State of Vermont

Department of Fish and Wildlife
Department of Forests, Parks and Recreation
Department of Environmental Conservation
State Geologist
Natural Resources Conservation Council

AGENCY OF NATURAL RESOURCES

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DEPT. OF FORESTS, PARKS AND RECREATION
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MEMO

DATE: 22 May 1992

TO: Forest Resource Protection Technicians--Northern Region

FROM: Ronald Kelley, Forest Protection Specialist RK

SUBJECT: Addendum to Accelerated Detection Insect Survey Memo of 13 May 1992

To sample for hemlock woolly adelgid, use the enclosed USFS protocol, but sample two groups of three trees instead of three groups of two.

Use the regeneration trees sampled for hemlock looper plus a second group five chains away.

Record on the data sheet attached to the survey procedure and send to me.

Enclosed is a form to use for the hemlock looper larval beating survey.

jr
encs.

100's

Hemlock Woolly Adelgid Survey

METHODS

Survey Design

The survey will include all of the New England states and western New York. In these areas one hemlock stand per 100 square miles will be examined. More intensive sampling will be used when an infestation is confirmed. This will consist of examining ten stands per 100 square miles, one stand per 10 square miles. Survey design modifications, more spacific to individual state situations, i.e. current surveys, man power etc., can be used as long as there is a systematic approach to sampling. A stand is difined for this survey as any area with at least 1/2 acre of hemlock.

Areas to Survey

Wind is one potential dispersal agent of adelgids. There are also concerns of dispersal by birds and artificial means like picnickers, hikers, and transported infested hemlock. By understanding potential dispersal agents, survey efficiency can be maximized. If adelgid activity is found, areas down prevailing winds may warrant examination. Tall, dominant, and open grown trees seem to become infested first. These trees may be exposed to more wind currents and/or bird perching. Hemlocks located near bird feeders are expected to be foci of some exsisting infestations. Thus, homeowners with hemlock and bird feeders should be considered probable adelgid centers. High human activity points, picnic, camping, and trailhead areas may also be opportunistic locations in hemlock areas for adelgid spread.

Sampling

In each area where hemlock is to be examined six trees, three pairs, should be examined. The paired trees should be at least five chains apart. The pair of trees should be within 100 feet of each other. For each tree at least three sides, within reaching height, should be examined. This is a minimum viewing sample, aimed at having the surveyor ground check trees and should be used where tree numbers permit. If there are not enough trees or area for the above sample layout, the surveyor should adjust the length between paired trees to the situation. The surveyor should try and sample at least six trees, but can record fewer if necessary. We encourage the surveyor to examine as many hemlocks as they feel necessary, making certain to examine trees thoroughly.

Each area examined needs to be recorded as either adelgid present or absent (see attached data sheet). Areas recorded with no adelgid activity are important in establishing distribution and spread in future years. The number of trees examined should also be recorded to give an indication of survey and HWA population intensity. All areas examined should be marked with a black dot on a state road map.

Identification

The ability to readily spot an infested tree depends on the developmental stage of the adelgid, population levels, and length of infestation. The adelgid is most conspicuous in the adult and egg stage, approximately first of May, when the cottony mass is fully developed and resembles the head of a Q-tip. Trees infested approximately one year will have thin crowns, a grayish tint and branch tip dieback. Newly infested trees may show none of the above symptoms and only after close examination of undersides of branches will the adelgid be detected. At low population levels the distribution of the adelgid can be variable in a stand. However, adelgid occurence on a tree seems to be evenly distributed over the height of the tree. This will alleviate the need for upper crown sampling and examination.

If there is a need for an identification training course on the hemlock woolly adelgid please contact us.

Data Analysis

The data and maps will be gathered and compiled from each participating state. This information will be put in map form, showing areas of adelgid presence and absence. A final report will be prepared by the Durham office in cooperation with the states, summarizing the findings and sent to each participating state. The survey will be completed by October 1, 1988, and the report distributed to the cooperators by December 1, 1988.

LITERATURE CITED

McClure, M. S. 1987. Biology and control of hemlock woolly adelgid. Conn. Agri. Exper. St., Bull. 851. 9p.

DATA SHEET

Detection Survey of Hemlock Woolly Adelgid

STATE:
COUNTY:
TOWN:
LOCATION OF STAND:
OF TREES EXAMINED:

DATE OF COLLECTION:
NAME OF COLLECTOR:

Space for additional trees examine.

Tree	Tree Side 1	2	3
1			
2			
3			
4			
5			
6			

Tree	Tree Side 1	2	3
1			
2			
3			
4			
5			
6			

O = Adelgid Absent * = Adelgid Present

Detection Survey of Hemlock Woolly Adelgid

STATE:
COUNTY:
TOWN:
LOCATION OF STAND:
OF TREES EXAMINED:

DATE OF COLLECTION:
NAME OF COLLECTOR:

Space for additional trees examine.

Tree	Tree Side 1	2	3
1			
2			
3			
4			
5			
6			

Tree	Tree Side 1	2	3
1			
2			
3			
4			
5			
6			

Data sheet markings: O = Adelgid Absence * = Adelgid Presence