

# The River Whisperer

Another voice of the River ...

## *Excerpts from*

### **Autumn is a good time to treat hemlocks for the wooly adelgid ...**

[Clarifying notes added in red]

Hemlocks all over the French Broad Watershed have died due to this pest. Now is a good time to try and save your favorite hemlock trees. The following is an advisory from the North Carolina Cooperative Extension Service.

The hemlock wooly adelgid is a small (1/32 inch), reddish-purple, aphid-like insect that covers itself with a white, fluffy secretion. Some adults have two pairs of wings. Their mouthparts are thread-like and about 1/16 inch long and used to suck sap. Sucking sap from young twigs retards or prevents tree growth and causes needles to turn grayish-green, and drop prematurely. The loss of new shoots and needles is highly detrimental to a tree's health. A tree may defoliate and die within several years.



Eggs are brownish-orange, but darken as the embryo matures. The eggs are also hidden within the white, fluffy secretion. When the eggs hatch, flat, naked, reddish-brown adelgid crawlers move about actively. Once the crawlers settle, they become black with a white fringe around the edge and down the center of the back. Young adelgids live on twigs or at the bases of old needles. They soon secrete a white, fluffy "wool" that completely covers their body. The wingless nymphs resemble adults but are smaller. Infested branches become covered with circular, fluffy, white blobs.

## **Biology**

The hemlock wooly adelgid only survives on hemlock (*Tsuga* sp.). This is an extremely damaging pest of hemlock. This insect is thought to have been transported to North America from the Orient. It has been known in the Pacific Northwest since 1927. In recent years, hemlock wooly adelgid was found in the Northeastern US where it has become a severe pest. It was first reported in North Carolina in 1995. In 2005 surveys show that hemlock wooly adelgid is known to be in most of the counties where *Tsuga* sp. is endemic. Infested hemlocks become covered with dirty white globs of cottony puffs. Infested trees defoliate prematurely and may die eventually. Natural stands of hemlock are at greatest risk for death. [Infested landscape trees also need treatment.]

The hemlock wooly adelgid overwinters as a female within the fluffy mass. Egg laying begins in February. Tiny crawlers hatch from the eggs and settle down to feed. Older nymphs secrete the fluffy, white "wool". Some nymphs develop into a winged form that leaves hemlock to lay eggs on an alternate host such as spruce [not present in the eastern U. S.] The remaining nymphs develop into wingless females that lay eggs in a fluffy mass on hemlock. Wind and animals disperse this insect. The second generation of adelgids on hemlock settle down as young nymphs in July to spend most of the summer as tiny black insects with a white fringe. In October or November, they molt, grow, and produce the fluffy white mass.

## **[Nonsystemic] Control**

The hemlock wooly adelgid is a difficult insect to control because the fluffy white secretion protects its eggs from pesticides. A good time to attempt [nonsystemic] control is in October when the second generation begins to develop. The insecticidal soap and the horticultural oil sprays seem to be very effective for adelgid control with minimal harm to natural predators and parasites of this pest. Horticultural spray oil can be applied during the winter and before new growth emerges in spring. Oil sprays may damage hemlock during the growing season, especially in dry weather.

## **[Systemic] Control**

Registered pesticides containing imidacloprid or dinotefuran [are] useful for specimen [or landscape] trees. These insecticides are systemic and are often applied [via] soil injection. Dinotefuran may also be applied as a trunk spray. For additional pesticides, consult the North Carolina Agricultural Chemicals Manual, "Trees and Woody Ornamentals" Section, Adelgids. Researchers with NCSU, in cooperation with the NC Dept. Agriculture and Consumer Services, are conducting biological control strategies using releases of a tiny Japanese lady beetle, *Sasajiscymnus tsugae* (formerly *Pseudosymnus tsugae*) in hopes of reducing the damage this pest causes to hemlocks. *Scymnus sinuanodulus* and *Scymnus ningshanensis* are two additional lady beetles recently introduced. *Laricobius nigrinus*, a native beetle from western North America is being tested. Similar programs in other states have shown good results.

### **See also:**

#### **2010 Georgia Pest Management Handbook**

[www.ent.uga.edu/pmh/Hm\\_Intro.pdf](http://www.ent.uga.edu/pmh/Hm_Intro.pdf)

[www.ent.uga.edu/pmh/hm\\_orderform.pdf](http://www.ent.uga.edu/pmh/hm_orderform.pdf)

#### ***Sasajiscymnus tsugae***

<http://www.invasive.org/hwa/sasajiscymnus.cfm>

[http://wiki.bugwood.org/Archive:HWA/Sasajiscymnus\\_Lady\\_Beetle\\_from\\_Japan](http://wiki.bugwood.org/Archive:HWA/Sasajiscymnus_Lady_Beetle_from_Japan)

#### ***Scymnus sinuanodulus***

<http://www.invasive.org/hwa/scymnus.cfm>

[http://wiki.bugwood.org/Archive:HWA/Scymnus\\_Lady\\_Beetles\\_from\\_China](http://wiki.bugwood.org/Archive:HWA/Scymnus_Lady_Beetles_from_China)

#### ***Laricobius nigrinus***

<http://www.invasive.org/hwa/laricobius.cfm>

[http://wiki.bugwood.org/Archive:HWA/Laricobius\\_Derodontid\\_Beetle\\_from\\_British\\_Columbia](http://wiki.bugwood.org/Archive:HWA/Laricobius_Derodontid_Beetle_from_British_Columbia)