

NRV Seral Stage Research

FRI ND Program Information Session

Edmonton, Alberta

December 9th, 2009

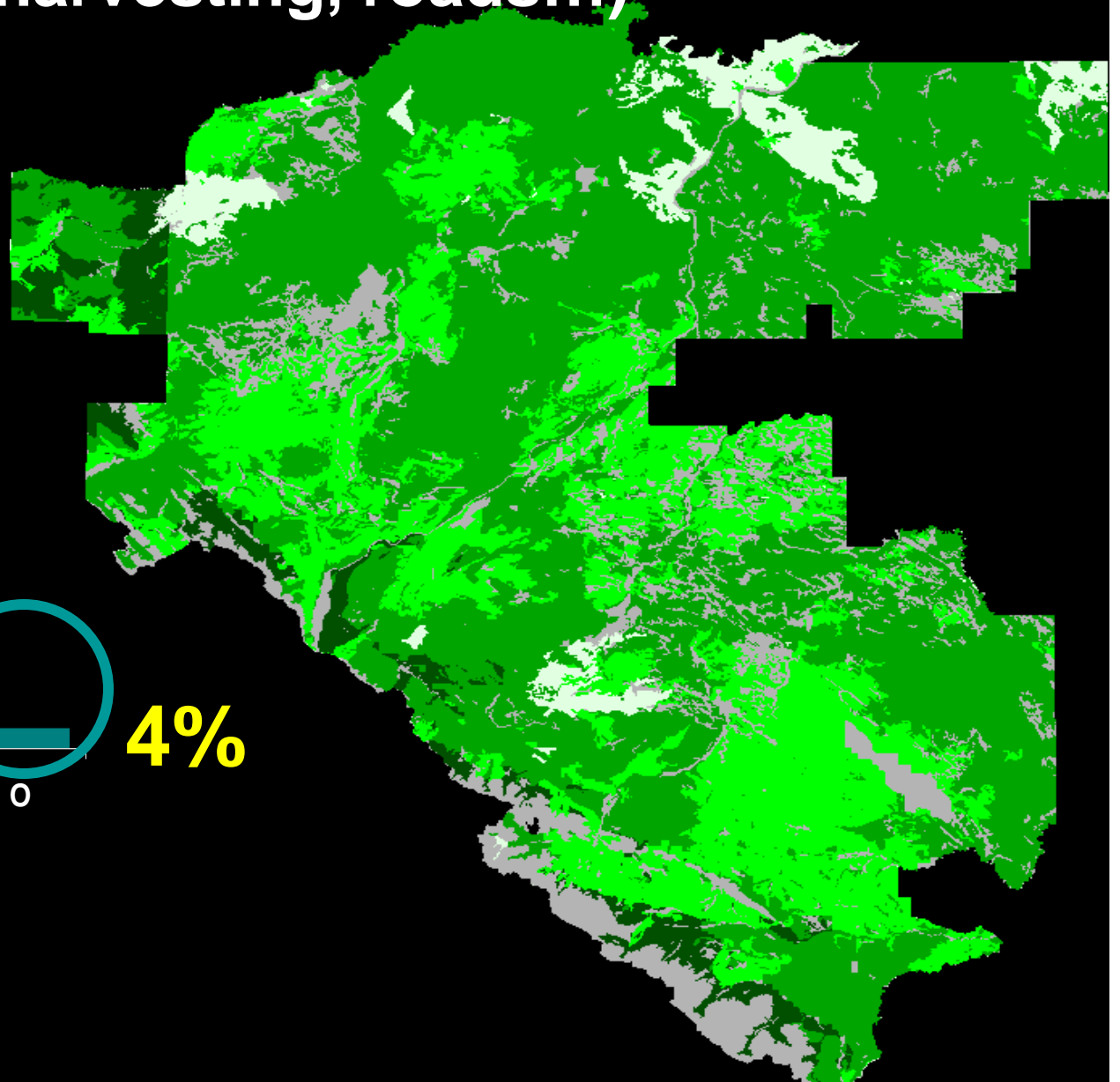
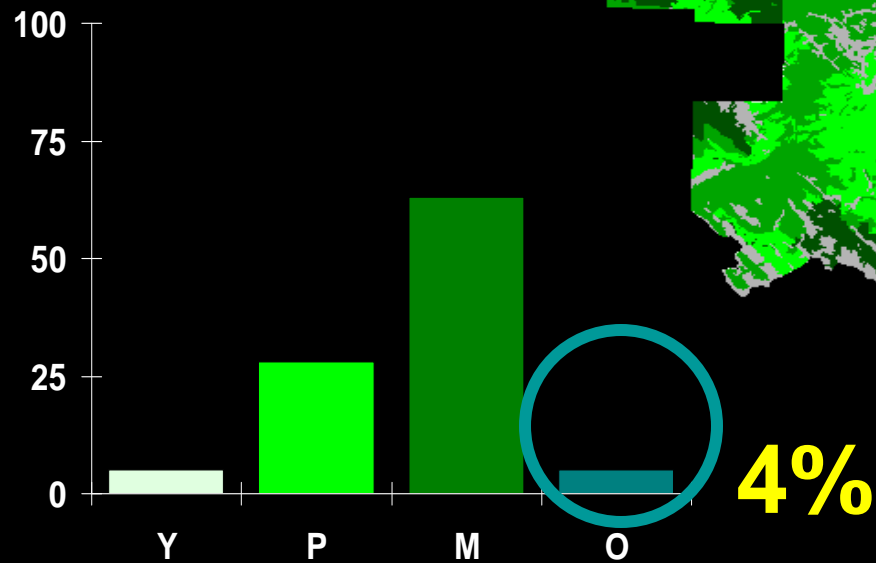
David Andison



