

WHAT'S ATTACKING MY OAK TREE?

How to tell oak wilt from twolined chestnut borer

Oak wilt is a non-native, fatal disease of oaks. It can kill red oaks quickly, and if left unmanaged, can devastate an oak forest and promote conversion to buckthorn and maple. Oak wilt symptoms can frequently resemble damage from the native twolined chestnut borer, which commonly infests stressed oaks. The borer usually kills trees after multiple years of repeated attacks, and is an increased threat for one to four years following drought, flooding, or heavy defoliation by other forest pests.

Both oak wilt and twolined chestnut borer can create pockets of dead and dying trees, kill stressed trees quickly, and cause browning of leaves that begins in the outer branches. However, the impact and control of these two organisms are very different, so it is important to know which one you're dealing with.

Oaks can suffer from oak wilt and twolined chestnut borer at the same time. Oak wilt symptoms are harder to detect in white oaks (rounded leaf tips) than in red oaks (pointed leaf tips). In many cases, getting a laboratory confirmation of oak wilt is best. Visit the University of Minnesota Plant Disease Clinic website at pdc.umn.edu or call 651-625-1275.



An oak dying from **oak wilt** with wilting leaves and extensive leaf loss in the outer canopy.



Oaks killed by **twolined chestnut borer** with dead leaves hanging on in the canopy.





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Differences between oak wilt and twolined chestnut borer

DIAGNOSTIC CLUES	OAK WILT	TWOLINED CHESTNUT BORER
<p>Symptoms (visible effect of disease or pest on a tree)</p>	<ul style="list-style-type: none"> Starting at the edge of the canopy, leaves turn drab green, wilt, and quickly fall from May through September. <i>Fallen leaves under or near oaks rapidly accumulate on the ground before normal autumn leaf drop.</i> Some fallen leaves are half green with browned edges. Others are totally green. Killed oaks may grow stump sprouts, but <i>most or all stump sprouts die over a few years.</i> On red oak group (pointed leaf tips): Rapid dropping of 90% or more of leaves in one to two months, resulting in a carpet of leaves on the ground in the summer as opposed to normal autumn leaf drop. On white oak group (rounded leaf tips): Rapid leaf drop at the edge of the canopy or from one to a few branches at a time during the summer as opposed to normal autumn leaf drop. 	<ul style="list-style-type: none"> Starting at the edge of the canopy in mid-summer to early fall, leaves uniformly turn drab green, then orange to brown. <i>Most dead leaves hang on for several months and do not accumulate under the tree.</i> A common pattern in the tree canopy is “dead, red, and green.” After two years of infestation, the top of the crown is dead and leafless, the leaves in the middle are dying (“red”) and stay in the canopy, and the lower leaves are green. Some infested branches have stunted green leaves early in the summer. Killed oaks may grow <i>healthy stump sprouts</i> that survive several years or longer.
	 <p>Carpet of freshly fallen leaves in summer from infected oaks.</p>	 <p>Tree attacked by twolined chestnut borer showing characteristic “dead, red, and green” pattern in the canopy.</p>

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Differences between oak wilt and twolined chestnut borer continued

DIAGNOSTIC CLUES	OAK WILT	TWOLINED CHESTNUT BORER
Signs (physical evidence of a disease or pest)	<p>Signs on red oaks: Below the bark, pressure pads on fungal mats may make subtle bark cracks on some red oaks.</p>   <p>Top: oak wilt bark crack. Bottom: fungal mat with pressure pads revealed below the bark.</p>	<p>Under the bark of branches or trunks with dead leaves attached: Larvae, feeding tunnels, and D-shaped exit holes in the bark. Trees may be infected with oak wilt at the same time.</p> <p>Adult beetles are not commonly seen.</p>   <p>Top: twolined chestnut borer larva and feeding tunnels under the bark. Bottom: small, D-shaped exit holes of twolined chestnut borer in the bark.</p>
Mortality	<ul style="list-style-type: none"> • Red oak group: Trees die one to three months after symptoms develop. • White oak group: Bur oaks die after one to seven years. White oaks die in one to 20 years; some may recover. 	<p>Trees usually die over two to three years, but sometimes they survive. They can die over one summer if they were previously stressed severely.</p>
Pattern in forests	<p>Slowly expanding circles of dead oaks year after year.</p>	<p>Widely scattered clump of dead and dying oaks. After a few years, mortality stops.</p>

More information

Twolined chestnut borer: mndnr.gov/treecare/forest_health/tlcb

Oak wilt: mndnr.gov/oakwilt