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NORTHEASTERN FOREST EXPERIMENT STATION

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WEEVIL ATTACKS APPARENTLY UNRELATED TO HEIGHT OF EASTERN WHITE PINE

As individual eastern white pine trees grow taller, are they less susceptible to attack by the white pine weevil? At what height are they most likely to be attacked?

If weevil injuries on 97 eastern white pine trees (387 logs) from the Pack Demonstration Forest, Warrensburg, N. Y., are indicative of weevil behavior elsewhere, the white pine weevil (Pissodes strobi) is neither hindered nor abetted by the relative height of its host. Apparently the chances of an individual tree's being attacked are not influenced by the tree's height (table 1).

These data on the relationship of tree height to weevil injury were collected during a recent study of white pine log defects. The study was conducted on the Pack Forest by research personnel of the State University of New York, College of Forestry, and the U. S. Forest Service, Northeastern Forest Experiment Station. The trees were felled and the location and nature of various log defects, including apparent weevil injuries,* were noted. Three-hundred-sixty-two apparent weevil injuries were diagrammed.

When the logs were sawed into lumber, a total of 456 actual weevil injuries were discovered. This indicates a ratio of 5 actual weevil attacks for every 4 that could be detected from external indications.

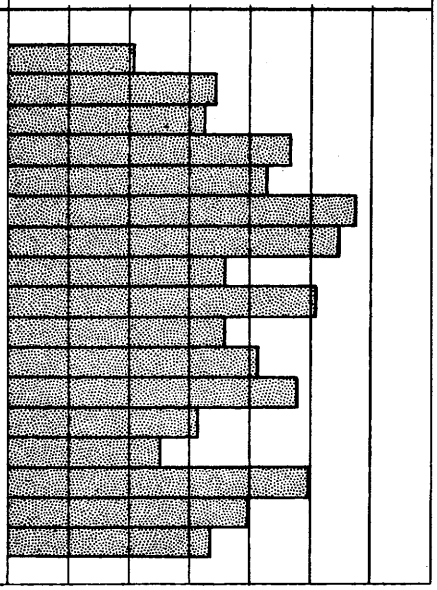
Because the trees were selected to provide a range of butt-log grades, the total incidence of weeviling is not necessarily typical. But this method of sampling resulted in a wide range of tree ages (45 to 120 years), tree sizes, sites, species, and age-class mixtures, and trees frequently and infrequently attacked (0 to 11 injuries per tree). Periodic fluctuations in weevil attack were not likely to have had any influence on this tree height-susceptibility relationship because the trees differed in height in any year. Because some trees were taller than others when cut, the number of sample sections decreased as tree height increased**; yet it is apparent that the degree of weeviling

*IN THIS REPORT, 'WEEVIL' INJURY OR ATTACK REFERS TO ALL WEEVIL AND WEEVIL-LIKE INJURIES OBSERVED, ALTHOUGH SOME OF THESE MAY HAVE BEEN CAUSED BY BIRDS, SQUIRRELS, OR OTHER INSECTS.

**OBSERVATIONS WERE MADE ONLY ON THE UTILIZED PORTION OF EACH TREE.

Table 1.—Height of weevil attacks on 97 white pine trees at Pack Forest, 1955*

Height of attack above stump, by 5-foot sections	5-foot sections observed	5-foot sections attacked	Percentage of 5-foot sections attacked
	Number	Number	
0 - 5	97	20	
5 - 10	97	33	
10 - 15	97	31	
15 - 20	96	45	
20 - 25	95	41	
25 - 30	93	53	
30 - 35	82	44	
35 - 40	74	27	
40 - 45	57	29	
45 - 50	44	16	
50 - 55	26	11	
55 - 60	21	10	
60 - 65	13	4	
65 - 70	8	2	
70 - 75	6	3	
75 - 80	5	2	
80 - 85	3	1	



* Based on actual weevil injuries observed on lumber sawed from logs studied.

at heights over 60 feet was as great as that for trees 10 to 20 feet tall.***

These observations raise serious doubt about the commonly held belief that weevil attacks will be less frequent as individual host trees grow taller. If taller, older trees are attacked as frequently as others, weevil-control measures that can be applied only to the first log may be inadequate where long rotations are planned and quality of the upper logs is crucial. And when plantations are sprayed to control weevil damage, nearby older stands may also have to be treated if immediate re-infection is to be avoided.

Because the sample trees were taken from one localized area, the Pack Forest, final conclusions must await the results of additional studies. More information on this question may be expected as additional data is collected in New Hampshire and Maine in connection with later phases of the Station's study of log grades for eastern white pine.

--MYRON D. OSTRANDER
Forest Economist
Northeastern Forest Experiment Station
Forest Service, U.S. Dept. Agriculture

*** IN 21 TREES, ADVANCED DECAY MADE WEEVIL IDENTIFICATION IN THE LOWER PART OF THE BUTT LOG DIFFICULT. THIS MAY ACCOUNT IN PART FOR THE SOMEWHAT LOWER INCIDENCE RATE IN THE LOWEST TWO OR THREE 5-FOOT SECTIONS.