

OVERSTORY/UNDERSTORY RELATIONSHIPS IN THE PONDEROSA PINE BIOGEOCLIMATIC ZONE

modified from Ross, T.J., G.W. Powell and C. DeMaere. 1998. *The effect of thinning and burning on PPdh2 understory plant cover. Unpublished report. B.C. Ministry of Forests, Research Branch, Kamloops, B.C.*

Populations of rough fescue and pinegrass were shown to be light dependant. Burning has the potential to speed recovery of understory plant species.

Objectives

This research assessed the potential recovery of understory grassland vegetation by examining previous attempts to thin and burn overstocked Ponderosa Pine (PP) stands in the East Kootenay Trench. Ten PP sites that were previously thinned and/or burned were selected in the Nelson Forest Region. The relationship between forest overstory and understory vegetation was determined under two thinning treatments (to approximately 400 and 700 sph [stems per ha]) with and without prescribed burning.

Sites

The study took place in the St. Mary's Prairie, Cherry-TaTa and TaTa/Skookumchuck Range Units, all of which are located within the Cranbrook and Invermere Forest Districts in the East Kootenay region of British Columbia.

Treatments

Forest harvest took place between 1976 and 1982. One site was harvested in 1976 and spaced in 1980. All other block openings were designed as stand-tending projects where specific objectives in terms of the number of stems per hectare were set. Prescribed burning, if applicable, took place the year following stand tending operations.

Preliminary conclusions

- the amount of available light is a major factor determining abundance of understory plants in PP stands
- understory plant cover was 15% higher on burned sites than on unburned sites
- available light averaged 41% at sites thinned to 700 sph and 50% at sites thinned to 400 sph
- pinegrass frequency was highest when available light averaged 24% or less, from that point it declined to 0% at approximately 85% available light
- rough fescue was absent at 5% available light and frequency was less than 25% up to 75% available light, from which point its frequency increased by 20% for each 5% increase in available light.