for larger veins and midribs
- · Whole tree may be defoliated

Threatened Trees (ordered by threat level)

- Oak
 Sweet Gum
- · Apple · Willow
- · Alder · Hawthorn
- Basswood (Less favored hickory, maple, cherry,
- Birch cottonwood, elm, black gum, larch,
 Poplar sassafras, hornbeam, white pine)



Thousand Cankers Disease



How to Identify

- The three major symptoms of this disease are branch mortality, numerous small cankers on branches and the bole, and evidence of tiny bark beetles.
- The earliest symptom is yellowing foliage that progresses rapidly to brown wilted foliage, then finally branch mortality.
- Numerous tiny bark beetle entrance and exit holes are visible on dead and dying branches and bark beetle galleries are often found within the cankers.
- In the final stages of disease, even the main stem has beetle attacks and cankers.



How to Spot Symptoms

- Yellow leaves high on the tree, progresses to brown and wilted, and then the whole branch dies
- · Look for dead or sickly branches
- · New leafy branches may sprout on the base of the trunk
- $\boldsymbol{\cdot}$ Numerous tiny bark beetle holes on dead and dying branches
- · Black walnut trees die in approximately 3 years

Threatened Trees (ordered by threat level)

- · Black Walnut
- · Walnut Hybrids
- Butternut



image credit: Karen Snover-Clift, Cornell University, Bugwood.org

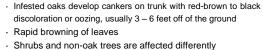
Sudden Oak Death



How to Identify

- The most useful diagnostic symptom is the development of cankers on the trunk.
- Cankers have red-brown to black discoloration and seep dark black to red or amber sap and usually develop 1 to 2 meters off of the ground.
- In later stages, the bark can fracture and exudation occurs both through broken and intact bark.
- Complete browning of the crown usually takes place after an extended period of disease and perhaps more than two years from the onset of infection.

How to Spot Symptoms



- Leaf browning
- · Twig and stem dieback

Threatened Trees (ordered by threat level)

- · White Oak
- · Northern Red Oak
- · Chestnut Oak
- · Sassafras
- · Redbud
- DogwoodRed Maple
- · Red Maple

Threatened Shrubs

- Viburnum
- · Common Lilac
- · Camelia



image credit: Joseph O'Brien, Cornell University, Bugwood.org



image credit: Paul Tooley, USDA Agriculture Research Service