

SAMPLING YIELDS AND UTILIZATION OF BROWSE
ON WINTER DEER RANGES IN
NORTHERN IDAHO

A Thesis

Presented in Partial Fulfillment of the Requirements for the
Degree of Master of Science in the
School of Forestry
Of the
University of Idaho Graduate School

By

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1950

SUMMARY

An investigation of methods concerned with browse measurements on winter deer ranges was carried on during fall and winter of 1949-1950. The site of operations was an area of cut-over white pine forest included within a part of the University of Idaho Experimental Forest in Latah County, Idaho.

A typical wintering area was sampled to study the relative efficiency of plots for sampling yields of winter deer browse. It was an upland Douglas fir type on which snowberry, baldhip rose and serviceberry produced approximately 92% of the forage. The current annual twig growth of browse species was harvested from twelve large plots. Six of the major plots were located within a block 288 feet wide and 396 feet long and the other six were located within a block of the same size. A major plot was six feet wide and forty-eight feet long and was divided in such a way that it contained six one by eight foot subplots, six two by eight foot subplots, and six three by eight foot subplots.

The forage weights were separated by species and comparisons made with a density estimate method of determining relative abundance. Browse between the ground level and a height of six feet was harvested but the first one foot level was collected separately.

To study winter use of browse 128 utilization transects were distributed in both the Douglas fir and arborvitae zones. A transect consisted of a line, fifty feet in length, along which browse plants were tagged and measured. The current annual twig growth was measured in inches before the winter browsing season began. Plants were re measured the following spring to determine the amount of browsing. The crown intercept of browse species was recorded for each transect to the nearest one-tenth of one foot.

Snow trailing was employed as a check against the twig measurement method of utilization determination. Deer trails were followed in the snow and counts were made of freshly browsed twigs.

As determined from weight samples approximately 48 percent of the total forage on the plot efficiency study area was concentrated in the first one foot level. This is significant in view of the effects of snow accumulation on availability.

The Aldous method of determining relative abundance of browse species checked favorably with species composition based on weights of dry browse.

Of the twenty different size and shape plots tested, four were considered to be most efficient. They were one foot wide by eight feet long, two feet wide by eight feet long, one foot wide by sixteen feet long, and two feet wide by sixteen feet long. The one by eight foot size was considered most efficient, followed closely by the two by sixteen foot site. When the area of samples remained constant the longer plots were more efficient. Efficiency decreased as plots of a given length were made wider than one foot.

Light was made of the area sampled for utilization determination since the deer moved out sometime between the first and seventh days of January, 1950. In the Douglas fir type three marked plants of redstem ceanothus, two of big whortleberry, and eleven of pachistima were found to have been browsed. An average of 54 percent of the current year's growth had been removed from the eleven pachistima plants. In the arborvitae none two marked plants of arborvitae and two of pachistima were found to have been browsed. Counts of browsed twigs along snow trails revealed serviceberry and willow to have been most frequently browsed. Serviceberry was available in greater amounts than the willow. From the results of snow trailing it was concluded that pachistima and redstem ceanothus are highly preferred in that order. Willow and serviceberry are preferred, probably in that order. The Douglas fir type was most heavily used by deer during periods when the snow was deep.

Description of The Study Area

LOCATION

This study was conducted on the Flat Creek Block of the University of Idaho Experimental Forest, Latah County, Idaho. Figure 1 is a map of the block. The Range (3 west) is measured from the Boise Meridian. From Moscow, Idaho, the area is approximately fifteen miles north and east. It is about seven miles north of Troy, Idaho. A road between Princeton and Deary, Idaho passes through the northeast corner.

REGENT HISTORY

The western white pine (*Pinus monticola*) which was originally on the area brought it a part in the colorful lumbering history of the northwest. Most of the choice timber was probably removed by 1910. All but a part of section 33 has been logged since the initial cutting was made. The logging pattern, showing dates of latest cuttings, shown in figure 2, was taken from the records of Potlatch Forests Inc., Lewiston, Idaho. The Flat Creek Block was acquired from the Forest Development Co. in 1935 and other years. Since that time it has been used for experimental purposes in forest and wildlife management.