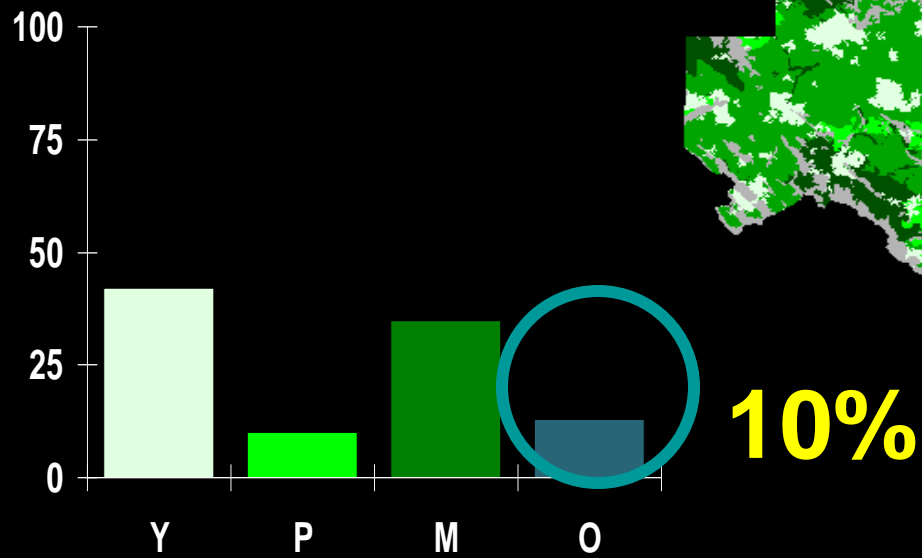
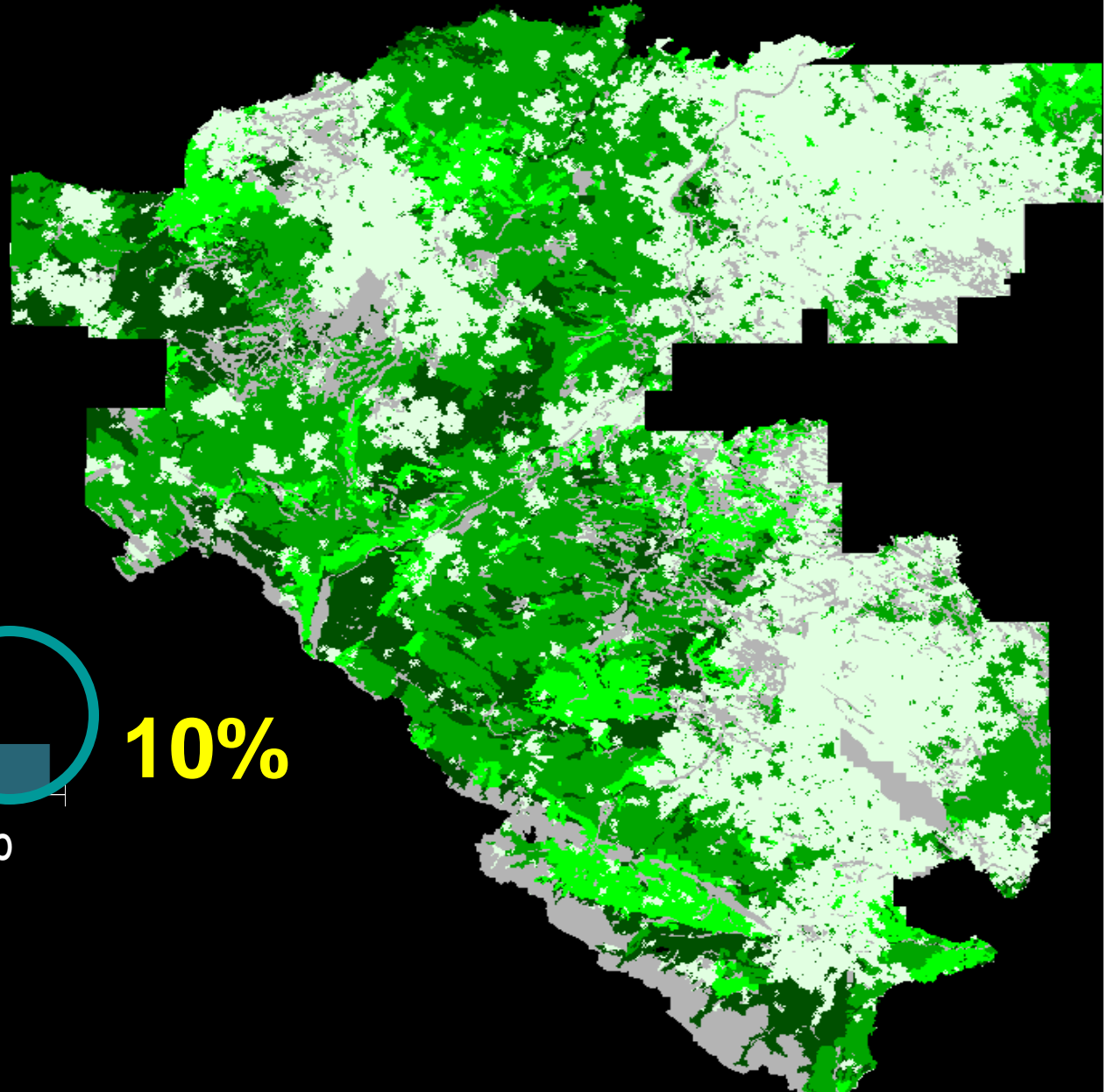
Managing Age-Class Distributions

What amounts of old growth forest are appropriate to manage for on landscape X from a biodiversity perspective?

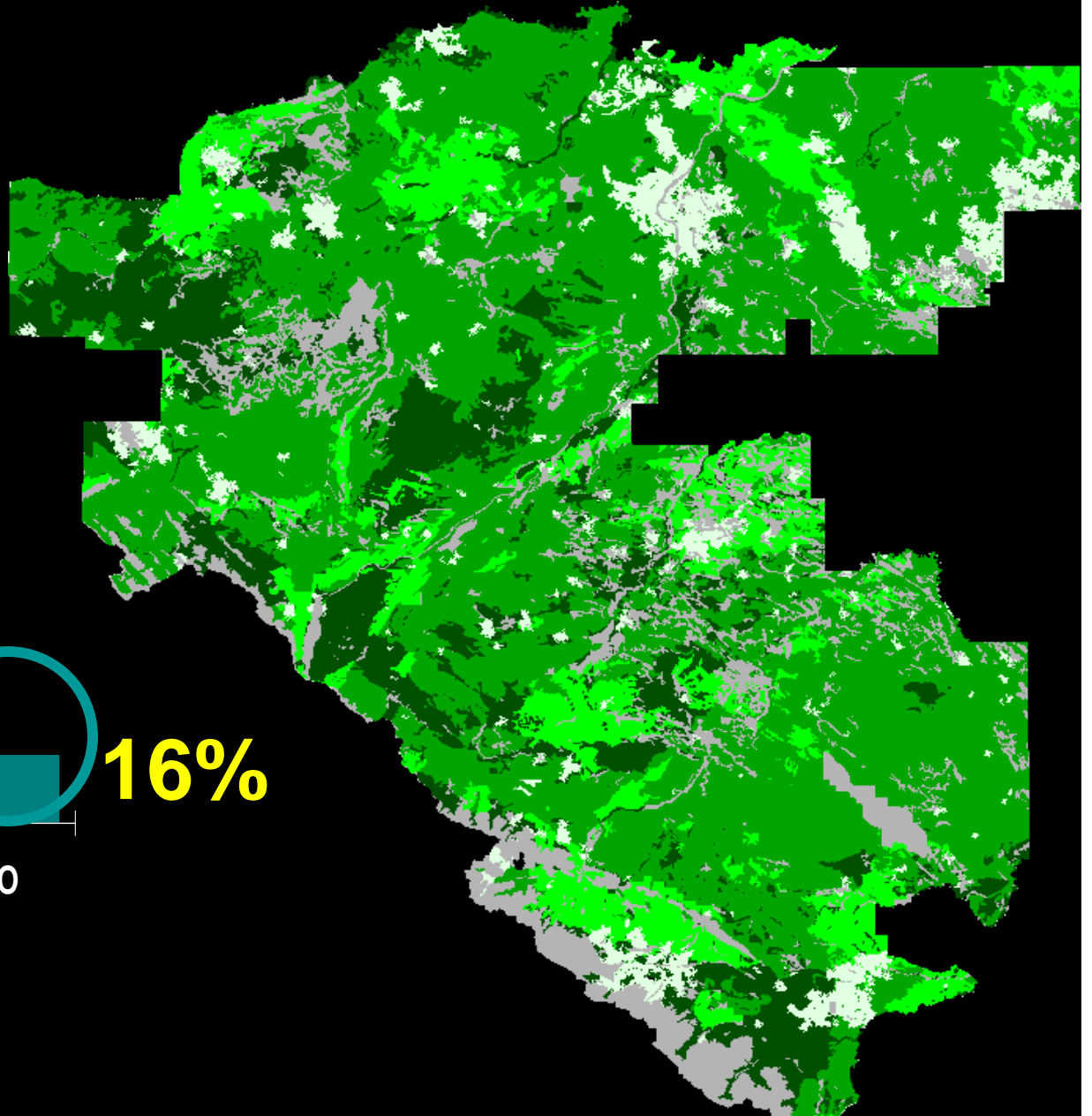
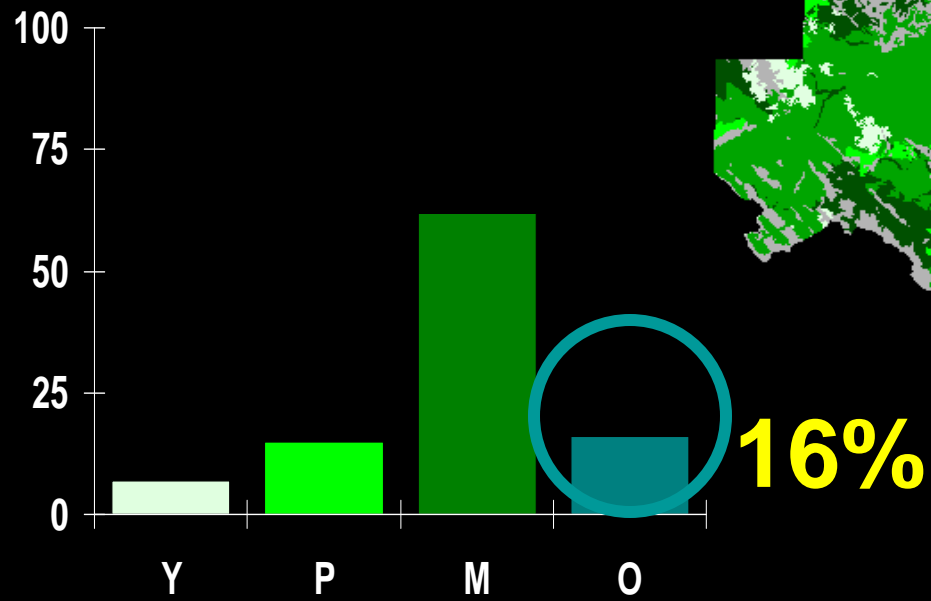
Pre-Industrial Landscape in 1950 (no fire control, harvesting, roads...)



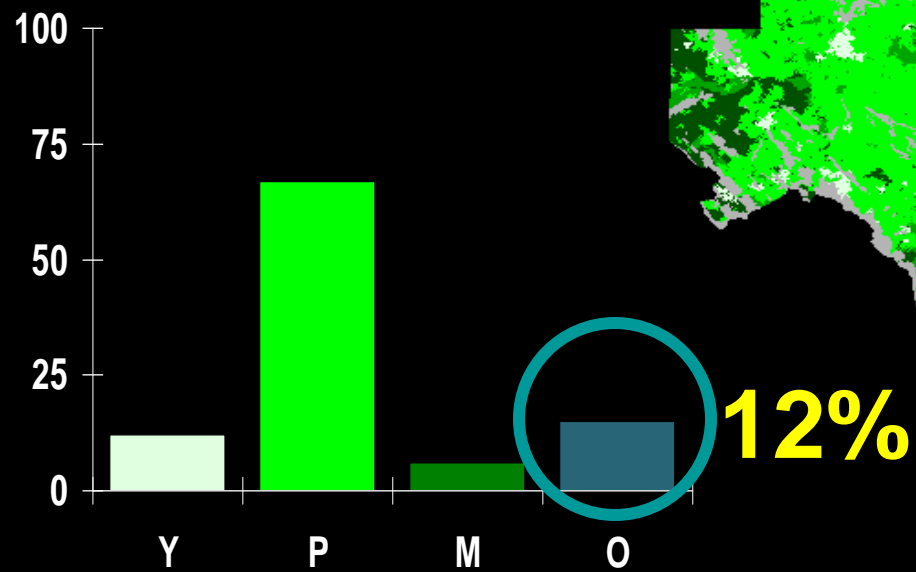
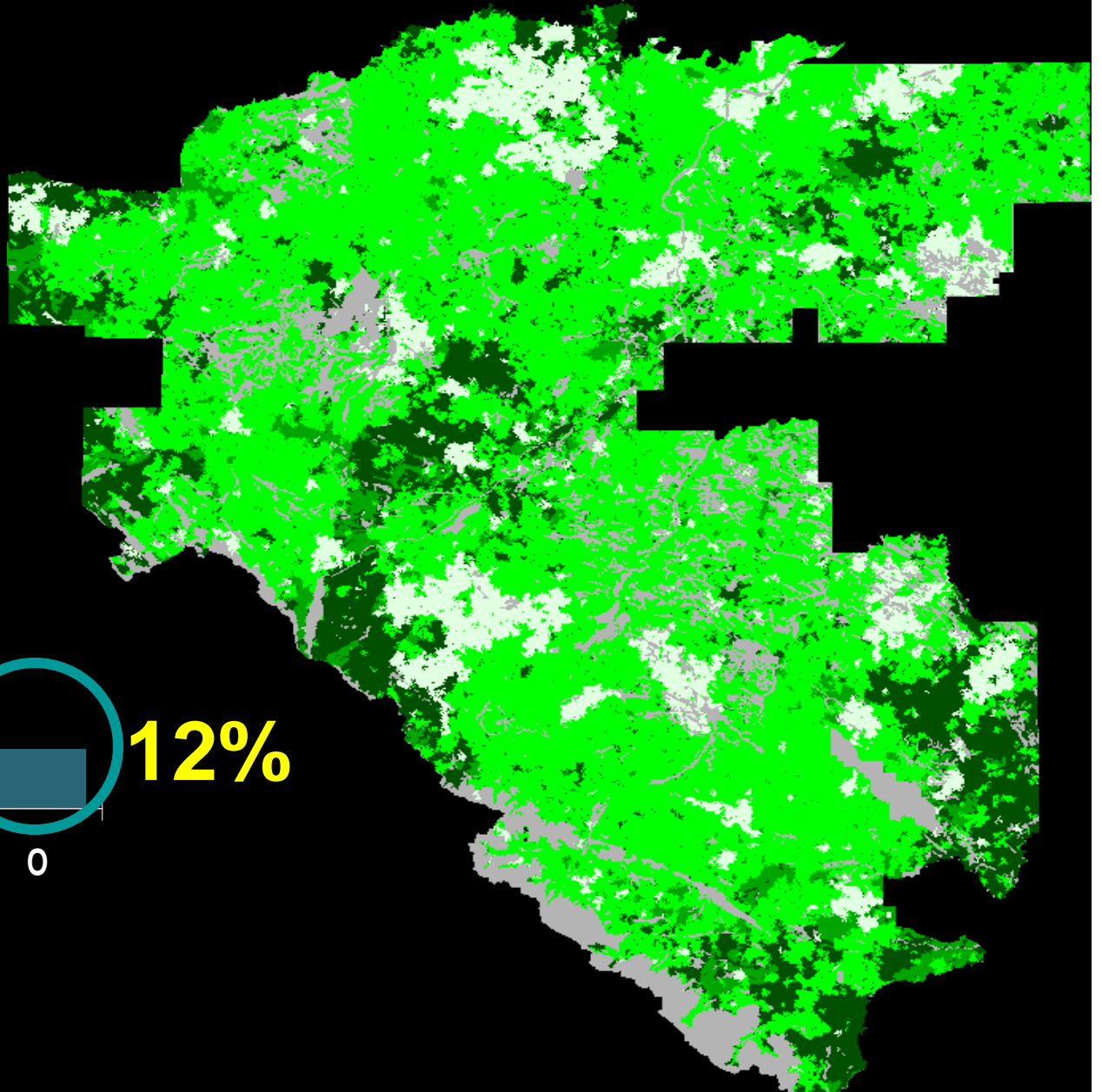
Landscape in 1900



Landscape in 1850



Landscape in 1800



The Problem

Empirically, we can at best generate one “natural” landscape snapshot. So much for NRV...

