

MOUNTAIN PINE BEETLE RISK STUDY

A framework of anticipating risks, trade-offs and fostering resilience related to MPB outbreaks and genomic-enhanced tools for risk management planning

Background

Over the past two decades, mountain pine beetle (MPB) has killed more than 18 million hectares of mainly lodgepole pine forests in western Canada. In the wake of this MPB epidemic, decision makers grapple with reforestation strategies and seek solutions to increase forest resiliency. Genomic science is being used to study the risks of MPB outbreaks and the genetic basis of MPB resilience in trees. Understanding options for managing MPB risk, including genomic approaches, and identifying mechanisms to ensure coordinated approaches among stakeholders, communities and jurisdictions is vital to implementing an effective risk management strategy.

Goals

This project aims to develop a framework for risk management planning, assessment and resilience building related to the MPB epidemic. Specifically, our objectives are to:

- 1) Identify and characterize how governments, organizations, and communities communicate about risk and exchange knowledge to find solutions for MPB risk management
- 2) Assess local preferences for risk mitigation and multiple forestry uses to consider for alternative forestry management approaches, such as genomic applications
- 3) Determine the challenges of MPB risk management coordination across different jurisdictions including trade-offs, decision-making, policies, and practices to improve collective efforts

We will produce a risk management framework based on direct input from governments, communities, and stakeholders with localized recommendations for three communities with different levels of experience with Mountain Pine Beetle outbreaks: British Columbia (past outbreaks), Alberta (new outbreaks), and Saskatchewan (vulnerable to outbreaks).

Data

We will be collecting information on:

- Past experiences related to MPB outbreaks
- Perceptions of trade-offs and risks and how they influence decision-making
- Preferences for different management strategies
- Views of genetically enhanced tools such as tree improvement and adaptive silviculture for addressing MPB and similar outbreaks
- Communication between national, provincial, and local governments, organizations, and the public about risks and management solutions

Benefits

Information from our research will help develop new approaches and options for forest management that takes into consideration past, present, and anticipated risks. Our study of risk perceptions, communication pathways, and past experiences related to MPB can provide an understanding of factors that may influence the social acceptability of research applications in tree improvement and adaptive silviculture to manage risks of insect outbreaks and other risks to forest biomass. It will also facilitate coordination of policies and management practices across jurisdictions with different experiences with MPB outbreaks.

Research Team

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