

AN ECOLOGIC STUDY OF THE MAMMALS OF THE PALOUSE RANGE, IDAHO

A Thesis

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by

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CHAPTER I

INTRODUCTION

The purpose of this study was to make a pilot survey of the mammals found on the Palouse Range in Latah County, Idaho. It was designed to determine the ecologic preferences of these animals, particularly the smaller species, their general distribution, and factors which influence this distribution. An attempt has been made to acquire data which could be handled in a statistical manner concerning variations in the densities of the small mammals so that reasons for their particular distributions could be explained. This study will allow those who undertake later investigations to have available information presenting a generalized background on the mammal fauna as a whole.

The proximity of the Palouse Range to the campus of the University of Idaho affords a convenient field laboratory for students interested in areas of natural history such as mammalogy, ornithology, field botany, and ecology. Mammals have been collected from the range but there has been little attempt to determine the interrelationships of the fauna to ecologic conditions. Some study has been made, however, of the flora.

W. T. Shaw, associated with the State College of Washington during the 1920's was one of the early collectors of mammals from the Palouse Range. His specimens are deposited in the Mammal Collection of Washington State University in Pullman, Washington. Material

collected by numerous other people, particularly university students, is in the Department of Biological Sciences Bird and Mammal Collection of the University of Idaho.

Several workers have been interested in the ecology of the general area in which the range lies, notably Rust (1946) who published on the mammals of Northern Idaho; Daubenmire (1942, 1952), and Parker (1952) who worked on the floral ecology; Weaver (1917) who studied the vegetation; and Chichester (1955) who prepared a floral survey of the Palouse Range. Rickard (1960) studied the interrelationships of small mammals and climax vegetation through the region and Musgrove (1951) made a study of weasel foraging patterns near Robinson Lake which lies just outside the study area to the south.

The geology of certain areas of the Palouse Range has been the subject of several papers and theses. One of the most helpful of these to the present work is the paper of Tullis (1944).

CHAPTER II

STUDY AREA

The Palouse Range, formerly known as the Thatuna Hills or Cedar Mountain, lies in the Rocky Mountain Province as a westward extension of the Coeur d'Alene Mountains. Stretching across Latah County in the panhandle of northern Idaho, its forest-covered montane features are in marked contrast to the Palouse hills which encircle its western end. Altitudes range from 2,600 feet near the southwest corner of the range to 4,983 at Moscow Mountain, its highest point. Two other prominent peaks known as the East and West Twins have altitudes of 4,485 and 4,533 feet respectively. These lie a short distance west of Moscow Mountain. From the main peak, a ridge falls off slowly to the East Peak with its altitude of 4,721 feet. A fire lookout tower is situated here. Numerous roads offer access to the range but some of these are fire control roads and are impassable without a vehicle equipped with four wheel drive.

The study area, lying just south of the forty seventh parallel, encompasses a rectangular area of approximately thirty square miles. The southwest corner lies on U. S. Highway 95, two miles north of its junction with Idaho State Highway 8 in Moscow. Its base extends 6.6 miles eastward and its side 4.56 miles north. Moscow, Idaho, lies approximately two miles from the study area at its nearest point, while Troy is to its south and Potlatch, Harvard, and Princeton, are to the north.

The range is oriented east and west. It is well drained on all sides. To the south, the east and west forks of Paradise Creek flow near the westernmost end of the range. Idler's Rest Creek has its source near Paradise Point; Howard Creek, to the west of The Twins; Gnat Creek, between them and Crumarine Creek, to the east. These all eventually empty into the south fork of the Palouse River, part of which lies within the south central part of the study area. The southeast slopes of the range are drained by numerous small streams all of which make up the headwaters of Felton Creek, which itself flows into Big Meadow Creek, Little Bear River, and finally the Potlatch River. To the north, Flannigan Creek with its many branches drains most of the western end, while Rock Creek collects water from the central part. Long Creek carries water from the eastern end northeastward into Hatter Creek. These north-running creeks all empty into the Palouse River.

