For further information about oak wilt, contact a DNR forester, a consulting forester or arborist, your county UW-Extension office, or visit the Web at http://dnr.wi.gov/forestry/fh/oakWilt/. The publication, *Lake States Woodlands: Oak Wilt Management—What Are The Options?* (publ. G3590) is available from many county extension offices or on the Web at http://learningstore.uwex.edu/pdf/G3590.pdf.

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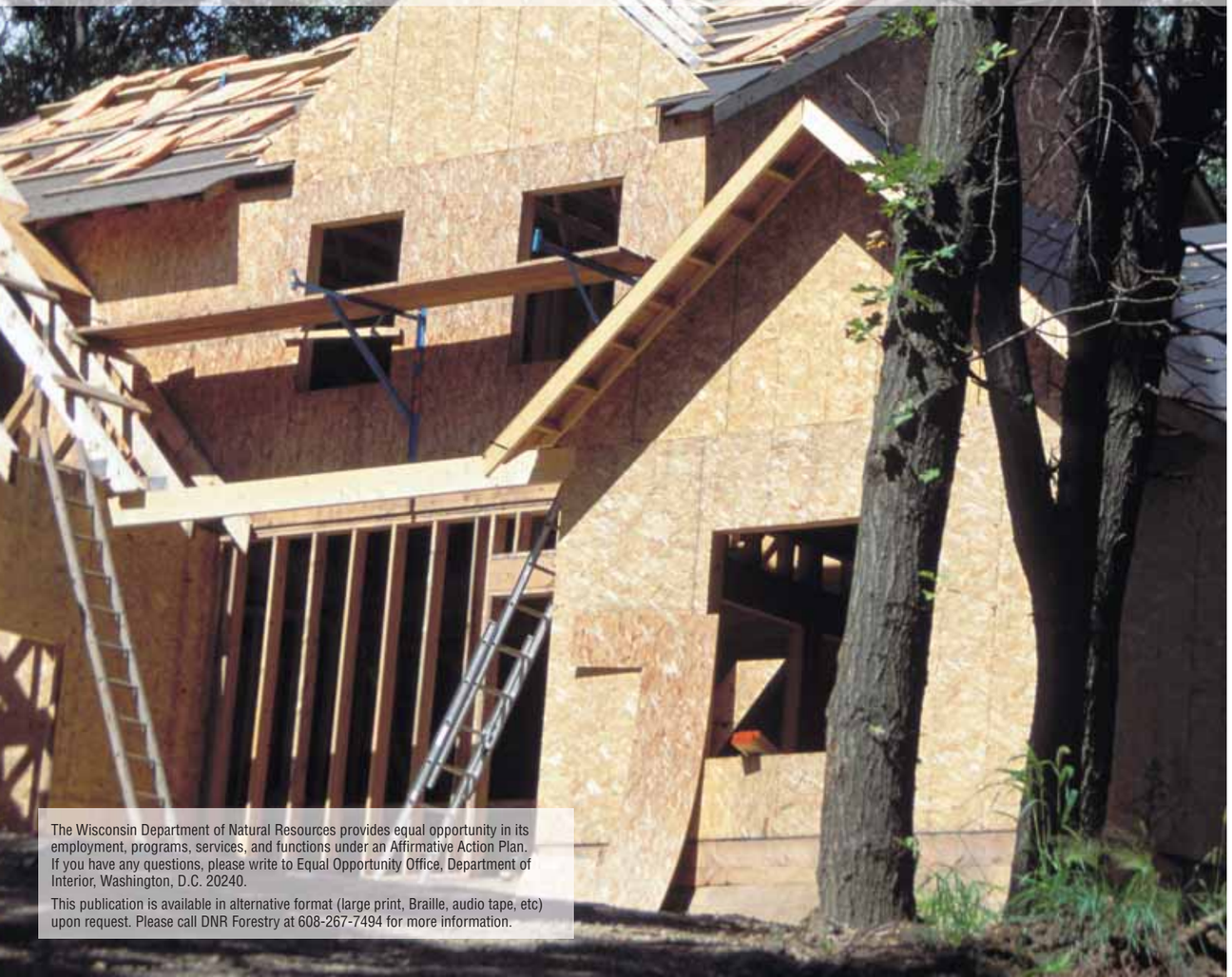
WISCONSIN DEPT. OF NATURAL RESOURCES

ARE YOU THINKING OF BUILDING ON A WOODED LOT?

PROTECT YOUR TREES FROM OAK WILT



PROTECT YOUR TREES FROM OAK WILT!

If you plan to build on a wooded lot that has oak trees, you should learn about ***oak wilt***—a fatal, infectious disease that can threaten the very trees which make wooded properties so desirable and valuable. Here are some facts you should know:

- Oak wilt is widespread throughout the southern ¾ of Wisconsin.
- Oaks wounded during construction can become infected with oak wilt. ***Oak wilt commonly becomes established in new developments as a result of construction damage.***
- If oak wilt is not already present on your property, preventive measures taken during construction and afterward will help keep your property free of the disease.
- If oak wilt is already present, control is best done ***prior*** to building.
- If oak wilt is not controlled, it will continue to spread and kill other oak trees.

