THE INFLUENCE OF SILVICULTURAL THINNINGS ON THE PRODUCTION OF THE KEY FOODS OF THE WHITE-TAILED DEER AND RUFFED GROUSE

A Thesis

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By

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Summary

Five plots were laid out on the University of Idaho Experimental Forest to study the effect of silvicultural thinnings on the production of the key foods of the white-tailed deer and the ruffed grouse.

Two of the plots were one-fifth acre in size. One of these was thinned. Three plots were two-fifths acre in size. Two of these plots were thinned. The thinnings removed twelve, eighteen, and twenty-three percent of the basal area originally on the plots. The residential basal areas on all the plots varied from seventy-eight to one hundred and forty square feet per acre.

On selected serviceberry stems, the living annual growth for the past four years was measured. Buds and fruiting stalks were counted. Average twig length by plots by years was expressed as a percentage of the 1950 average. Total twig length by plots by years was expressed as a percentage of the 1950 length. The total growth of individual stems for each year was expressed as a percentage of the 1950 growth lumped by plots and the percentages averaged. The total growth of individual plants for 1950-1951 was compared with 1952-1953 as a ratio.

The curve of the thinned one-fifth acre plot follows the trend of its control both before and after the thinning. The curves of the two-fifth plots are inconsistent. The ratios were inconsistent within all plots. No significant difference could be demonstrated between the various thinned plots and their respective controls for bud production or number of fruiting stalks.

In each plot, nine sub-plots totaling 84.6 square feet were clipped. Grasses, forbs, shrub current growth was harvested. This was dried and weighed. No difference in productivity due to thinning could be demonstrated between the thinned plots and their respective controls.

Loop tallies on the foliage and stems within the sub-plots showed that there may have been a slight increase in the occurrence of grasses and sedges. Loop tallies on the litter show that all thinned plots have more conifer (needle) litter than do the controls. The controls in turn have a slightly greater amount of both hardwood litter and herbaceous litter than do the thinned plots. The thinned plots have 135-200 percent more small woody material (less than three-eighths inch in diameter) on the ground than do the controls.

List-quadrat tallies were found unsatisfactory for the type of vegetation being studied. Measurements of light grey intensity within the forest were also tried and found inconsistent by the methods used.

The shrub and ground-cover data collected two years after the thinning failed to show any difference between thinned and control plots which could be attributed to the thinning. It appears that the differences which exist are due to the inherent qualities of the individual plots.

Conclusions

The thinnings in this study were 12 percent, 18 percent and 23 percent of the basal area originally on the plots. This degree of thinning was insufficient to produce a measurable increase in the growth of the key shrub and ground-cover plants during the time of the study. Where differences between plots have been shown it must be concluded that the differences were due to inherent qualities of the particular plot rather than the treatment or lack of it.

The differences between Flat Creek and Hatter Creek plots indicate the great care which must be exercised in the interpretation of the data. The application of data collected in one area to the problems of another area within the same vegetative zone, even a few miles away, must be done with discretion.

Study Site

The Flat Creek plots, 4 and 5, were established about five chains (330 feet) west of Flat Creek about ¼ mile south of the Highway. The plots are in the northwest quarter of section 33, township 41N, Range 3W, Boise Meridian..

The Hatter Creek Block of the University of Idaho Experimental Forest lies about 4miles west of the Flat Creek Block. It is about 5 miles south of Princeton, Latah County, Idaho. Plots 1, 2, and 3 were established about five chains south of the north gate of the some eight-hundred odd acres of the deer enclosure.(Fig.1)

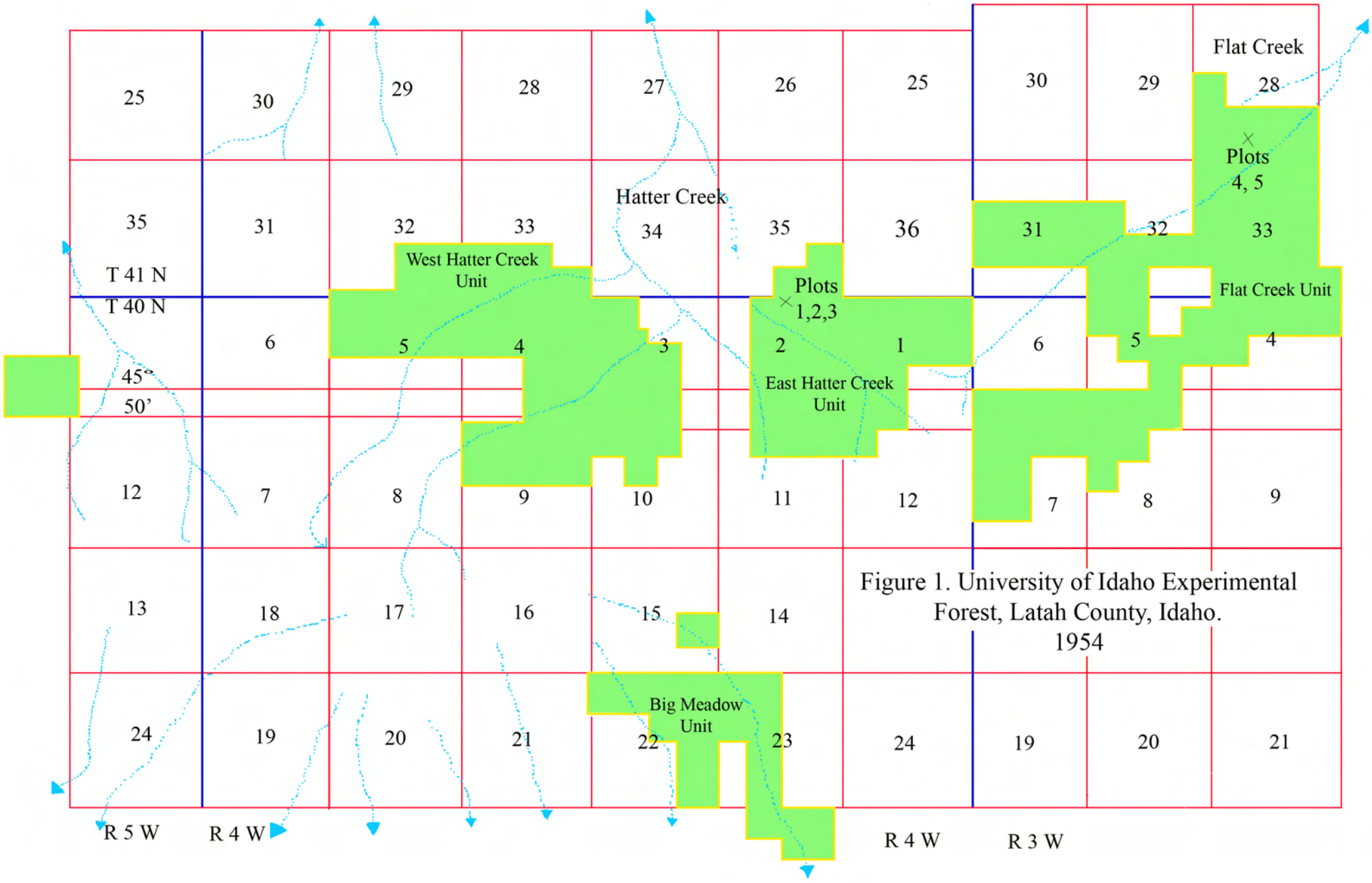

Figure 1. University of Idaho Experimental Forest, Latah County, Idaho. 1954

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