The ND Program: What Do We Know?

FRI AGM

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foothills RESEARCH INSTITUTE
research growing into practice.

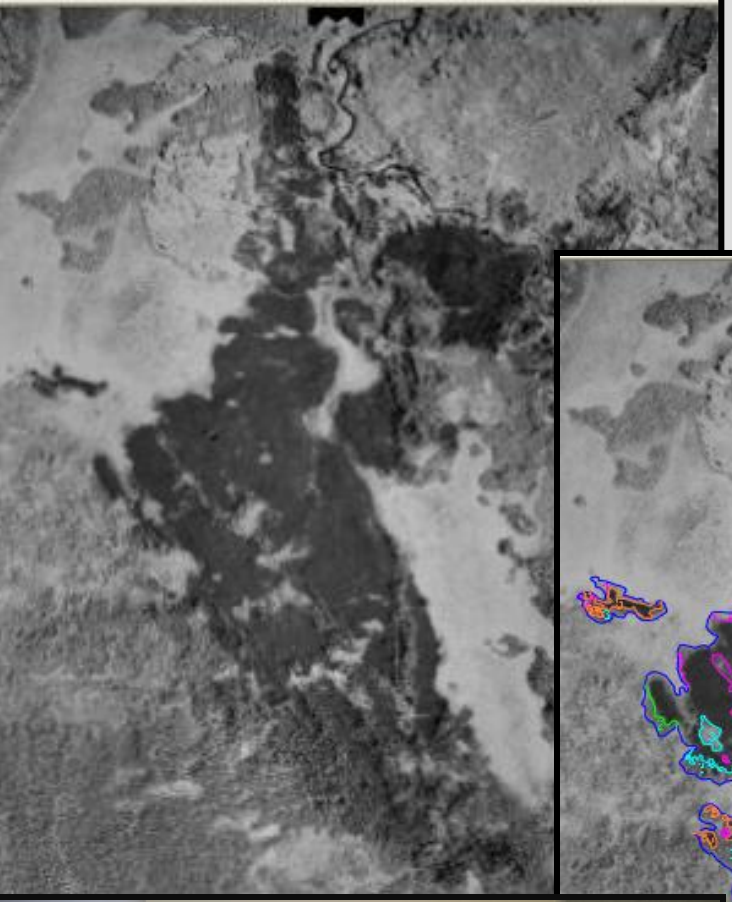
So, what “challenges” are associated with the ND Program?

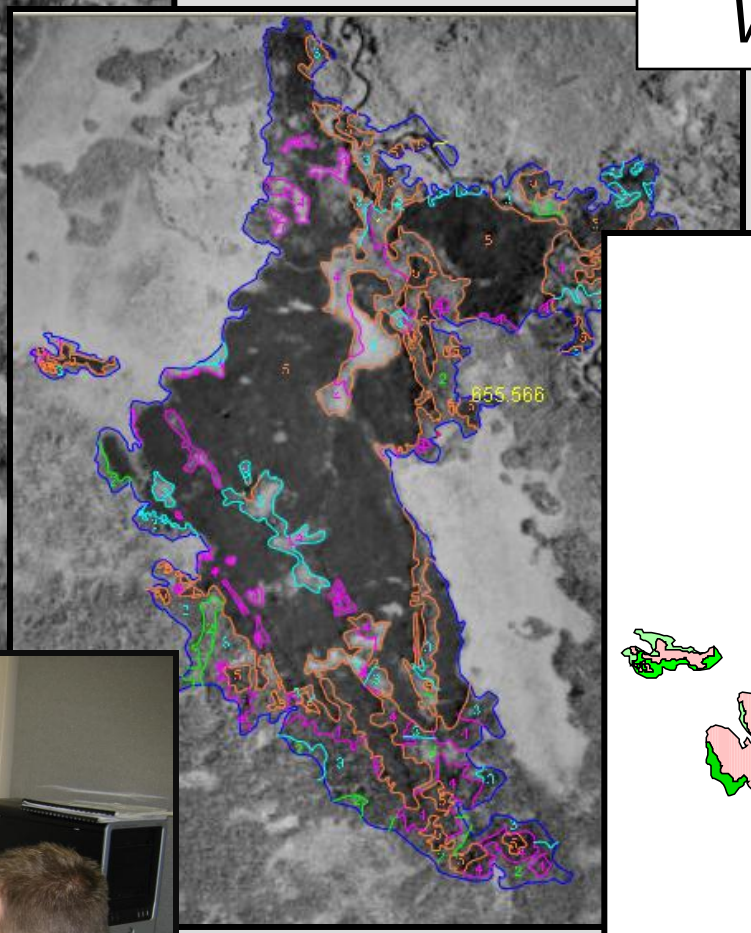
… pull up a chair.

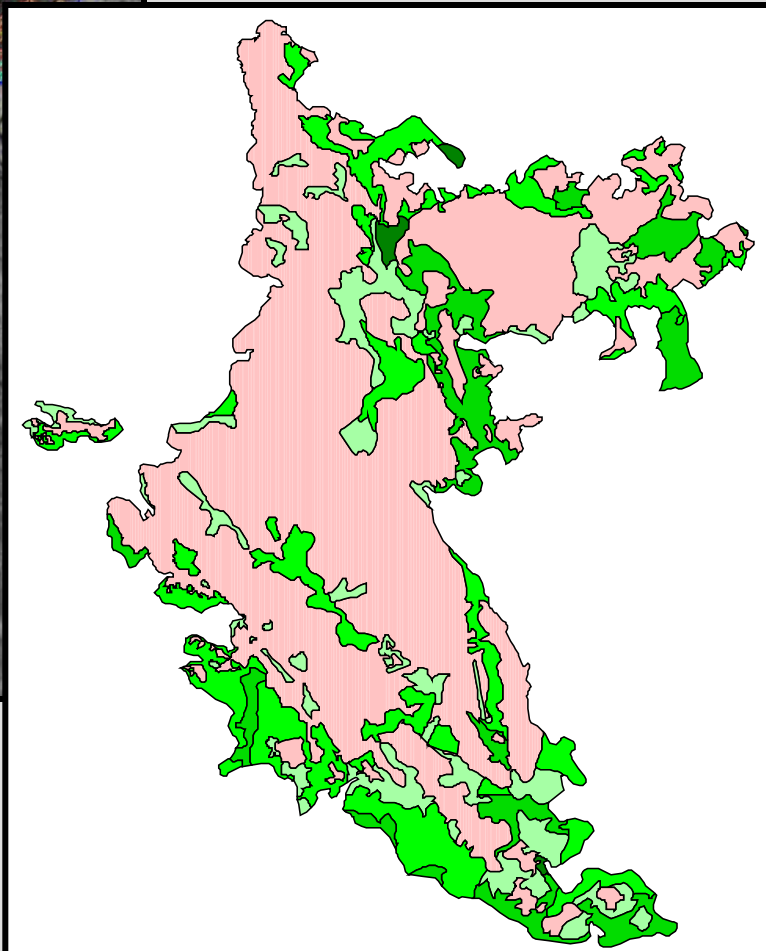
Tactical planning challenge:
How do I design harvest areas / prescribed burns to have more natural features?

First Step:

