



Trees in Trouble: Woolly Adelgid



ABOVE: Arborist Matthew Foti treats a hemlock infested with woolly adelgid by drilling small holes every 8 inches around the base of the tree. He twists vials filled with an insecticide into tubes he's hammered into the holes. **BELOW:** The woolly adelgid, a tiny, poppy-seed-size insect, leaves behind telltale white egg sacs.



Arborist Matthew Foti approaches two multitrunk hemlocks that tower above the front of the house. Reaching up to pull a small branch from the tree, he points to a fluffy whiteness on the needles. Early snow? Dryer lint? “It’s woolly adelgid,” he says. “And it’s devastating hemlocks all along the Eastern seaboard.”

According to the the USDA Forest Service, the hemlock woolly adelgid arrived in this country in 1924, most likely from Asia. The sap-sucking insect attaches tiny, cottony egg sacs to the base of needle clusters, depriving them of nutrients and quickly turning the needles brown. Defoliation and death happen fast—often in just a few years. Infestations have occurred from the Smoky Mountains in the Appalachians to southern New England. “For a long time, the adelgid stopped at the Massachusetts–New Hampshire border,” says Foti. “But it’s now gotten as far as Maine.”

Sprays are the most common method of killing adelgid. But according to Foti, “Sprays can wash off in the rain, and the overspray gets on everything from picnic tables to neighbors’ cars.” His preferred method of combat is to treat the trees systemically with an insecticide called Bidrin, which he injects into the tree’s cambium, the outermost layer of cells where water and nutrients climb upward to the top of the trees. “It’s like getting IV drugs in the hospital,” he says.

Foti drills small holes around the trunk’s circumference, then taps in small, hard plastic tubes. Flipping down his face shield, he twists a Bidrin vial onto each tube. “It’s a powerful chemical,” he says, “not something you want to get in your eyes.” (Similar-shaped vials of fungicide or fertilizers can also be applied this way to restore the health of ravaged trees.) The insecticide is carried right up to the topmost needles. “It’s amazingly effective,” he says. “We use the same methods for gypsy moths and when we come back four hours later to remove the vials, it’s raining dead caterpillars.”

The semiannual treatment, which must be done by someone with a pesticide-applicator license, costs from \$200 to \$550 a year per tree. “It’s worth every penny,” he says. “How could you put a replacement value on mature trees like these?”



















Areas infested with hemlock woolly adelgid



TREE-KILLERS ACROSS THE LAND

Several other insects and diseases are on a course to decimate entire tree species, much like the chestnut blight, a fungus that wiped out

the American chestnut in the first part of the 20th century. Here are six of the most harmful threats to native American trees.

Problem	Vulnerable Species	Area at Risk	Description/Treatment
 <p>Exotic boring insects</p>	<p><i>Acer saccharum</i></p>  <p>Many species, including maples, fruit trees, willows, ashes, and oaks</p>		<p>Four insect pests—Asian longhorned beetle, citrus longhorned beetle, emerald ash borer, and red oak borer—bore neat holes in the trunk and limbs of affected trees. Infested trees are removed and burned to curb their spread. Systemic injections of insecticides have been promising.</p>
 <p>Sudden oak death</p>	<p><i>Quercus prinus</i></p>  <p>Oaks, redwoods, and Douglas fir</p>		<p>An exotic fungus discovered in 1995. Leaves on diseased trees turn brown and the lower trunk "bleeds," leaving bark darkened by the dried ooze. Sudden oak death is quickly killing coastal oaks and other species in California, and has recently spread to redwood and Douglas fir forests all along the Pacific coast. Oaks in the South and East are at risk as well. No known cure.</p>
 <p>Dogwood anthracnose</p>	<p><i>Cornus florida</i></p>  <p>Flowering dogwoods</p>		<p>Origin unknown. Fungal disease causes leaf, shoot, and bud blight. Has killed hundreds of thousands of American dogwoods in the East and Pacific dogwoods in the West. During drought, water trees at trunk, not overhead, and improve air circulation to keep foliage dry. Fungicides applied in spring are effective.</p>
 <p>Gypsy moth caterpillar</p>	<p><i>Quercus rubra</i></p>  <p>Most oaks</p>		<p>Introduced in late 19th century from Europe. Caterpillar feeds primarily on oaks and aspens but will eat hundreds of plants, defoliating entire trees. This can weaken them and cause ill-timed late-season refoliation, which saps nutrient reserves; subsequent annual defoliation can cause death. Sprayed and systemic insecticides can prevent defoliations, but can also kill the moths' natural predators and parasites.</p>
 <p>Southern pine beetle</p>	<p><i>Pinus taeda</i></p>  <p>Southern pines</p>		<p>Females of this native bark beetle bore into trees, attracting large infestations and weakening trees' defenses. Recent drought has resulted in one of the worst outbreaks in history. Infected or fallen trees must be removed and destroyed immediately. Some insecticides have proved effective.</p>
 <p>Dutch elm disease</p>	<p><i>Ulmus americana</i></p>  <p>American elm</p>		<p>Beetle-borne fungus causes leaves to wilt, brown, and shrivel. Disease, first identified by Dutch scientists, has wiped out hundreds of thousands of elms across the country over the last 70 years. A newly evolved supervirulent strain is killing many previously unaffected elms (particularly in the Midwest). Pruning newly infected limbs helps, and systemic fungicides are effective preventatives. There is no known cure once it reaches a tree's trunk and roots.</p>