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Abstract

Evaluation of a mature lodgepole pine stand resistance to the current mountain pine beetle infestation after nitrogen fertilization

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Research is currently under way in the Southern Interior Forest Region to determine whether nitrogen fertilization can be used to increase mature lodgepole pine trees' natural defences against the mountain pine beetle (MPB) and thereby reduce the impact of the mpb infestation in pine stands. In fall 2006, three nitrogen fertilizer treatments (0, 200, and 400 kg N/ha) were applied randomly to each of 10 plots in a 140-year-old fire-regenerated stand of mixed lodgepole pine, spruce, and true fir. In 2007, the stand was inoculated with two isolates of blue stain fungus and with local beetle microflora. A forest health survey helped determine the level of MPB within the stand before the plot centres were baited with pheromones. Early results show that the 400 kg N/ha treatment significantly increased nitrogen levels in pine phloem and needles. No significant differences were apparent in lesion length related to nitrogen treatment levels within each of the three fungal isolates. Measurements in 2008 will show whether MPB attack success varies among nitrogen treatments.

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