

# 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  
TEL. (802) 888-5733

## MEMO

DATE: 22 January 1992  
TO: All Forest Resource Protection Technicians  
FROM: Ronald Kelley, Forest Protection Specialist *RAK*  
SUBJECT: Hemlock Looper Branch Samples for Egg Sampling

We have decided to collect hemlock branch samples from three sites per district to be sent to the Maine Forest Service for determination of the number of fall-flying hemlock looper (Lambdina fiscellaria) eggs.

1. Select three hemlock stands in your district for collecting samples. These should be geographically well separated and may be places where you observed a lot of moths last fall, hemlock stands on state lands, hemlock stands belonging to a cooperator, etc.
2. Give each collection site (stand) a name; locate these on your Vermont Atlas; and send a copy of the location maps to your Resource Protection Specialist.
3. Within each stand, locate and mark three overstory (dominant, co-dominant, or intermediate) hemlock trees whose mid-crown can be reached with a pole pruner, and three regeneration trees (less than four meters in height) for sampling. Overstory trees should be at least a chain apart, and regeneration trees should be paired with them. Trees should be marked (heavy duty (Arctic) flagging should be adequate) so that they can be relocated next year, if needed. Number the overstory trees T1, T2, and T3; number the regeneration trees R1, R2, and R3.
4. Prune one mid-crown branch, one meter long from each sample tree and record the following information on the Hemlock Looper Egg/Defoliation Survey Form (Figure 1):
  - a). Collection #: District #: 1 for first site; 2 for second site within the district, etc. The third collection site for District V would be listed as 5-3.
  - b). Date
  - c). Town
  - d). Location: name you gave site and how to find it

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4. (con't.)

- e). Species: circle hemlock
- f). Hemlock Borer: circle no unless borer injury seen
- g). Bare Tops: and h). Dead Tops: circle the appropriate category (should be none at present)
- i). Crown Class (Cr.Cl.): list as D (dominant); C (codominant); or I (intermediate) for overstory trees
- j). Vigor (Vig): record as good, fair, poor, or very poor for overstory trees based on overall health. A good tree is one that will recover if damage ceases. All should be good at present.
- k). Categorize defoliation on each sample branch using the Fettes categories that we've used in the past for spruce budworm, where 0 = none and 1 = 1-10%, etc. (see Spruce Budworm worksheet) You can use the worksheet to rate the three outermost branch tips, then 8 and 9 tips on either side, to arrive at an average for the branch. Record for current year needles (Cur. Def.) and one year old needles (Prev. Def.).

5. Trim each sample branch to one meter in length, then cut each branch into smaller pieces with pruning shears so that each branch fits into a paper bag (large shopping bag works fine). Write the collection number and tree number (ex: 5-3; T1) on the outside of each bag and staple the bag closed. Include a copy of the survey form for each collection site with the samples (could be stapled to bag for Tree 1).

6. Place bags in a box and ship by UPS to:

Maine Forest Service, P.O. Box 415, Old Town, ME 04468

Or, if you don't have shipping facilities at your District Office, bring to Waterbury for mailing. All samples should be collected and shipped by 28 February 1992.

7. Code these activities to Accelerated Detection (425-7406).

jr

encs.

ccs: H. Teillon

B. Burns

Figure 1.  
HEMLOCK LOOPER EGG/DEFOLIATION SURVEY

Coll.#: \_\_\_\_\_ Date: \_\_\_\_\_ Town: \_\_\_\_\_ Location: \_\_\_\_\_

Species: Hemlock Fir Spruce Hemlock Borer: Yes No  
Bare Tops: None 1-10% 11+% Dead Trees: None 1-5% 11+%

Tree Data					# Eggs				
Tree#	Cr.Cl.	Vig.	Cur. Def.	Pre. Def.	BR	GR	CL	BK	TOT
T 1									
T 2									
T 3									
R 1	****	***							
R 2	****	***							
R 3	****	***							
Mean									

Comments:

Coll.#: \_\_\_\_\_ Date: \_\_\_\_\_ Town: \_\_\_\_\_ Location: \_\_\_\_\_

Species: Hemlock Fir Spruce Hemlock Borer: Yes No  
Bare Tops: None 1-10% 11+% Dead Trees: None 1-5% 11+%

Tree Data					# Eggs				
Tree#	Cr.Cl.	Vig.	Cur. Def.	Pre. Def.	BR	GR	CL	BK	TOT
T 1									
T 2									
T 3									
R 1	****	***							
R 2	****	***							
R 3	****	***							
Mean									

Comments:







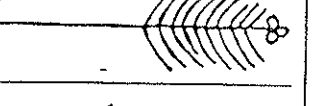


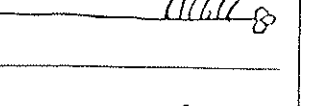
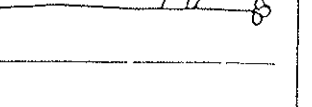


# DEFOLIATION WORKSHEET

PLOT NUMBER \_\_\_\_\_

DATE COLLECTED \_\_\_\_\_

TREE SPECIES \_\_\_\_\_

TREE NUMBER \_\_\_\_\_

Defoliation Category	Percent Defoliation per Category	Branch Tips	Defoliation Category	Percent of Defoliation
0 	x0	1		
1 	x5	2		
2 	x15	3		
3 	x25	4		
4 	x35	5		
5 	x45	6		
6 	x55	7		
7 	x65	8		
8 	x75	9		
9 	x85	10		
10 	x95	11		
11 	x100	12		
12 	x100			

Total Defoliation Percentage \_\_\_\_\_

Percentage ÷ 20 = \_\_\_\_\_

Mean Defoliation \_\_\_\_\_