Modelling early regeneration processes in mixed-species boreal forests of Alberta

Lead by: Carrie Berger

Theme: White Spruce Regeneration

Status: Completed

Start: 1999

End: 2002

Participants

- Carrie Berger
- Dan Gilmore
- Kathy Haiby

Background

Although much is known about securing regeneration of desirable species, few predictive tools currently exist to deal with observed annual variation in seed crop, seed predation, germination success, early survival, and seedling growth. When a decision is made to impose treatments conducive to regeneration of target species, the composition and density of the realized seedling community frequently departs from expectation. Without better understanding of early regeneration processes, our future forest will occur by default rather then by plan.

Objectives

1) To quantify the amount of white spruce seed rain, germination, and early survival within the framework of the EMEND experimental design.

Key Results

White spruce seed fall in 1999-2000 was exceptional and ranged from 0 to 4256 seeds m-2. Fall 2000 seedfall ranged from 0 to 769 m-2. ?The relationship between white spruce basal area and seed fall does not differ among cover types or treatments. ?Seed to seedling ratios differed among cover types. ADOM: 40:1; MIX 101:1; CDOM: 536:1. ?There were more germinants and higher survival on decaying logs compared to other regeneration substrates.