



# Forest Health Note

## Pine Needle Sheathminer

(*Zelleria haimbachi*)

### Hosts:

Ponderosa, Jeffrey and Lodgepole pines.

### Importance:

Persistent defoliation by this moth larva, the pine needle sheathminer, can seriously deform the tops of young pines. Trees growing in plantations or in an understory can be infested. After two or more years of defoliation, terminal shoots often die and stems become forked. Forking decreases the potential value of pine as timber and destroys the appearance of ornamental trees. The pine needle sheathminer occurs in both eastern and western Oregon and outbreaks of this defoliator can occur over large areas.

**“After two or more years of defoliation, terminal shoots often die and stems become forked.”**

### Look For:

The characteristic discolored and drooping appearance of damaged needles (Figure 1) and the bare appearance of the terminal shoot (Figure 2) are signs of a pine needle sheathminer infestation.



Figure 1: Pine needle sheathminer damage is characterized by a scattering of brown, broken and drooping needles. Healthy shoots have green needles that are approximately the same length (see insert).

### June - August

Damage initially appears as a few fading needles on the new terminal shoot. Careful examination of the terminal will

show a small amount of silk webbing visible around the base of damaged needles. Needles with feeding damage stop elongating so that infested shoots have needles of variable length. When long needles are severed at the base, they tend to droop. The mixture of fading and drooping needles gives the shoot an unhealthy appearance (Figure 1). Eventually, wind dislodges the severed needles and the terminal looks thin and bare (Figure 2).

### Biology:

The moth stage deposits eggs on current needles from late June to early August.

After 10 days, eggs hatch and larvae bore into the needle where they overwinter. The following spring, after shoot elongation has commenced, larvae bore out of last year's needles and migrate to new growth. Larvae chew small holes in the sheath of young



Figure 2: In the late summer and fall, badly infested terminals lose most of their needles.

needles, causing them to cease elongating and turn yellow. Larvae are very small and most easily seen with the aid of a hand lens. It is estimated that each larva destroys 6-to-10 fascicles (bundles) of pine needles during its development. As larvae move from fascicle to fascicle, they produce a fine silk webbing (Figure 3). It is when larvae are moving between fascicles that they are most susceptible to control with insecticides. Pupation occurs in the webbing at the base of needles in June and July and the cycle repeats itself.

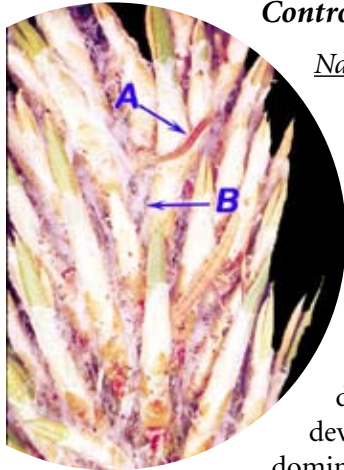


Figure 3: Finding a small larva (A) or fine silk webbing near the base of the needles (B) is an indication of pine needle sheathminer infestation.

#### **Control:**

##### Natural

In forest situations outbreaks usually subside in one to two years and do little damage. If a pine needle sheathminer outbreak persists for more than two years, terminals may die and forks develop in the upper whorls. Trees defoliated for several years develop a rounded crown with no dominant terminal (Figure 4).

##### Cultural

Prune and destroy heavily infested branch tips in early spring before overwintering larvae start to feed.



Figure 4: Pines suffering repeated sheathminer attacks develop forks which cause the tree's upper crown to appear rounded. Forking of the main stem can result in poor tree form and reduced timber value.

##### Insecticides

Sprays should be applied when new needles on the terminal shoot have elongated 1-2 inches.

Insecticides registered for controlling pine needle sheathminer include the following:

- carbaryl (forest and ornamental trees)
- acephate (ornamental trees)

**Remember, when using pesticides, always read and follow the label.**

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