



HEMLOCK WOOLLY ADELGID

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Overview

- The hemlock woolly adelgid (HWA) is a non-native aphid-like insect
- They are native to Asia and the Pacific Northwest, where they rarely achieve pest outbreak densities because natural predators and host resistance keep HWA populations in check
- They were first found in Richmond, Virginia in the 1950s
- They have piercing sucking mouthparts that extract nutrients from host trees



< 1.5 mm long

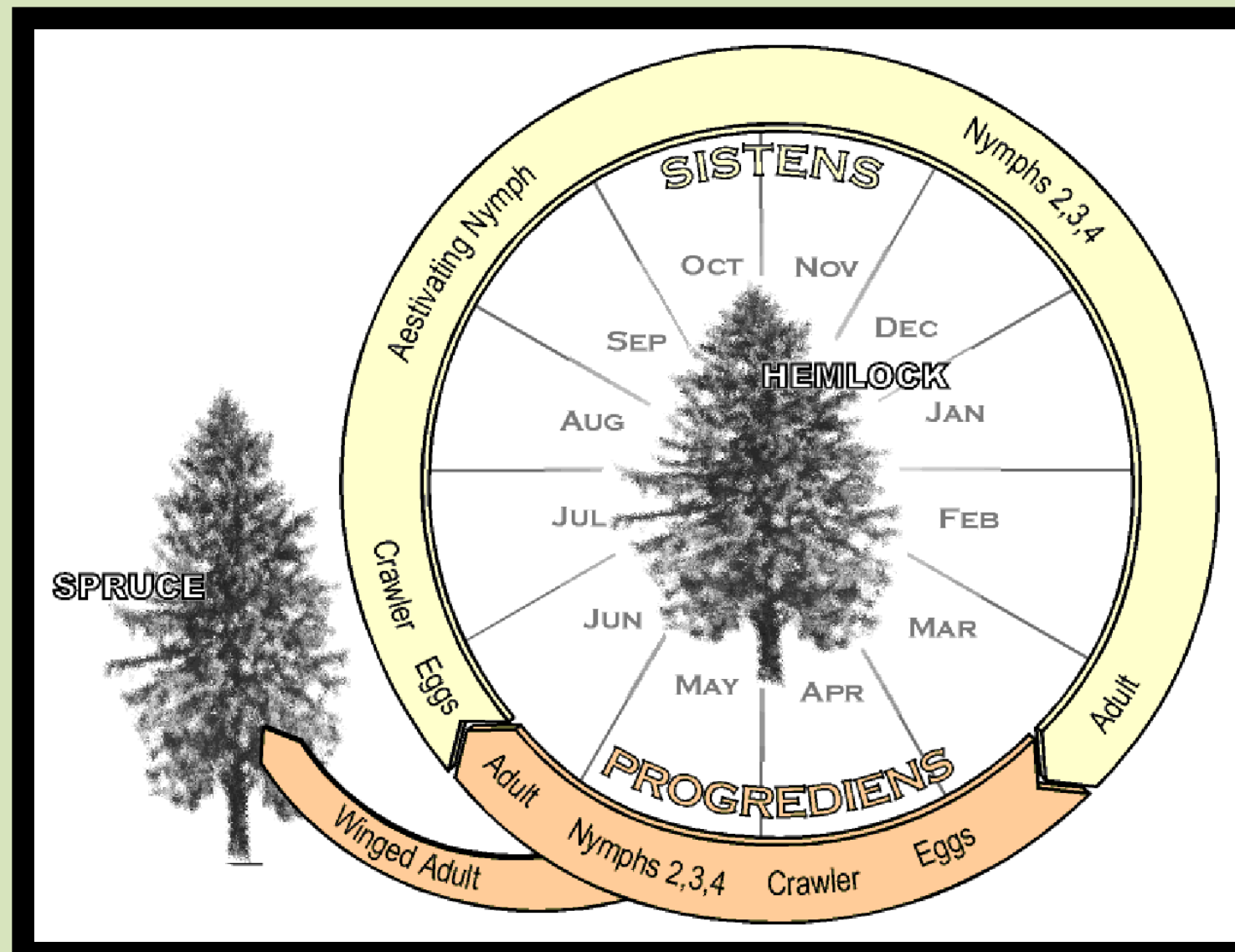
Eastern Hemlock

- HWA is a destructive pest that is a serious threat to Eastern Hemlock trees
- Hemlocks are a shade tolerant species and a vital component of Northeast forest systems. They provide:



- Erosion protection along stream banks
- Shade – unique stream and forest microclimates
- Habitat – food and shelter for many animals

Life Cycle and Biology



- One female in the winter generation produces an average of 200 eggs, of which each female produces on average another 100 eggs. That's 20,000 eggs from one individual female in one year!



- Adelgids have 2 generations/year
- Early spring – females lay 100-300 eggs in woolly egg sacs under branches
- Larvae (crawlers) emerge in spring – active March-end of June
- Crawlers can be transported by wind, birds, mammals to nearby trees
- Become immobile nymphs in July – dormant until October or November and feed from then - early spring
- The insects and crawlers themselves are hardly visible to the naked eye

Symptoms and Impacts

- Hemlock needles will turn yellow and drop prematurely
- Defoliation can occur, and the tree may eventually die
- Damage is usually from bottom up, even though adelgid occurs throughout
- Death of hemlocks is 4-10 yrs., typically 6 yrs in this region
- Populations fluctuate until tree death occurs
- The egg sacs of white material are visible on the underside of branches



Chemical Control

- Chemical control should be applied during the fall or spring.
- Only effective control currently!

Flowchart for chemical control:

- Is the adelgid present on my property?
 - NO: Monitor trees every winter and spring
 - YES: Is the infested tree within 50 ft of water?
 - NO: 1. Treat on your own (soil drench or tablets); 2. Hire licensed pesticide applicator (soil drench, trunk injection, or basal bark spray)
 - YES: 1. Treat with insecticidal soaps or horticultural oils - for smaller trees only; treat with corectect tablets; 2. Hire licensed pesticide applicator (trunk injection or basal bark spray)

Chemical	Professional?	Homeowner?	Water concerns?	Duration
Imidacloprid Soil drench	x	x Bayer Advanced Tree and Shrub; Merit	Yes 50 ft	4-6 yrs
Tablets	x	x Core Tect	Yes, not near standing water	4-6 yrs
Trunk injection	x		No	4-6 yrs
Dinotefuran (Safari) Basal bark spray	x		No	1 yr
Horticultural Oils and Insecticidal Soaps		x (smaller trees only)	No	1 yr

Cultural Control

Around the Home

- Mulch to maintain soil moisture
- Water during periods of extended drought
- Do not apply nitrogen fertilizers, which enhance adelgid survival and reproduction
- Remove bird feeders near hemlocks - birds are known to transport crawlers for long distances
- Clip and burn heavily infested hemlock branches
- Avoid disturbing shallow roots with heavy equipment
- Avoid changing the grade (slope of the land) near hemlocks