Beech Bark Disease

A Complex Disease Damaging our Forests

Beech Bark Disease (BBD) is the outcome of an insect-fungus complex, which results when a non-native beech scale insect (*Cryptococcus fagisuga*) feeds on beech bark, creating cracks through which native canker fungi (Nectria canker) can enter into the tree. 50-85% of infected beech trees will die within 10 years of infestation.

The scale insect comes from Europe and was first introduced into Nova Scotia in the late 1800s. BBD is present throughout the New England states and maritime provinces, and has moved through the natural beech tree range. It arrived in western Michigan in the late 1990's so we have been dealing with it here for over 2 decades.

Beech bark disease is found on American beech (*Fagus grandifolia*) and to a lesser extent on European beech (*Fagus sylvatica*). Trees are at an increased risk for BBD when there is a nutrient imbalance in the forest. Weather conditions, such as drought, temperature or autumn rainfall, also affect beech scale populations and therefore BBD. Some beech trees may exhibit a resistance to the scale insect.

Infestation begins when the non-native beech scale insect, *Cryptococcus fagisuga*, arrives and rapidly proliferates.

When the scales reach high population densities, severe attacks by *Neonectria* fungus begin, resulting in 50–85% mortality of large beech trees within 10 years of infestation by the scale insect and fungi.

Beech trees are an important food source for many species of birds and mammals. Their importance increases in the northern part of their range where hickory trees are rare. Beech trees cast dense shade which helps to keep soil temperatures and streams cool.

Scales attach to and pierce bark to feed on sap.

Beech scales (white) attached to bark. Larvae of twice-stabbed lady beetles (black) and adults feed on the scales, but cannot control major outbreaks.

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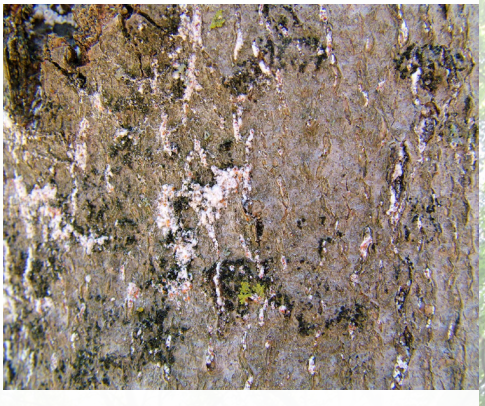
In the forest, thinning out less healthy trees can help reduce mortality rates. Retain vigorous trees with smooth bark. Identification of potentially resistant trees is important for decreasing the long-term susceptibility and vulnerability of forests to beech bark disease. Vigorous trees and trees with smooth bark will have fewer sites suitable for beech scale establishment and 7 may be more resistant to Nectria invasion.

In parks and landscapes, high value trees can be protected with treatments, and by avoiding or alleviating environmental stresses such as soil compaction, drought and nutrient deficiency.



Black exudates oozing from bark indicates infection with Nectria fungi. If the infections are widespread on the tree it is probably too late to save it.

Initial Treatment

Inspect trees to determine the extent of infection, and the health of the tree before treating.

Inject Phyton 27 fungicide to control nectria.

Spray all bark surfaces with oil/pyrethroid solution to kill scales and prevent new crawlers from attaching. Since spraying a mature tree is not always a feasible option, we often have to substitute a systemic insecticide treatment with Tristar 8.5 SL. If you are already injecting a fungicide, Tristar can be mixed with the fungicide solution.

Aftermath of forest invaded by beech bark disease.

Maintenance Treatment

Monitor the tree for signs of re-infestation. In areas of high insect pressure the tree may need annual maintenance treatment.

Maintenance treatments are directed at controlling the scales.

We recommend Tristar 8.5 SL as a basal bark treatment for best residual control of scales. Add Kinetic surfactant to increase penetration of bark.

Always read and follow the label.