

Common Forest Insect Pests

Insects are a natural part of the forest ecosystem. They have a part in culling out weak and inferior trees, breaking down and recycling litter on the forest floor, and act as a food source for birds and other animals. However, certain insects can pose a serious threat to tree health. When insects attack valuable trees, killing or weakening them so that other insects or diseases can attack, they are considered pests. More trees are killed each year by insects than by any other cause.

In forestry, insect control measures begin with using good forest management practices to promote vigorous, healthy trees. Healthy trees are less likely to be attacked by insect pests than are weakened or sick trees. However, control measures may become necessary to protect valuable forest resources when insect damage becomes severe. Early detection and diagnosis of problems are important. Only when insect pest problems have been properly diagnosed, can effective control be initiated. Control measures must address the type of insect, the forest type, infestation severity, environmental factors, and cultural concerns. Below are links to assist with the identification and control of the most common or serious insect pests that affect North Carolina's forests. Please seek assistance from your local NCDNR office if you suspect insect problems in your forest.

Defoliators

Defoliators are insects that feed on the foliage (leaves or needles) of trees. These insects harm trees by removing the chlorophyll containing tissues that are responsible for photosynthesis, the process by which light energy is captured by plants to produce food and energy. While many trees can survive defoliation that is minor or infrequent, defoliation can stress trees and make them more susceptible to attack from other insects and diseases. Repeated defoliation can kill trees. Populations of many defoliators tend to fluctuate over time. Outbreaks of insect populations that result in severe defoliation often last only a year or two,

and therefore these pests do not usually kill trees. However, damage in outbreak years can be severe and unsightly.

Look for a lack of foliage, holes or missing areas in leaves, and thin crowns. Many defoliators are moth species, but it is the caterpillar (larval stage) that is most often responsible for defoliation. Caterpillars may be visible, but are often hidden. In addition, some species of defoliators such as the eastern tent caterpillar form conspicuous web-woven shelters.

- [Pine Webworm](#)
- [Pine Sawflies](#)
- [Gypsy Moth](#)
- [Forest Tent Caterpillar](#)
- [Eastern Tent Caterpillar](#)
- [Bagworms](#)
- [Cankerworms](#)

Bark Borers

Bark borers are insects that bore into the bark of trees to feed or reproduce. These insects harm trees by destroying the phloem, a thin layer of cells just beneath the surface of tree bark that transports carbohydrates and nutrients throughout the tree. A tree can be killed if bark borers 'girdle' a tree by destroying the phloem all the way around the stem.

Bark boring beetles are among the most damaging pests in our forests. Bark beetles bore into bark and lay their eggs. When the eggs hatch, beetle larvae feed on the nutrient rich phloem tissue before molting into adults and emerging to attack more trees. Healthy trees are normally capable of preventing bark beetles from entering the bark. However, beetle populations can become so large in 'outbreak' years that even healthy trees succumb to attack. Once beetles overcome tree defenses and bore into the phloem to lay eggs, there is little hope a tree will survive.

Look for small holes in the bark where adult beetles enter to lay eggs or new adult beetles emerge after feeding. Networks of bored tunnels called galleries are

visible when the outer bark is peeled back in infested trees. In the late stages of attack, foliage will begin to turn yellow or red.

- [Southern Pine Beetle](#)
- [Ips Beetles](#)
- [Black Turpentine Beetle](#)

Wood Borers

Wood boring insects are often secondary pests that bore into the wood of dead or dying trees or green logs to lay eggs. Larvae feed on the inner bark and bore holes deep into the wood. While wood borers usually do not directly cause tree death, boring activity can cause degradation of lumber. In addition, boring permits the entrance of fungi that can cause wood decay or discoloration.

Look for holes in the bark formed by emerging adult beetles, and tunnels in the inner bark and wood. Larvae can be present for several years after tree death, and may be exposed by peeling back the bark.

- [Sawyer Beetles](#)
- [Ambrosia Beetles](#)
- [Sirex Wood Wasp](#)

Seedling, Twig and Bud Pests

Many forest insect pests only attack seedlings or the young succulent tissues of small twigs, shoots and buds. Seedlings can be killed, and larger trees can be disfigured. Infestations of these insects can be difficult to identify, and symptoms may be confused with those of other insects or diseases.

- [Pales Weevil](#)
- [Tip Moths](#)
- [Twig Girdlers](#)
- [White Pine Weevil](#)

Piercing/Sucking Insects

Many insects can cause harm to trees by piercing the surface of soft plant tissues and feeding on nutrient-rich sap. In sufficient numbers, piercing/sucking insects can starve a tree by depleting it of the carbohydrates produced from

photosynthesis. If infestations last several years, tree death can result. In addition, many piercing/sucking insects carry pathogens that can also cause tree death or decline.

While many piercing/sucking insects are only minor nuisances that cause little or no harm to trees, several species are among the most destructive forest pests. Unsightly damage can reach unacceptable levels in landscape trees and shrubs, and may threaten economic viability in Christmas tree orchards. The survival of several tree species in North Carolina is currently threatened by piercing/sucking insects accidentally introduced from other countries.

To the untrained eye, many of these insects are too small to be observed directly; or they may be overlooked because of their sedentary nature and the lack of obvious physical damage to plant tissues. The use of a magnifying lens will often reveal the presence of piercing/sucking insects. Look for overall decline in tree health; foliage will often appear to be thin or will lose its normal green color.

- [Scales](#)
- [Aphids](#)
- [Mites](#)
- Gall Makers <http://www.extension.umn.edu/distribution/horticulture/DG1009.html>
- [Hemlock Woolly Adelgid](#)
- [Balsam Woolly Adelgid](#)

Beneficial Insects

Many of our most serious forest insect pests have their own natural insect enemies that can keep populations in check. If it were not for these beneficial insects, our forests would likely not exist as we know them today. Some of the beneficial insects that feed or parasitize upon forest pests here in North Carolina are listed below.

- Checkered Clerid Beetle
- Sasajiscymnus Lady Beetle
- Scymnus Lady Beetles

- *Laricobius* Derodontid Beetle
- *Cerceris fumipennis*
- *Deladenus siricidicola* (nematode)