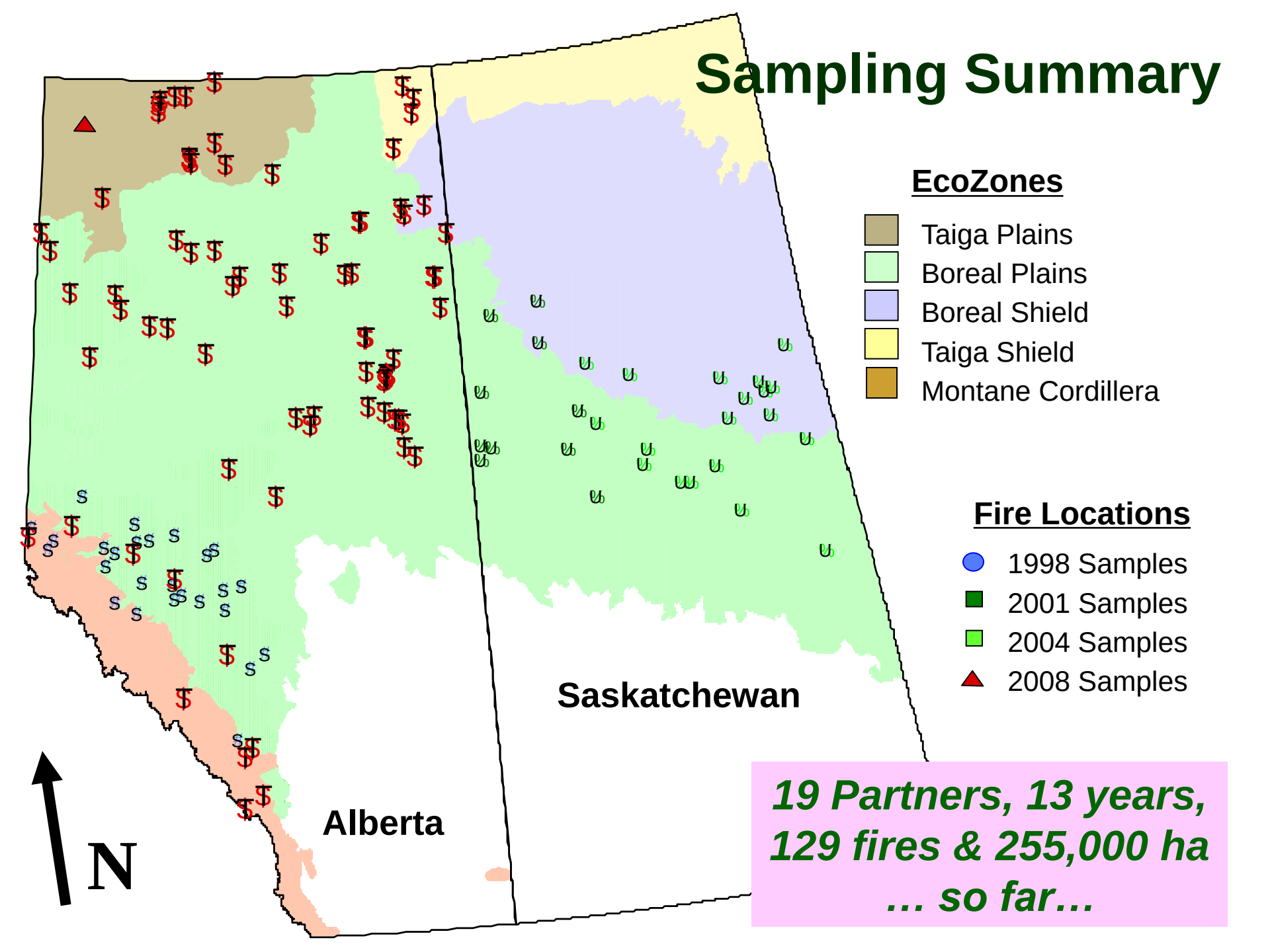
Understand Natural Wildfire Patterns



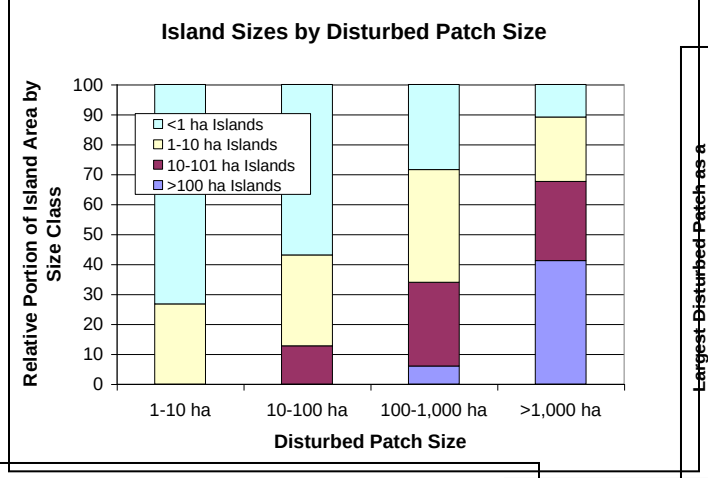


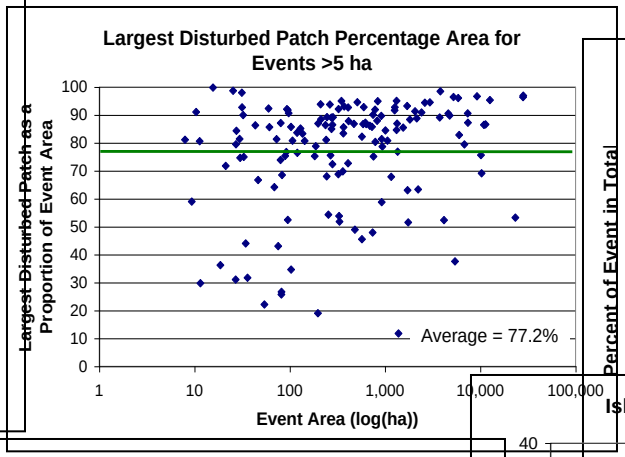


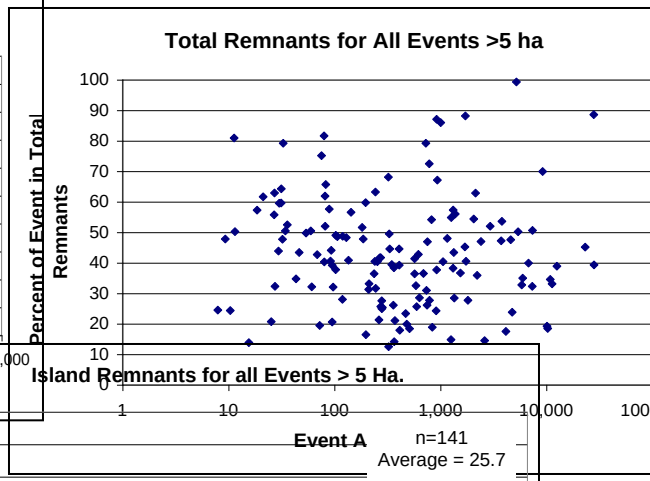
Sampling Summary

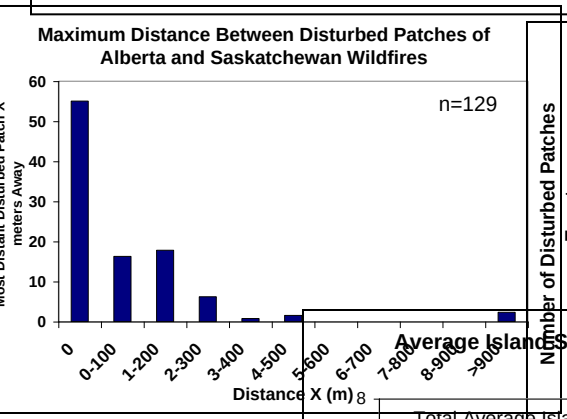


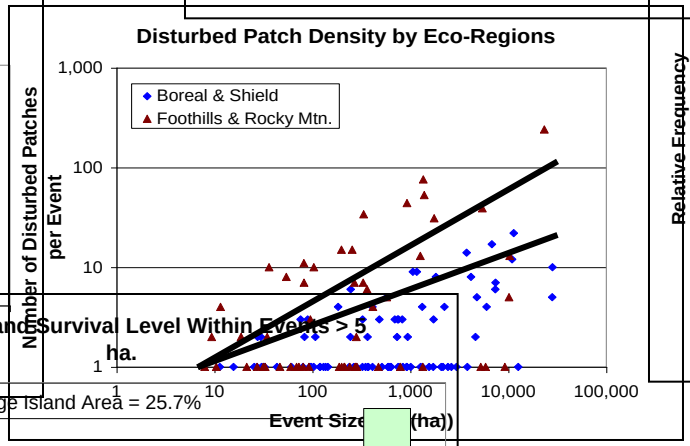
19 Partners, 13 years, 129 fires & 255,000 ha … so far…

