THE EFFECTS OF FORMULATION, TIMING, AND METHOD OF HEXAZINONE APPLICATION OF SURVIVAL AND GROWTH OF PONDEROSA PINE SEEDLINGS

A Professional Paper

Presented in Partial Fulfillment of the

DEGREE OF MASTER OF SCIENCE

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By

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ABSTRACT

Attempts to reforest disturbed sites with native conifers have varying degrees of success due to the limiting effects of herbaceous vegetation on the survival and growth of conifer regeneration. Hexazinone (3-cyclohexyl-6-(dimethylamino)-1-methyl-1,3,5-triazine-2,4(1H,3H)-dione) is a broad spectrum herbicide that has proven effective in controlling many herbaceous and woody weeds at application rates tolerated by most native conifers. This study examined the effects of formulation, timing, and method of hexazinone application on survival and growth of 1-10 containerized ponderosa pine seedlings. Pre-plant and post-plant applications of the liquid (Velpar L) and granular (Pronone 10G) formulations of hexazinone applied both as a spot and broadcast treatments were evaluated. Hexazinone was effective in controlling competing herbaceous vegetation on forest sites and thus improved the growth and vigor of conifer regeneration. Pre-plant treatments appeared to be preferable in decreasing the potential for phytotoxic effects of the herbicide on desired crop species. Fall applied treatments, particularly of Velpar L, consistently resulted in significantly better tree performance than other hexazinone treatments or untreated controls.

STUDY AREA

Study area is located on a 14-acre site within Flat Creek Unit of the University of Idaho Experimental Forest (Figure 1). The site faces southeast at an average elevation of 2,950 feet. Slopes range from 0 to20%. Surface soils are derived from volcanic ash and range from silt loams to silty clay loams. Average annual precipitation is 25 inches which arrives primarily in the form of snow during the months of November through April.

The study area was clearcut in the summer of 1984 and broadcast burned later that fall. On April 17-20, 1985, the site was planted with 1-0 containerized ponderosa pine stock that originated from local seed source adapted to the study area.

