

The distribution of bark beetles in relation to their habitat and the physical structure of the landscape

Lead by: Jane Park

Theme: Biodiversity

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Participants

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Background

The dispersal and habitat selection by bark beetles is largely influenced by habitat availability, stand composition and density. The need for improved forest management requires that beetle outbreaks be monitored in order to estimate the biological and economic impacts of infestations. Current logging practices alter the distribution of bark beetle habitat, creating pockets where habitat is abundant. By determining the effects of habitat distribution on beetle dispersal and production, future cutblocks can be appropriately placed to minimize risk of infestation.

Objectives

- 1) To determine how habitat distribution and quality effect the distribution and abundance of bark beetles.
- 2) To determine how the physical structure of the forest affects bark beetle movement.
- 3) To use quantitative

data on the distribution and abundance of bark beetles to develop a management tool to minimize the risk of infestation of future cutblocks.

Key Results

Both species (*T. lineatum* and *P. rufipennis*) were distributed according to habitat abundance. In *T. lineatum*, beetle abundance was positively correlated with stump density in compartments. *T. lineatum* was also found to be able to colonize the majority of all stumps (>70%) in all stand types. *T. lineatum* distributions were not found to be affected by the presence of machine corridors and retention strips. Like *T. lineatum*, *P. rufipennis* was found to be influenced by habitat availability as well. *P. rufipennis* were more abundant in areas containing large amounts of freshly fallen conifer wood (windthrow). Settlement densities of this species were similar across compartments, however, larger diameter logs contained higher densities of beetles. The ecological model determining infestation risk across the landscape is still in development (projected completion of model, March 2002)