Scattered and repeated logging over the mountain, along with fires, early homesteading, hunting, and camping have changed the mountain markedly from the pristine state and, as a whole, it could in no way be considered primitive. Numerous cabins and houses are scattered over the mountain, some still in use seasonally, many permanently abandoned, and some, particularly around the periphery of the study area, still inhabited. Small fields which are or have been in cultivation are near many of these cabins. These at the present time are being invaded by several species of grasses or shrubs. Much land, particularly around the western end of the study area, is presently

under cultivation. Wheat is the most abundant crop although alfalfa and others are seen in lesser quantities.

Although the range as a whole gives the general impression of dryness, streams flow from many springs scattered throughout. Some of these have been dammed to form ponds such as "Section 9" Pond to the west end of the range or the beaver ponds on Hatter Creek.

I. GEOLOGIC HISTORY

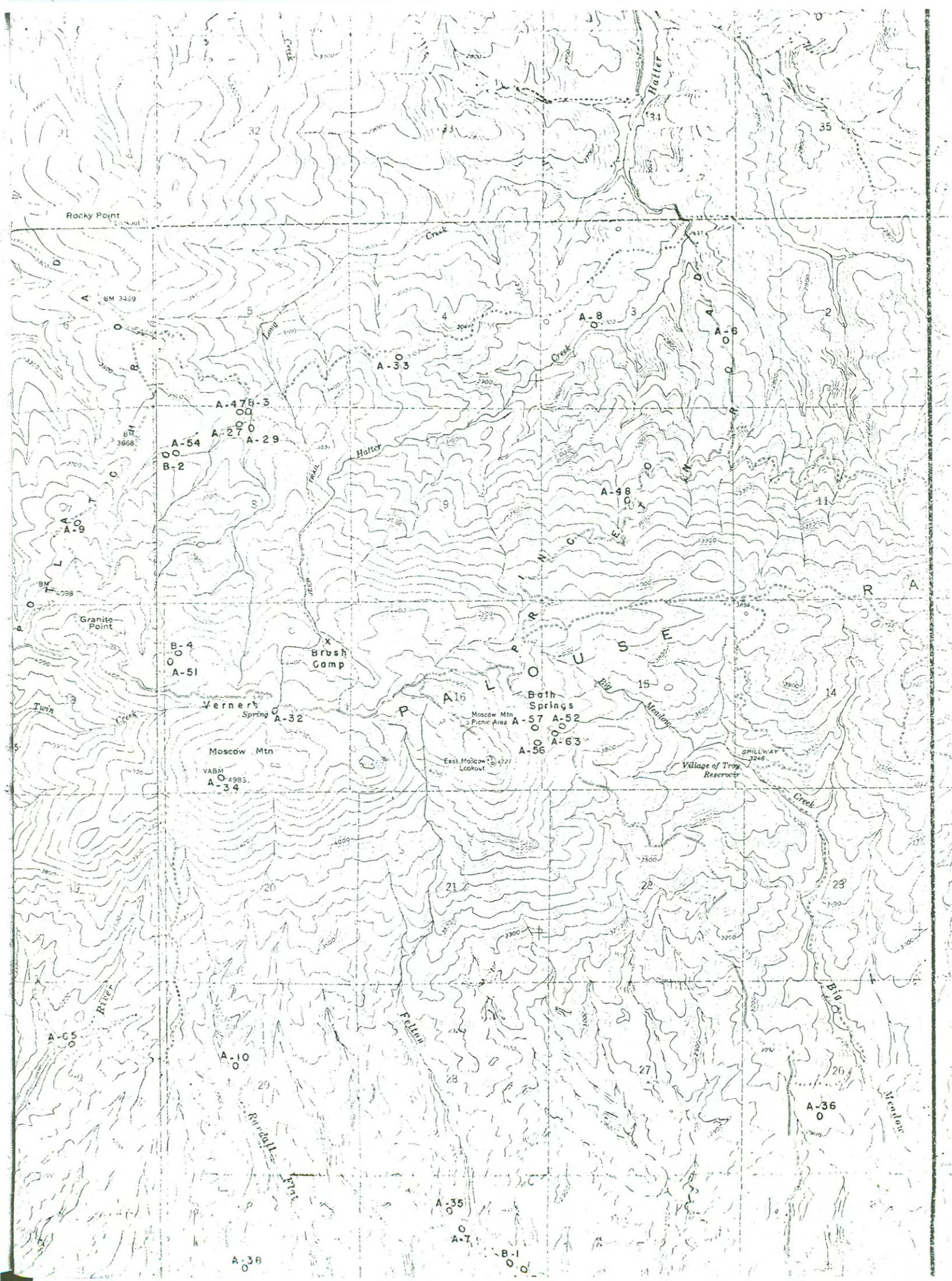
The Palouse Range as part of the Coeur d'Alene Mountains, lies within the Northern Rocky Mountain Province (Fenneman in Tullis, 1944). In late Pre-Cambrian times (Algonkian) the area was largely under water and sediments up to 40,000 feet were deposited over it. These form the Belt Series over which much of Northern Idaho is formed (Fenneman, 1931). The area remained above sea level for most of the Cambrian. From then until the Cretaceous, a series of slow vertical movements alternately raised and lowered it. According to Miller (1925), these occurred during the Cambrian, Ordovician, possibly the Mississippian, in the Pennsylvanian, and again in the Triassic. It is believed that rocks formed during these fluctuations lie under the basaltic covering of Latah County.