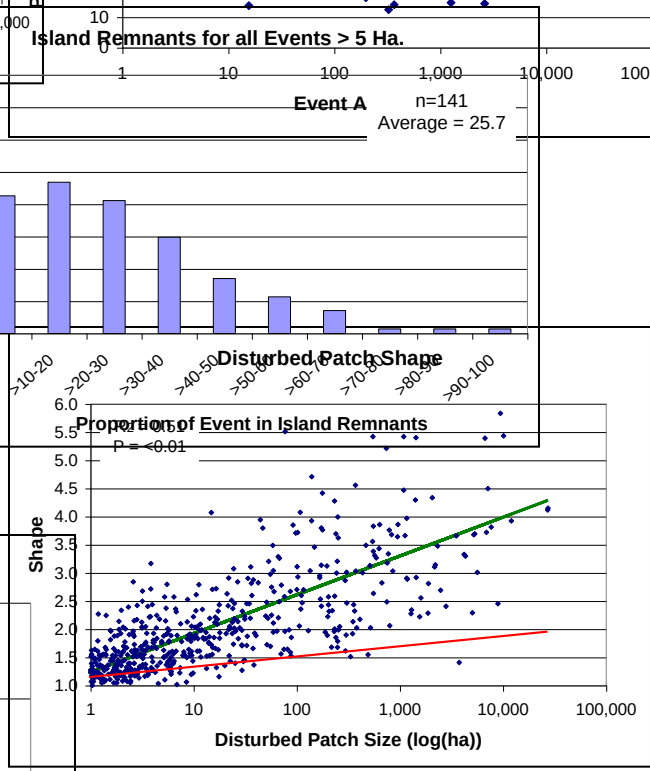


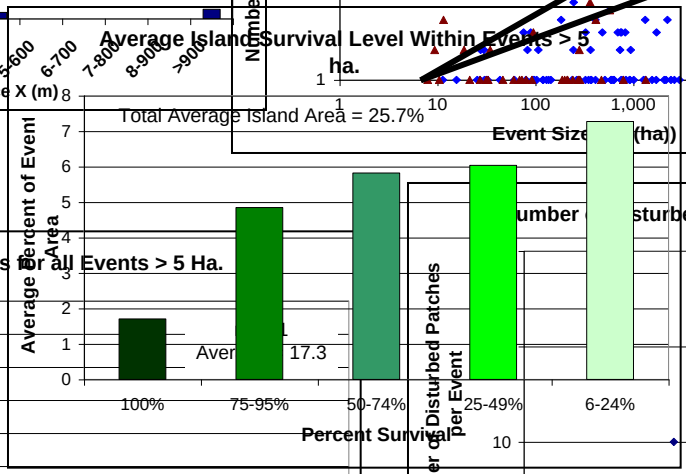


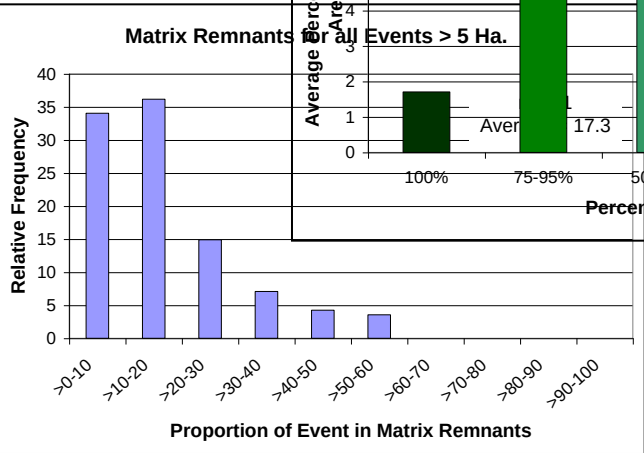


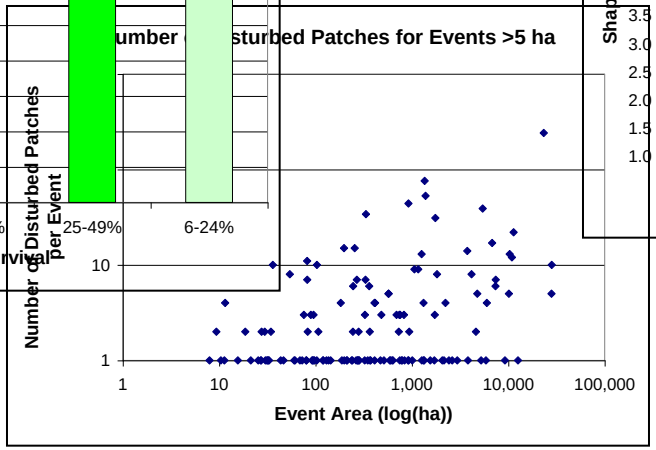








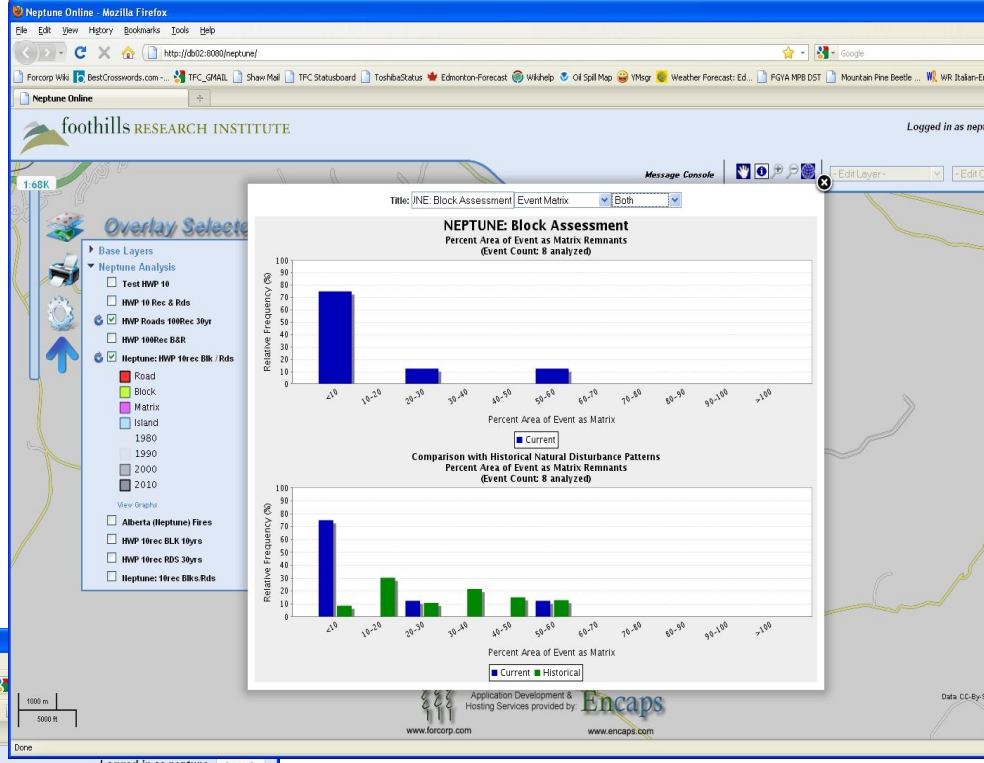


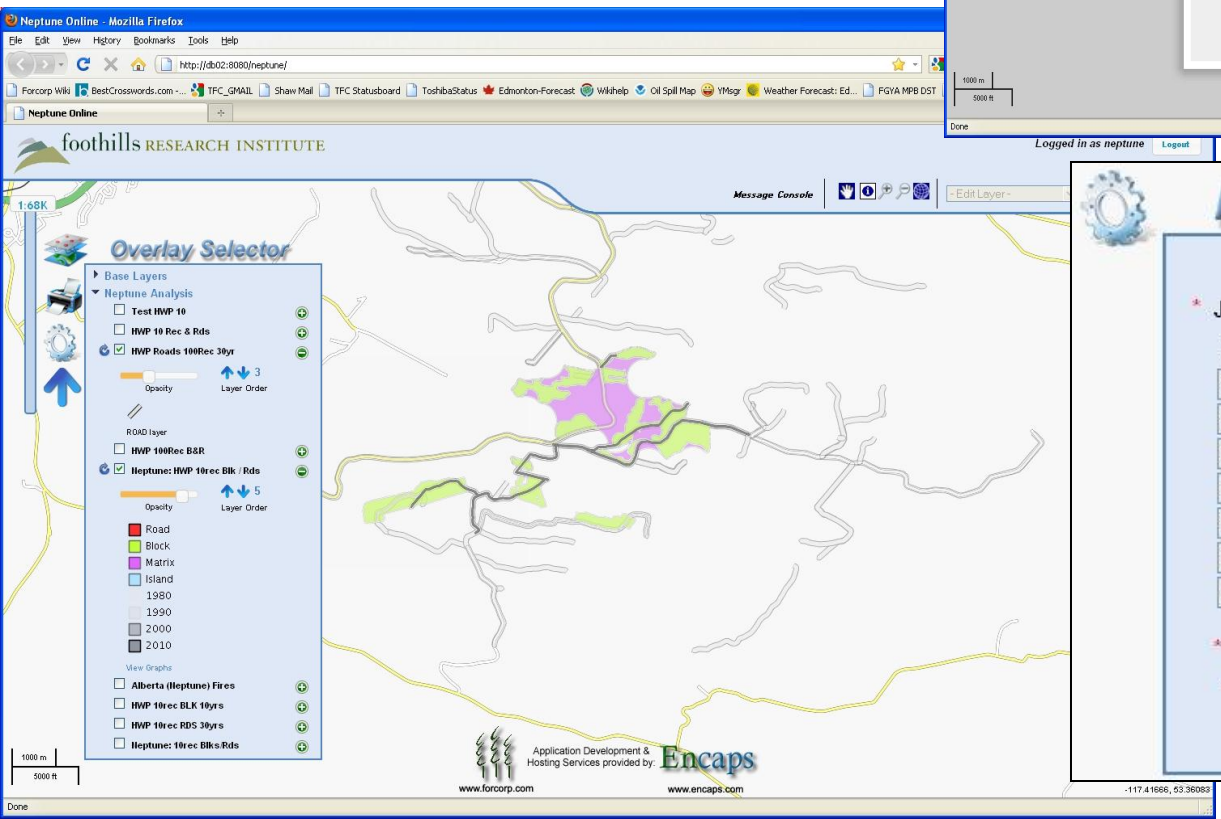


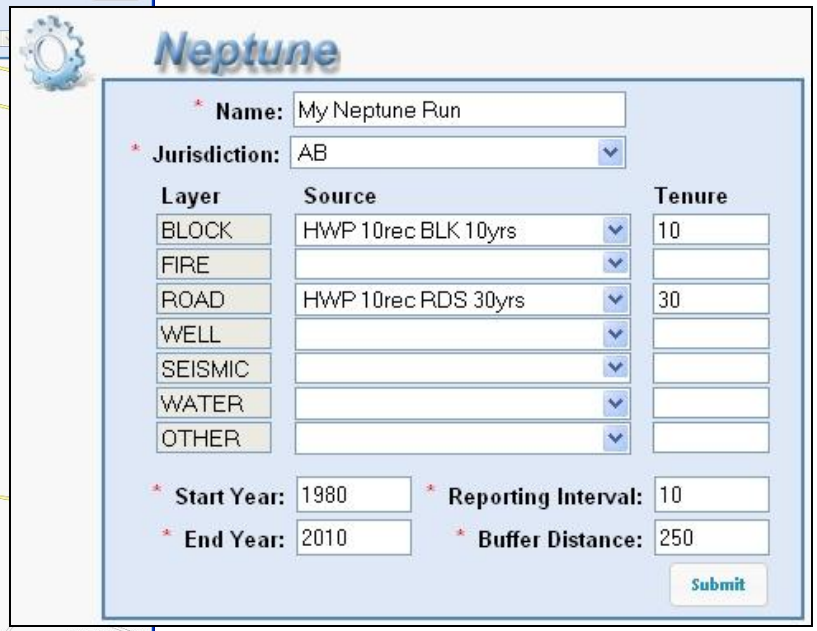
Next challenge(s)…

1) NEPTUNE V. 2.0

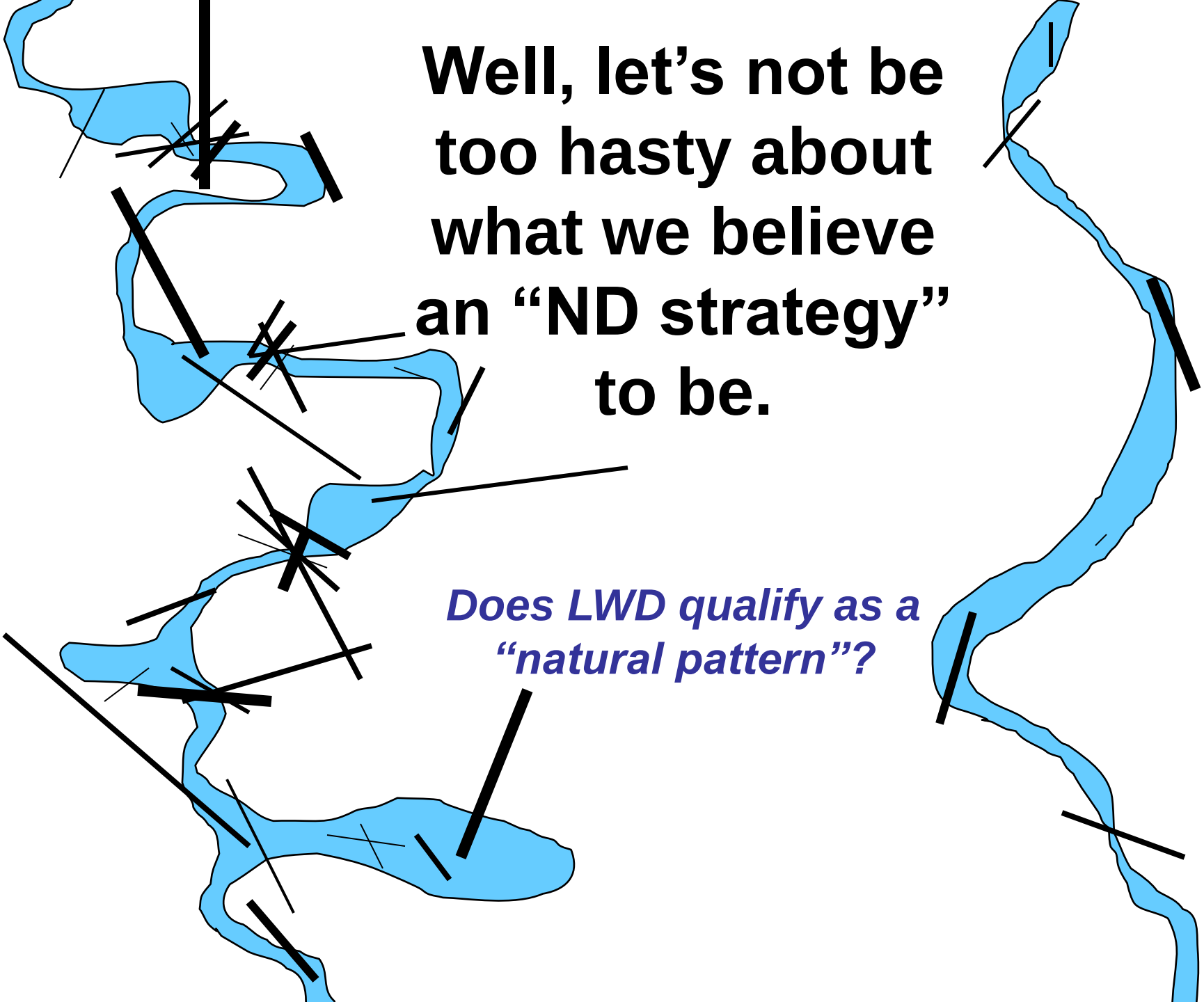
2) *Natural Disturbance Event Design* on-line short course.







"Thanks anyways, but an ND strategy does not work for riparian zones."



Well, let's not be too hasty about what we believe an "ND strategy" to be.

Does LWD qualify as a "natural pattern"?

Bridge
10-50 yrs
Partial
Bridge
20-60 yrs
Embedded
50-120 yrs
Loose
40-100 yrs

Strategic Planning Challenge:
How much old forest should we manage for to safely be within the historical range?

…harvest levels…

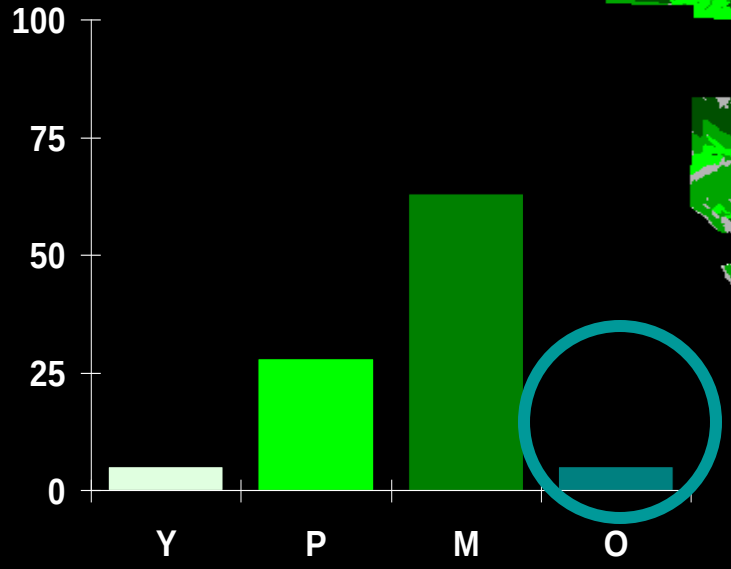
…fire control effectiveness…

…fine filter values…

…and by the way, what the heck is “old forest”?

Hinton Wood Products Pre-Industrial Landscape in 1950

(no fire control, harvesting, roads…)