GEOLOGY AND SOILS

The area is on a portion of the Thatuna Batholith (Tullis, 1944). The principle minerals are quartz, feldspar and biotite. Moscovite often occurs. Tullis describes the parent material as intrusive rocks, possibly of Cretaceous Age. The intrusive rocks are dominantly quartz bearing grandodiorite. Agee, et al., (1917) classified the soils as rough mountainous land. Loessial material has formed a thin mantle over most of the rough.....

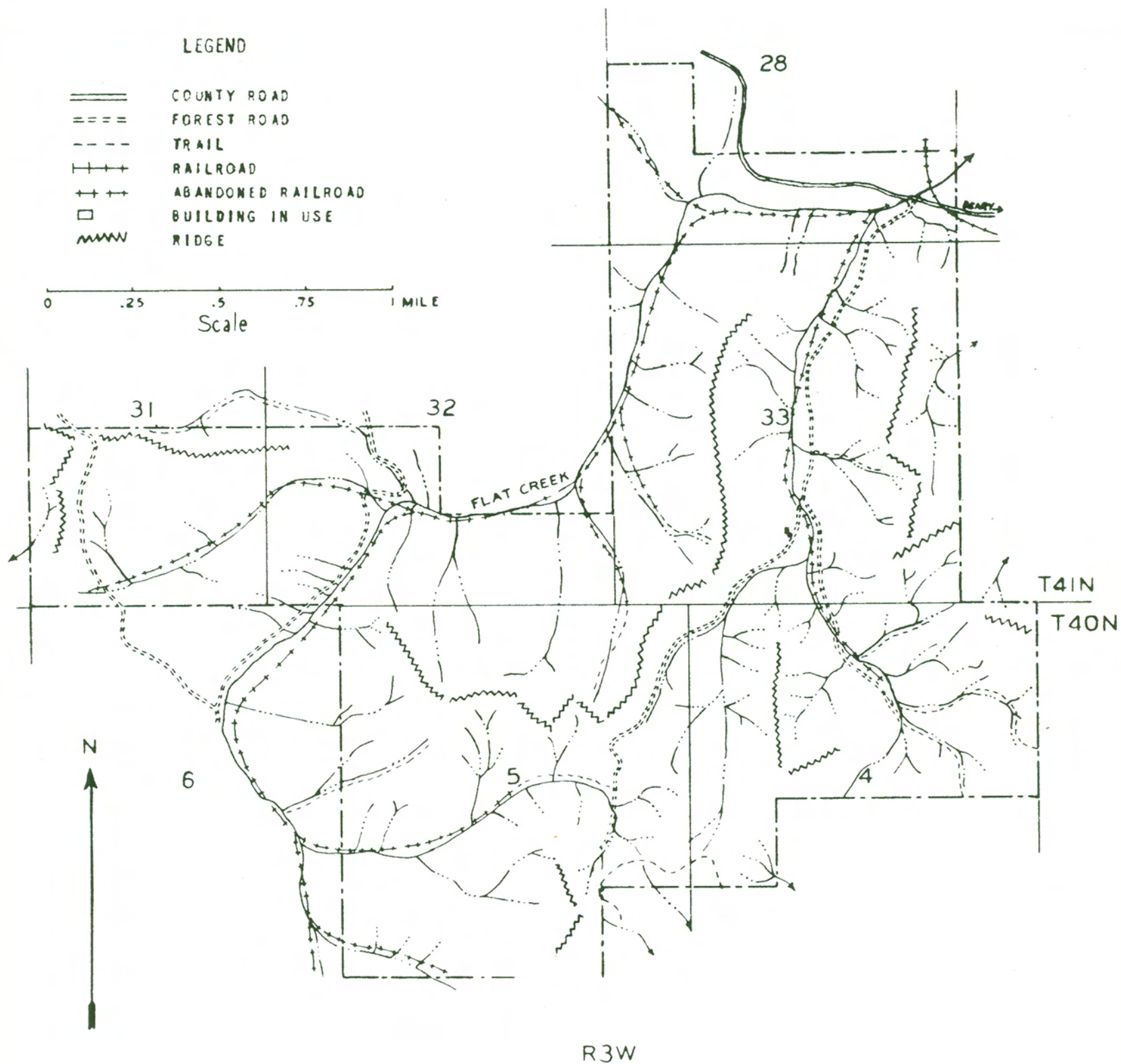


fig.1 Flat Creek Block, University of Idaho Experimental Forest, Latah County, Idaho.

