



## Pine Bark Adelgid

Pine bark adelgids overwinter predominately as immature females. By early spring, the mature female begins to produce a coating of woolly wax. Damage includes shoot and branch injury.

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**Tree with pine bark adelgid infestation on the branches and trunk. Courtesy of Brian Schildt, PDA**

*Pineus strobi* (Hartig)

### Hosts

- Eastern white pine
- Sometimes on Austrian and Scotch pine

### Damage Potential

- Low-moderate (pest seems to have decreased since appearance of multicolored Asian lady beetle)

### Symptoms and

### Signs

- Small clumps of white, woolly wax on candles, branches, or trunks of discolored, stunted, weakened, or dying trees
- Yellow- or purple-colored insects under woolly wax
- Dark blue to green, wool-covered nymphs on growing branches (in May-June)

### Causes of Similar Symptoms

- Balsam woolly adelgid

## Identification

A tree heavily infested with pine bark adelgid may have the look of snow on its branches and trunk (Figure 1). However, in Christmas tree production, infestations seldom reach this stage. Instead, buds, elongating candles, and needle bases will have the white, woolly mass if pine bark adelgid is present. This mass may contain a nymph, a wingless, purplish adult female (about 1/32 inch long), or up to 25 light yellow-brown eggs. Winged forms may be present during the growing season.



Figure 1. Tree with severe adelgid infestation. Courtesy of USDA Forest Service Northeastern Area Archive, Bugwood.org (#1396093)

## Biology and Life Cycle

Pine bark adelgids overwinter predominately as immature females (Figure 2). By early spring when temperatures reach 50°F, the female is mature and begins to produce a coating of woolly wax (Figure 3). She deposits about 25 eggs under the woolly mass before dying. When the crawlers emerge from the eggs, they move to a new location and begin to feed. Once they have inserted their mouthparts into the bark, they are no longer capable of movement.



Figure 2. Nymph on elongating candle. Courtesy of Rayanne D. Lehman, PDA



Figure 3. Protective waxy, woolly covering produced by mature females. Courtesy of Lacy L. Hyche, Auburn University, Bugwood.org (#1540233)

Both winged and wingless adults result from the next several generations. Winged forms will fly to adjacent trees, while wingless forms remain on the same trees. Five generations are thought to occur each year, but all stages may be present at any given time during the growing season.

## Calendar of Activities

|                    | Jan.                                 | Feb. | March                                  | April                             | May | June | July | Aug. | Sept.                                   | Oct. | Nov. | Dec. |  |
|--------------------|--------------------------------------|------|--|-----------------------------------|-----|------|------|------|---|------|------|------|--|
| Symptoms           | [Symptoms present from Jan. to Dec.] |      |  |                                   |     |      |      |      |   |      |      |      |  |
| Monitor            |                                      |      |  | [Monitoring from April to Oct.]   |     |      |      |      |   |      |      |      |  |
| Mechanical Control |                                      |      | [Mechanical control from March to May] |                                   |     |      |      |      | [Mechanical control from Sept. to Nov.] |      |      |      |  |
| Spray Control      |                                      |      |  | [Spray control from April to May] |     |      |      |      |   |      |      |      |  |

## Monitoring and Management Strategies

### Plantation Establishment

- Do not plant eastern white pine, particularly if mature Austrian and Scotch pine are growing nearby.

### Preseason

- Scout for overwintering blue-green nymphs under white, woolly wax.

### Growing Season

- Scout for this pest during the entire season on susceptible trees of all ages.
- Growing degree days: Dormant control of overwintering immatures should occur at 22–58 GDDs.
- Threshold level: No threshold has been established. Treat infested trees if adelgids are found on numerous shoots or coating the bark and predators are not present. Many beneficial insects are attracted to pine bark adelgid, so use discretion when applying insecticides for control of this pest. If possible, spot treat infested trees using a backpack sprayer.
- At the end of the season, evaluate results and update records.

## Control Options

### Biological

- Encourage beneficial predators such as dusty wings, hoverflies, and lady beetles (Figure 4). This pest appears to have decreased in occurrence and severity since

the introduction of multicolored Asian lady beetle (*Harmonia axyridis*).



Figure 4. Seven-spotted lady beetle feeding on pine bark adelgid. Courtesy of Sandy Gardosik, PDA

## Mechanical

- No recommendations are available at this time.

## Biorational

- If beneficial predators are present, use insecticidal soap or horticultural oil.
- Dormant oils: Applications made during the fall and early spring that completely cover the trunk and branches will kill overwintering nymphs.
  - Only apply oil when temperatures are above freezing.
  - Oil will remove “bloom,” or blue color, from blue specimens.

## Chemical

- Insecticide: Apply a registered product from mid-April to May when adelgids are active.

## Next Crop/Prevention

- Only plant pest-free trees from a reputable source.

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