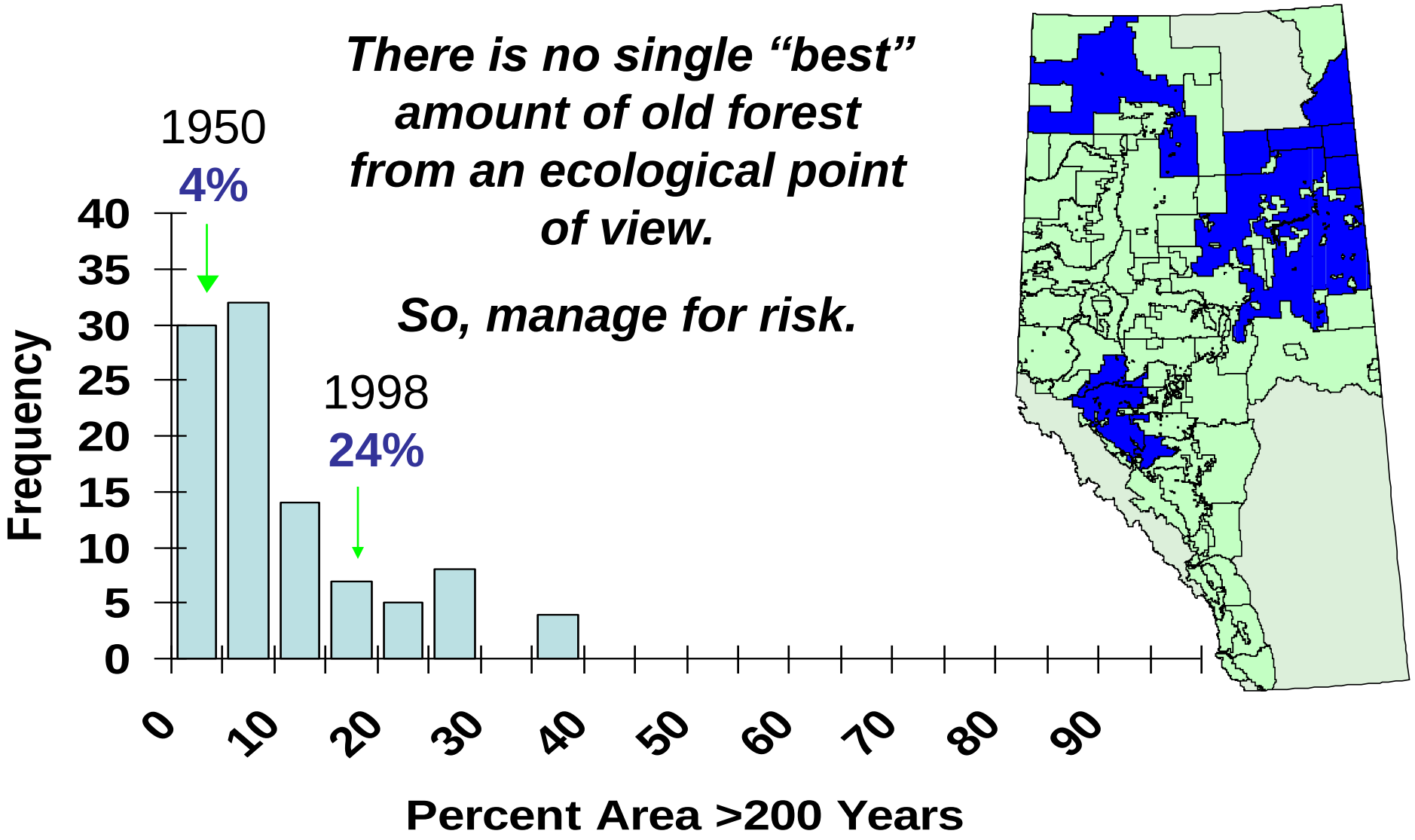


4%

Natural Range of Old Forest

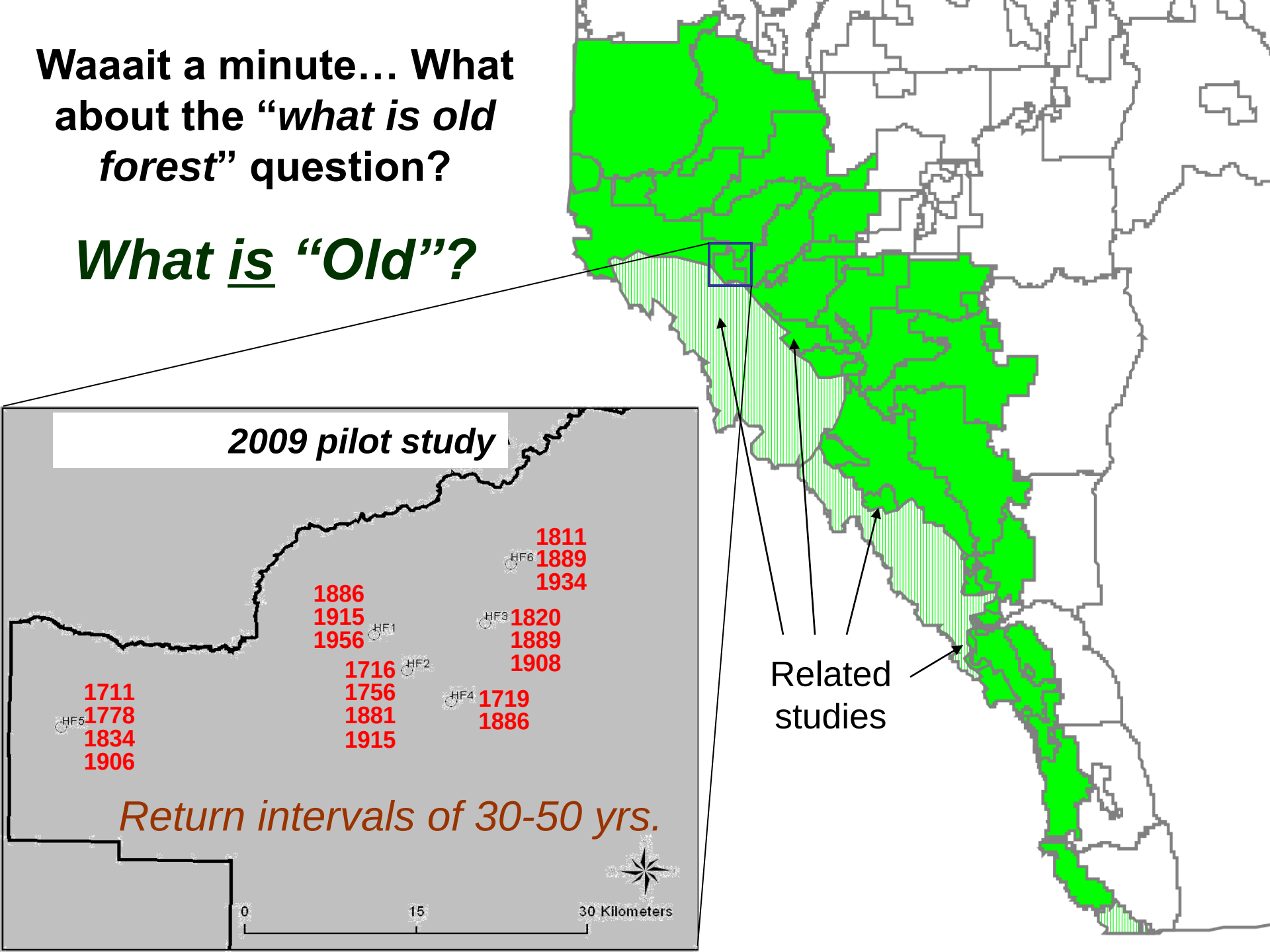
There is no single "best" amount of old forest from an ecological point of view.

So, manage for risk.



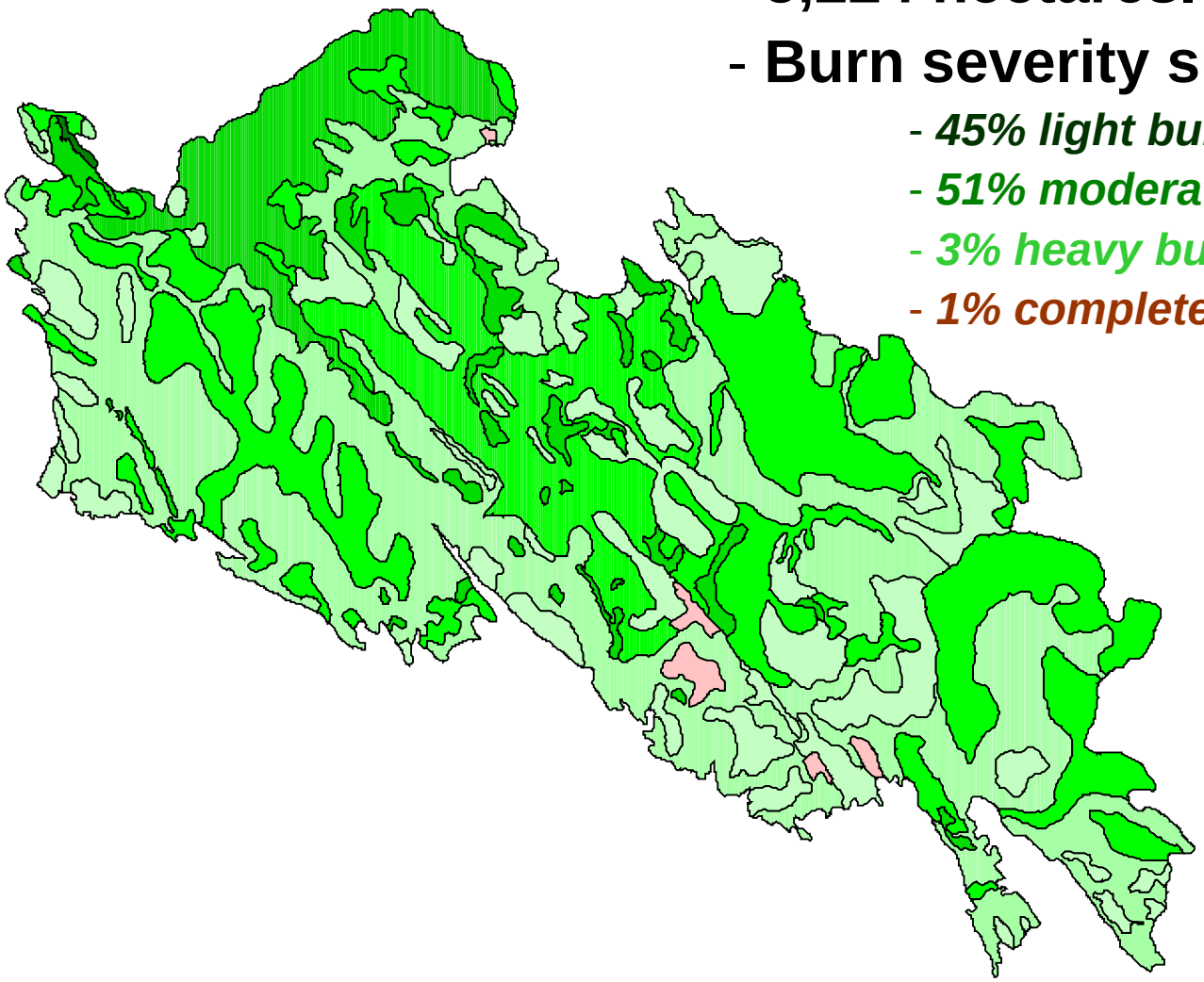
Waaait a minute… What about the "*what is old forest*" question?

What is "Old"?

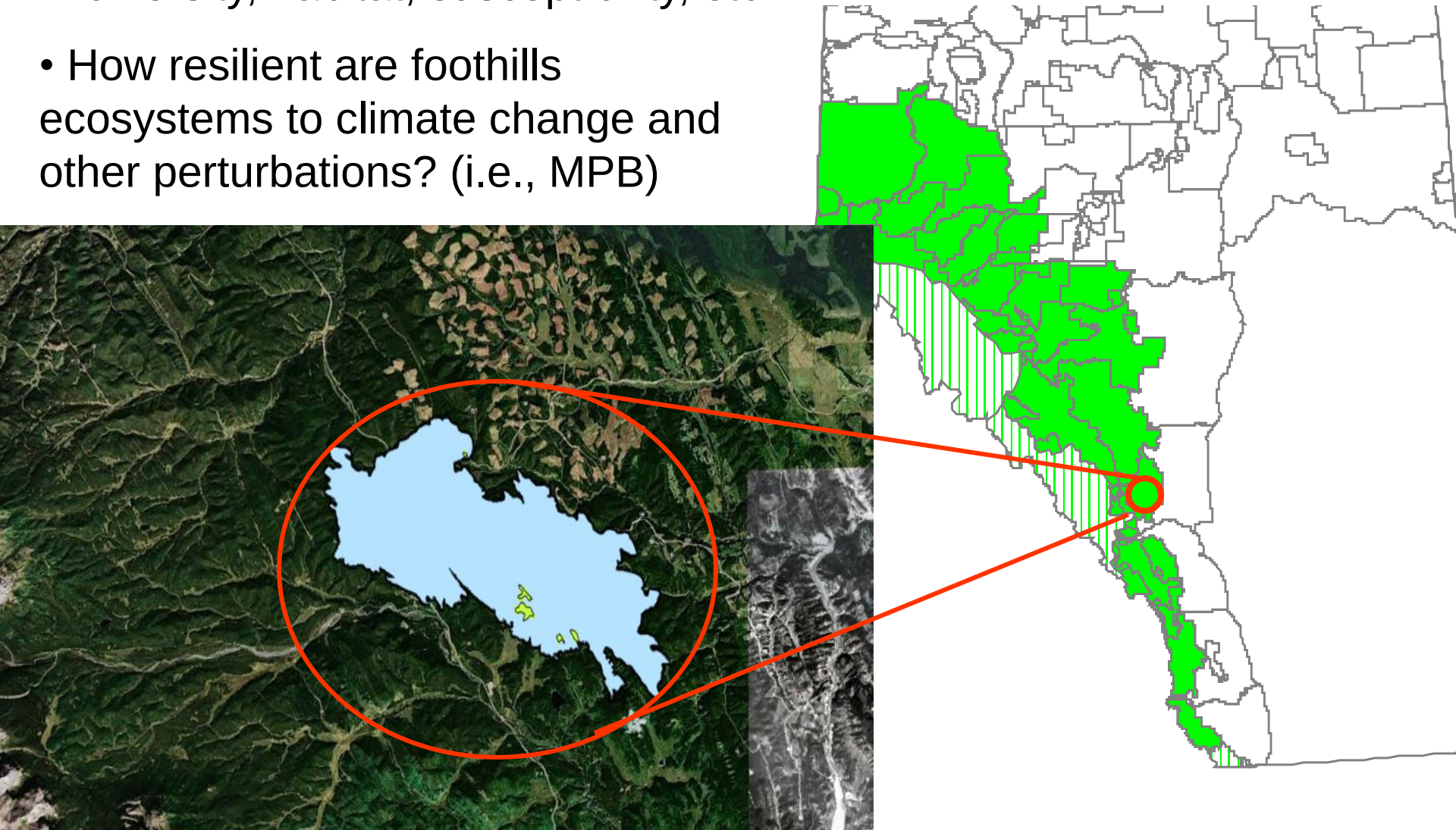


Let's Play: *Where is this fire?*

- **Burned in 1939.**
- **5,224 hectares.**
- **Burn severity summary:**
  - ***45% light burn (0-25% mortality)***
  - ***51% moderate burn (26-75% mortality)***
  - ***3% heavy burn (76-95% mortality)***
  - ***1% complete burn (96-100% mortality)***

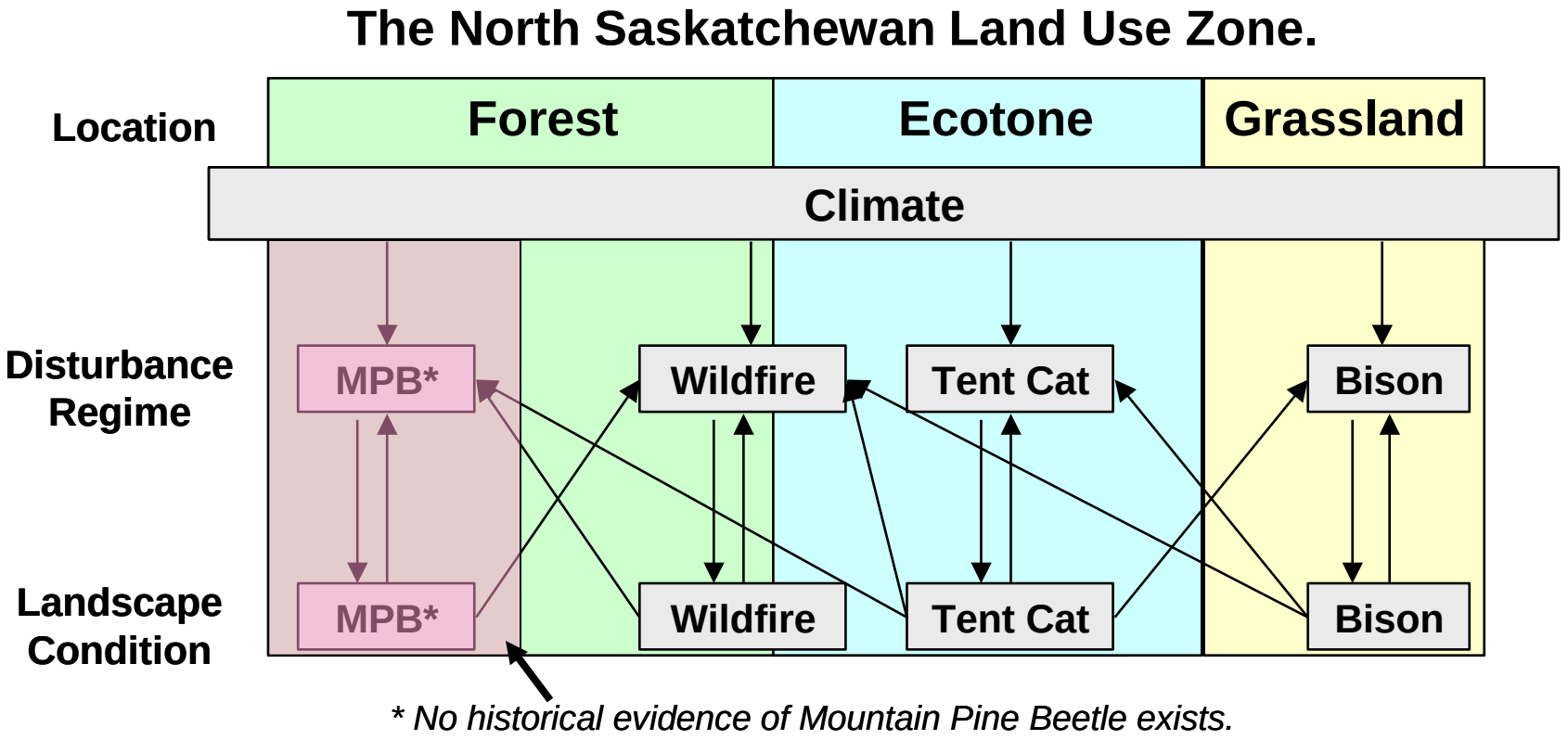


- How common were mixed-severity fires in the foothills?
- How would that translate to changes in diversity, habitat, susceptibility, etc.
- How resilient are foothills ecosystems to climate change and other perturbations? (i.e., MPB)



Land Use Planning Challenge A:

What is the disturbance history of LUZ X, how have we changed it, where is it going, and what are the (biological) risks?

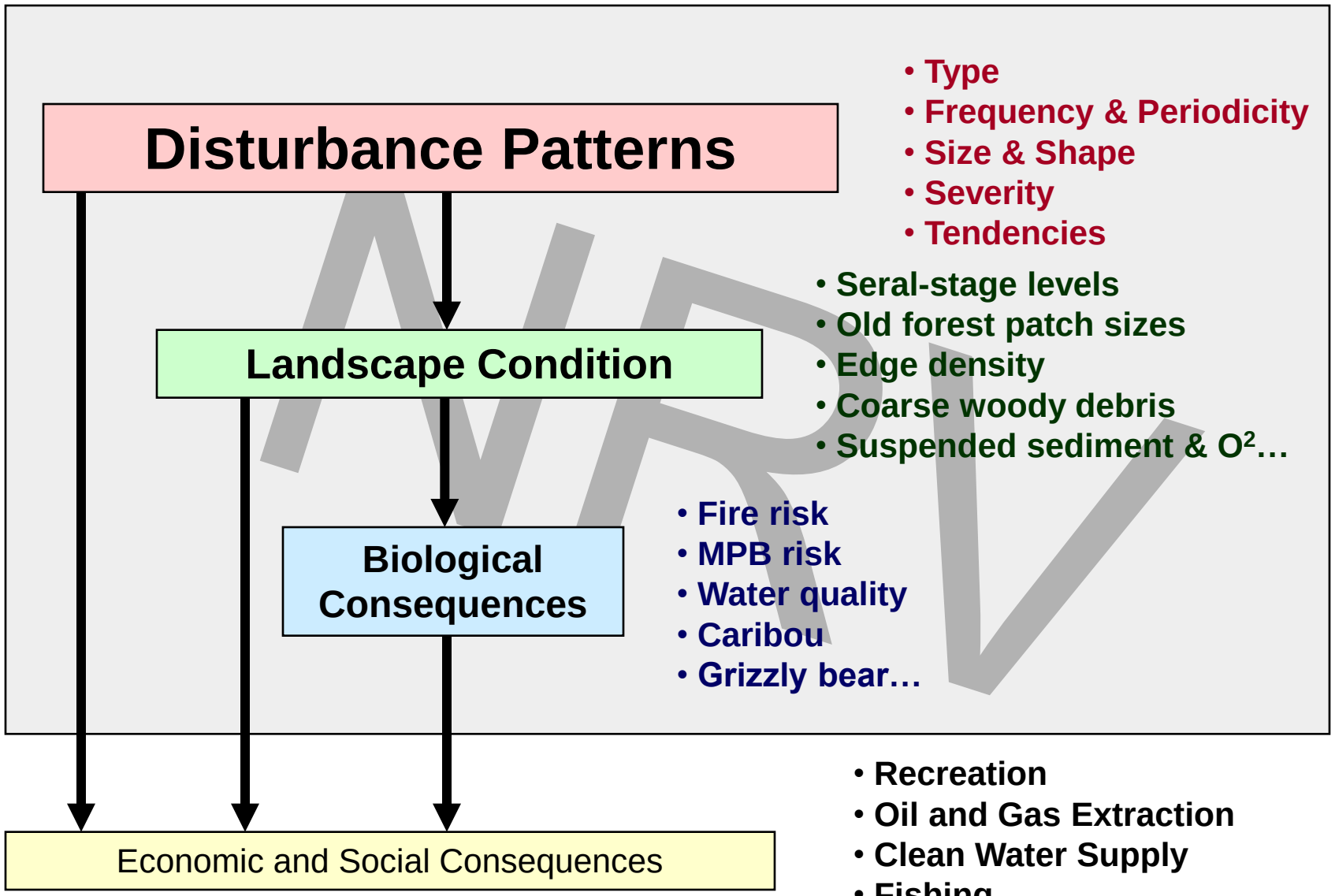


Land Use Planning Challenge B:

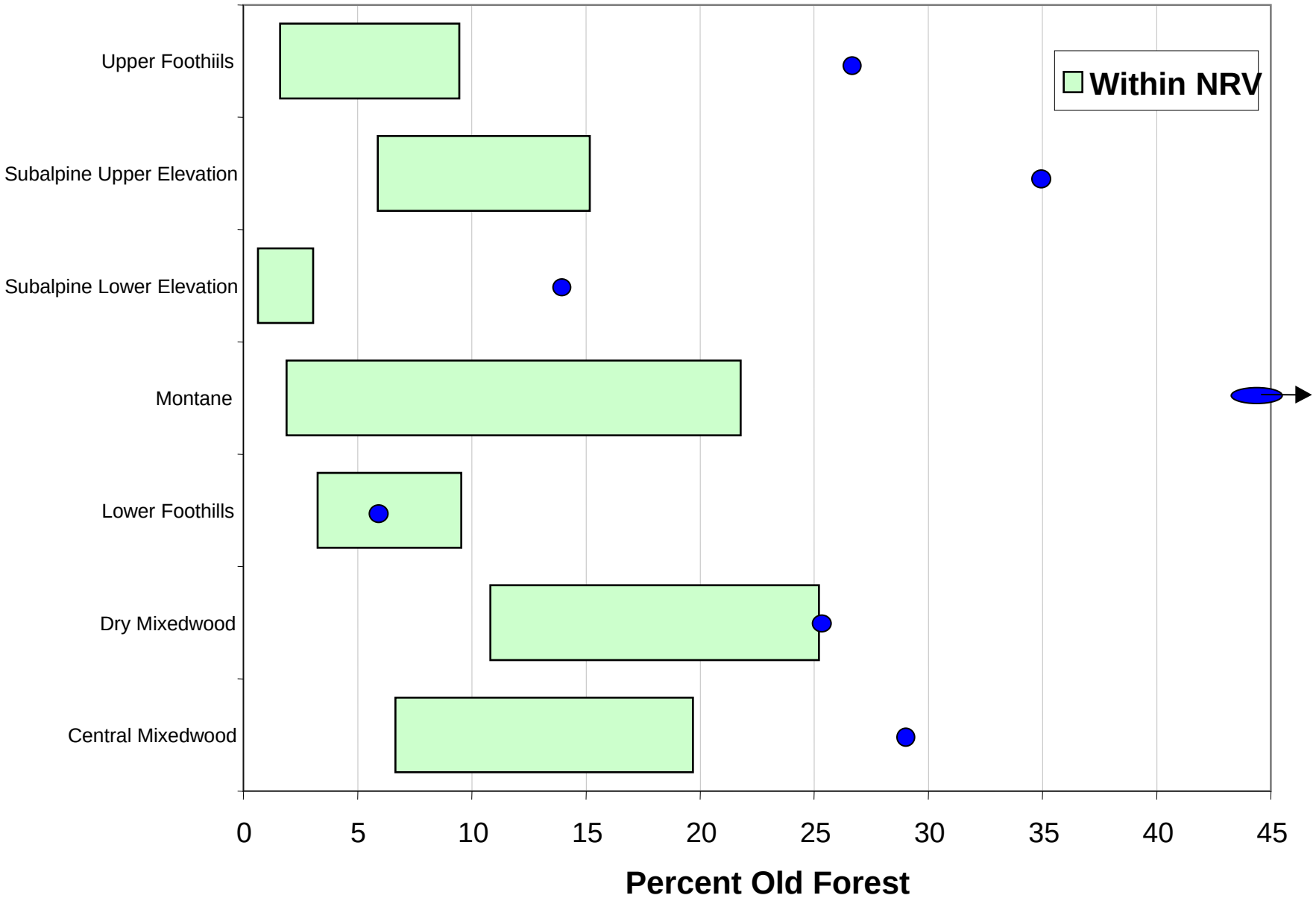
Is there another way of interpreting the "ND Approach" for land use planning?

The Upper Athabasca LUZ+

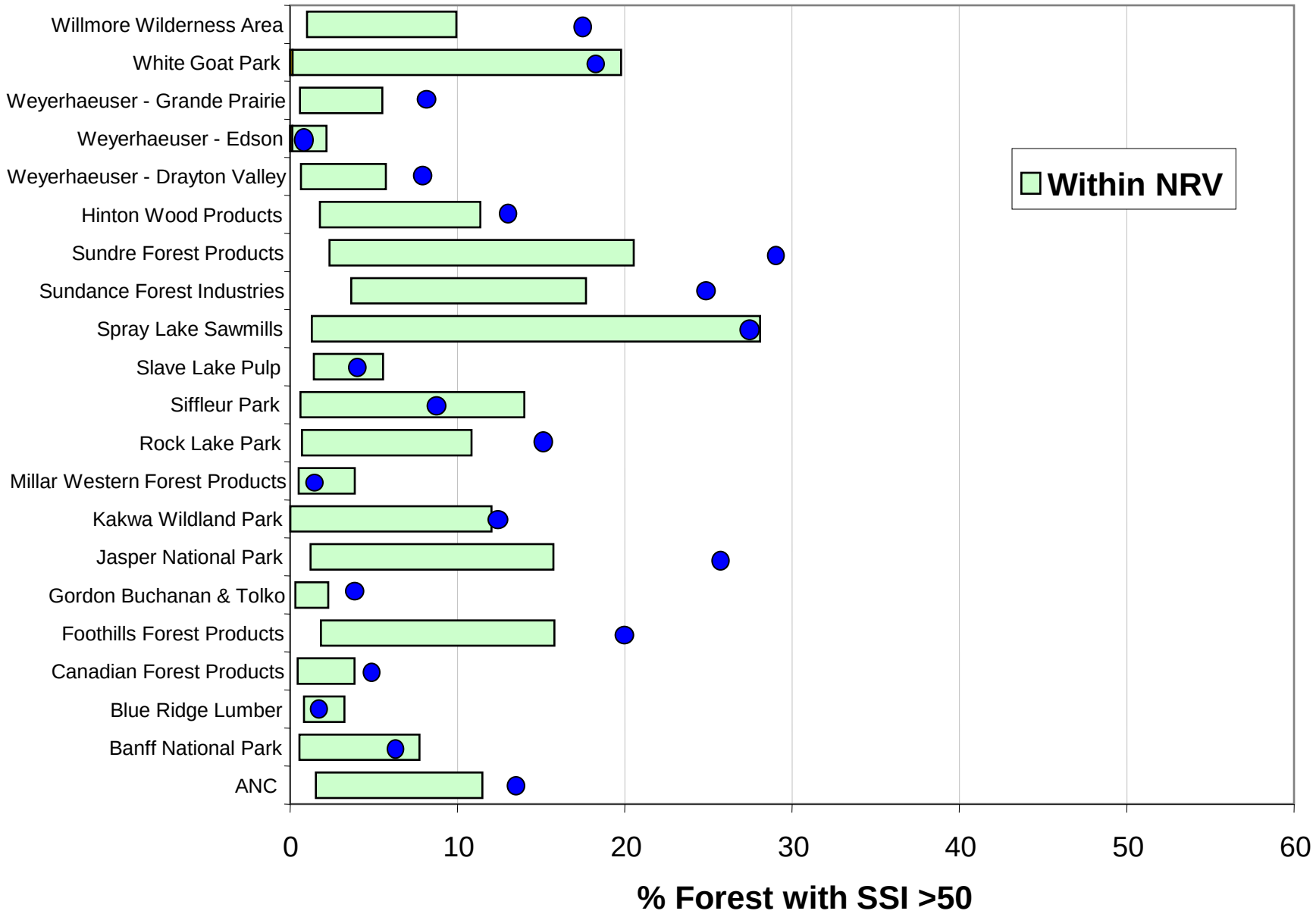
- MPB
- Wildfire
- Water
- Recreation
- Natural Gas
- Timber
- Grizzly Bear
- Woodland Caribou


Disturbance Patterns
• Type
• Frequency & Periodicity
• Size & Shape
• Severity
• Tendencies
Landscape Condition
• Seral-stage levels
• Old forest patch sizes
• Edge density
• Coarse woody debris
• Suspended sediment & O2…
Biological Consequences
• Fire risk
• MPB risk
• Water quality
• Caribou
• Grizzly bear…
Economic and Social Consequences
• Recreation
• Oil and Gas Extraction
• Clean Water Supply
• Fishing
• Timber Harvesting
• Grazing…

