Effects of mountain pine beetle attack on forest root abundance and structure.

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Abstract

The mountain pine beetle (MPB) outbreak, part of the largest insect outbreak recorded in North American forests, has recently impacted the boreal forest of Alberta. The increased mortality of Lodgepole Pine caused by MPB infestation changes many abiotic factors that alter the ecology of the forest system. I investigate how root abundance and structure changes over a gradient of MPB attack. Total root biomass was sampled across 11 Lodgepole Pine dominated stands representing a gradient in percent of MPB attacked basal area. Roots were extracted from 10 soil cores per stand, separated into fine and woody roots, and dried and weighed. Preliminary results show that both fine root mass and woody root mass do not significantly change with increased basal area of MPB attack. This suggests that a turnover in root composition occurs as a compensatory response of the understory to Lodgepole pine mortality. The maintained net root abundance may have implications for forest regeneration since the below-ground competition of establishing seedlings is not hindered with MPB attack.

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