Modeling is the only way to translate observed variation over space in time of the disturbance frequency, size (and severity) to generate multiple probable landscape snapshots.

Geek Details

A spatially-explicit, raster-based, monte-carlo, percolation disturbance simulation model.

LANDMINE, BFOLDS, LANDIS, etc ...

Disturbance Patterns

- Type
- Frequency
- Size & Shape
- Severity
- Tendencies

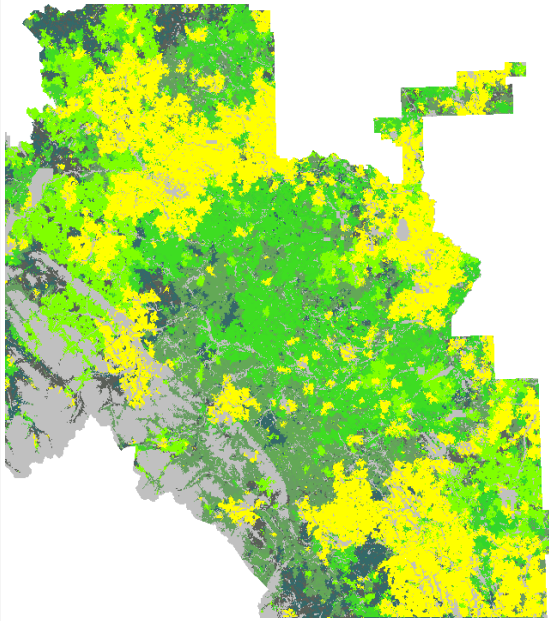
Landscape Condition

- Seral-stage levels
- Old forest patch sizes
- Edge density
- Coarse woody debris
- Suspended sediment & O²...

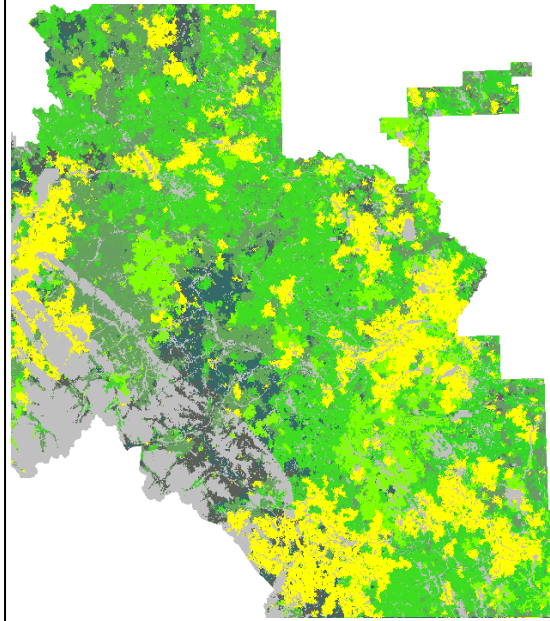
Biological Consequences

- Fire risk
- MPB risk
- Water quality
- Caribou habitat
- Grizzly bear habitat...

