

CONIFER GERMINATION
AND SEEDLING ESTABLISHMENT
ON BURNED AND UNBURNED SEEDBEDS

By

Robbin B. Boyce

June, 1985

Research supported by:

U.S.F.S., Intermountain Forest and Range
Experiment Station, Northern Forest Fire Laboratory

L.F. Neunenswander, Project Director

ABSTRACT

The affects of different depths of both burned and unburned seedbeds on germination and seedling establishment were observed during the 1984 growing season. Differences in seedbed characteristics were statistically analyzed to determine sources of germination and establishment variability. Burning altered the natural organic matter seedbeds. Burning removed the topmost duff layer and increased the seedbed bulk density. Bulk density increased as duff depth decreased on burned seedbeds. Moisture availability and thermal characteristics of these seedbeds were improved.

Germination was greater on mineral soil seedbeds and burned seedbeds. Seed germination on burned seedbeds was correlated with duff depth and bulk density. As duff depth decreased and bulk density increased on burned seedbeds, germination increased. Improved thermal properties and moisture availability of burned seedbeds help explain germination variability. Seedling establishment was a function of the number of seeds germinating. The potential for natural regeneration increased proportionately with decreasing duff depth on burned seedbeds.

Study Site

This study took place 14 km from Moscow in Latah County, Idaho on the West Hatter Creek Unit of the University of Idaho Experimental Forest. Fig. 1

Boyce, Robbin - Conifer germination and seedling establishment on burned and unburned seedbeds SD397.C7B67 1985 Date: 4 APRIL 1985

Researcher/s: Leon Nevenschwander, Robbin Boyce

Project Title: Survival of Conifer Germinants in Varying Depths of Burned Duff

Subject: Regeneration

Keywords: Burning, natural regen, DF, GF, WL, WPP, PP

Abstract: The effect of burned and unburned seedbeds of varying thicknesses on natural regeneration germination and survival.

Location:

Unit of the Forest West Hatter Creek
T 40N R 4W S 4 NW 4
Stand _____ Size of Area 4 acres (4 1-acre plots in 4 cuts)
General Description of Area clearcuts, cut in 1981-2, burned Fall 1983

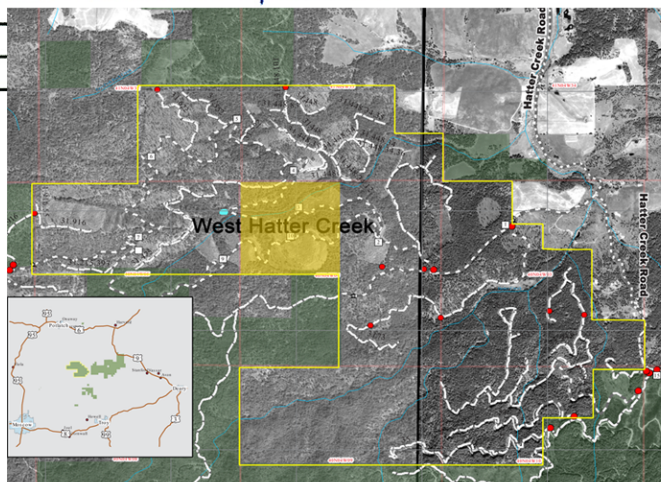
Plot or Area Designation: Fenced enclosure or fence posts marking plots