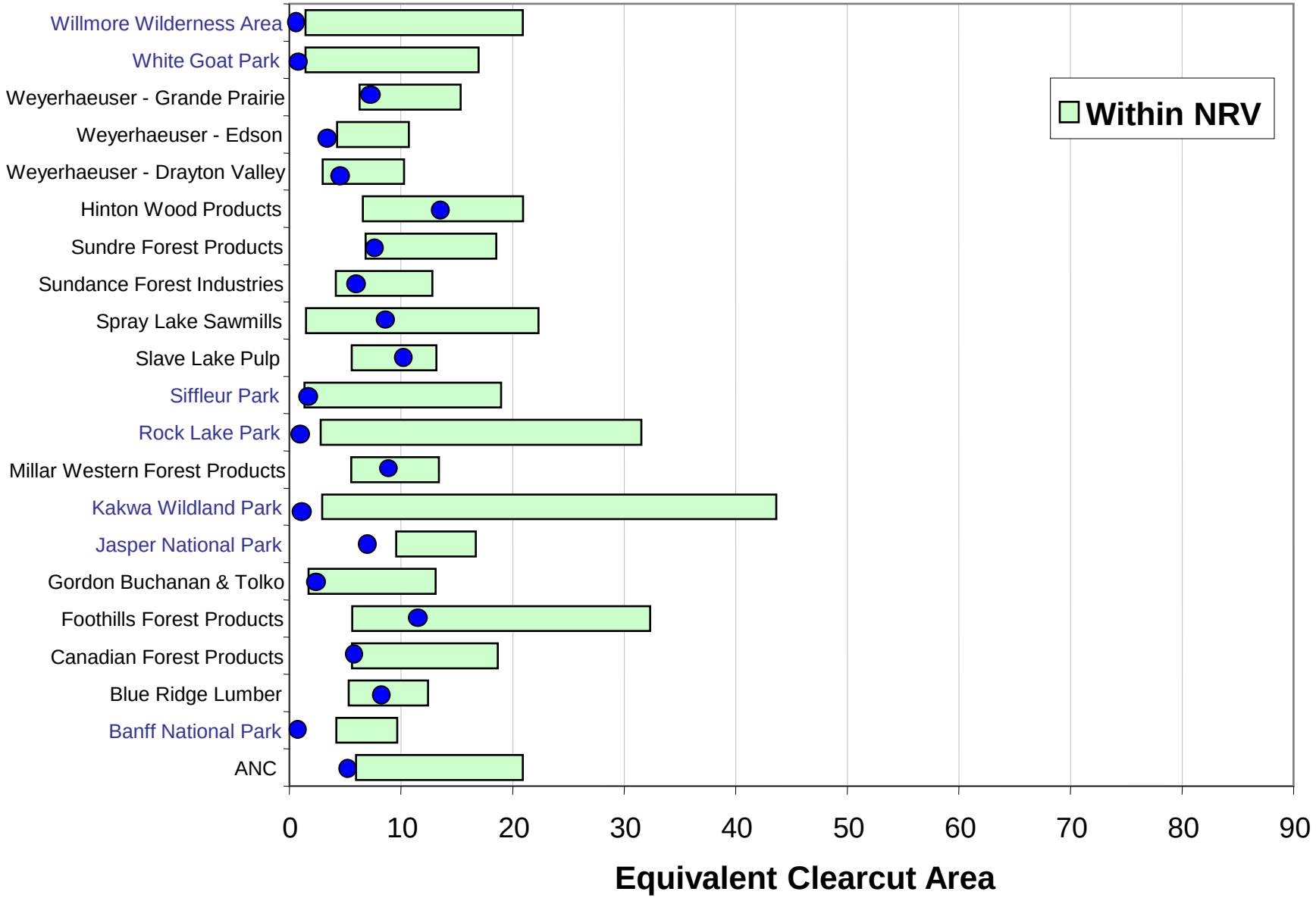
Old Forest NRV and Current Condition by Natural Subregion for the Upper Athabasca Healthy Landscape Study Area



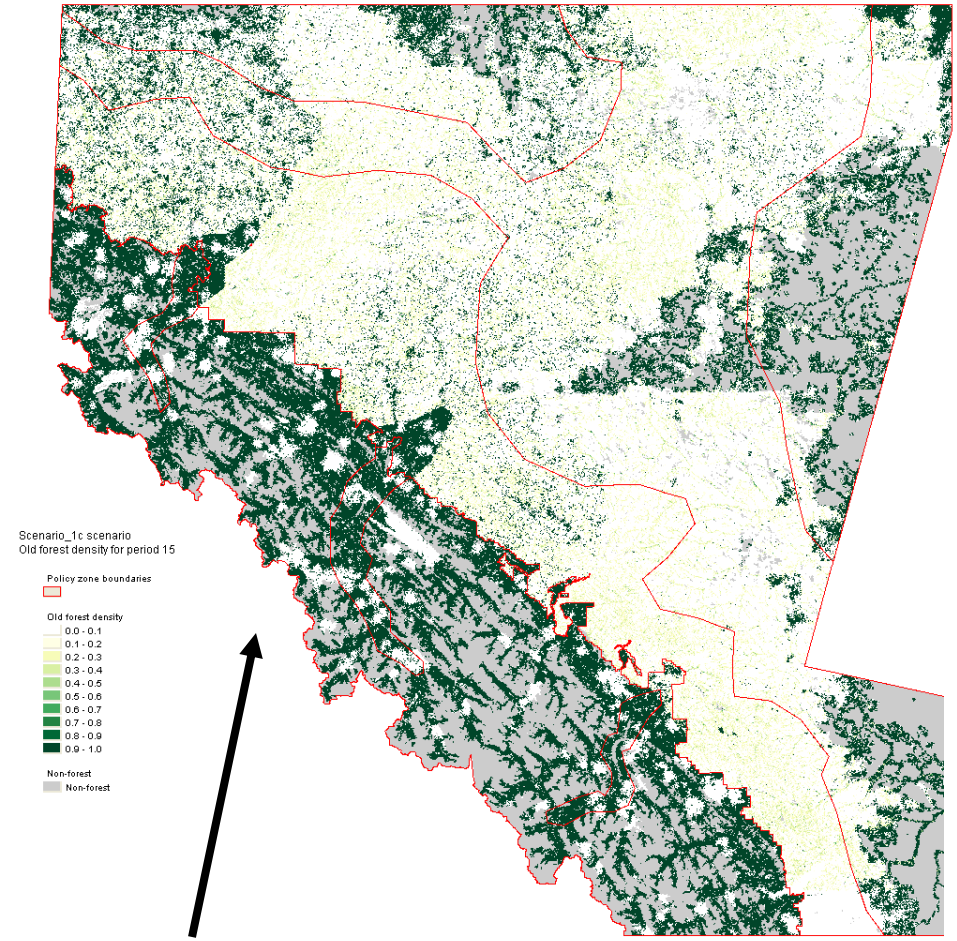
MPB Threat NRV and Current Condition by Jurisdiction for the Upper Athabasca Healthy Landscape Study Area



ECA NRV and Current Condition by Jurisdiction for the Upper Athabasca Healthy Landscape Study Area

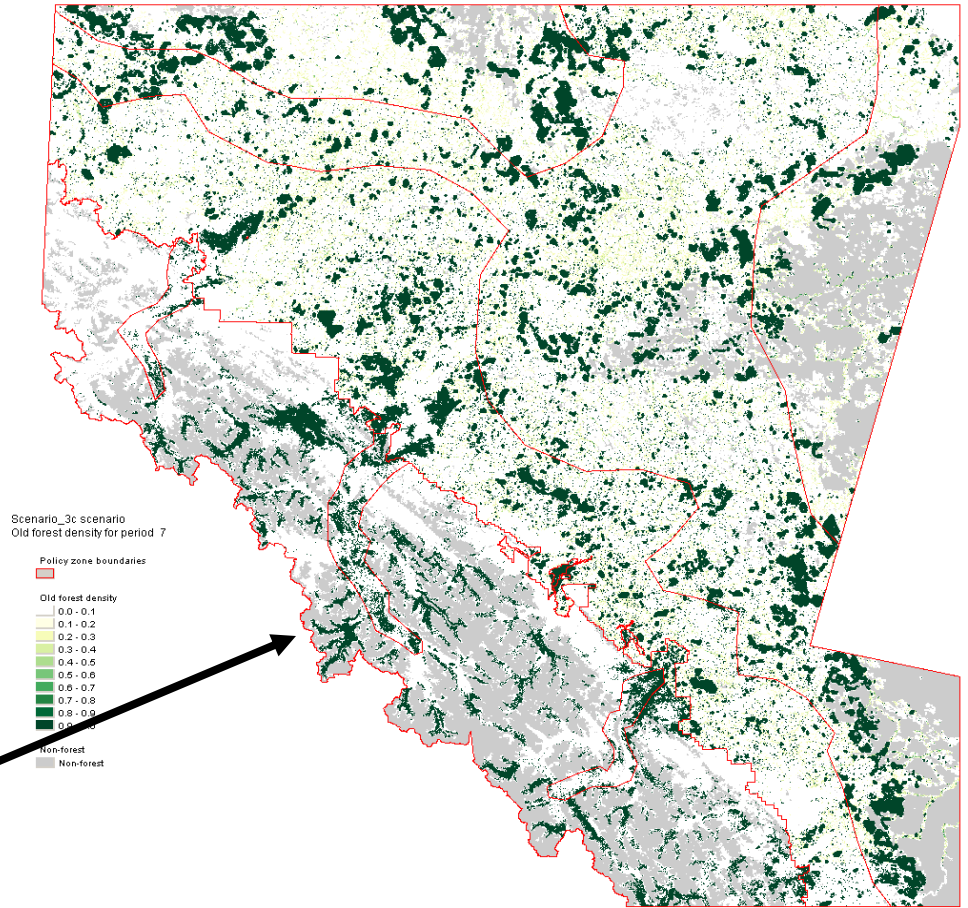


Two (of many) Possible Futures:



Business as usual.

Manage for old forest regardless of jurisdiction.



So, what are the “challenges” associated with the ND Program?

Learning about natural patterns.

Versus

Learning about natural pattern, PLUS exploring questions related to if, how, when, and to what degree to use that knowledge.

So are these challenges… or opportunities?

- Exactly what is a "*natural (disturbance) pattern*"?!
- They do not align well with existing planning, management, regulatory, and policy structures.
- The historical range or condition is often very different than that of today / the future.
    - *Who, or what, really cares?*
- It is not clear how to use what we are learning, at what level, or under what circumstances. – *Exactly what is an ND approach?*
- The natural pattern approach potentially represents a very different philosophy.

Thank you!

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