During the late Cretaceous, the western parts of the Northern Rocky Mountains underwent a distortion by complex folding and an intrusion of underlying magma (Loomis, 1937). This latter cooled, allowing minerals within it to crystallize, forming the Idaho Batholith.

(Pteridium aquilinum) stand was sampled. This site offers cover primarily through the fern which is exceptionally thick. Grasses and Scouler Willows (Salix scouleriana) are scattered throughout the area. A single site near the western end of the range was grown up in a very thick stand of Canary Reed Grass (Phalaris arundinacea). Though a drainage ditch runs through the grass, it was dry at the time of sampling and showed no evidence of recent moisture. The grass stood over six feet high and provided a very dense cover for small and medium sized mammals. One site, a grassy streamside, illustrated in Figure 3, has an association of Poa pratensis and Festuca elatior with a lesser density of Phleum pratense. This forms a thick grass cover and an estimated sun penetration of 80 per cent. The sun penetration is lessened, however, by hills to the east and west of the site which reduce the radiation to the late morning and early afternoon hours. The moist situation here separates this grassy field from the general grouping of the others.

Four grass sites merit being grouped due to the paucity of vegetation in general. These are referred to as thin grass habitats. The vegetation of one on Hatter Creek is largely Agrostis idahoensis but extreme overgrazing has reduced it to practically bare ground with virtually no cover. The other three, largely in Poa pratensis, one with scattered Mountain Spray shrubs (Holodiscus discolor), are similarly in locations in which cattle have ready access and the vegetation is likewise greatly reduced though not to as great an extent.

The workings of Northern Pocket Gophers were evident in practically all of these fields except where the grass had been heavily grazed.

