

Under the Scope: White Pine Needle Discoloration

What is wrong with the white pines?

This question has been frequently asked in recent years, but unfortunately, there is no simple answer.

While it might be common, even normal, for a white pine tree to hold only one season's needles through the winter, if shoot growth is also stunted, the overall foliage may appear unusually thin. Poor shoot growth may be an indication that the tree is losing vigor.

Contributing factors may include increasing **competition for resources, site, or environmental issues** — drought, excessive rainfall, flooding, exposure to chemicals such as chlorinated water, lawn herbicides, excessive fertilization, or de-icing salt used on roads or from hurricanes. In some areas, injury observed during the 2012-2013 winter may be due to salt spray carried inland by from Hurricane Sandy.

Keep in mind that white pines are also highly susceptible to some **air pollutants**, and when needle tip browning is very uniform, it may be much more likely to be due to an abiotic factor than pest problem.

Damage due to exposure to high levels sulfur dioxide or ozone from point sources may vary from year to year depending on weather conditions or even prevailing wind direction at the time of release. This type of damage may be very difficult to distinguish unless other highly susceptible plants in the same area develop characteristic symptoms.



Far and near views showing discoloration of 2012 needle tips.



Brown Spot fruiting bodies erupting through the needle surface

Disease issues occur as well. In the late 1990's, **Canavirgella Needlecast** was diagnosed in Connecticut. This disease can be a bit difficult to diagnose as the fruiting bodies may be present for only a short period of time and do not stand out well on the needle surface. To diagnosis Canavirgella, we prefer samples of small branches from suspect trees beginning in late August through September. It is important that the branch tissue still holds some of the previous season's needles as the fruiting bodies will develop on those needles. .

A second disease that appears to have become more prevalent on white pine is **Brown Spot Needle Blight**. Known for many years as a potentially severe pathogen on many 2- and 3-needle pines, over the past few years, we started receiving samples of infected white pines as well.

Don't forget to look for other issues! White Pine can have additional needle diseases, stem cankers or root diseases, and numerous arthropod pests such as mites, scale, adelgids and aphids. And in some areas of the Northeastern U.S., pine wilt (or pine wood) nematodes may invade and slowly kill white pine as well as other pine species.

For a detailed description of Canavirgella please see CT. Agr. Exp. Station fact sheet: *Canavirgella Needlecast of White Pine*: http://www.ct.gov/caes/lib/caes/documents/publications/fact_sheets/plant_pathology_and_ecology/canavirgella_needlecast_of_white_pine_04-10r.pdf

A Pest Alert from the USDA Forest Service provides additional information on both pathogens including a discussion of severe outbreaks occurring in 2010. See: *Eastern White Pine Needle Damage* http://na.fs.fed.us/pubs/palerts/white_pine/eastern_white_pine.pdf.



Pine needle scale with a lady bird beetle (photo by Kent Loeffler)