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GROWTH AFTER PRECOMMERCIAL THINNING IN TWO STANDS OF DOUGLAS-FIR

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EDITOR'S
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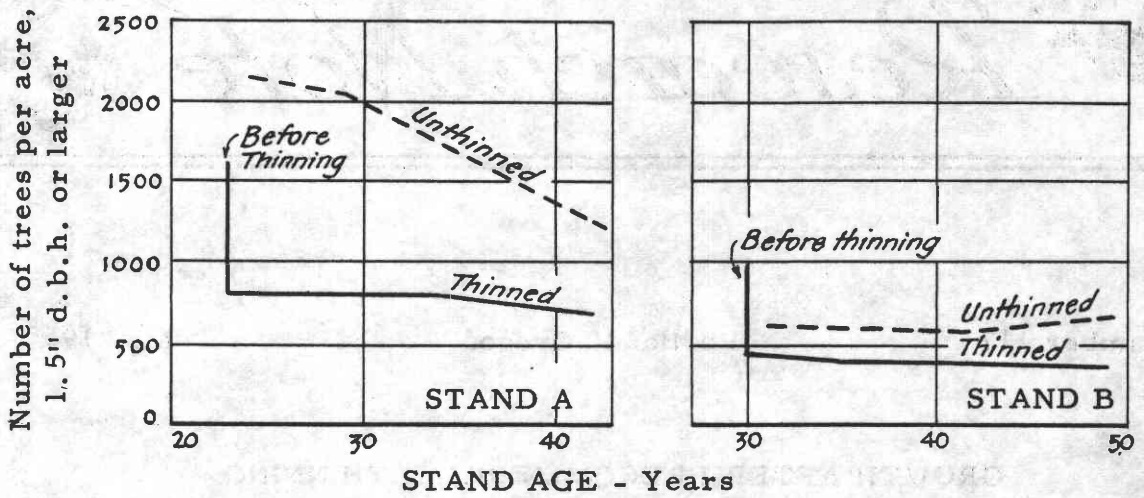
Twenty years ago, portions of two young Douglas-fir stands on the Wind River Experimental Forest in Skamania County, Washington, were thinned by removing some of the trees in the suppressed and intermediate crown classes. At time of thinning, one stand, (A), was 23 years old and the second, (B), was 30 years old.[1/] In both cases site quality is IV. The trees taken out comprised about 20 percent of the total basal area in the stand.

Permanent sample plots established in the thinned and unthinned portions of each stand tell a story that is of interest to foresters. The ways in which thinning has influenced stand development in terms of number of trees, basal area, average diameter, average height, and cubic-foot and board-foot volumes are shown in figures 1 through 6. Relative size of the 100 largest trees in thinned and unthinned stands is shown in figure 7.