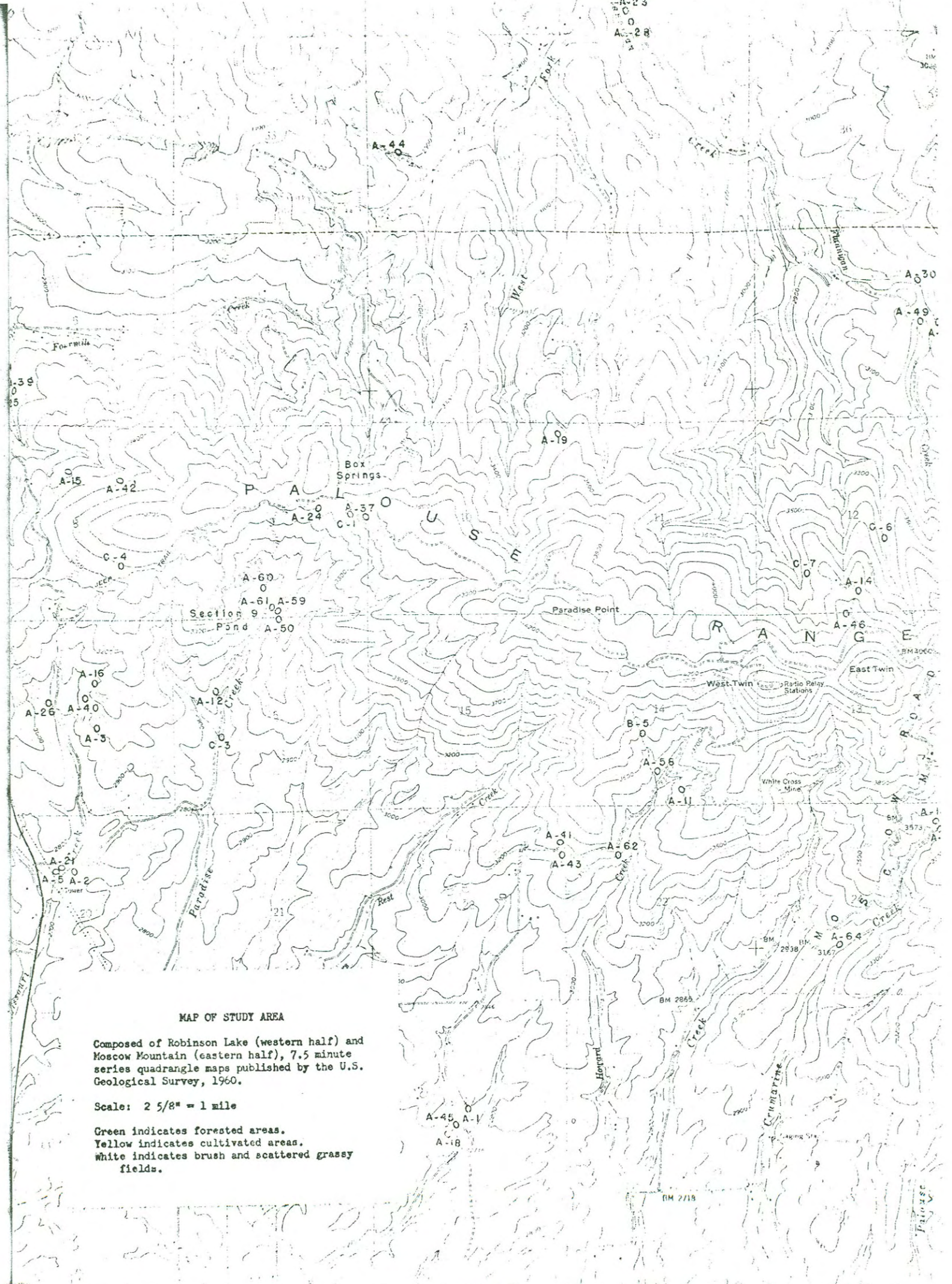


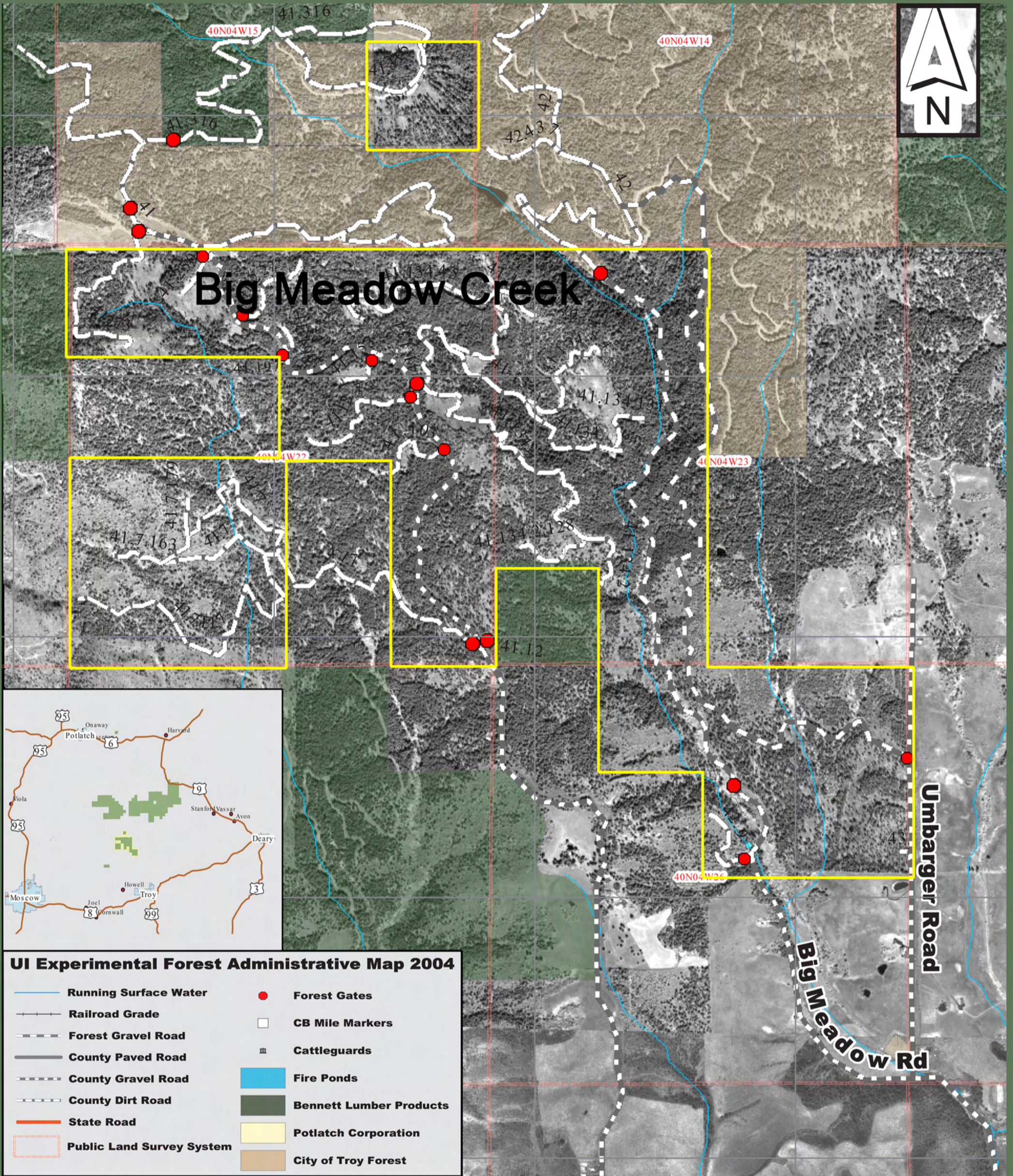
MAP OF STUDY AREA

Composed of Robinson Lake (western half) and Moscow Mountain (eastern half), 7.5 minute series quadrangle maps published by the U.S. Geological Survey, 1960.

