

# OAK WILT

## A Disease of Oak Trees

### What is oak wilt?

Oak wilt is a disease that affects oak trees. It is caused by *Ceratocystis fagacearum*, a fungus that develops in the xylem, the water-carrying cells of trees. All oaks are susceptible to the fungus, but the red oak group (with pointed leaf tips) often die much faster than white oaks (rounded leaf tips).

### Why is oak wilt a problem?

The oak wilt fungus blocks the flow of water and nutrients from the roots to the crown, causing the leaves to wilt and fall off, usually killing the tree. Red oaks (scarlet oak, pin oak, black oak, etc.) can die within a few weeks to six months, and the disease spreads quickly from tree to tree. White oaks (bur oak, scrub oak, etc.), however, often take years to die and the disease usually cannot spread to additional trees.

### Where does it come from?

Oak wilt was first discovered in Wisconsin in 1944, but where it originated is still unknown. It has spread throughout the Midwest and Texas, killing tens of thousands of trees.

### Where has it been found in New York State?

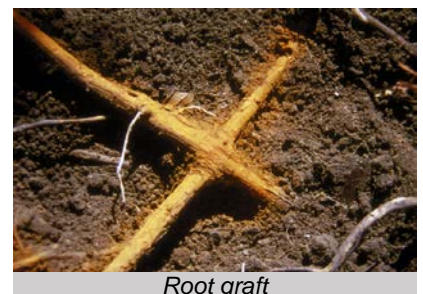
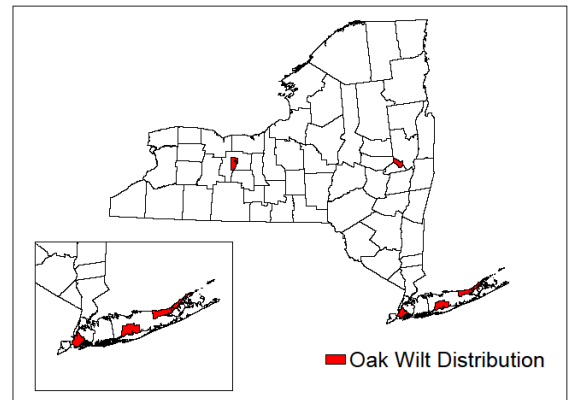
In 2008, a small infection was discovered in Glenville, NY. It was quickly dealt with to prevent further spread. The disease resurfaced in the same location in 2013, and additional steps were taken to eradicate the infection. In 2016, oak wilt was discovered in Islip, Riverhead, and Southold in Suffolk County; Brooklyn in Kings County; and Canandaigua in Ontario County.

### How does it spread?

There are two main ways oak wilt is spread: 1) above ground by beetles, and 2) below ground through tree roots.

Fungal spore mats form just under the bark of infected red oaks after they have died from the disease. During the warmer months, these spore mats emit a sweet odor that attracts sap-feeding beetles and bark beetles, which can pick up fungal spores as they crawl around. The beetles are also highly attracted to fresh wounds in other trees—often caused by pruning. In this way, they spread the fungus from infected trees to healthy trees sometimes miles away. Infected firewood and other wood materials also pose a threat because they can harbor the fungus and/or beetles that can spread the disease.

Spread underground occurs when roots of nearby red oaks graft to each other (fuse together), creating a connection through which nutrients and the disease can move. In the Midwest, large blocks of red oak forests have died from the disease in a single season due to their vast network of interconnected roots. In contrast, *white* oaks are much less likely to create root grafts, and spore mats rarely form under their bark, significantly reducing the chance of spread from these trees.



## What are the symptoms?

Symptoms of oak wilt infection are often very noticeable in red oak species, but aren't easily seen in white oaks.

- Brown coloration develops on leaves starting at the outer edge and progressing inward toward the mid-vein of the leaf.
- Branch dieback may be visible starting at the top of the tree's canopy and progressing downward.
- Leaves suddenly wilt in the spring and summer and may fall while there is still some green on them.
- Fungal spore mats may develop under the bark of infected trees.



*Diseased red oak leaves*



*Fungal spore mat under bark*

## What is being done?

- During the growing season, DEC will take samples from oak trees around the infection sites to determine the extent of the disease.
  - These areas will continue to be monitored for at least five years using aerial and ground surveys.
- Established Protective Zones will prohibit the movement of potentially diseased oak wood including firewood.
- DEC is attempting to eradicate the disease in Canandaigua and Brooklyn using methods similar to those used in Glenville.
  - Oak-free zones will be established where infected and surrounding oak trees will be removed.
  - Where possible, trenching will be used to break root connections to lower the chance of spread.
- In Suffolk County, DEC will only attempt to contain the disease due to the number of infection sites and distribution across Long Island. Only infected trees will be removed.



