

## Decreasing the Potential Spread of Disease and Insect Infestation

When trees die due to disease or insect infestation it is imperative that the infected materials be removed from the site or destroyed. Infested trunk and branch tissues can harbor the disease pathogens, bark beetles, and other boring insects that can infest other trees in the neighborhood and continue the pattern of decline throughout the area.

This is especially the case with Dutch Elm Disease (DED) infected elm trees and with pine and spruce bark beetles. Elm bark beetles will infest recently cut wood with the bark still attached, including the root crown tissue left after a tree removal. If the tree was diagnosed with DED, this "brood" material can produce upwards of 500 beetles per foot of wood tissue. Each of these beetles will carry and spread the DED fungus to other elm trees.

A similar scenario plays out with the numbers of beetles that can be produced in standing and cut wood of pine and spruce trees. With conifer bark beetles it is the beetles themselves that cause the damage. A tree in a state of decline is unable to produce enough resin to encapsulate bark beetle larvae. When this situation occurs, the trees become targets for the beetles. Once an attack occurs, the beetles create a scent (pheromone) that attracts additional beetles. By increasing the attack rate on the tree, the insect can overwhelm the trees limited defenses. When beetle populations build up to significant levels, they may begin attacking healthy trees.

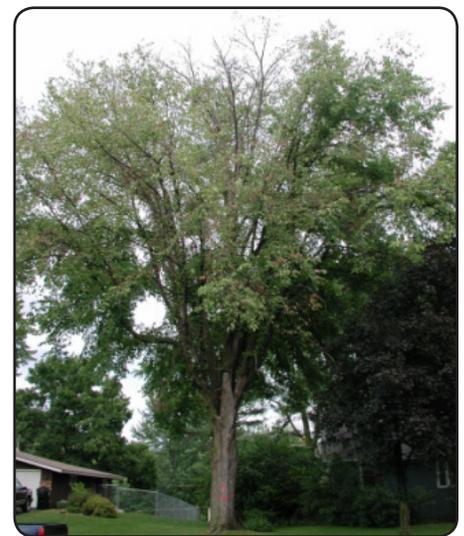
## Methods of controlling the spread of contamination

- It is urgent that infested wood be disposed of properly to prevent the spread of contamination to other trees in your neighborhood.
- Recommended disposal methods include, chipping the wood and bark, burning, burying, or removing all bark from wood and stump. This will help prevent infestations from spreading.
- Following are tree species that should be removed if infected and/or infested:

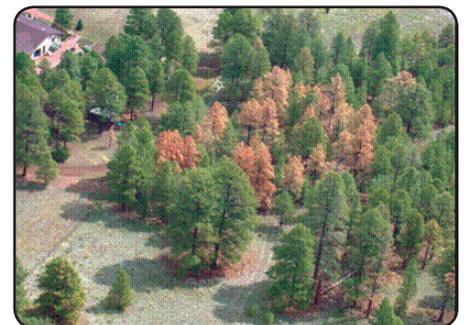
Red or Pin Oak	Oak Wilt, Two-lined Chestnut Borer
Bur or White Oak	Two-lined Chestnut Borer
Elm	Dutch Elm Disease, Elm Bark Beetles
Pine or Spruce	Bark Beetles
Birch	Bronze Birch Borer



Oak Wilt Symptoms



An Elm succumbed to Dutch Elm Disease.



The spread and destruction of the pine bark beetle.

