



More experience with beech bark disease in Michigan will be needed to confirm these patterns. Efforts to identify and select resistant and partially resistant trees will be a critical part of reducing the long-term vulnerability of beech to beech bark disease.

Managing Beech Bark Disease

Factors that affect development of beech bark disease include species composition and density of stands, and the size, age and vigor of trees within a stand.

Selecting a proper management strategy depends on the disease status of the stand, as well as your management objectives. Management guidelines are presented here for stands that are (1) not yet infested by beech scale, (2) within the Advancing Front, (3) within the Killing Front and (4) in the Aftermath Forest. If your stand is within roughly 6 miles of a stand that is affected by beech scale or beech bark disease, treat the stand as if it were part of the Advancing Front.

Stands Free of Beech Scale

If your stand is beyond the Advancing Front, consider the potential vulnerability of the stand when you develop plans for thinning, harvesting or other silvicultural activities. Stands that are dominated by beech (i.e., 50 percent or more basal area) will be highly vulnerable to damage, especially if large or decayed trees are abundant. On the other hand, if beech is a minor component of the overstory, effects on the stand will be less severe. Management guidelines are presented separately for these situations.

If beech is a minor component of the overstory:

Generally, it will not be necessary to enter these stands specifically for beech bark disease control, but managers should consider the potential impacts of beech bark disease when setting up scheduled thinning or harvest operations. In this situation, mortality of beech trees may simply

function as a selective thinning. Growth of other species will typically increase in response to increased availability of light, water or nutrients, especially in well-stocked stands (i.e., basal area of at least 90 ft²/acre). Beech thickets are not likely to be a severe problem in well-stocked stands because most root sprouts will be outcompeted by other species. Mortality of scattered large beech trees may increase the habitat available for birds, mammals and other wildlife.

If beech is a major component of the overstory:

If beech accounts for more than 40 to 50 percent of the basal area in a stand, effects of beech bark disease may be severe. Preventive management can reduce the susceptibility of the stand to the eventual beech scale invasion and reduce the vulnerability of the stand to beech bark disease. Appropriate actions will depend on the existing condition of the stand, the management objectives for the stand and the proximity of the stand to the Advancing Front.

Consider reducing the amount of overstory beech present in the stand. It is not necessary or desirable to eliminate beech from a stand. However, increasing tree species diversity provides more management options and may reduce rates of beech scale reproduction and spread. Beech is relatively shade tolerant and often is outcompeted by other species in large canopy gaps where the ground is exposed to sunlight during much of the day. Birch, black cherry, red maple or other shade-intolerant species will grow faster and overtop beech reproduction. Beech is avoided by browsing deer, however, and browsing may decrease successful regeneration of more favored species in areas with high deer numbers. Leaving large snag or den trees to enhance wildlife habitat does not significantly increase the risk of tree loss from beech bark disease.

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