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Interactions between mosses and vascular plants that affect conditions in Canadian boreal forests at different successional stages

Mosses on the floor of boreal spruce forests both contribute and respond to successional change following fire. Extensive clonal mats of moss are likely to have species-specific effects on the establishment of vascular and nonvascular plants. Conversely, the presence of certain vascular species could affect the establishment of particular mosses. These interactions mediate forest regeneration and have implications for timber production and attempts to emulate natural disturbance. My objective is to study the effects of moss cover on the establishment of selected species belonging to 3 groups that make a significant contribution to forest productivity and successional development. I will compare germination rate and subsequent growth of propagules of 6 species of moss, 2 leguminous forbs and 2 ericaceous shrubs when sown on gametophytes of moss or in the soil beneath. Phenolic compounds in ericaceous litter have been shown to inhibit seedling development and might affect mosses similarly. I will test this hypothesis by comparing the effects of aqueous extracts from litter on fragment growth in 6 mosses. I predict that moss cover and aqueous extracts will inhibit germination and growth but the effect will vary with covering species and species sown.