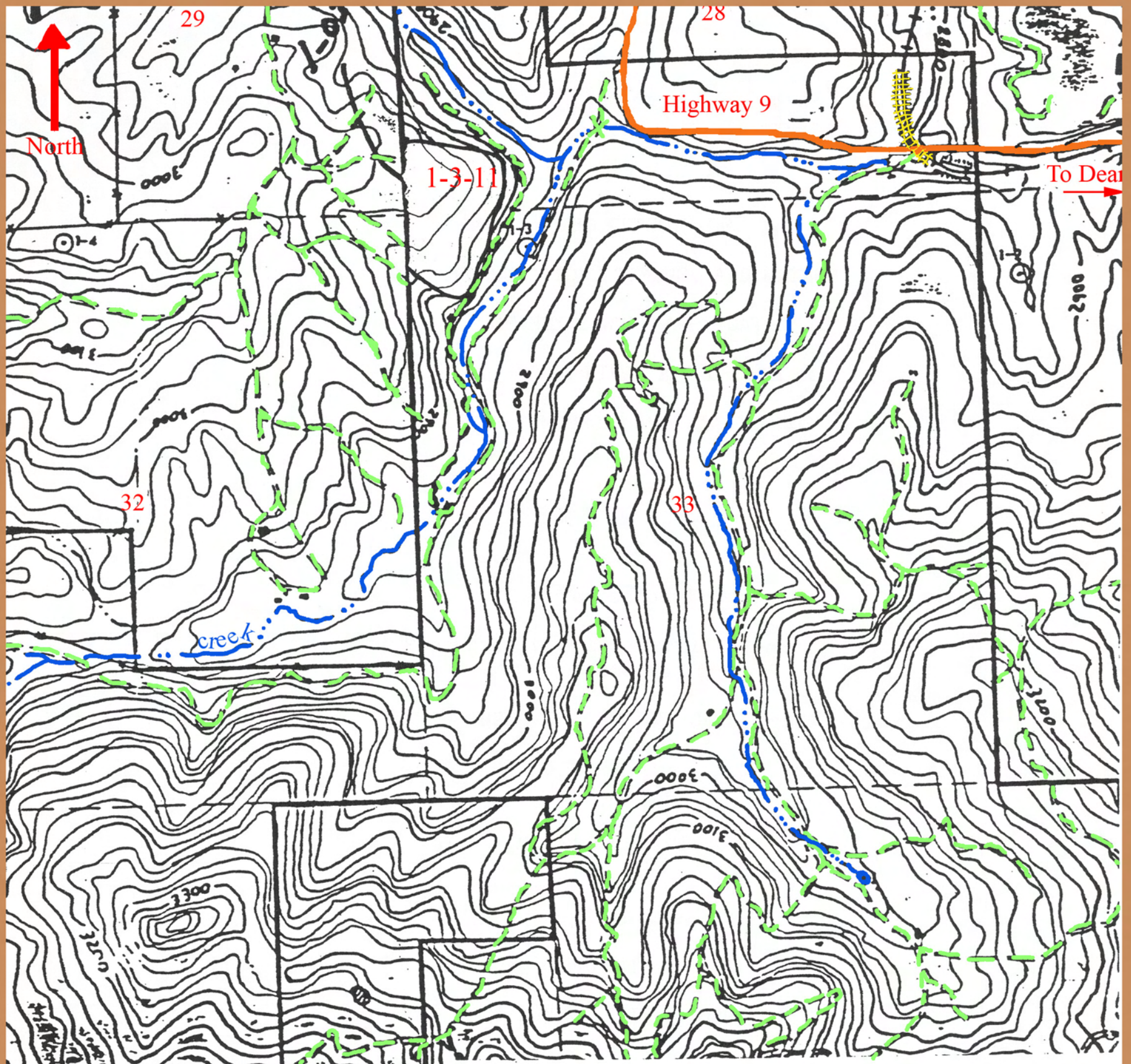
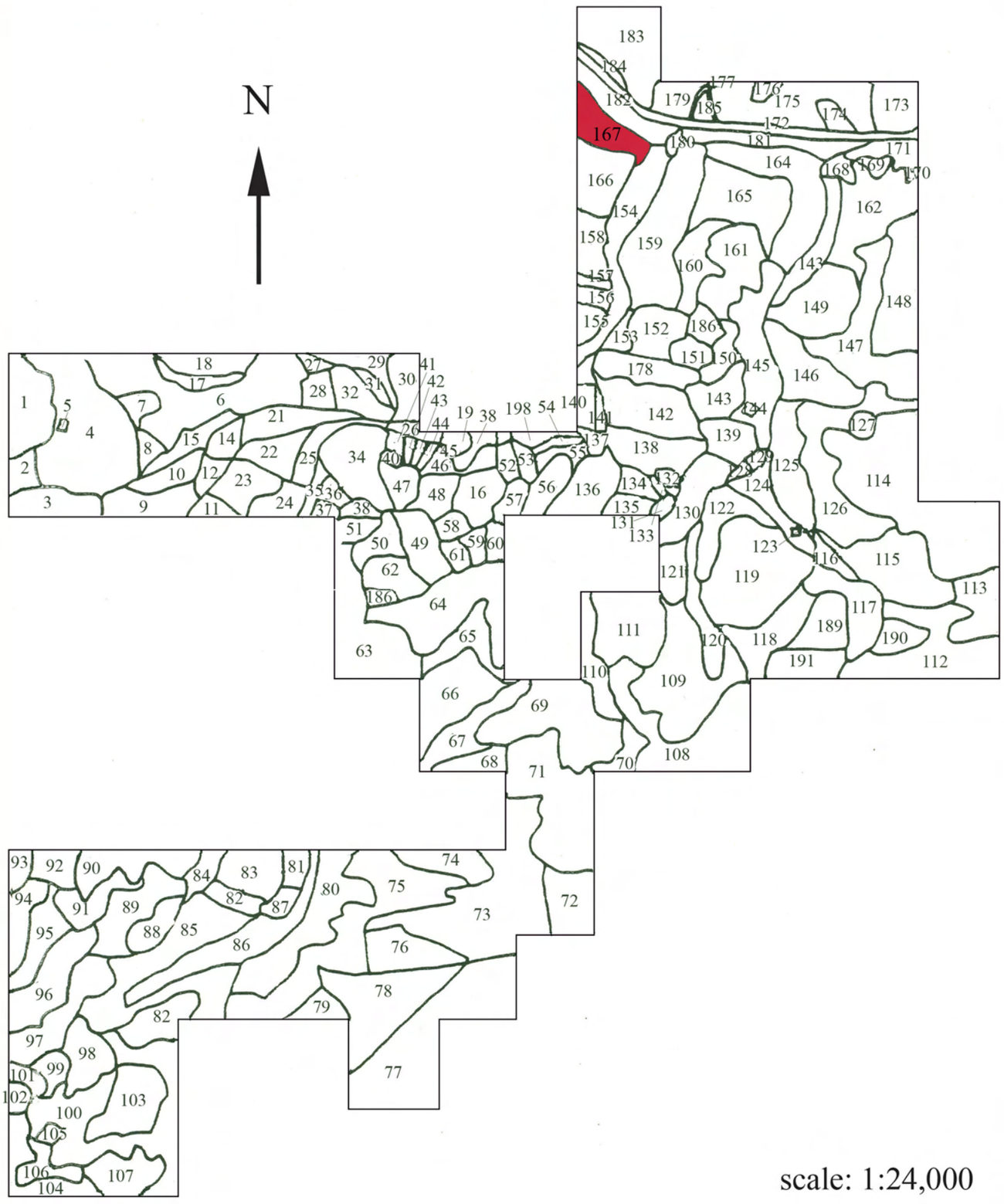


FIGURE 1
STUDY AREA LOCATION
Stand 1-3-11
Flat Creek Unit
University of Idaho Experimental Forest

0 ¼ ½ 1
Scale

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



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

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
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
10311	167	HOWARD SHELTERWOOD	14.1	SHWD	85	DP&B	86	NR		G
10312	166	HOWARD CLEARCUT	23.9	CC	85	BB	85	P	85	G
10314	158	HOWARD IMPROVEMENT CUT	6	IMP	85	DP&B	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

Location of Complete Research:

Author & Title: Jeheber-Matthews, Susan

The Effects of Formulation, Timing, and Method of Hexazinone Application on Survival and Growth of Ponderosa Pine Seedlings

University of Idaho Library:

Call Number- SD397.P6115J44 1987

College of Natural Resources:

Department- Forest Resources

Other Sources: