

# THE PINE BARK ADELGID

By Douglas C. Allen

While working in some white pine plantations this summer, I ran across a few unusually heavy infestations of this common, aphid-like insect. It occurred to me that many landowners in New York who have white pine on their property undoubtedly encounter the pine bark adelgid (*ah-dell-gid*) and may be curious about its identification and significance.

## APPEARANCE

Infestations of the pine bark adelgid are very conspicuous. Once the insect settles down and begins to feed, it excretes a white, cottony-like wax over its body. Heavily infested sections of tree trunks and the underside of large branches look as if white-washed (Fig. 1).

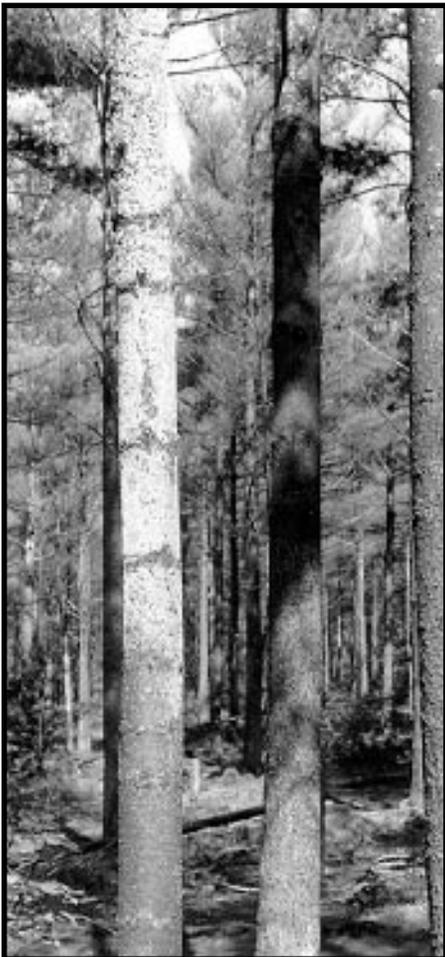


Fig. 1. The trunk of the white pine on the left is heavily infested with pine bark adelgid. Compare this to the two adjacent, uninfested trees.

## BIOLOGY

Adelgids comprise a small group of sucking insects that are confined to needle-bearing trees and are closely related to true aphids. Many species have complicated life cycles and utilize more than one host; a life stage or stages occurring on pine, others on spruce... The pine bark adelgid is found predominantly on the smooth-barked stems and branches of white pine only, and its life history is relatively straight forward. It overwinters as an immature female (as is the case with many species of adelgids, males are rare in populations or are lacking altogether) on white pine bark. Females mature in the spring and deposit eggs beneath their wax covering (Fig. 2). After emerging from the egg, the first stage nymph (called a "crawler" because it is the only stage with functional legs and capable of dispersing) roams over the surface of the bark until it locates a suitable place to insert its thread-like mouth parts. The insect feeds by removing fluids from cells located just beneath the bark. These cells constitute a tissue called phloem (*flow-um*), which is used by plants for the downward transport of food produced in the foliage through the process of photosynthesis.

Most adults are wingless and remain on the host from which they originated. Wind and possibly birds may inadvertently transport a few individuals from tree to tree.

## INFESTATIONS ARE SPOTTY

Typically, infestations consist of single trees scattered throughout a stand or, occasionally, the populations encompass a small group of trees. We do not know enough about the adelgid's biology to explain why one tree can be heavily infested and the insect is totally absent from an adjacent tree of the same size.

This pattern may be explained by the insect's reluctance to disperse once a colony becomes established. Also, it is quite possible that the species is adapted to a very narrow range of microclimatic conditions and/or is attracted to a unique set of physical and chemical properties that make some trees more susceptible to an infestation than others. Smooth bark appears to be the only obvious common denominator of infested trees. White pine in all crown positions and diameter classes are susceptible.

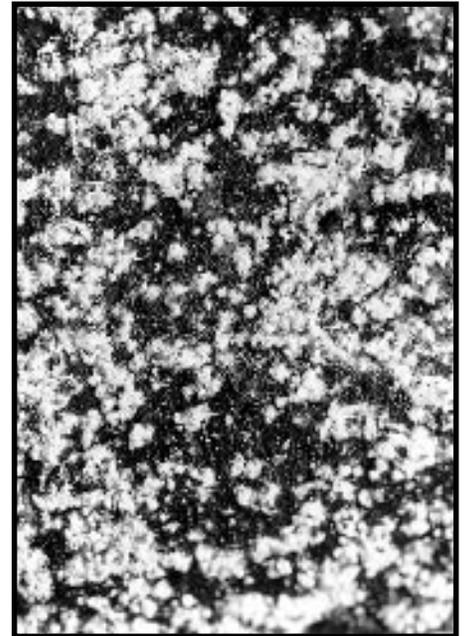


Fig. 2. Close-up of the waxy covering excreted by adelgids.

## CONSEQUENCES OF AN INFESTATION

Past experiences with this native adelgid suggests that infested trees are not permanently damaged. The principle impact is aesthetic once populations become high enough to detract from the appearance of white pine in parks, recreational areas or individuals used around homes as ornamentals. ▲

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