WHAT IS OAK WILT?

Oak wilt is a fungal disease which causes the water-conducting vessels in oak trees to become plugged. Once the vessels are plugged, water movement within the tree stops, causing leaves to wilt and fall from the tree.

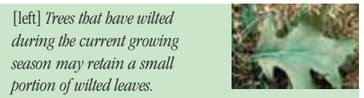
Red, black and pin oaks are highly susceptible to oak wilt. Once infected, they can die within a few weeks. White and bur oaks are much less susceptible. If infected, they can take months or years to die, or they may even recover.

HOW DO TREES BECOME INFECTED?

Oak wilt spreads in two ways: over land, by sap-feeding beetles that carry the fungal spores from infected oaks to fresh wounds on healthy oaks; ***and***, under ground, from infected oaks to nearby healthy oaks through grafted, or interconnected, root systems.

Jane Cummings Carlson, WI DNR

[left] *Trees that have wilted during the current growing season may retain a small portion of wilted leaves.*



Cindy Casey, WI DNR

David Stephenson, WI DNR

[right top & bottom] *red oak symptoms*

[left] *bur oak symptoms*

U of MN Extension Service

Overland spread

If oak wilt is not already present on your property or your neighbors', infection via sap-feeding beetles is your main concern. This is the only known way oak wilt can spread across highways, water, open fields or other large breaks in oak tree cover. Oaks in the upper Midwest are at highest risk of overland infection during spring and early summer.

Underground spread

Once a tree becomes infected, the fungus begins spreading to adjacent oaks through grafted roots. In general, any oak within 50' of one infected by oak wilt is at risk of root graft infection. The risk of root graft infection is influenced by tree size, soil type and the presence of natural or human-made barriers. Once an oak becomes infected, the fungus must be contained or it will continue to spread and kill until it runs out of oak trees capable of root grafting with infected ones. Oak wilt does not respect property boundaries.

HOW CAN OAK WILT BE PREVENTED?

Oak wilt prevention is easy and effective. Do not cut, prune or otherwise wound oaks in the spring and early summer, generally from April through July.* Any activity during this period that cuts or tears through the bark and exposes live wood in oak branches, trunks or roots can place those trees at risk of infection. If an oak is wounded during this period, immediately and thoroughly apply pruning sealer or tree paint over the wound. Torn branches or roots should be cut clean and the cut surface painted. For additional protection, cover treated roots with soil.

* Overland infection can occur ***after*** July but is not common. To be ***very*** cautious, avoid wounding oaks from April 1st–October 1st.

Brad Morgan, UW-River Falls

Sap-feeding beetles, which carry the fungal spores, cannot chew through oak tree bark. Fresh wounds, such as those caused by pruning or cutting, tree climbing spikes, construction activity or storm damage, must be present for the insect to infect a healthy tree.

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Root grafting is most common among oaks in the red oak group and much less common among oaks in the white oak group and between red and white oaks.

Cindy Casey, WI DNR

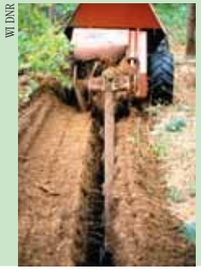
Cut stumps can become infected and spread the disease to neighboring trees. If an oak is cut down down from April through July, immediately apply a 1"-wide band of pruning sealer or tree paint around the circumference of the stump's cut surface, thoroughly covering the sapwood.

Tom Eiber, MN DNR

[left] *Sap-feeding beetles are attracted to fresh wounds such as those resulting from construction activity.*

[below] *vibratory plow;* [right] *trencher*

David Stephenson, WI DNR



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[left] *If oak wilt already exists on the property, control should be done* **before** *construction begins. It is easier, safer, more effective and more economical to do the work before the site is developed.*

[right] *Covering diseased firewood prevents sap-feeding beetles from coming in contact with fungal spores.*

Cindy Casey, WI DNR

Cindy Casey, WI DNR

Cindy Casey, WI DNR

[left] *Trees at risk of storm damage are often evident beforehand.*

[left & below] *Oak wilt prevention and control pay off in the long run.*

Cindy Casey, WI DNR

It is ***very*** easy to damage tree roots, trunks and branches during site preparation, road and driveway construction, utility and septic installation and landscaping. A vehicle carelessly backed into a tree can gouge bark sufficiently to expose vulnerable sapwood. It only takes ***one small wound*** on ***one tree*** to set the stage for oak wilt infection.

What precautions can be taken to avoid construction damage and oak wilt?

