beech bark disease (*Neonectria galligena)*

cankers on bark of beech tree

tiny red perithecia (fruiting bodies of the fungus on the cankers)

beech bark disease

Neonectria galligena

Beech bark disease is a canker disease caused primarily by *Neonectria galligena*. Entry of the pathogen is facilitated by the beech scale insect, *Cryptococcus fagisuga*, in which the scale insect inserts a stylet (needle-like mouthpart) into the bark and into the underlying live tissues where sugars and other nutrients are sucked into the insect. These wound sites are available for colonization by the nectria fungus which produces spores that are transported passively by insects or wind. Under the right conditions spores germinate and enter wounds created by the scale insect.

The scale insects produce white, waxy filaments which form a small but noticeable waxy crust on tree trunks. The white wax secreted by the beech scale is the first sign of the disease. Isolated dots of white "wool" appear on the bole of the tree on roughened areas of bark, beneath mosses and lichens, and below large branches. Eventually the entire bole of the tree may be covered by the waxy secretion as the insect population increases. It is probable that great numbers of scales feeding on the liquids of bark cells can materially weaken a tree. The scale insects that reside beneath this waxy material are a pale yellow color. The insect lays eggs in the summer which soon hatch and the young crawlers move into bark fissures or may be carried to other trees by wind or wildlife.

The scale insect and fungal pathogen work in combination to kill patches of inner bark. An area recently infested with beech scale may not become cankered for several years, eventually the Nectria fungus becomes established and form cankers. Nectria kills areas of woody tissue, sometimes creating cankers on the tree stem and large branches. If enough tissue is killed, the tree will be girdled and die. Many beech trees die but others do survive in spite of severe canker development.