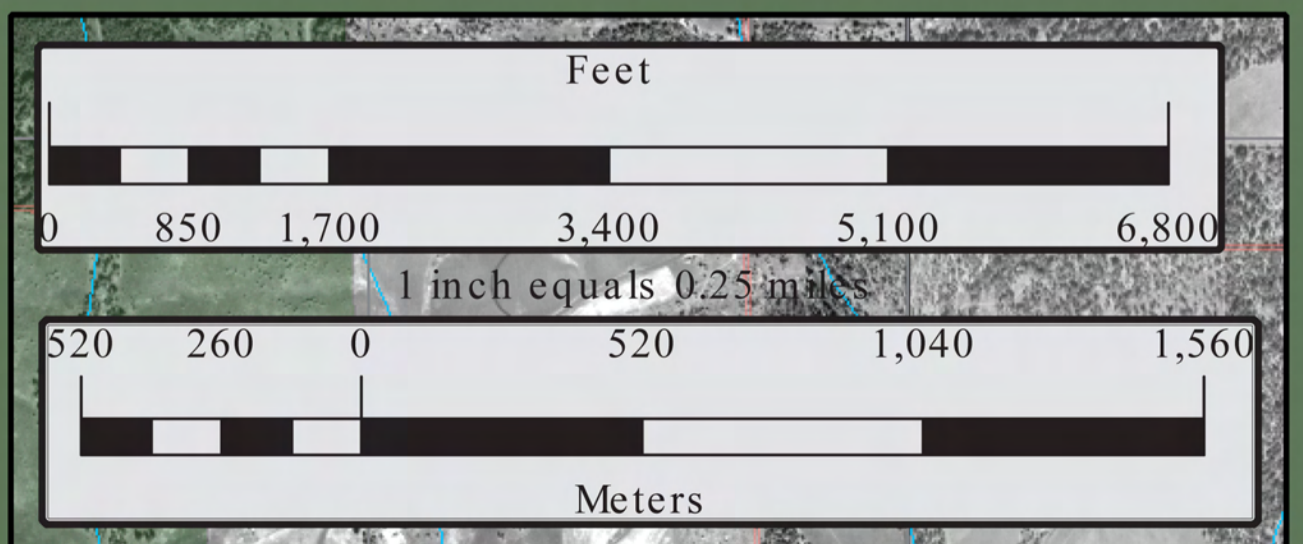
Scale: $2\frac{5}{8}'' = 1$ mile

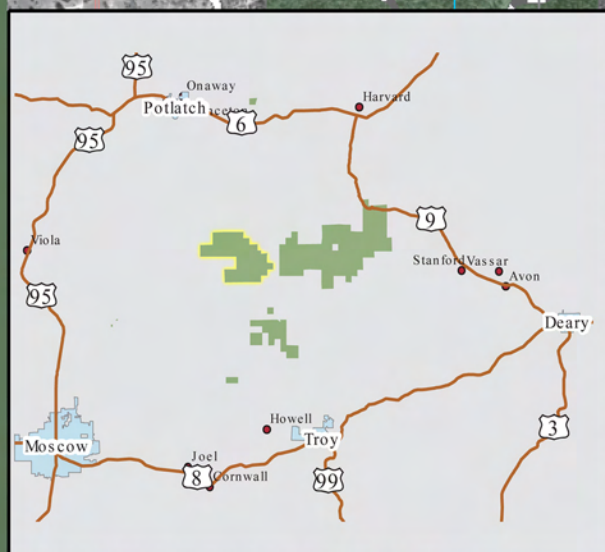
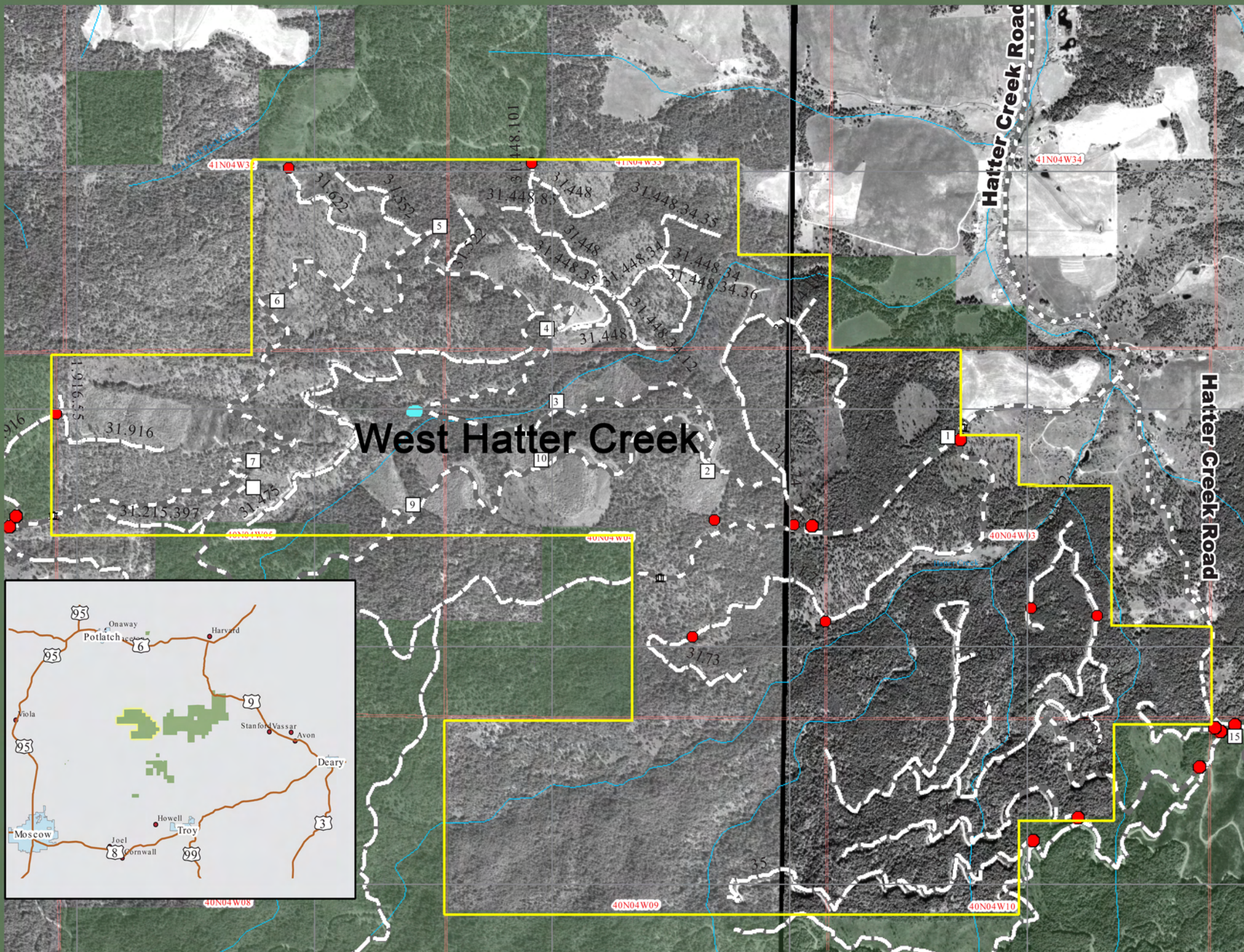
Green indicates forested areas.
Yellow indicates cultivated areas.
White indicates brush and scattered grassy fields.





