



## Butternut canker (*Ophiognomonia clavignenti-juglandacearum*)

**Hosts:** Butternut (*Juglans cinerea*)

**General Information:** Butternut canker is caused by the non-native butternut canker fungus *Ophiognomonia clavignenti-juglandacearum*, formerly known as *Sirococcus clavignenti-juglandacearum*. The disease affects butternuts throughout their native range and is gradually eliminating the butternut tree, since the species has very little, if any, resistance to the disease. Butternut trees have specific soil requirements and only grow naturally in certain areas in Maine, with populations more abundant in the southern parts of the state, but reaching as far north as Houlton, Maine. Some butternuts can be found in areas further to the north, but these are rare and often are planted. The fungus that causes butternut canker spreads by rainsplash and wind during wet weather and insects may also be involved in spore dispersal.

**Symptoms and Signs:** Cankers appear as elongated, often diamond-shaped dark regions on thicker bark of the main stem and may appear moist. The outer bark at the canker margins on thin-barked parts of the tree often separates forming a papery margin (see figure inset). Small black spore-producing structures may be seen on canker margins. Cankers are often numerous and join together (coalesce) and girdle branches and eventually the main stem of trees. Numerous cankers are also often noticed on root flares.

After initial infection, the decline in health and death of butternut trees is often gradual, with trees often persisting for several years, but showing progressive dieback. This chronic primary stress often leads to secondary issues. Armillaria root disease (*Armillaria* spp., shoestring rot) is often found on trees that have been infected with butternut canker for several years. Other contributing factors tend to accumulate as part of the decline process and can hasten the mortality of trees under significant pressure from butternut canker.

**Management:** There are no methods to prevent butternut canker from infecting butternut trees, nor is there a cure for the disease. Unfortunately, the recommendation is to use the wood when the tree begins to noticeably decline due to the disease and other inciting factors. One reference suggests that when an infected butternut tree shows crown dieback of more than 30% and/or cankers occupy more than roughly 20% of the tree's circumference<sup>1</sup>, the tree should be utilized. The loss of this ecologically unique and important nut-producing tree is concerning and some efforts have been initiated to identify resistance, however limited resources are available for this work.

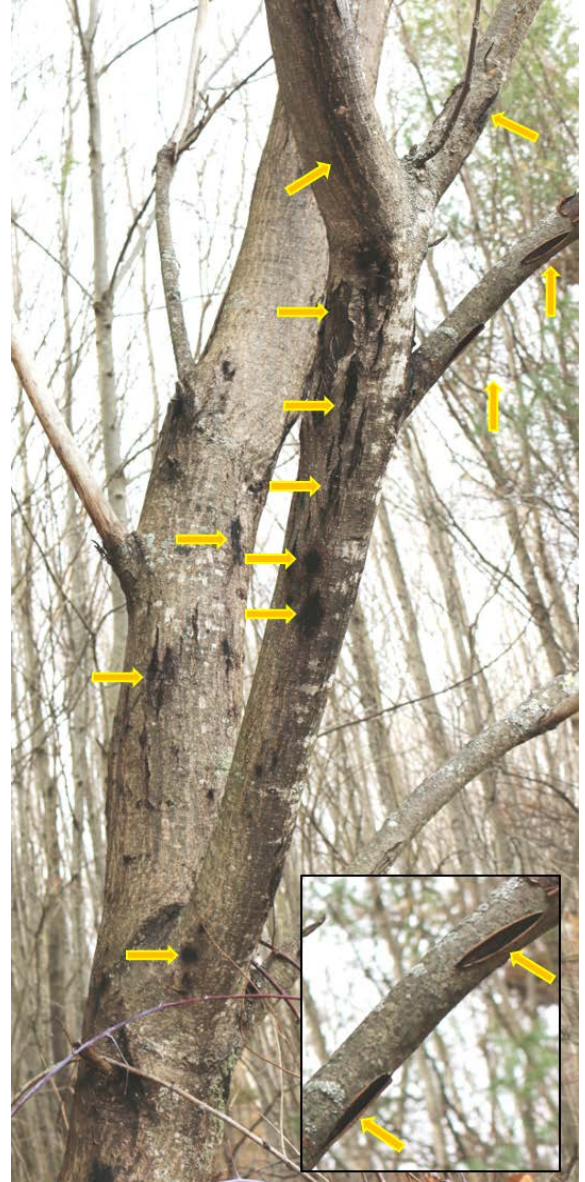


Figure: Orange arrows pointing to some of the black, oblong cankers on a young butternut tree; (inset) Arrows pointing to the papery canker margins of two branch cankers. Images: Maine Forest Service.

1. Ostry, M.E.; Mielke, M.E.; Skilling, D.D. 1994. Butternut-strategies for managing a threatened tree. Gen. Tech. Rep. NC-165. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station. 7 p.