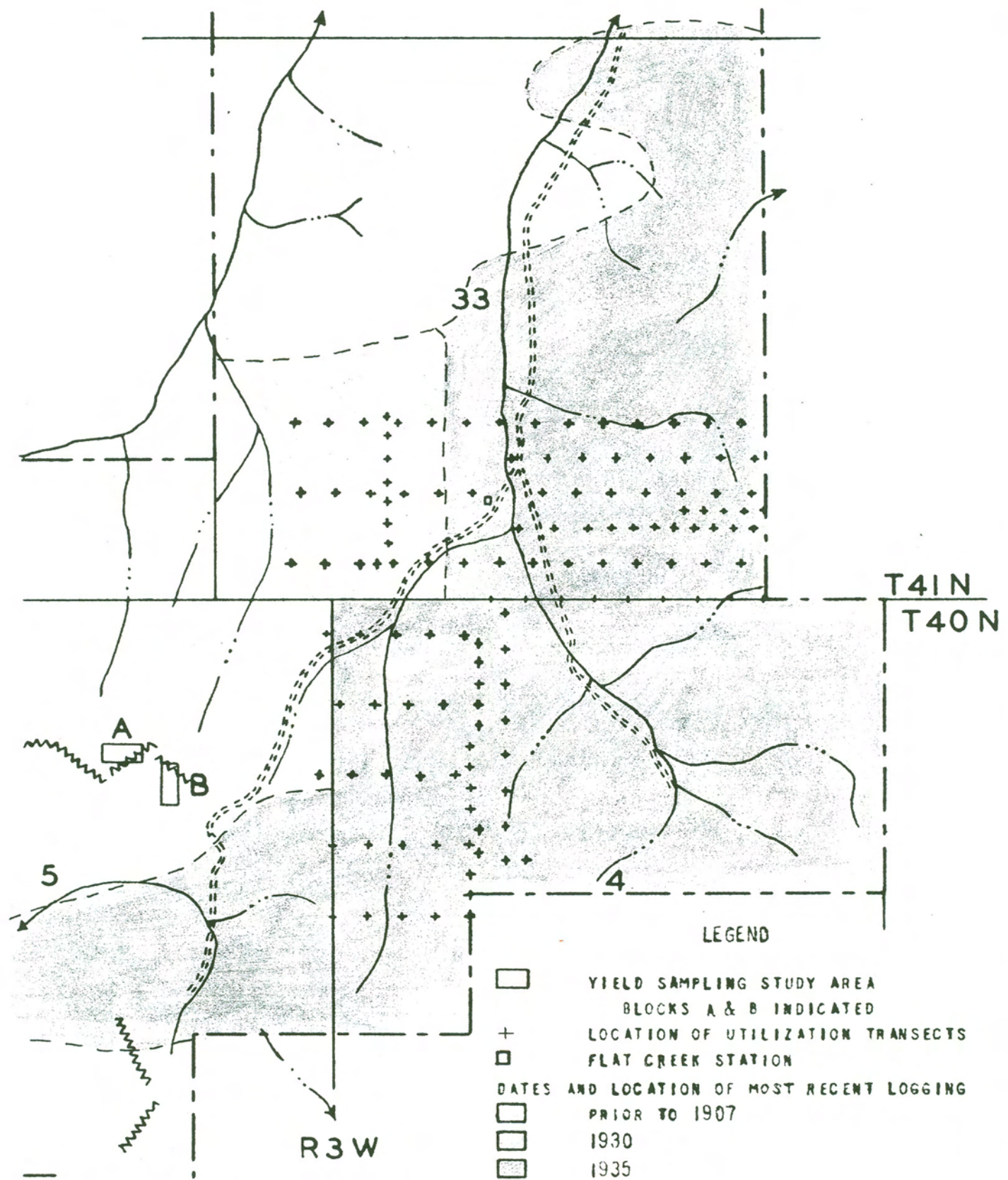


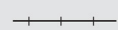



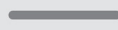







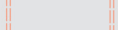
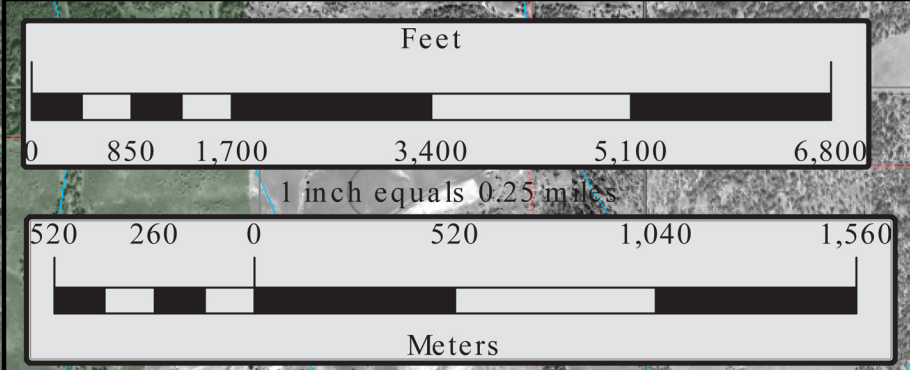
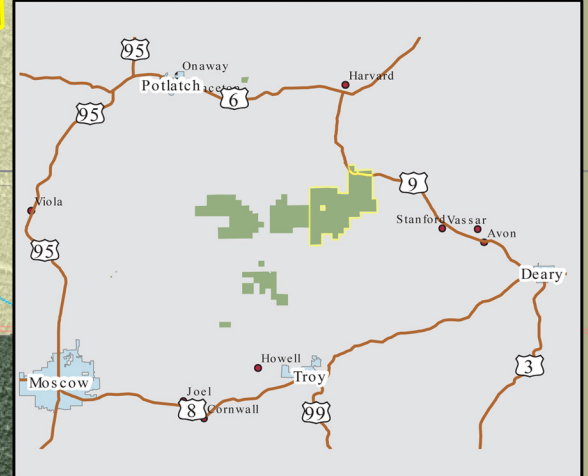
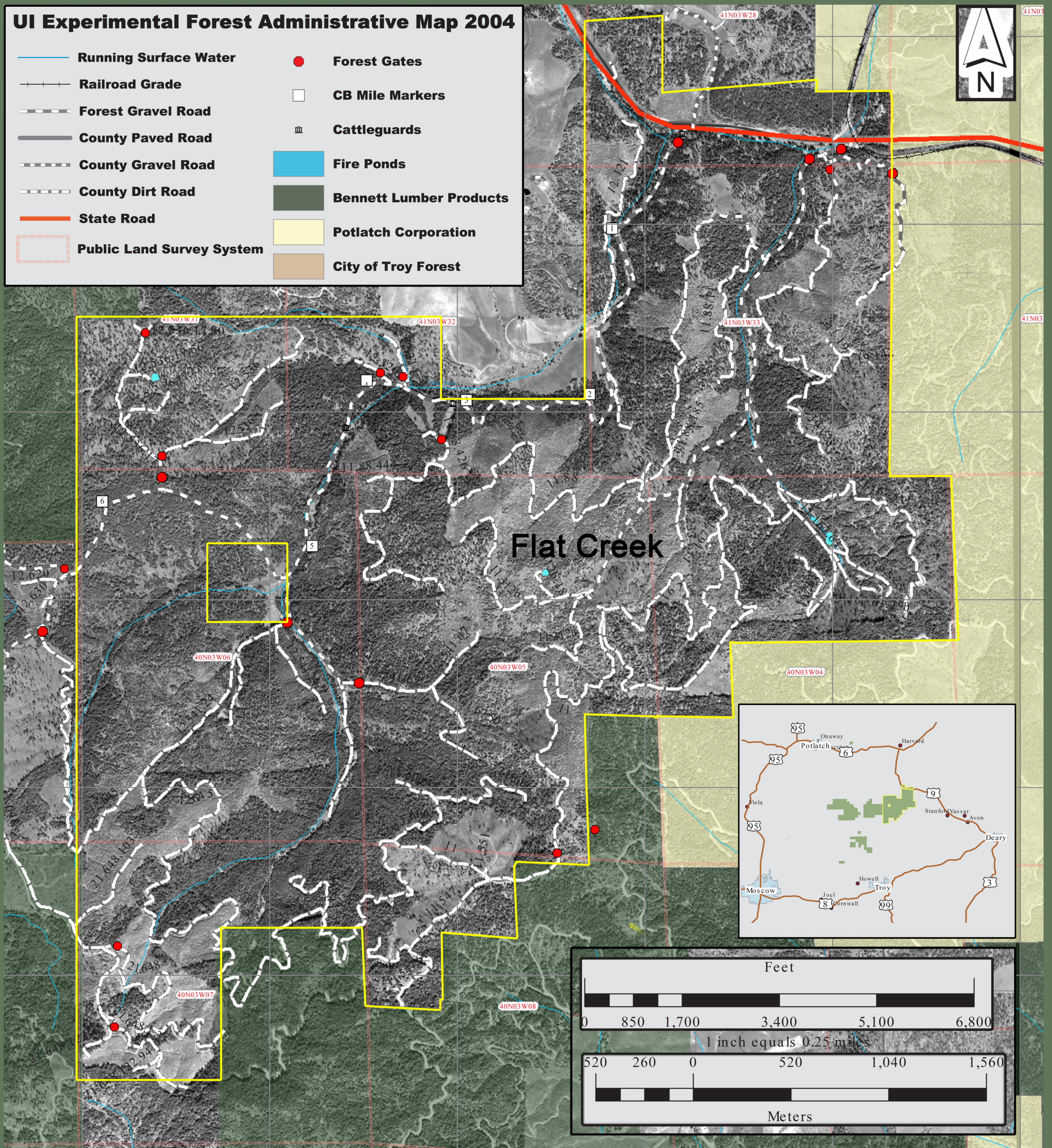


fig.2 studies of deer browse were made on three sections of the Flat Creek Block. Shaded areas illustrate the logging history. Certain topographic details have been deleted for clarity

UI Experimental Forest Administrative Map 2004

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|---|---------------------------|---|-------------------------|
|  | Running Surface Water |  | Forest Gates |
|  | Railroad Grade |  | CB Mile Markers |
|  | Forest Gravel Road |  | Cattleguards |
|  | County Paved Road |  | Fire Ponds |
|  | County Gravel Road |  | Bennett Lumber Products |
|  | County Dirt Road |  | Potlatch Corporation |
|  | State Road |  | City of Troy Forest |
|  | Public Land Survey System | | |



Flat Creek



Location of Complete Research:

Author & Title: Morton, Allen D.
Sampling Fields and Utilization of Browse on Winter Deer Ranges
in Northern Idaho

University of Idaho Library:

Call Number- [QL737.U55M75](#)

College of Natural Resources:

Department- [Forest Resources](#)

Other Sources: