



# Hemlock Woolly Adelgid

*Adelges tsugae*

## Appearance

### Adult

Brownish-orange, typically 0.8mm in length and oval shaped. Has long thread-like stylets used for feeding

### Nymph

Brownish-orange, ranging from 0.4mm to 0.7mm long. Younger nymphs are called 'crawlers'

## Life Cycle

### Generation one

#### Adult (sistens)

emerge in early spring and produce up to 300 eggs

#### Nymph (sistens)

reactivates in late fall and resumes feeding

#### Crawler (sistens)

explore hemlocks searching for feeding location, feeds briefly, then becomes inactive

#### Egg (sistens)

hatch in early to mid-summer

### Generation two

#### Egg (progrediens)

hatch mid-spring

#### Crawler (progrediens)

explore hemlocks searching for feeding location

#### Nymph (progrediens)

once attached to feeding location nymphs become immobile

#### Adult (progrediens)

emerge by early-summer, wingless adults lay up to 125 eggs in place and winged females disperse

**Sistens:** the longer generation, non-winged sedentary or 'still'

**Progrediens:** the shorter generation, with winged mobile and immobile adults



The waxy-woolly material, for which these bugs are named, is created by the nymph as it matures and is believed to provide protection from predators and the elements.

Adelgids have long straw-like mouth parts called a stylet bundle

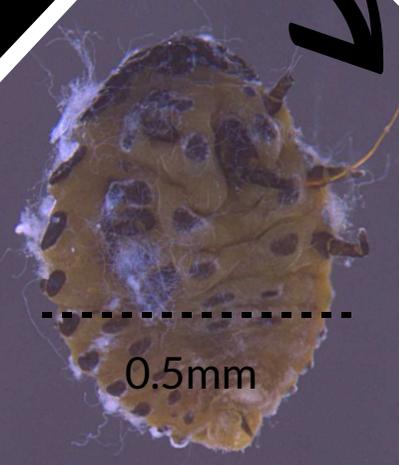


Photo Credit: Elizabeth McCarty, University of Georgia

## Quick Facts!

In the eastern U.S. all hemlock woolly adelgids (HWA) reproduce by parthenogenesis; an asexual form of reproduction where an egg can begin development without fertilization

The winged progrediens females do not reproduce, because the spruce species needed for their reproduction does not exist in the eastern U.S.

HWA target hemlocks and have caused declines of this tree in over half of its natural range, spanning from Georgia to Maine, with concerns it will continue to spread.

Hemlocks provide important ecosystem services and habitat for many endemic species. Systemic insecticides have been an important tool for hemlock conservation.