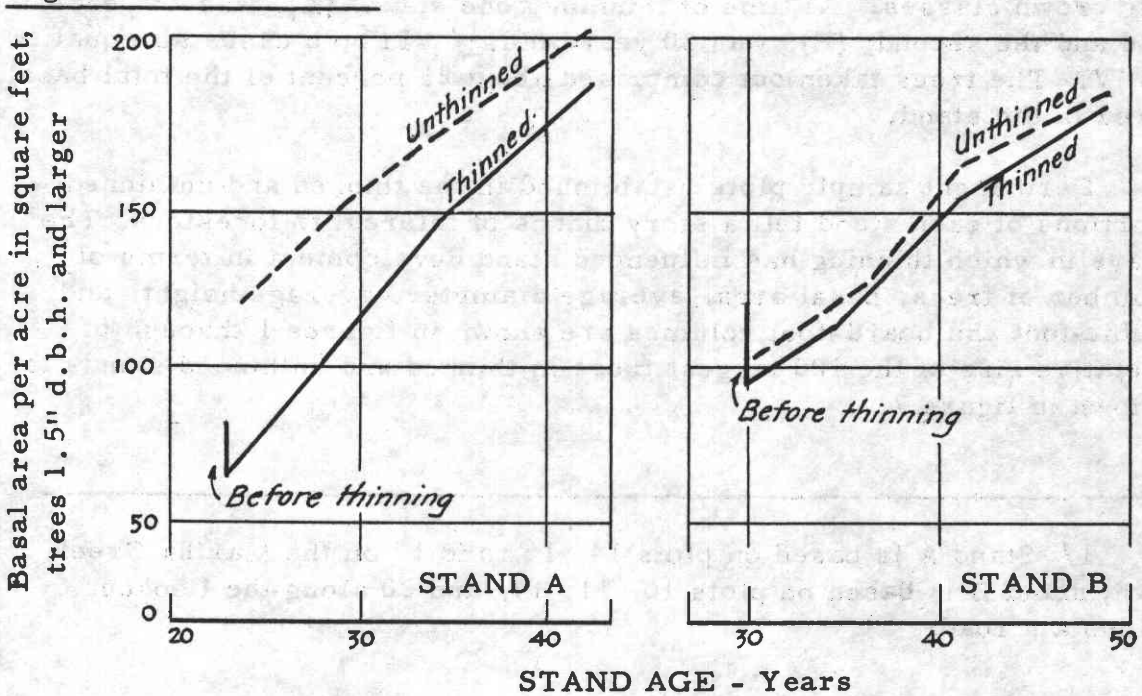
1/ Stand A is based on plots 14, 16, and 17 on the Martha Creek flat; stand B is based on plots 10, 11, 19, and 20 along the Lookout Mountain road.

Figure 1.--Number of Trees



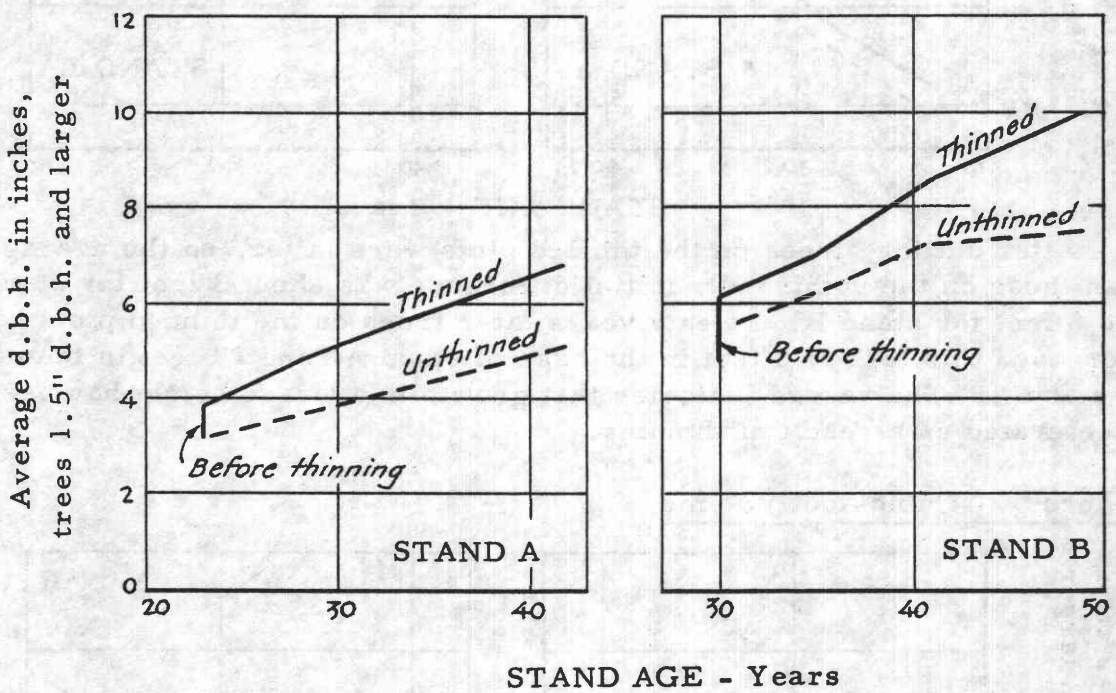
In stand A, the unthinned plots originally supported over twice as many trees per acre than were left on the unthinned plots. In this case thinning has apparently reduced mortality by removal of trees that otherwise would have died. For stand B, in contrast, the number of trees reserved after thinning was only slightly below the number occurring on the unthinned plots. In these more lightly stocked plots, the number of trees has maintained a fairly constant level throughout the 20 years of record.

