Harvard Forest Schoolyard Ecology
Hemlock Trees and the Pesky Pest, The Woolly Adelgid

Research Protocol
October 2007

I. Objective:

Students will monitor the status of the Hemlock Woolly Adelgid presence at their schoolyard field site locations. When done annually, and compare to other long term studies on a larger scale, we can begin to see the patterns of HWA spreading regionally and within trees, as well as its impact on forest species distribution, habitat, etc.

II. Background Information:

Background Information: Please see Harvard Forest's Project Overview available on the website at:

http://harvardforest.fas.harvard.edu/museum/data/sy002/hwa-overview.pdf

III. Data Collection:

A. Tree Crown Health: use the correct number code (0 - 3) to record the health of the tree:

0 = All branches are healthy and green
1 = Some branches are bare of needles
2 = Half or more branches are bare of needles
3 = Tree is dead – no green needles

B. Observe the specific branch # (s) assigned.

1. Infestation: Note whether there is wool/egg sacs present on your branch(es) and record a (1) if it is present or a (0) if no wool/egg sacs are present on data sheet.

a. If egg sacs are present, count the sacs in a 10 cm segment where the Adelgid egg sacs appear. If this branch had HWA in the past, compare the density of egg sacs from year to year

2. New Growth: At the start of each school year, measure the length of new growth (light green needles on tips of branches) on each branch in cm. Record length on data sheet. Compare the length of new growth from year to year if measured previously. Note: only measure new growth on the first field visit of each study year.

C. Whole Tree Data: In order to manage multi site long term data, Harvard Forest requests that teachers consolidate branch level data from their site into whole tree format for Harvard Forest to post online.

1. Wool: Record a "1" if there is wool present anywhere on this tree. Record a "0" if there is no wool present.
2. Egg Sacs: Use data from each branch to calculate and record the average number of egg sacs per branch on this tree.
3. New Growth: Use new growth data for each branch to calculate and record the average amount of new growth for this tree.

Field Notes/Comments: Record any notes about field conditions – climate, wildlife, presence of other insects such as spiders or scale insects, other plants, moisture, snow, or human activity – that you notice while collecting data. What other types of trees are nearby and may replace hemlock if it dies?

Contact Pamela Snow, Schoolyard Coordinator, at psnow@fas.harvard.edu or (978) 724-3302 x246 to support your schoolyard research project.