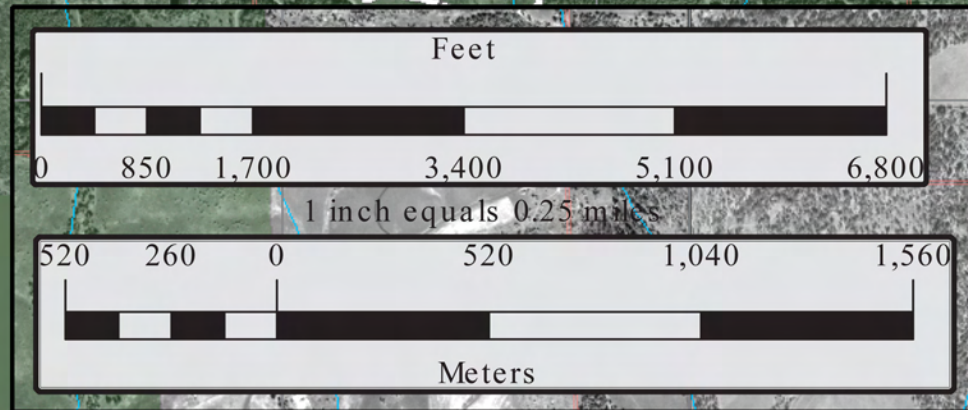
Big Meadow Creek Unit





UI Experimental Forest Administrative Map 2004

	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		



West Hatter Creek





Location of Complete Research:

Author & Title: Francq, Edward Nathaniel
[An Ecological Study of the Mammals of the Palouse Range, Idaho](#)

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Other Sources: