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Effects of natural soil substrate on greenhouse germination of Pinus flexilis

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Poster Presentation Abstract:

Limber pine (*Pinus flexilis*) is an endangered species in Alberta that is affected by an introduced fungus, white pine blister rust. The purpose of this study is to contrast germination on various substrates from two locations that have shown varying field seed regeneration results in past studies. Our study germinated limber pine on natural substrate in the greenhouse after use of a 60-day cold stratification period. Three different natural substrates were used in this study: mineral soil, mineral/scree mixtures and humus, all which originated from sites at the northern and southern Albertan ranges of limber pine habitat. Viability of seeds pre and post planting was determined using cut tests, contrasting stratified and planted seeds with unstratified seeds. Two-way ANOVA analysis was used to determine the effects of the two locations and the differing substrates in the greenhouse. Our ANOVA test determined that soil substrate was the main difference in germination success, with humus as the most successful substrate from northern soils and scree as the most successful from southern soils, and both sites having equally low germination from mineral soils. In conclusion, this study has served to isolate substrate and seedbed effects from two natural habitats of limber pine through greenhouse germination.

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