*Trenching to break grafted roots*

## What can I do?

- Learn to recognize the symptoms of oak wilt including leaf discoloration, rapid leaf loss, and fungal spore mats. If you think your tree is infected with oak wilt, contact DEC Forest Health (see Contact Information below).
- Avoid pruning or wounding oak trees in the spring and summer, when spore mats are present and beetles are the most active. If an oak wound occurs during spring or summer, it should be sealed immediately with wound dressing. This will slow wound recovery, but also deter beetles from landing on those areas – which will lower the spread of oak wilt.
- Adhere to the NYS firewood regulation which limits firewood movement to no more than 50 miles and obey the rules of the Protective Zones which prevent firewood or oak wood from leaving those areas.
- Visit [www.dec.ny.gov/lands/46919.html](http://www.dec.ny.gov/lands/46919.html) for more information.

Updated January 23, 2017

### CONTACT INFORMATION

#### Forest Health

Division of Lands and Forests

New York State Department of Environmental Conservation

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# WHAT DOES AN OAK WILT PROTECTIVE ZONE MEAN FOR YOU?

Oak wilt, a serious disease that kills oak trees, has been confirmed in several towns across New York State. Infected trees in the red oak group (leaves with pointed tips as in scarlet oak, pin oak, black oak, etc.) typically die within a few weeks. Oaks in the white oak group (leaves with rounded tips as in white oak, swamp white oak, scrub oak, etc.) are also killed, though it may take years. DEC has issued emergency orders that establish Protective Zones around the infected areas to help prevent the spread of oak wilt.

## What is an oak wilt Protective Zone?

An oak wilt Protective Zone is a quarantine area put in place around a neighborhood, town or county after oak wilt is confirmed there. Oak wilt Protective Zones have been established in the towns of Canandaigua and Glenville, the borough of Brooklyn, and all of Suffolk County.

## Why are the oak wilt Protective Zones in place?

The goal of an oak wilt Protective Zone is to prevent the spread of the disease by prohibiting the movement of potentially infected oak wood. Oak wilt can be spread by beetles that come into contact with fungal spore mats which form under the bark of trees killed by the disease. These spore mats can attract several kinds of beetles which pick up the spores as they crawl around. When these beetles fly to new trees, they bring the fungus with them, potentially spreading the disease to new areas. Infected oak firewood, logs, and branch debris can also contain spore mats, so moving these materials contributes to the spread of the disease.

### Prohibited from leaving the protective zone

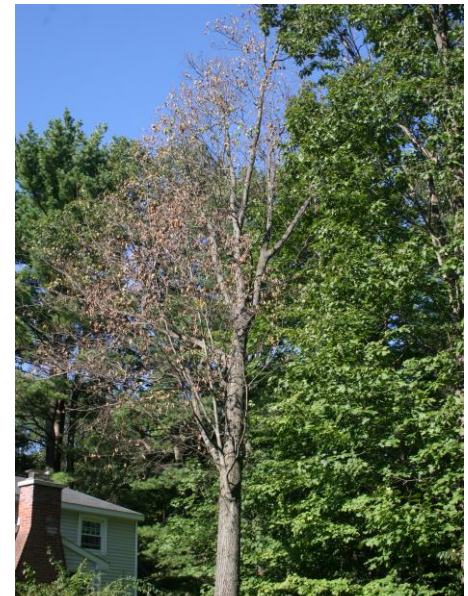
- Oak logs or branches
- Wood pieces less than 29 inches long, no matter the species

### Allowed to leave the protective zone

- Chipped wood
- Wood pieces 29 inches long or greater from trees other than oak.

## Why can't I move firewood from the Protective Zone?

Once wood is cut to firewood size, it is difficult to tell one species from another. To account for the difficulty in identification and make sure no infected oak wood is moved out of the protective zone, wood pieces less than 29 inches in length are prohibited from leaving the area, regardless of species.



*Oak wilt-killed tree*



*Spore pads, like the black area shown in this photo, may be present in infected trees and firewood.*

## What is DEC doing about oak wilt in my neighborhood?

### Monitoring

DEC will conduct aerial surveys over and around the oak wilt Protective Zones in July and August to locate trees showing symptoms of oak wilt. Field crews will check these, as well as neighboring oaks, through ground surveys and sampling to determine if they are infected with oak wilt. When symptomatic trees are located on private property, owners will be contacted before ground surveys or sampling take place. Field crews will also check trees reported by homeowners.



*Aerial and ground surveys will help locate new infected trees*

### Management

After surveys have been completed, DEC will develop site plans and activities to manage oak wilt dependent on the extent of the infected areas.

- Isolated, small infection centers will be treated with the goal of eliminating the disease from the area.
- In larger infection centers, plans will focus on control and limiting the spread of the disease.

Activities will include establishing Protective Zones, and may also include the removal of infected trees, removal of nearby non-infected oak trees to prevent the spread of oak wilt through tree roots, and/or the installation of trenches to sever root connections. As with surveying, property owners will be informed of the management strategy for oak wilt at their site prior to conducting any activities.

## What can I do?

- Follow the quarantine regulations and don't move infected oak or firewood out of an oak wilt Protective Zone.
- Visit DEC's website at [www.dec.ny.gov/lands/46919.html](http://www.dec.ny.gov/lands/46919.html) to learn about the symptoms of oak wilt.
- Take pictures of trees showing symptoms and/or make note of the location.
- Report symptomatic trees to DEC's Forest Health Unit using the phone or email below.

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Updated March 10, 2017



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