Figure 2.--Basal Area



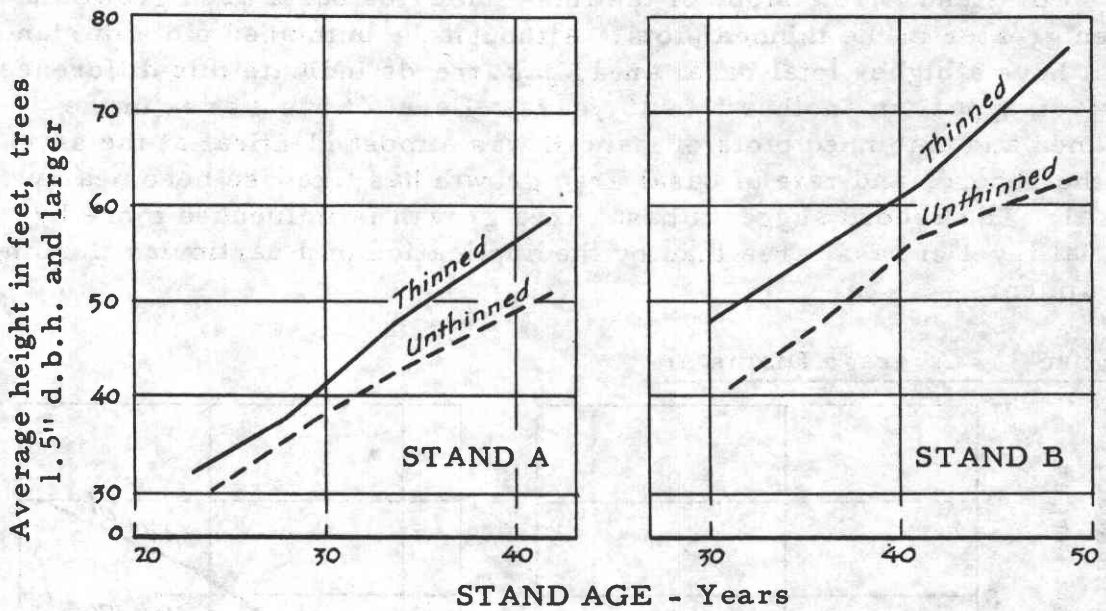
For stand A, the slope of the lines indicates basal area growth has been greater in the thinned plots. Although the unthinned plots of stand A still have a higher total basal area, past trends indicate this difference may disappear in another 5 to 10 years. Level of basal area in the thinned and unthinned plots of stand B was almost identical at the start of the record, and rate of basal area growth has likewise been nearly equal. The record suggests basal area growth is influenced more by initial level of basal area than by the application of a particular thinning treatment.

Figure 3.--Average Diameter



Before cutting, average diameter of trees on the thinned plots in each stand was very close to the unthinned. After cutting, however, trees on the thinned plots averaged about 0.5 to 1.0 inches larger in average diameter . In both stands, the thinned plots have increased their lead in average diameter over the 20-year period. This increase is most pronounced for stand B where the difference in average diameter between thinned and unthinned plots is now 2.5 inches.

Figure 4. --Average Height



After cutting, trees on the thinned plots were taller, on the average, than those on the unthinned. Initial difference was about 3 feet for stand A and 8 feet for stand B. Twenty years later trees on the thinned plots had increased this lead to 8 feet in the case of stand A, and 13 feet in the case of stand B. The record indicates that growth in average height has been accelerated as a result of thinning.

Figure 5. --Cubic-foot Volume