



Forest Health *Notes*



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White Pine is battling an insect and disease complex

Eastern white pines (*Pinus strobus*) in western North Carolina are showing signs of a two-pronged attack from a native insect and tree disease. The two culprits are the eastern white pine bast scale (*Matsucoccus macrocitrices*) and a canker (*Caliciopsis pinea*). This combination has become evident throughout the year and has caused concern among landowners who have white pine on their property. Although both are native, there's been a considerable increase in tree damage and mortality over the past decade.

The white pine bast scale is a tiny insect that is difficult to see without using a hand lens. White pines are the only host for this scale and the insect prefers to establish itself on areas of the tree where it's protected. Preferred areas include branch nodes, where the branches are attached to the main stem, and hiding under lichen that is growing on the tree. The scales also prefer smoother bark rather than rougher bark found on older portions of the white pines. Tree damage caused by the insect occurs when it uses its stylet to penetrate the bark to feed on the nutrients of the tree. Once the scale dies, the canker disease can attack the tree through the insertion point. Dieback begins to appear in white pines after the *Caliciopsis*



White pine bast scale located under lichen. Photo by Elly Voigt and Linda Williams, Wisconsin DNR



canker becomes well established at previous feeding sites and starts killing small areas of the branch or main stem. Eventually, enough cankers will form and prevent certain sections of the tree from getting any nutrients.

Eyelash like fruiting bodies associated with Caliciopsis Canker. Photo by Elly Voigt and Linda Williams, Wisconsin DNR

This causes branch mortality and can eventually cause the tree to die.

There are several indicators to look for when determining if the insect and disease complex is present. The initial symptom is dieback on the lower branches which is most noticeable during spring and early summer. The needles turn red and the branches progressively die from the ground up. The progression can be observed over several years of attack. Another thing to look for is significant sap flow between the whorls of branches and fruiting bodies emerging from the cankers. These fruiting bodies are typically located on smooth bark and can be found throughout the year. They look like tiny eyelashes emerging from the bark and a hand lens is helpful when confirming these bodies. Lichens have very similar fruiting bodies, so it's crucial to make sure these structures are protruding directly from the bark.

Currently, there aren't any reliable management recommendations, and this complex appears to be most severe on white pines at the forests edge or growing in the open. It is unknown how quickly this will spread throughout the rest of the stand and research to try and develop potential management options for this insect and disease complex is ongoing.



*A tree affected by the insect and disease complex described in this Forest Health Note.
Photo by Brian Heath, NCFS.*



Mortality due to white pine bast scale and Caliciopsis Canker. Note the damage is on the forest. Photo by Brian Heath, NCFS.