Assessing the effectiveness of Alberta's forest management program against the mountain pine beetle

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Acknowledgements

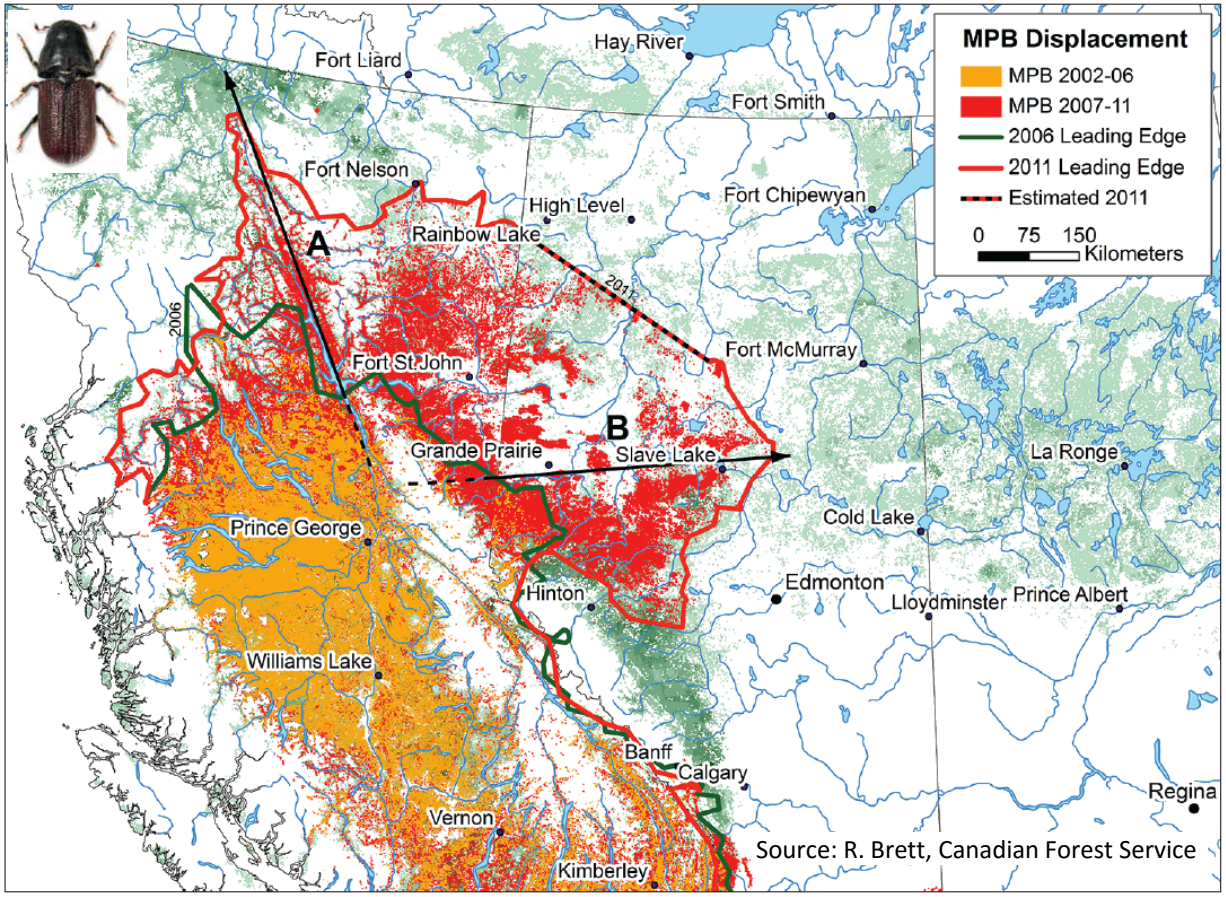
Funding:

Data:

In kind:

Mountain pine beetle outbreak status

Net displacement (2007 – 2011) from historic leading edge >400km North and East



From: Nealis and Cooke 2014

- Spread has exceeded expectations
- Epidemic MPB pop'ns established in all Alberta pine forests
- Recent spread into Jasper and Hinton
- Eastern pines remain at risk

MPB management in Alberta

Strategy:

- "Slow the spread"

Tactics:

- Single tree treatments (Level 1)
- Clear-cut harvesting (Level 2)
- Healthy pine strategy (Level 3)

Costs to date:

- > $400 million

Photo: AB Agriculture and Forestry

Research questions

- Have the efforts to date to management MPB in Alberta (i.e. “slow the spread) been effective?
- Would alternative approaches to management of MPB been more/less effective?

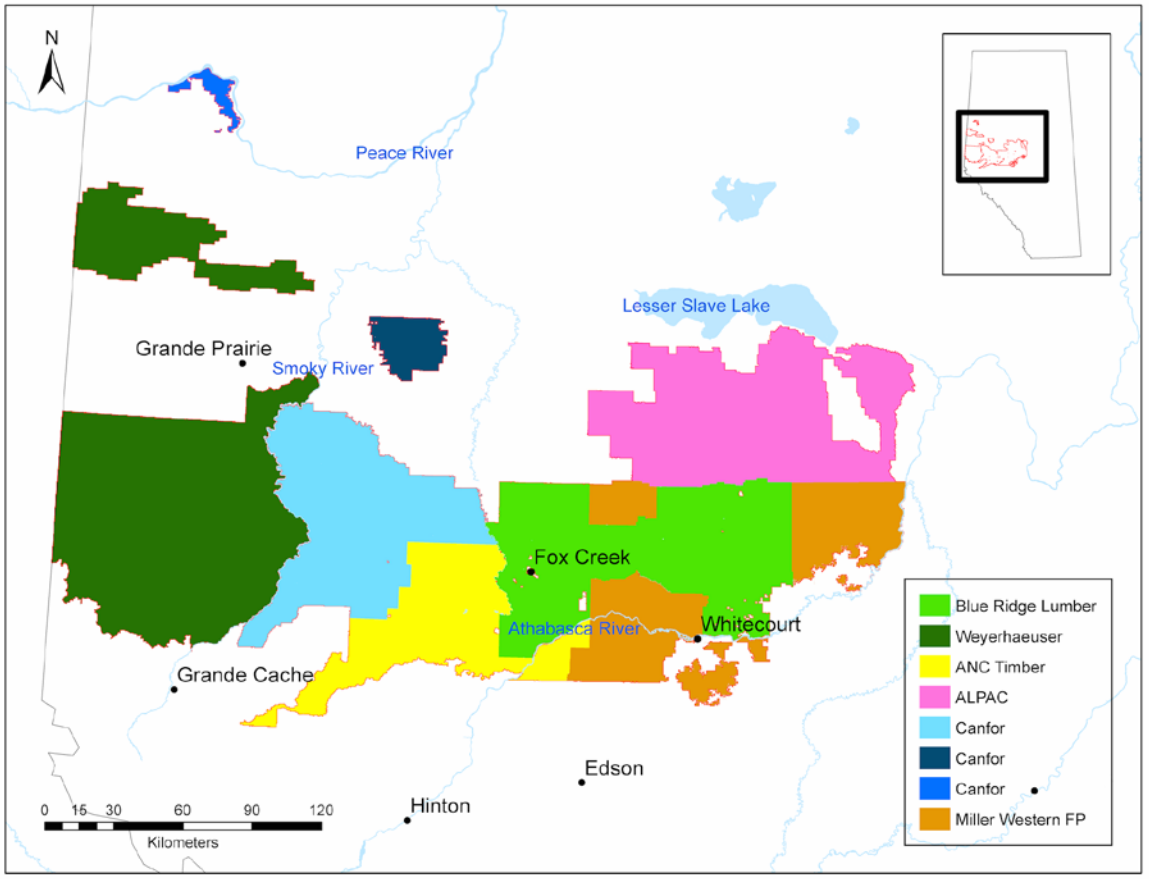
Approach/data

Integrate/synthesize existing extensive long-term data on MPB status and management in Alberta

- Alberta Agriculture and Forestry
  - Ground surveys
    (green attack trees, locations)
  - Level 1 control
    (trees treated, locations)
  - r-value surveys
    (beetle productivity, site characteristics)
  - Aerial surveys
    (red attack trees, locations)
- Licensees (FMAs)
  - VRI data
  - Level 2 control
    (area harvested, locations)

Study area/research products

- Phase 1 (2014-2015)
  - MPB productivity model (predicted *r*)
  - Level 1 treatment efficacy evaluation
  - MPBSpread development
- Phase 2 (2015-2016)
  - Application/validation of MPBSpread
  - Strategy/tactic evaluation and future risk assessment using MPBSpread



Presentation overview

1. Development of the MPB productivity (*r*) model
   - *Relevance to, and potential integration with, MPB management program*
   - Discussion
   - *Break*
2. Evaluation of Level 1 treatment efficacy
   - Effect of treatment on attack intensity in 1-2km zones of influence
   - Examination of green-attack detection rates around treated infestations
   - *Relevance to, and potential integration with, MPB management program*
   - Discussion
   - *Lunch*
3. Development and application of spatial MPB model (MPBSpread)
   - Parameterization and validation of MPBSpread on BC Study area
   - Application of MPBSpread to evaluate efficacy of Level 1 and Level 2 control
     - Comparison against survey data
     - Scenario analysis to evaluate management
   - *Relevance to, and potential integration with, MPB management programs*
   - Discussion
4. Next steps
   - Assessment of the potential for novel strategies at the province and/or region-wide scale
   - Discussion
   - Adjourn