

Pest Alert

Beech Leaf Disease

Beech leaf disease (BLD) is a novel disease affecting American beech (*Fagus grandifolia*) in North America. Symptoms of BLD have also been observed on European (*F. sylvatica*), Oriental (*F. orientalis*), and Chinese (*F. engleriana*) beech species, which are occasionally planted as ornamentals. The disease has recently been found in areas throughout the northern edge of the range of American beech. Recent detections in tree nurseries have caused significant concern among forest managers, homeowners, and nursery growers. BLD symptoms have been shown to be associated with a newly recognized subspecies of the anguinid nematode *Litylenchus crenatae mccannii*. Nematode infection mechanisms are not fully understood, but research indicates that the nematode is associated with buds and leaves of beech of all age classes.

Identification and Description

Early symptoms of BLD include dark stripes or bands between lateral veins of leaves that are visible immediately upon bud break in the spring (figure 1). Affected leaves may be unevenly distributed in the lower canopy. Banding is most apparent when viewed from below, looking upward into the canopy. Leaves with severe symptoms are heavily banded, shrunk, and crinkled with a thickened, leathery texture (figure 2) that often leads to chlorotic banding later in the season (figure 3). Aborted bud development and premature leaf drop result in a thinning of canopy cover over time. Tree mortality of all age classes has been occasionally observed within 2 to 7 years but appears to be more common for smaller trees.

Current Range

Symptoms of BLD were first observed in northeast Ohio in 2012 and have since been detected in Connecticut, Massachusetts, New Jersey, New York, Pennsylvania, Rhode Island, West Virginia, and the Canadian Province of Ontario (figure 4). The recent increase in BLD detection may be a result of increased search efforts in addition to true spread.

BLD appears to be spreading, particularly from west to east based on the number of new county detections in 2019 and 2020. Insect or avian vectors as well as human-mediated movement of the nematode are possible modes of its dispersal that are currently being studied. There is likely a delay between initial nematode infestation and BLD detection as *L. crenatae* has occasionally been confirmed in asymptomatic tissue at the molecular level.



Figure 1.—Banding appearance associated with BLD. (Courtesy photo by Tom Macy, Ohio DNR)



Figure 2.—Banding appearance and shrunk leaves associated with BLD. (Courtesy photo by Cleveland Metroparks)



Figure 3.—Advanced symptoms of BLD with chlorotic striping. (Courtesy photo by Cameron McIntire)

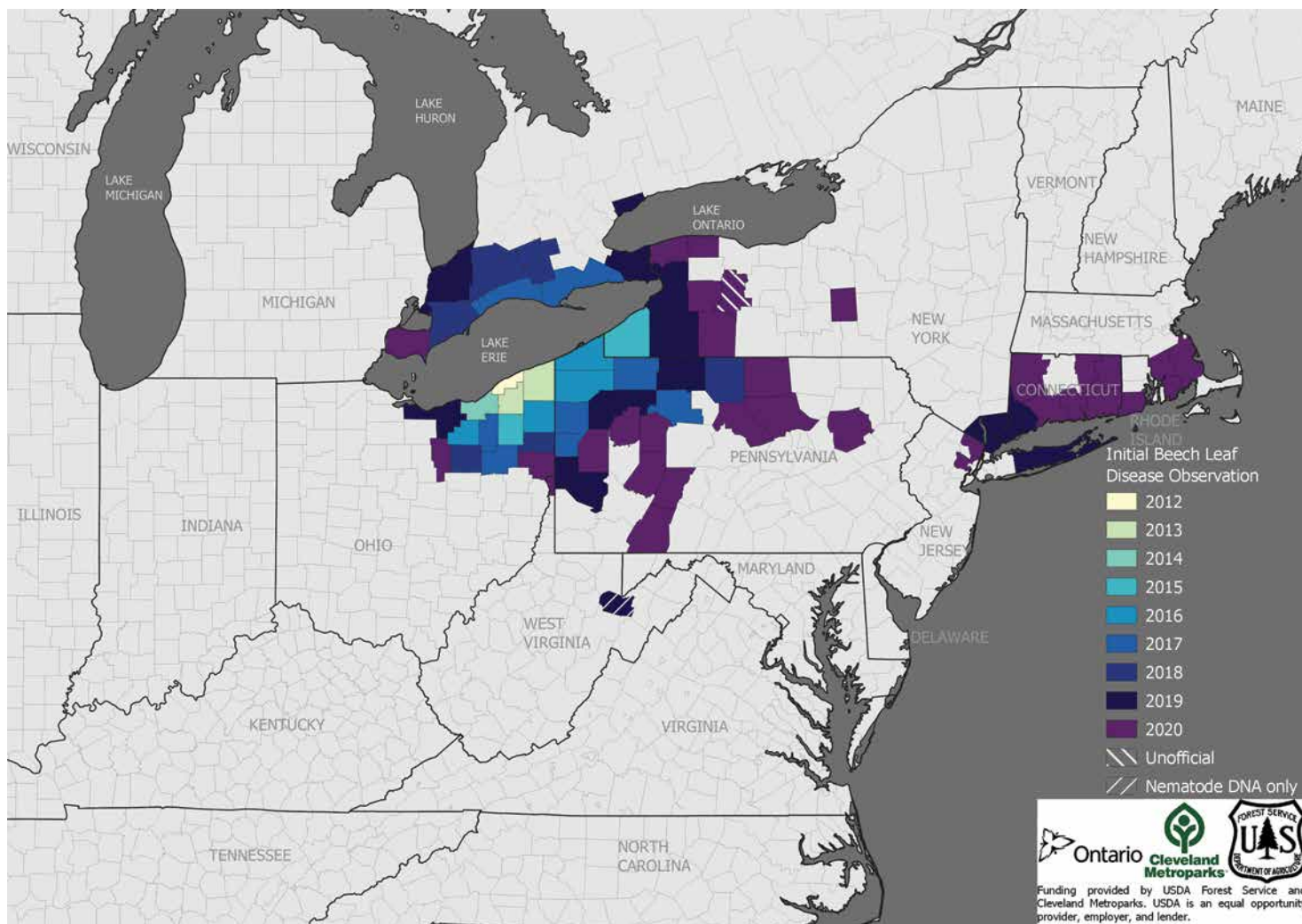


Figure 4.—Known range of BLD. (Map courtesy of Cleveland Metroparks)

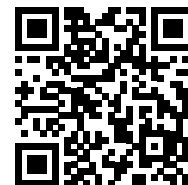
Management

No treatments are currently available for trees affected by BLD; however, several methods are being studied. Common mitigation strategies are likely to be effective at reducing the incidence of BLD and decreasing the likelihood that it is moved to new areas. Those include destroying infected plant material after removal and avoiding transporting plant material, including branches, twigs, soil, leaves, and whole seedlings, from affected areas. Pruning infected landscape trees may decrease foliar surface moisture and thus disease severity.

Be on the Lookout

Please contact your local forest health specialist if you observe symptoms of BLD. You can also report symptoms using Tree Health Survey,

which can be accessed using the QR code to the right or by visiting <https://treehealthapp.cmparks.net>. This app trains users how to identify beech trees and beech leaf disease symptoms. You can use Tree Health Survey to record the location and symptom severity of diseased trees as well as submit photos.



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