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Silvicultural treatments increase long-term conifer growth and N mineralization rates on cutovers dominated by *Kalmia angustifolia* in central Newfoundland

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Dense *Kalmia angustifolia* (*Kalmia*) cover on black spruce cutovers in central Newfoundland can reduce the vigour of conifer regeneration and lead to seedling growth check. The response of eastern larch jack pine and black spruce (*Larix laricina* *Pinus banksiana* *Picea mariana*) to three silvicultural reforestation treatments (fertilizer herbicide scarification) were compared 15 years after application on a site dominated by *Kalmia*. Fertilizer application alone did not significantly increase long-term seedling growth. However herbicide or scarification reduced *Kalmia* cover and increased conifer seedling growth. When *Kalmia* was controlled with herbicides additional herbicide or scarification treatments led to even greater conifer growth responses compared to application of single silvicultural treatments. Amongst the three species tree growth was greatest after 15 years for eastern larch and least for black spruce. The forest floor was sampled in three contrasting treatments: control herbicide alone and herbicide + fertilization. Silvicultural treatments with increased tree growth also had increased net nitrogen mineralization and microbial respiration (determined in aerobic laboratory incubations). Forest floor properties also varied under the different conifer species. It would appear that controlling *Kalmia* through herbicide application led to long-term changes in forest floor quality and it is possible that these contributed to the increased tree growth observed in this trial. We are unable to ascertain the extent to which species differences are due to species effects or to different rates of growth and hence different rates of canopy closure.