INFORMATION SHEET 24
January 2023

Principal Disease and Insect Pests of White Pine in Maine

Maine Forest Service, DEPARTMENT OF AGRICULTURE, CONSERVATION & FORESTRY,
22 State House Station, Augusta, ME 04333

Growing Eastern white pine in the woodlot can be a rewarding activity both ecologically and economically. Eastern white pine is one of the faster-growing native conifers in Maine and, for this reason, offers a great opportunity to observe forest growth and developmental changes over a relatively short period of time. But as with all living things, white pine is susceptible to a variety of pest problems, including both insects and diseases. This fact sheet provides a very brief overview of a few of the most important pests of white pine in Maine. Woodlot managers growing white pine should become familiar with these principal pests so that if problems arise, a rapid identification of the problem can be made, and timely management actions can be taken.

White Pine Blister Rust: The most significant disease of white pine in Maine is the white pine blister rust (below left). This disease was introduced from Europe, and has been present in Maine for approximately 100 years. The disease is of primary significance in young seedling, sapling and pole-sized timber stands. The pathogen is a fungus that infects through the needles, and grows down the branch into the main stem, where it can girdle the stem and kill the tree. This infection process may take several years but the smaller the stem, the more quickly infections result in mortality.

The fungus has a complicated life cycle. It lives alternately on white pine, and on species of both wild and domesticated varieties of currants and gooseberry plants (*Ribes* spp.). When occurring on white pine, the fungus cannot re-infect white pine, but can only infect the currant host. The fungus spores produced on the currant host can infect white pines. Thus, by removal of the currant hosts, the infection of white pines can be prevented.

Removal of the currant hosts from within 900-1000 feet of the pine stand will greatly reduce infection levels. Branches that have become infected, but in which the infection has not yet reached the main stem of the tree, can be pruned to prevent tree mortality.

White Pine Needle Casts: Several white pine needle cast (right) diseases have long been known to occur in Maine (right). Most recent damage has been shown to be caused by the brown spot pathogen, but two other fungi are also common. During the past several years, an increased incidence and severity of needle casts has been observed, probably as a result of the excessively wet seasons of late. These diseases have been observed on white pine throughout the state, but have been most severe in western and southern counties.

For brown spot, current-season needles become infected and, over the course of a year, become yellow and eventually turn to brown. The needles are then shed during the following spring. Management options are limited, but include maintaining healthy crown development with appropriate thinning protocols. Adequate spacing will also promote more rapid drying of needles, although in very wet years this may be of little help.

***Caliciopsis* Canker of White Pine:** *Caliciopsis* canker (left) can be a damaging disease in white pine stands in need of thinning, but may be found on weaker understory white pines in any stand. The fungus is considered a weak pathogen in that trees which become infected are usually of low vigor, are suppressed or intermediate in crown class, and are commonly growing in unthinned and overstocked stands.

Symptoms of infection by *Caliciopsis pinea* include excessive stem pitching, which often runs down affected stems in long streaks. The pitching develops from elongate, shallow bark cankers. The cankers usually form in the intermodal regions of the main stem, so are not associated regularly with branch whorls, as is the case with white pine blister rust. The disease progresses fairly slowly, so light to moderately affected stands can be rejuvenated with proper thinning treatments.

White Pine Weevil: The white pine weevil (left) kills the top stem growth of conifers (left) and is the most serious economic insect pest of white pine. Eastern white pine is the primary host, but Colorado blue spruce, Norway spruce, and several other pine and spruce species may be affected. The insect causes damage by the larvae (grubs) feeding on terminal leaders of the host trees. When the terminal growth is killed, often a side branch in the highest whorl of branches will assume the terminal leader position, but this growth results in a stem "crook." The crook lowers the value of the stem for lumber products, and results in a retarding of height growth and development. Multiple weevil attacks over successive years can result in highly deformed and defective trees.

At low infestation levels the prompt removal and destruction (by early July in Maine) of infested leaders before the beetles emerge will reduce the chance of weevil population buildup. After removal of infested leaders, tops of trees should be pruned in such a manner that all but a single dominant shoot at the topmost healthy whorl are removed to encourage formation of a new leader. Partial shade helps reduce weevil attack by reducing temperature and changing bark thickness. Leaving some overtopping hardwoods or other conifers may help protect young pine and spruce from weevil damage when they are most susceptible.

Pine Leaf Adelgid: The pine leaf adelgid (right) is a native insect that occurs on both white pine and spruce species. It is regarded as a very important pest of white pine where it grows adjacent to red and black spruce. It causes galls on the new shoots of red and black spruce and migrates from these to the shoots of white pine. The galls on spruce are unsightly but cause little injury to the tree. However, severe infestations of nymphs on white pine will kill the current-season shoots (right) in late summer, and moderate infestations may cause the shoots to die the next spring.

Red Turpentine Beetle: The red turpentine beetle (left) is a native insect with a host range of over forty conifers. In Maine, common hosts include including white pine, red pine and pitch pine. It is most frequently found on individuals or small groups of trees that have been weakened or otherwise compromised by other damaging agents including other insects, diseases, fire, mechanical injury, logging or other site disturbances. Infestations are concentrated in the lower six feet of the bole and root crown of affected trees. After the adult beetles bore into the stem, a large reddish-brown pitch tube (left) is formed on the outer surface of the bark at the gallery entrance.

For more information, please contact:
Maine Forest Service
DEPARTMENT OF AGRICULTURE,
CONSERVATION & FORESTRY
22 State House Station
Augusta, ME
04333-0022
(207) 287-2791

Be Woods Wise!
Practical advice for your land and trees from the Maine Forest Service.

forestinfo@maine.gov

www.maineforestservice.gov