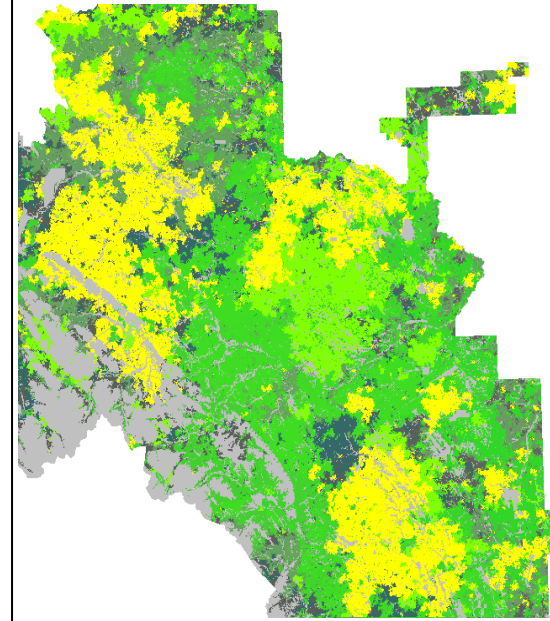
Run 250



Run 260

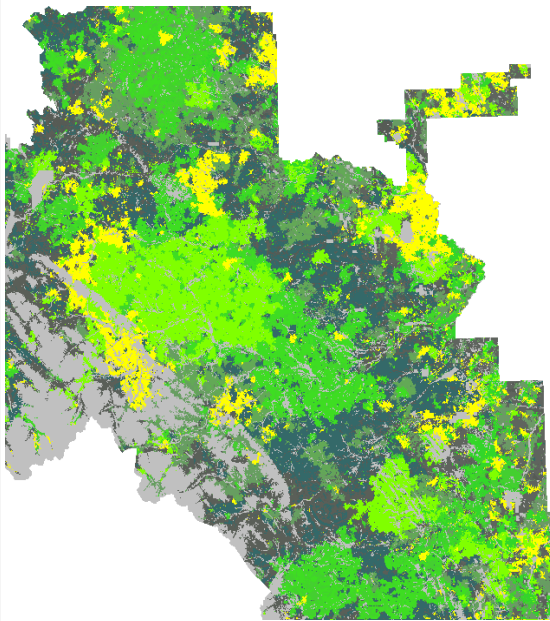


Run 330

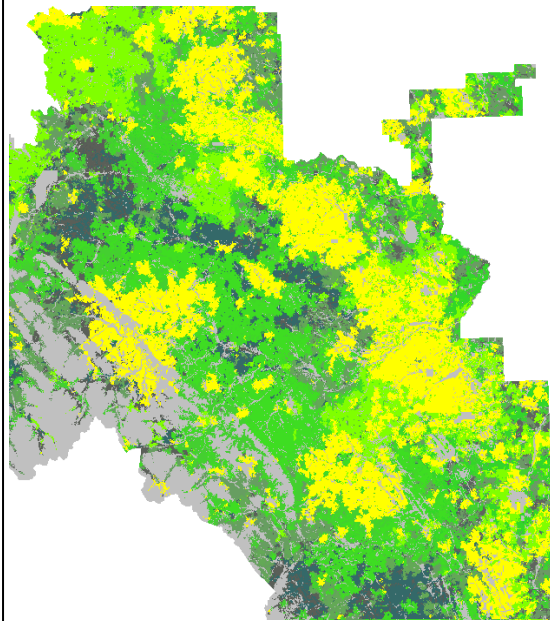


Simulated Landscapes for the Sunpine FMA

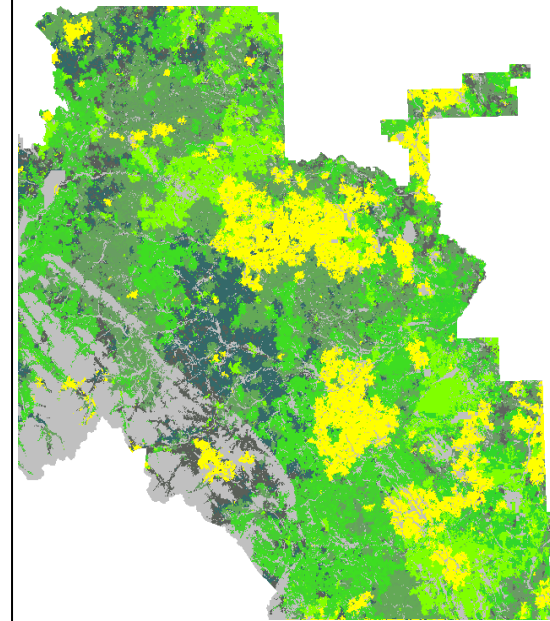
Run 280



Run 300



Run 264



Old Forest on Upper Foothills Landscapes of Alberta

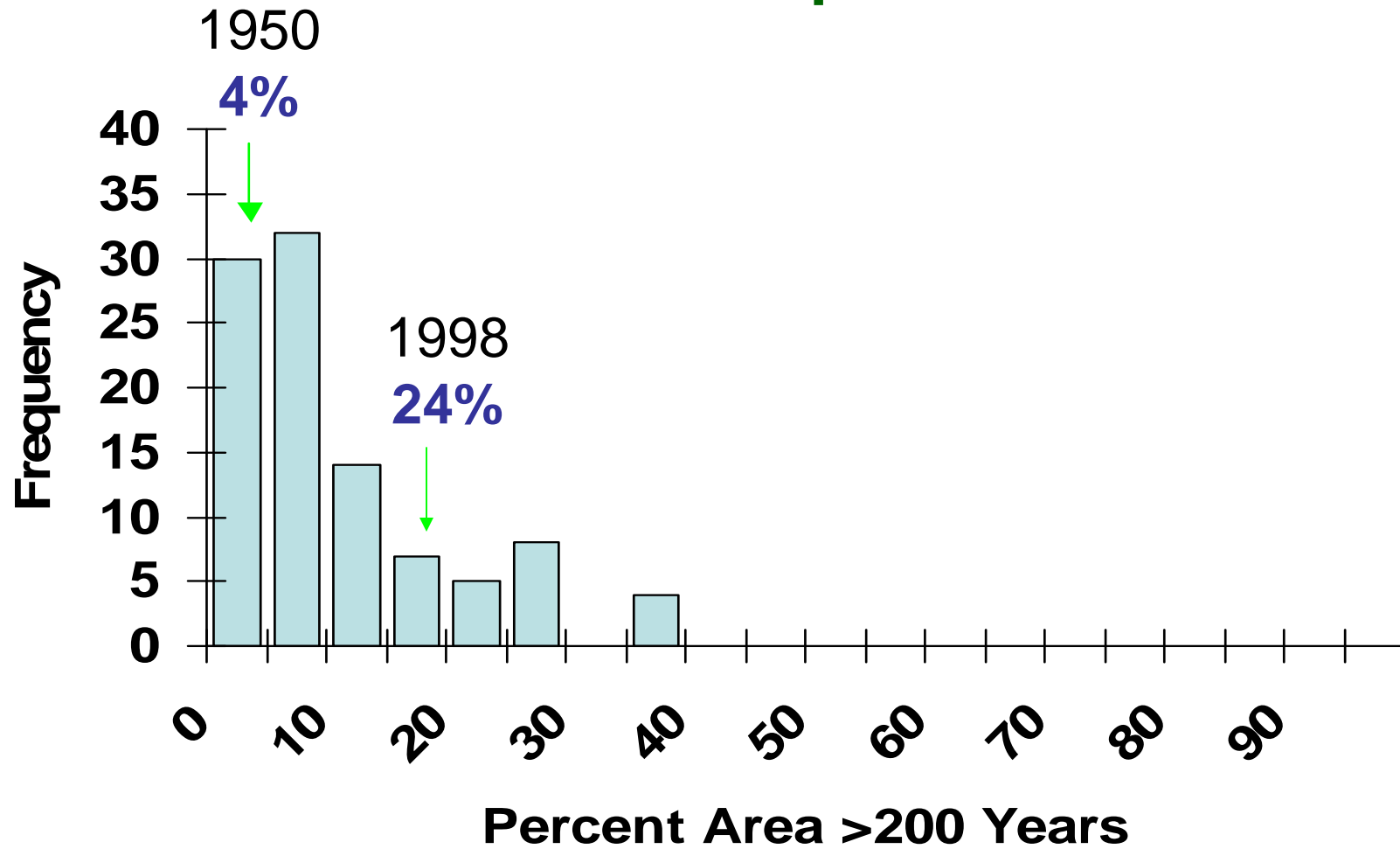
(based on 1/2 million ha areas)

	<u>Pct. Forest > 200 yrs.</u>	<u>Occurred</u>
4% in 1950	0.1-2%	13% of the time
	3-10%	49% of the time
	11-20%	19% of the time
24% in 1998	21-30%	9% of the time
	31-40%	6% of the time
	41-100%	6% of the time

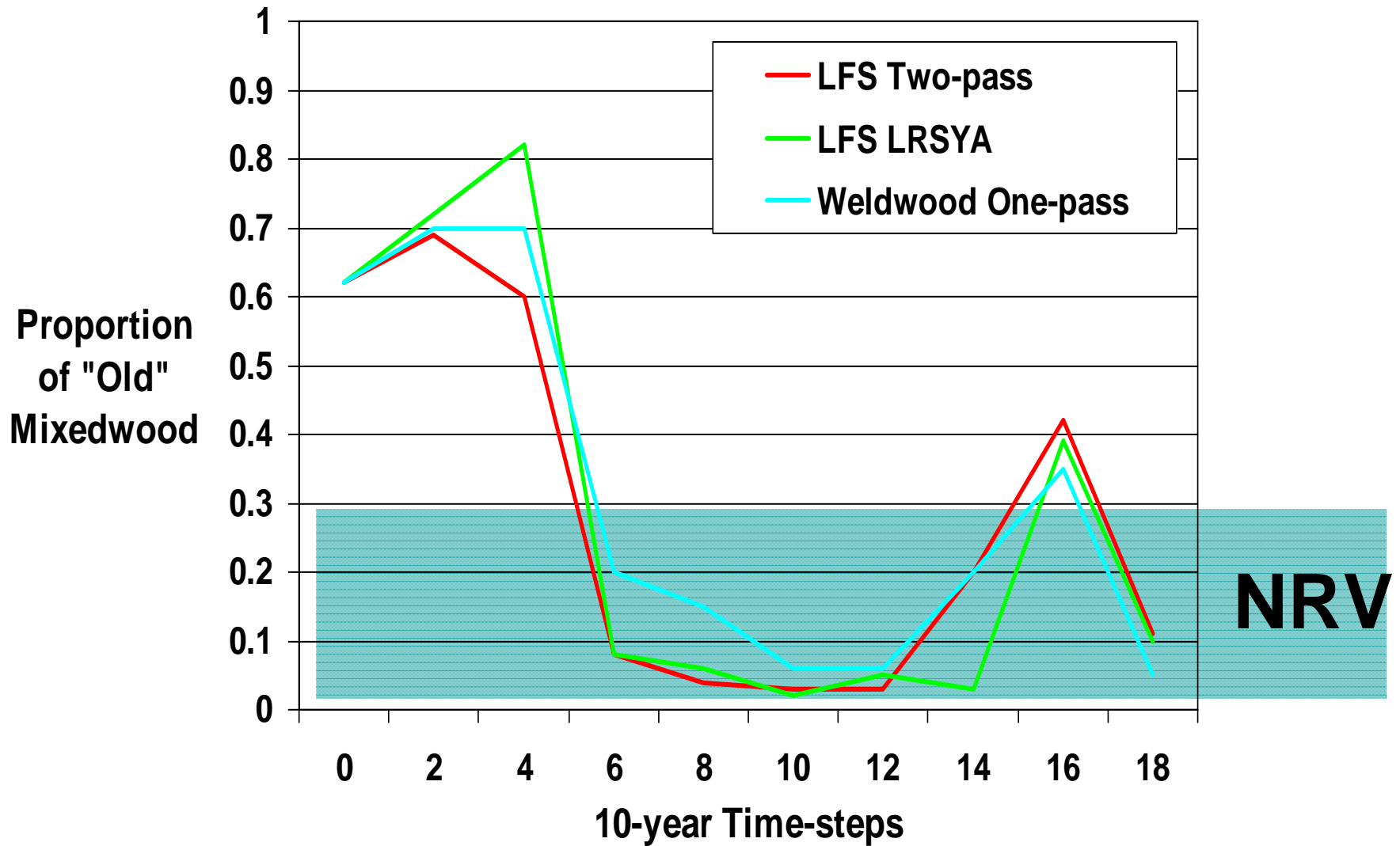
*There is no single “best” amount of old forest
from an ecological point of view.*

Natural Range of Old Forest

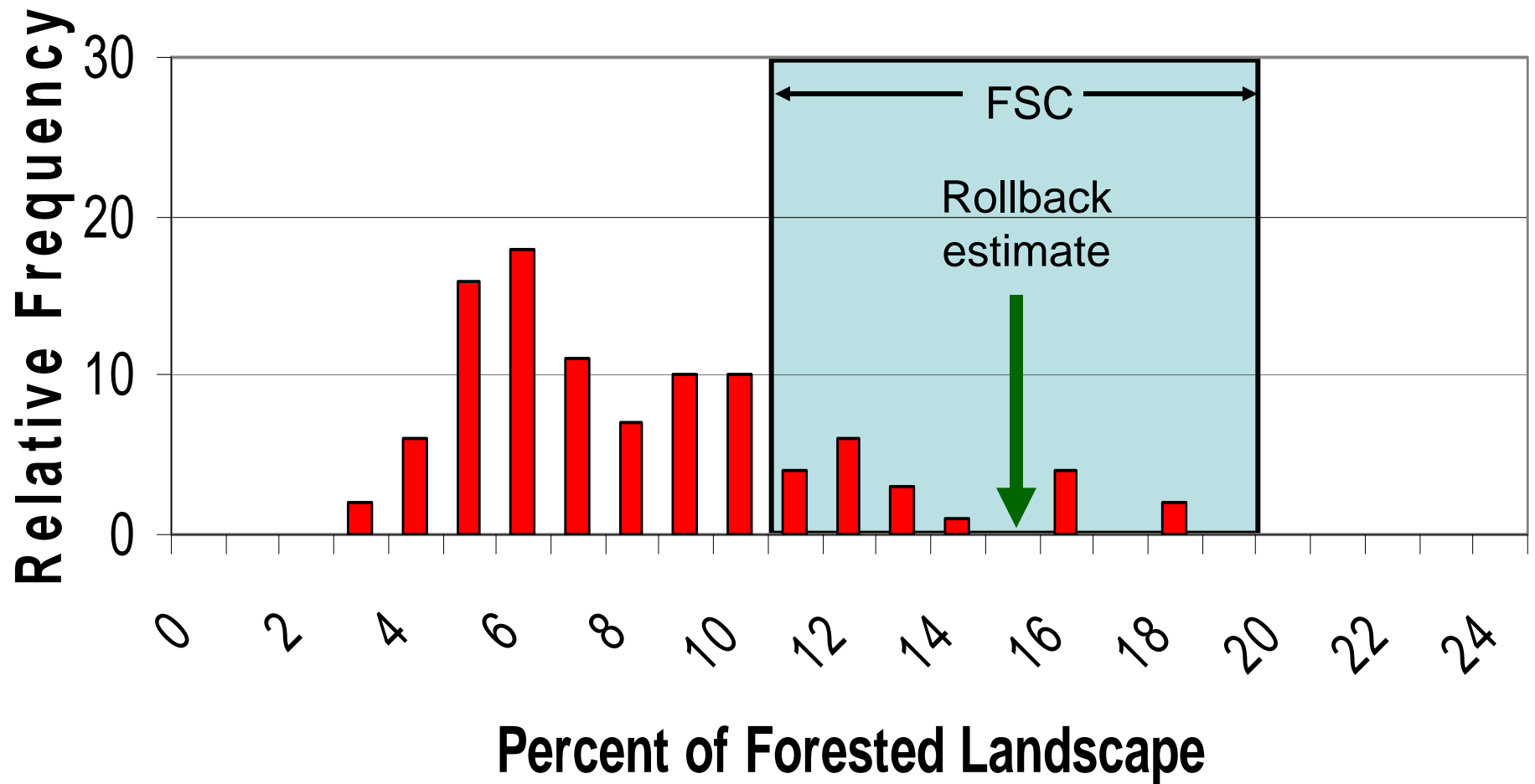
Landscape A



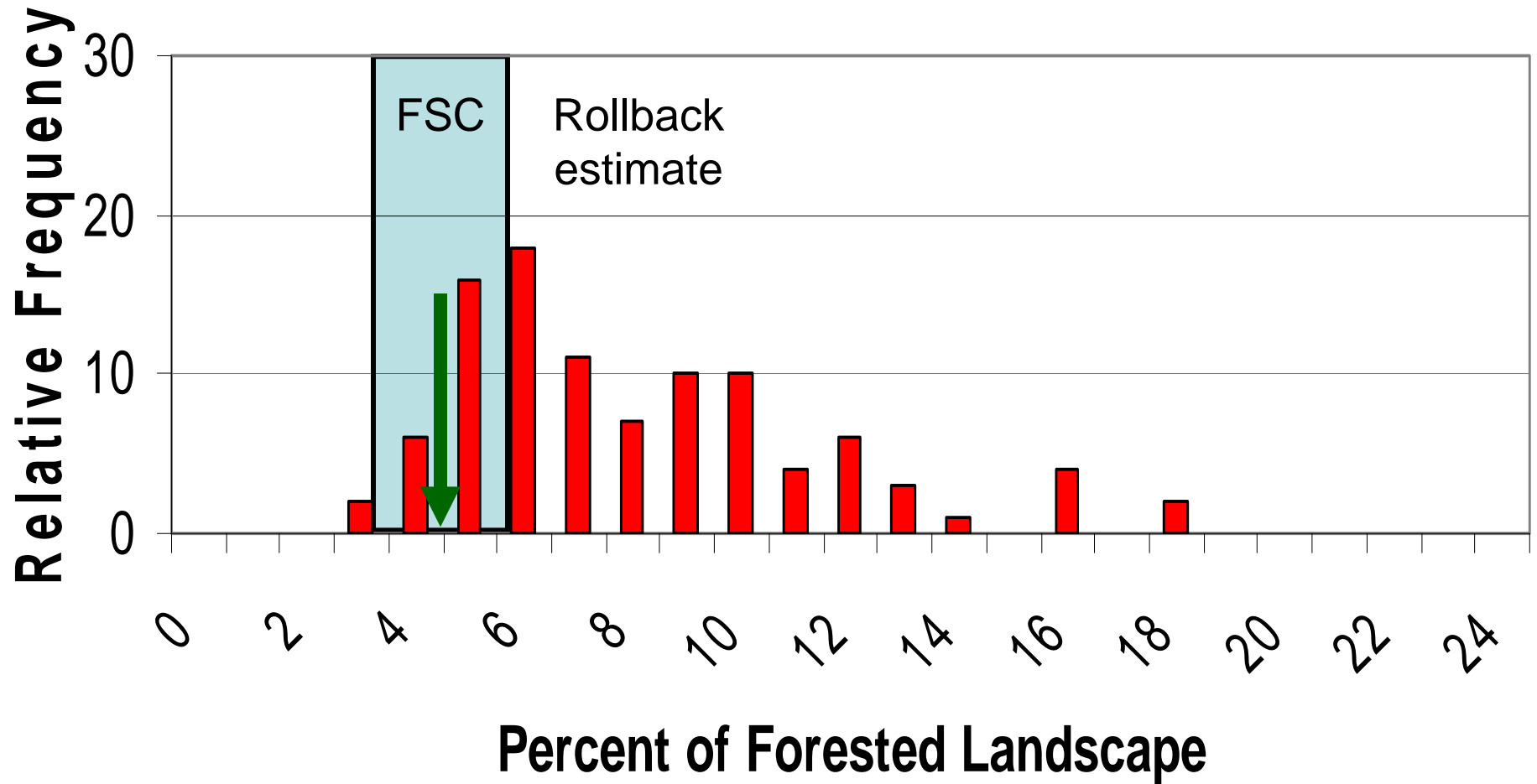
Seral-Stage NRV in Hinton Wood Products Planning



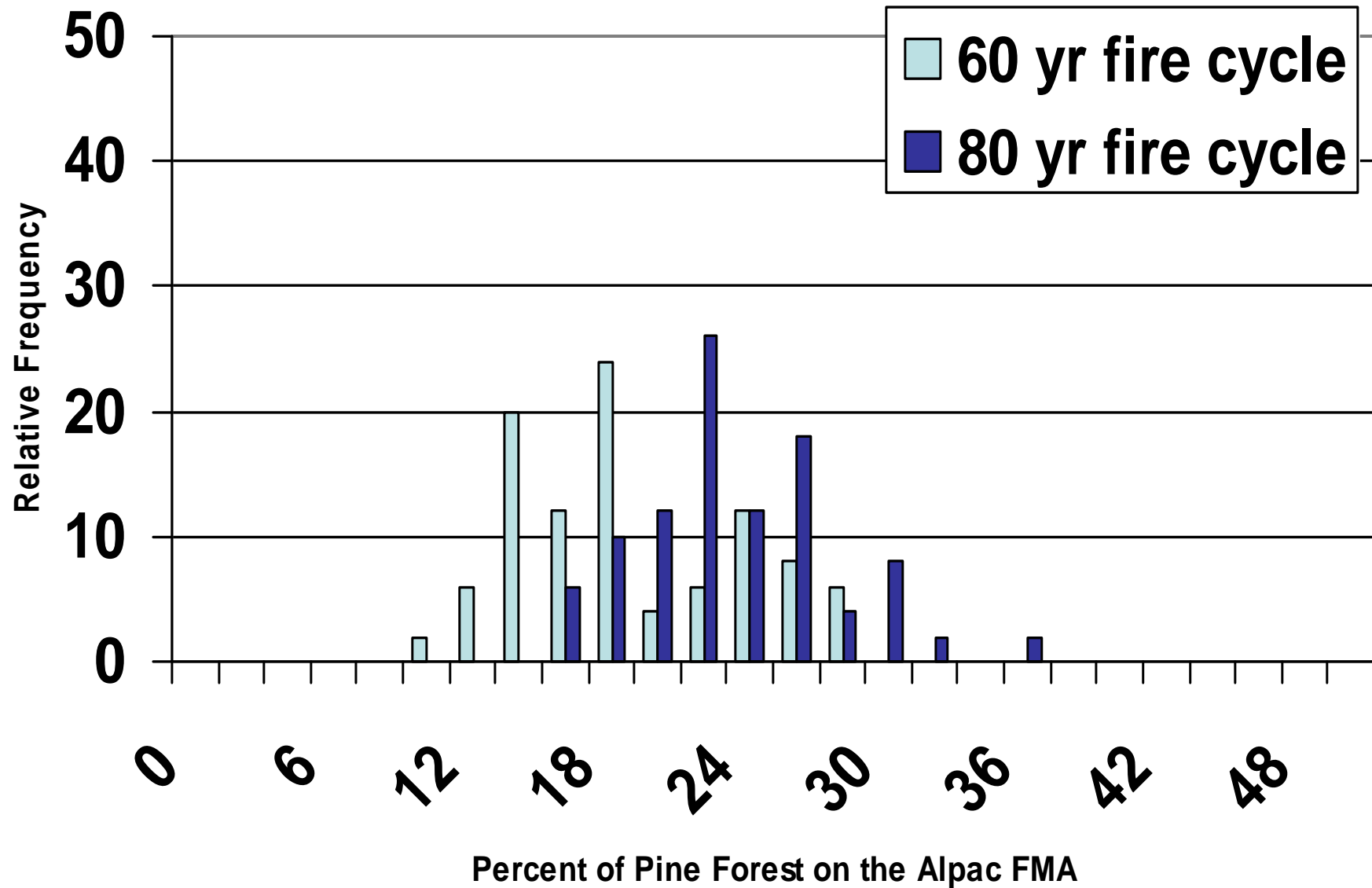
Estimated Historic Range of Lodgepole Pine Leading Forest >160 Years of Age on the Sunpine FMA



