

# FOREST RESEARCH NOTES

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## Value Loss From Weevil-Caused Defects In Eastern White Pine Lumber

Owners of eastern white pine stands suffer financially in several ways from attacks by the white-pine weevil (*Pissodes strobi*). Crooks, forks, and other weevil-caused tree-bole deformities increase bucking, logging, and sawing costs, and they reduce recoverable volumes.<sup>1</sup> The injuries also reduce the average value of the lumber recovered. It is only with this reduction in the value of lumber produced that this report deals.

During a recent log-grade study<sup>2</sup> at the Pack Demonstration Forest, Warrensburg, New York, a tally was made of the grade yield of lumber produced from 400 logs, many of which were weeviled.<sup>3</sup> A record was kept of the No. 3-, 4-, and 5-Common boards in which weevil-caused defects were responsible for degrade. Defects such as cross grain, large branch knots, loose knots, red rot,<sup>4</sup> and reaction wood were commonly found to be a direct or indirect result of weevil injuries.

Two estimates were then made of the total value of the lumber produced from each log. The first was based on the actual grades in the lumber tally. The second was made by revising the value of weevil-degraded boards, conservatively assuming that each such board would have been graded one lumber grade higher if its weevil defect were not present. These two estimates were compared to establish the value of the loss resulting from weevil-caused lumber degrade.

By relating the number of visible weevil injuries to this estimated lumber-value loss per log, a basis is provided for estimating an appropriate reduction in log or tree

<sup>1</sup>Waters, W.E., McIntyre, T., and Crosby, D. Loss in volume of white pine in New Hampshire caused by white pine weevil. *Jour. Forestry* 53: 271-274. 1955.

<sup>2</sup>Sponsored jointly by the College of Forestry, State University of New York, and the Northeastern Forest Experiment Station, U. S. Forest Service. For further details of the study see *Northeast. Forest Expt. Sta. Forest Res. Notes* 67 and 68, 1957.

<sup>3</sup>In this report, 'weevil injury' refers to all weevil and weevil-like injuries observed, although some of these may have been caused by birds, squirrels, or other insects.

<sup>4</sup>Ostrander, M. D., and Foster, C. H. Weevil-red rot association in eastern white pine. *Northeast. Forest Expt. Sta. Forest Res. Note* 68. 2 pp. 1957.

value prior to sawing (table 1). In this study, 80 percent of the actual weevil injuries were detected by surface defects on the logs.

Care must be used in drawing conclusions from these data because all of the logs are from one locality. And although they came from trees 45 to 120 years old, none was from severely deformed trees. Data now being collected will strengthen the sample, but certain conclusions already seem justified.

Table 1.--Reduction in lumber value due to weevil-caused defects

Observed weevil injuries (No. per log)	Potential lumber value* per M bd.ft.	Weevil-caused reduction in lumber value per M bd.ft.	Basis	
			Logs	Lumber tally
			No.	Bd.ft.
0	\$ 130	\$ **2	190	13,221
1	109	7	107	6,256
2	109	9	42	1,870
3	104	11	30	1,411
4	108	13	11	416
5	106	14	4	132
6	125	34	2	49

\*Based on wholesale lumber prices, as quoted in Commercial Bulletin, 1953-56.

\*\*From weevil injuries undetected on the log surface.

The most obvious conclusion is that reduction in lumber quality from weevil-caused defects is substantial. Losses in lumber value of \$10 per thousand board feet (two to three weevilings per log) reduce log or stumpage conversion values at least a like amount. In stands where stumpage is selling for \$25 per thousand board feet, a potential loss or gain of \$10 per thousand is of great significance.

A tentative guide to part of the effect on log and tree conversion value of weevil damage is provided by these data. In general, the first observed weevil injury in each log means that its value can be reduced about \$5 per thousand board feet below that of logs in which no evidence of weeviling is seen; each successive injury further decreases the value by about \$2 per thousand board feet. These conservative loss estimates are in addition to volume losses and other forms of weevil-caused losses.

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