- Consider using a consulting arborist for help in protecting your trees. A consultant can assist with the layout of developments and individual building sites. Consultants can also make on-site recommendations to minimize the risk of oak wilt and other construction related damage to trees.
- Talk to your builder and contractor about your oak wilt concerns. Make sure your concerns will be communicated to subcontractors and all who deliver materials to the site. Inspect the work site often to make sure oaks are adequately protected.
- Determine how much area is needed for buildings and to maneuver equipment. In general, trees within 15' of proposed structures should be removed.
- If possible, perform all tree removal prior to April or after July.
- If trees are cut from April through July, ***immediately*** apply pruning sealer or tree paint in a 1"-wide band around the circumference of the cut surface of any oak stump that is not promptly removed.
- Erect sturdy, temporary fencing around residual trees and along woods edges, at least 10 feet away from tree trunks. Residual trees will be further protected from soil compaction and/or grade change if fencing is placed at or beyond the drip line.

Sap-feeding beetles can find fresh wounds on oaks within minutes! To prevent infection, pruning sealer or tree paint must be applied to exposed sapwood immediately.

- From April through July, all equipment operators on site should carry pruning sealer or tree paint and ***immediately*** apply it to exposed oak wood, should accidental wounding occur. Tar should not be used.

Once present, how can oak wilt be controlled?

Disrupting root grafts between infected and healthy oaks is the most effective control known. A vibratory (cable) plow or trencher with a minimum 5' blade is best for severing root grafts. If available, a plow is preferred over a trencher because it moves faster, cuts at a more consistent depth and creates minimal aboveground disturbance.

Because aboveground symptoms do not reflect the extent of actual infection, proper barrier placement is not simply a matter of cutting between wilted trees and apparently healthy ones. By the time symptoms are visible, oak wilt has already spread throughout the tree and has very likely infected neighboring oaks. Barriers should be constructed only by someone specifically trained to do so. Contact your local DNR, county extension or municipal forestry office for names of any root graft barrier contractors serving your area.

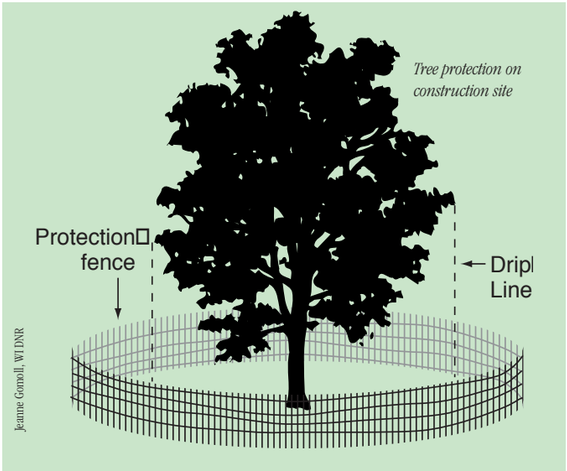
Root graft barriers must be located and constructed properly to control underground spread of oak wilt!

Simply cutting down an infected tree does not stop the underground spread of oak wilt! In fact, cutting an infected tree without first placing root graft barriers can accelerate the spread of the fungus into neighboring trees.

What should be done with diseased wood?

After all root graft barriers are made, diseased trees should be removed. Reproductive spores of the fungus form under the bark of dead oaks the spring following infection. These spore colonies attract sap-feeding beetles to the site, facilitating overland spread of oak wilt.

Proper disposal can be by either of two methods. Before April of the year following infection, completely debark all wood from the cut trees. Smaller material can be chipped. Once bark is removed or wood is chipped, spore formation is unlikely. Alternatively, wood can be cut, split and stacked for firewood; any wood not used by April of the year following infection should be completely covered with a 4-mil or thicker sheet of clear plastic. Bury the edges of the tarp under soil, weighted down with rocks or undiseased logs. Leave the tarp on until all bark is loose. If possible, place your covered woodpile in the sun to speed the drying process.



Tree protection on construction site

Jeanne Gonnoll, WI DNR

What about chemical treatment?

A product called Alamo® *(propiconazole)* is currently labeled as both a preventive and therapeutic treatment for oak wilt. Injected into a healthy tree, Alamo may provide protection. Under certain circumstances, Alamo may prolong the life of an infected tree. For effective treatment, multiple applications may be necessary over several years. Although Alamo shows promise, research on its use in northern oak species is fairly new.

How can wooded homesites be kept free of oak wilt?

Additional steps can be taken to reduce the risk of oak wilt on your wooded property, even after your home is built. New infections can begin when trees are damaged during spring and early summer storms.

Inspect your trees at least once a year, preferably when leaves are down. Look for forked limbs that are beginning to split apart as well as dead branches within striking distance of an oak. Similarly, identify any standing hazardous trees that could injure oaks if they fell. Hazardous trees should be pruned or removed only by a competent arborist. Oaks damaged by storms during the overland infection period should immediately be pruned or cut down and the cut surface treated.

There are costs associated with oak wilt prevention and control. But the cost of doing nothing—potential personal injury and property damage from falling dead trees, greater tree removal costs, higher heating and cooling costs, reduced real estate value and aesthetic appeal—may ultimately be far more costly.