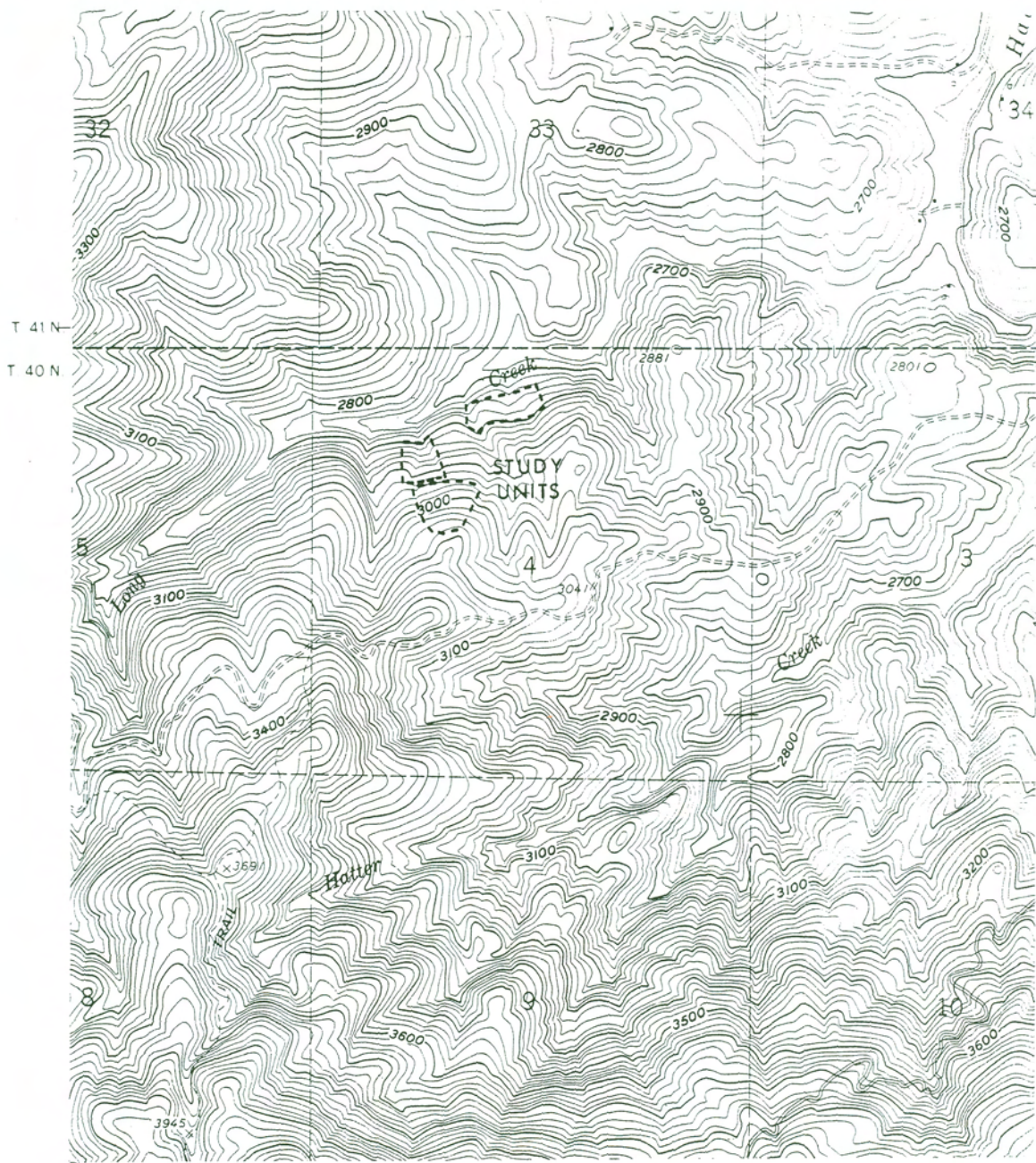
Date Begun: January 1985 Completion date (expected) continuing (1992?)

Papers or Thesis Resulting: _____
Boyce, Robbin M.S. thesis pending

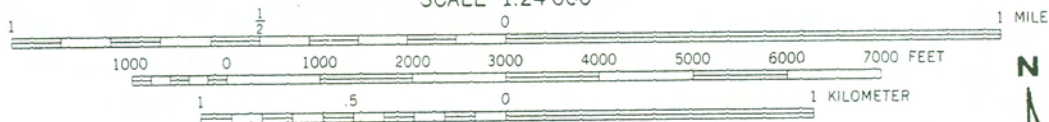
Funding Source: U.S.F.S. INT Northern Fire Lab

Future Plans: monitor differential growth between species on different seedbeds





SCALE 1:24 000



CONTOUR INTERVAL 20 FEET



Location of Complete Research:

Author & Title: **Boyce, Robbin B.**
Conifer Germination and Seedling Establishment
on Burned and Unburned Seedbeds

University of Idaho Library:

Call Number- **SD397.C7B67 1985**

College of Natural Resources:

Department- **Forest Resources**

Other Sources: