ASSESSMENT OF THE APPLICABILITY OF SELECTION SILVICULTURE IN

MIXED SPECIES CONIFER STANDS OF NORTHERN IDAHO

A Professional Paper Presented in Partial

Fulfillment of the Requirements for the

Degree of Master of Science

With a

Major in Forest Resources

In the

Graduate School,

University of Idaho

By

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1984

Introduction and Objectives

Unevenaged management, or selection management, received new attention in the northern Rocky Mountain region in recent years. Every textbook on silviculture acknowledges that there are two silvicultural systems- the evenaged and the unevenaged or selection – available for application in management of coniferous forest in temperate regions. Forest managers and researchers in the interior west of America tend to think by and large only in terms of evenaged management. The National Forest Management Planning Act of 1976, which increased land use constraints and plain economic considerations, has helped in triggering a renewed interest in the selection silvicultural system. It is recognized that evenaged harvest-regeneration methods have limited applicability on lands where protection or enhancement of the quality of mountain streams, municipal watersheds, big game winter range habitats or forest aesthetics is paramount. Where stand establishment under evenaged management relies on artificial regeneration, economic considerations and budget constraints can limit the feasibility of evenaged management.

Is the selection silviculture system an answer to these and other concerns?

What are the concepts of selection management systems?

What differentiates selection silviculture from selective logging, high-risk tree removal, or high-grade logging methods that are still used in many parts of the interior northwest?

Is selection silviculture an alternative to evenaged management from both a timber production and an economic standpoint?

How does one ascertain which of the two systems to choose for given site and stand conditions?

These are some of the questions confronting forest managers, and it is the intent in part to answer some of these questions in this paper.

Summary

In this study we evaluated the projected stand development and the economic returns of two case study stands under evenage and unevenage management. The initial stand structure and growth dynamics were investigated and a forest value criterion was used for the economic analysis.

For successful conversion of stands to managed unevenaged conditions, neither all aged conditions nor a close approximation of a balanced "ideal" diameter distribution was a necessary condition. The simulated volume growth during a 100 year period was higher under the selection management alternative rather than in the evenage alternatives. The forest values between the best evenaged and selection management regimes differed little. A low initial stand value, together with a potential for high value increment was a favorable condition for the conversion to selection management. The choice of the conversion strategy has a high impact on the forest value. Conversion strategies that initially allow a deviation form the target conditions are viable alternatives.

<u>Study Site</u>

The study stands are located on the Experimental Forest of the University of Idaho situated in the Palouse Range of northern Idaho. Two stands, subjected to selective (high-grade) logging in the past were chosen for the case study. Stand 1 represents (in terms of site characteristics, tree species composition and structure) forest configurations with high timber production potential, while stand 2 represents forest configurations with lower commercial production potential. Descriptions of the physical site conditions for stand 1 (stand 01-01-05 Exp. Forest record) and stand 2 (01-03-08 Exp. Forest record) are given in Tables 1 and 2, respectively.

Stand Map of the
Flat Creek Unit,
College of Forestry,
Experimental Forest
1986

N
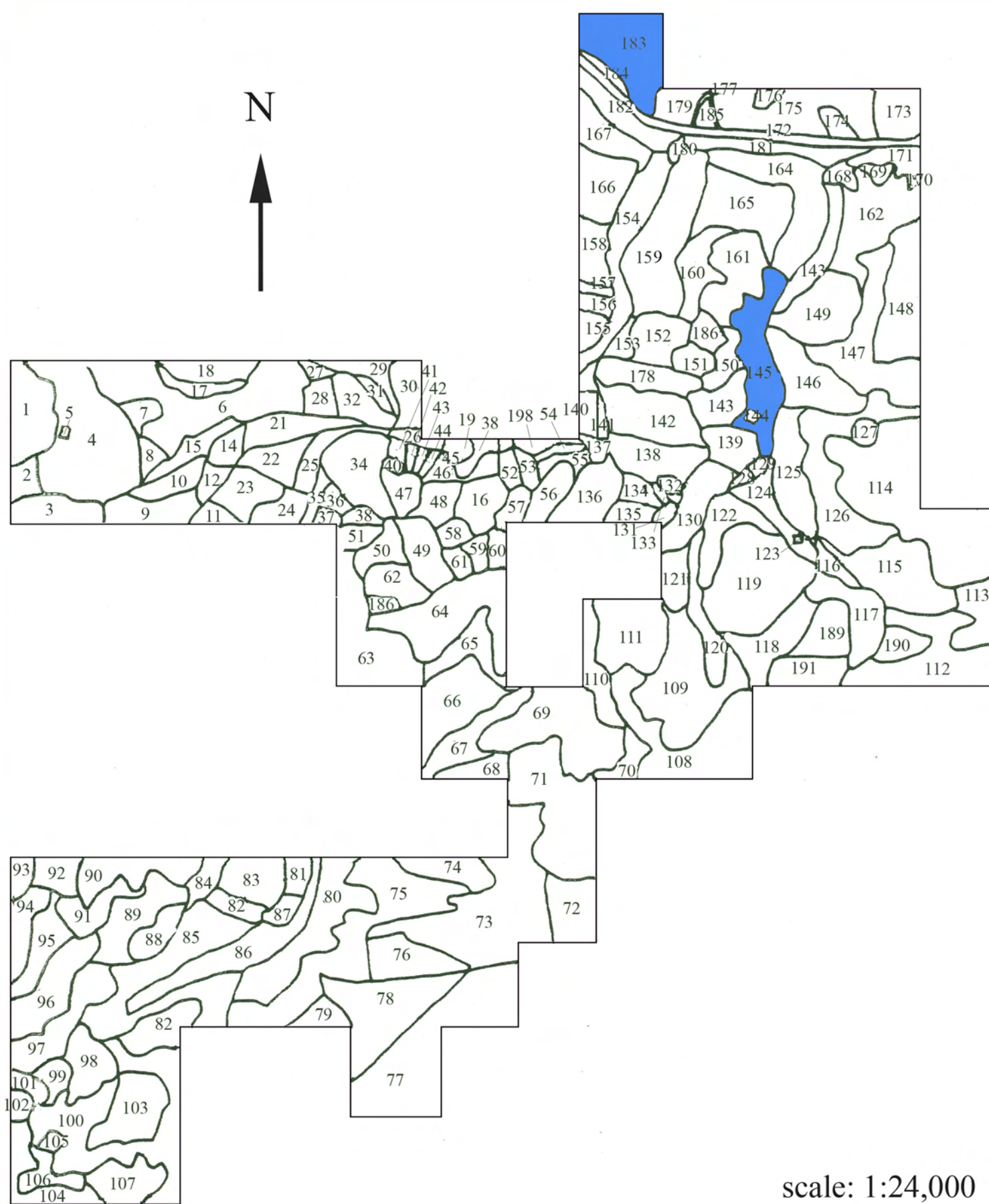
By finding the stand number on the table for the map, you are able to then find the stand number on the map an see where the research took place on the experimental forest. This map and table came from *A Combined Report For Fiscal Years 1980 Through 1986*

By
Forest Manager,
Harold Osborne
The maps were edited by
Rachel Voss

scale: 1:24,000

Table 6-1. Continued

STAND #	MAP #	STAND DESCRIPTION	ACRES	HARVEST ACTIVITY CODE	FY HARVEST	SLASH/ SITE PREP CODE	FY PREP	REFOREST CODE	FY REFOREST	LOGGING METHOD
10105	145	SELECTION CABLE	30	SE	84	L&S	84	NR	84	C
10115	176	MINI SKIDDER BY LEEF'S	1	T	84	L&S				G
10432	19	FIREWOOD THIN	2	LT	84	L&S	84			
10434	195	PACIFIC WINCH	2.1	SE	84	L&S	84	NR	86	C
10435	54	FIREWOOD THIN/HANLEY	2.5	LT	84					
10701	8	COMMERCIAL THIN	4.7	T	84	JPB	84			G
10702	7	SEED TREE	5	ST	84	DP&B	84	NR	86	G
10704	4	SELECTION DEMO AREA	58	SE	84	DP&B	84	NR	86	G
10707	9	SHELTERWOOD BY THE GATE	10.2	SHWD	84	DP&B	84	NR	86	G
10708	10	CLEARCUT	8	CC	84	DP&B	84	P	84	G
10709	6	OVERSTORY REMOVAL	55	SHWD-R	84	DP&B	84			G
10710	17	SMALL CLEARCUT	3	CC	84	DP&B	85	P	85	G
10711	18	IMPROVEMENT CUT	8.5	IMP	84	DP&B	84			G
20504	7	SADDLE OR	11	SHWD-R/CC	84	DP&B	84	IP	84	G
40301	15	HORSE LOGGING COURSE	3	T	84	L&S	84			H
10113	159	HORSELOGGING DEMO AREA	40	SE	85	DP&B	86	NR	86	H
10307	179	HIGHWAY 9 CLEARCUT	9.3	CC	85	BB	85	P	85	G
10308	183	HOWARD SELECTION	35.1	SE	85	DP&B	85	NR	85	G
10309	184	HIGHWAY ROW CLEARCUT	3	CC	85	JPB	85	P	85	G

TABLE 6. AN EXPLANATION OF CODES USED IN TABLES 6-1 AND 6-2.

HARVEST ACTIVITY CODES

CC - CLEARCUT
SHWD - SHELTERWOOD
ST - SEEDTREE
SE - SELECTION
T - THINNING
LT - LOW THINNING
N - NO HARVESTING
IMP - IMPROVEMENT CUT
P - CUT PRIOR TO FY80

REFORESTATION CODES

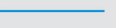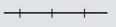P - PLANTED
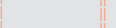NR - NATURAL REGENERATION
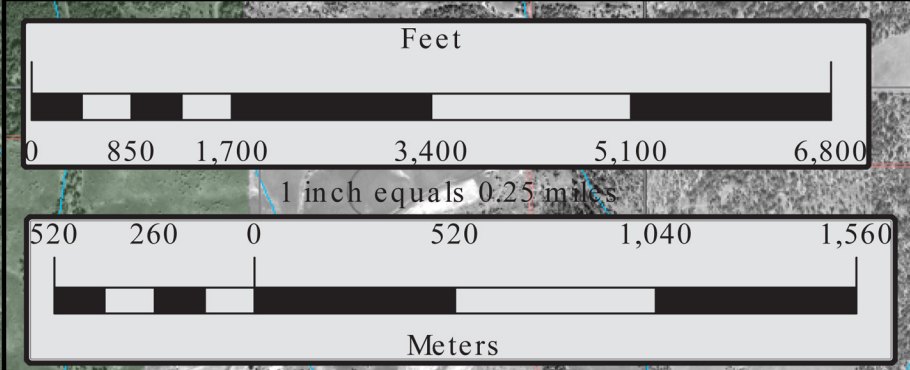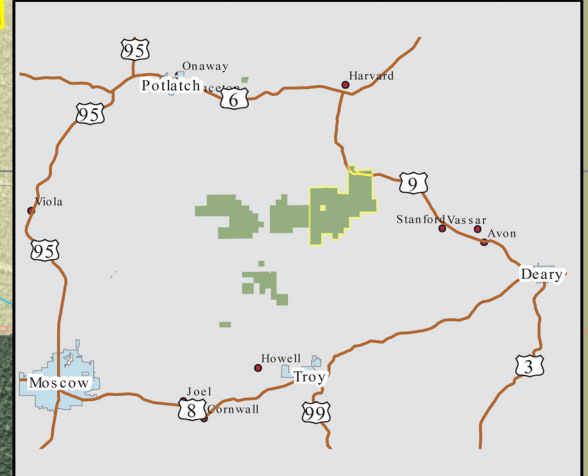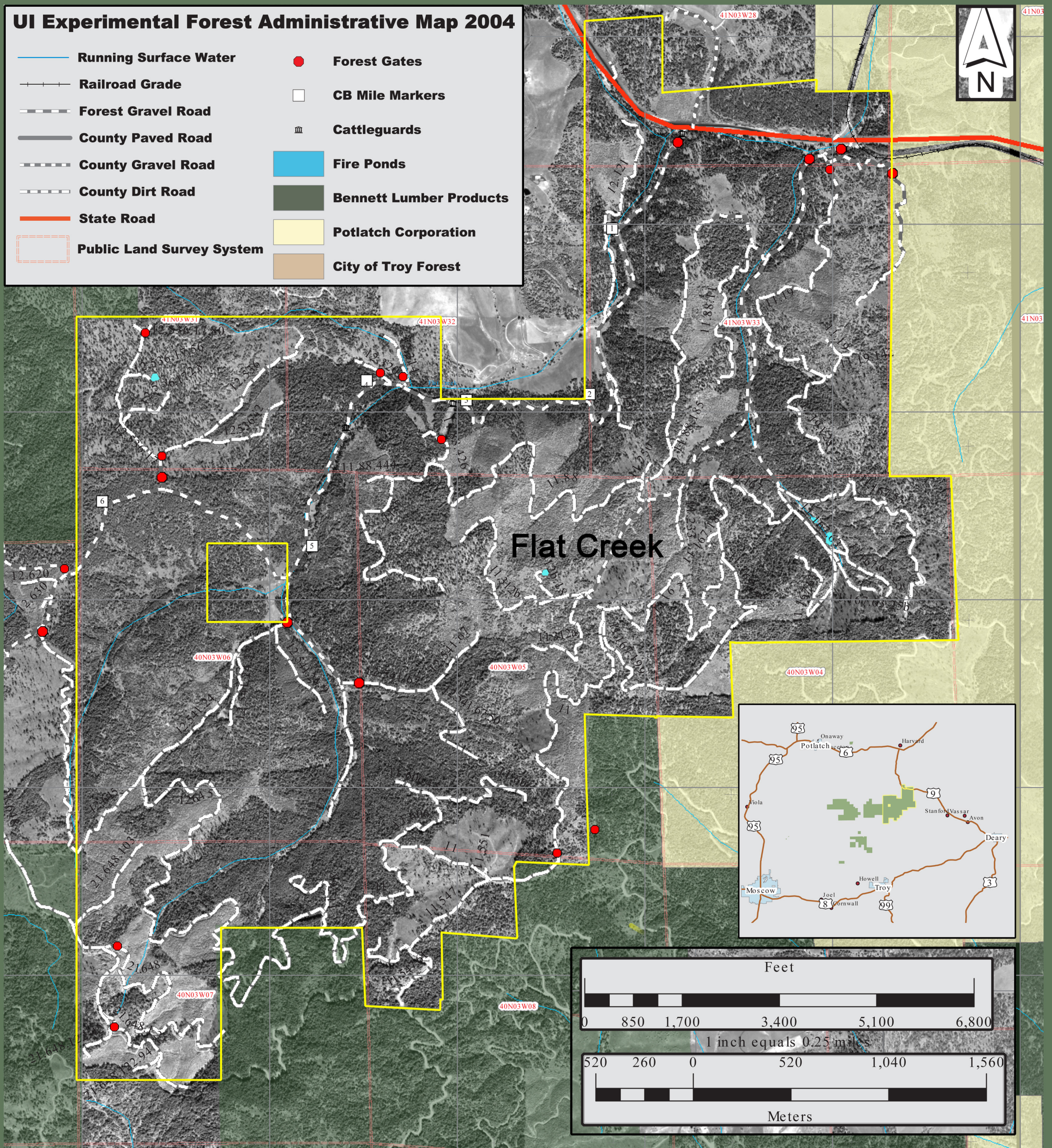IP - INTERPLANT
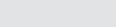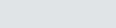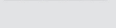
SITE PREPARTAION CODES

BB - BROADCAST BORD
DP&B - DOZER PILE AND BURN
L&S - LOP AND SCATTER
JPB - JACKPOT BURN
HPB - HAND PILE AND BURN

LOGGING METHOD CODES

C - CABLE LOGGING
G - GROUND SKIDDING
H - HORSE LOGGING

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	

Flat Creek

Feet

0   850   1,700   3,400   5,100   6,800

1 inch equals 0.25 miles

520   260   0   520   1,040   1,560

Meters

Flat Creek

Location of Complete Research:

Author & Title: Muenter-Anderson, Rainer
Assessment of the Applicability of Selection in Mixed Species
Conifer Stands of Northern Idaho

University of Idaho Library:

      Call Number- Not found in the Library's data base.

College of Natural Resources:

      Department- Forest Resources

Other Sources: