Natural Patterns of the Eastern Slopes of Alberta

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Relative Lightning Density on the Hinton Wood Products FMA
Natural Subregions smush up against the mountains.
Fire Size Distributions

![Bar chart showing fire size distributions by forest patch size-class (ha) for Montane and Subalpine regions. The x-axis represents forest patch size-class (ha) ranging from <1 to 10,000+, and the y-axis represents percent area. The chart includes bars for different size classes, with Montane in green and Subalpine in blue. The chart highlights the distribution of fire sizes in each region.]
Yet, How Much Do We **REALLY** Know About the Disturbance History Here?

**For example:**

Fire Size & Severity

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Fire Frequency

“stand-replacing” fires.

“stand-maintaining” fires.
What if…

Fire control starts here, …& we are here?
If This is True, Some Potential Impacts Are:

- Tree lines have advanced (east).
- Open meadow:forest ratios have decreased.
- Duff layers are thicker (fuel, MSE, germination)
- Soil is colder.
- Understorey species composition has shifted.
- Tree species composition has shifted.
- Stand densities have increased.
- Habitat has shifted.
- Fine fuel has increased.
- MPB risk has increased.
- ...
- ...
Extent of mixed severity fires as we believed circa 1990.
Extent of mixed severity fires as we believed circa 2008.
Possible extent of actual mixed severity fires?

2009 pilot study
Possible extent of actual mixed severity fires?

2009 pilot study
Another example: If MPB has not been here before,

What sorts of landscape conditions and biological responses should we expect?
Company X analyses inventory data to determine historical old forest levels.

Consultant A does intensive field study on fire sizes and frequency.

GoA Agency B does analysis of fire cycles based on available fire occurrence.

Grad Student does a simulation analysis of fire sizes.

Agency F does simulation analysis of seral-stages levels.

Consultant B borrows best available local knowledge to establish “burn deficits”.

Grad Student does a simulation analysis of fire sizes.
The Problem to be Solved:

Multiple, unconnected and unequal:
- Partners,
- Methods,
- Data sources,
- Available resources,
- Criteria / minimum standards,
- Needs and objectives,
- Knowledge levels,
- Indicators, and
- Language.