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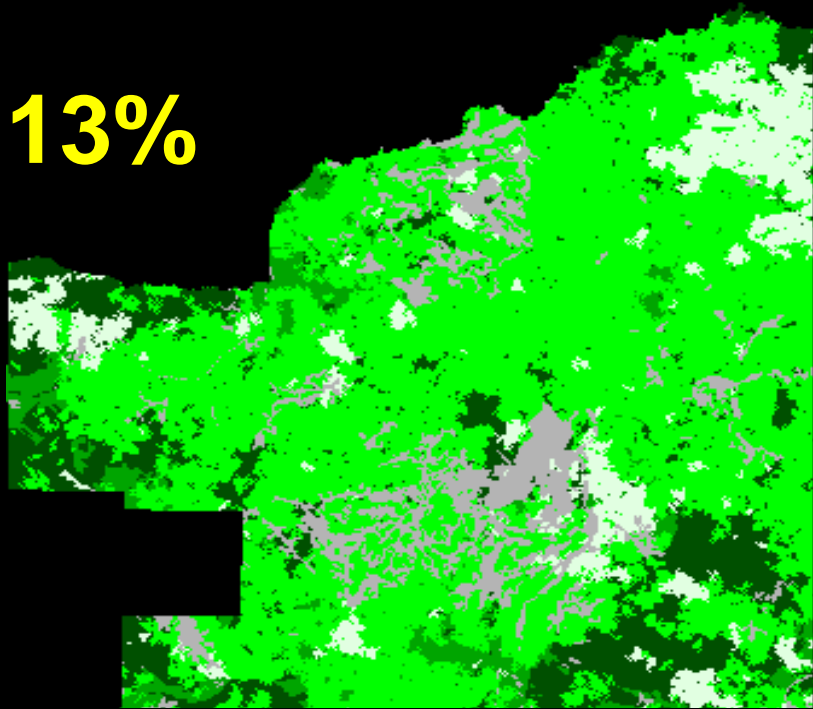
Pine >100 Yrs Old on the Alpac FMA



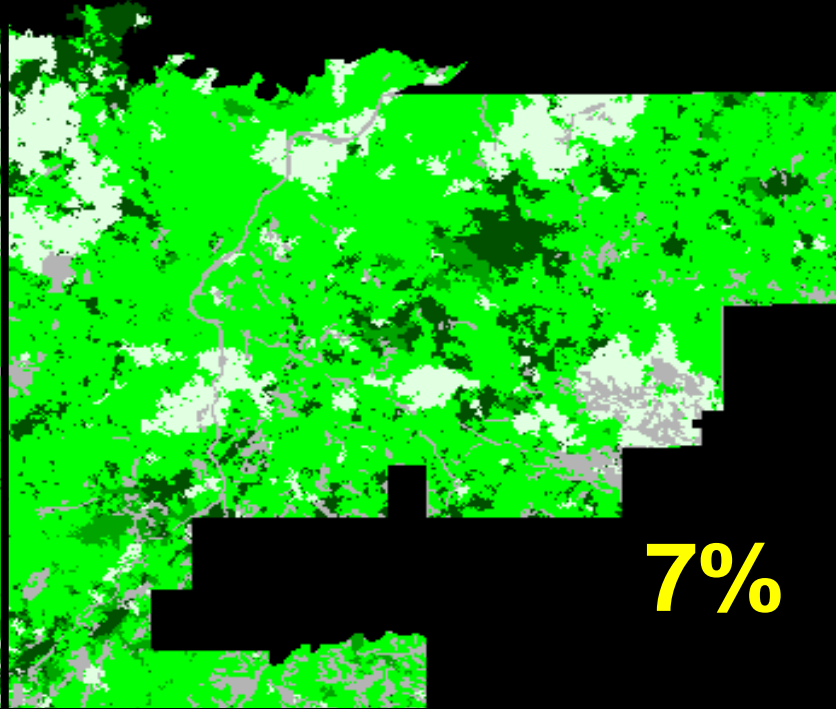
An aerial photograph of a forest landscape, showing a dense canopy of trees. The image is presented as a mosaic of several rectangular panels, with some areas missing, creating a stepped effect. The forest is predominantly green, with some lighter green and yellowish patches scattered throughout, likely representing different tree species or forest types. In the bottom left corner, there is a yellow text overlay.

12% Old Forest

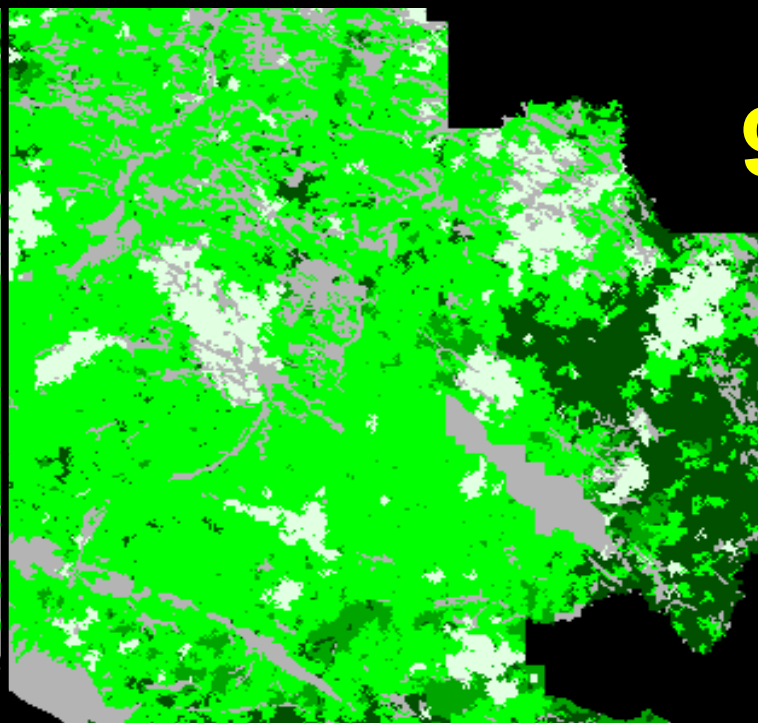
13%



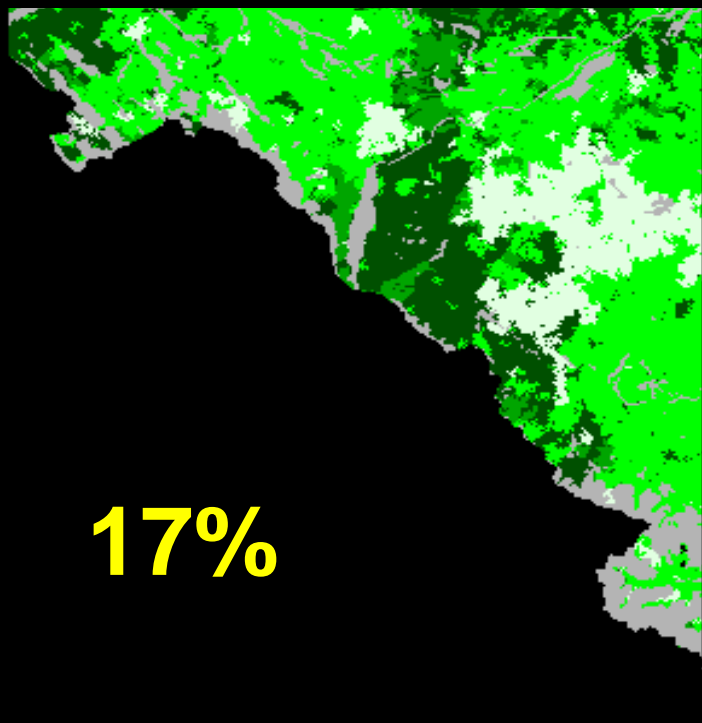
7%

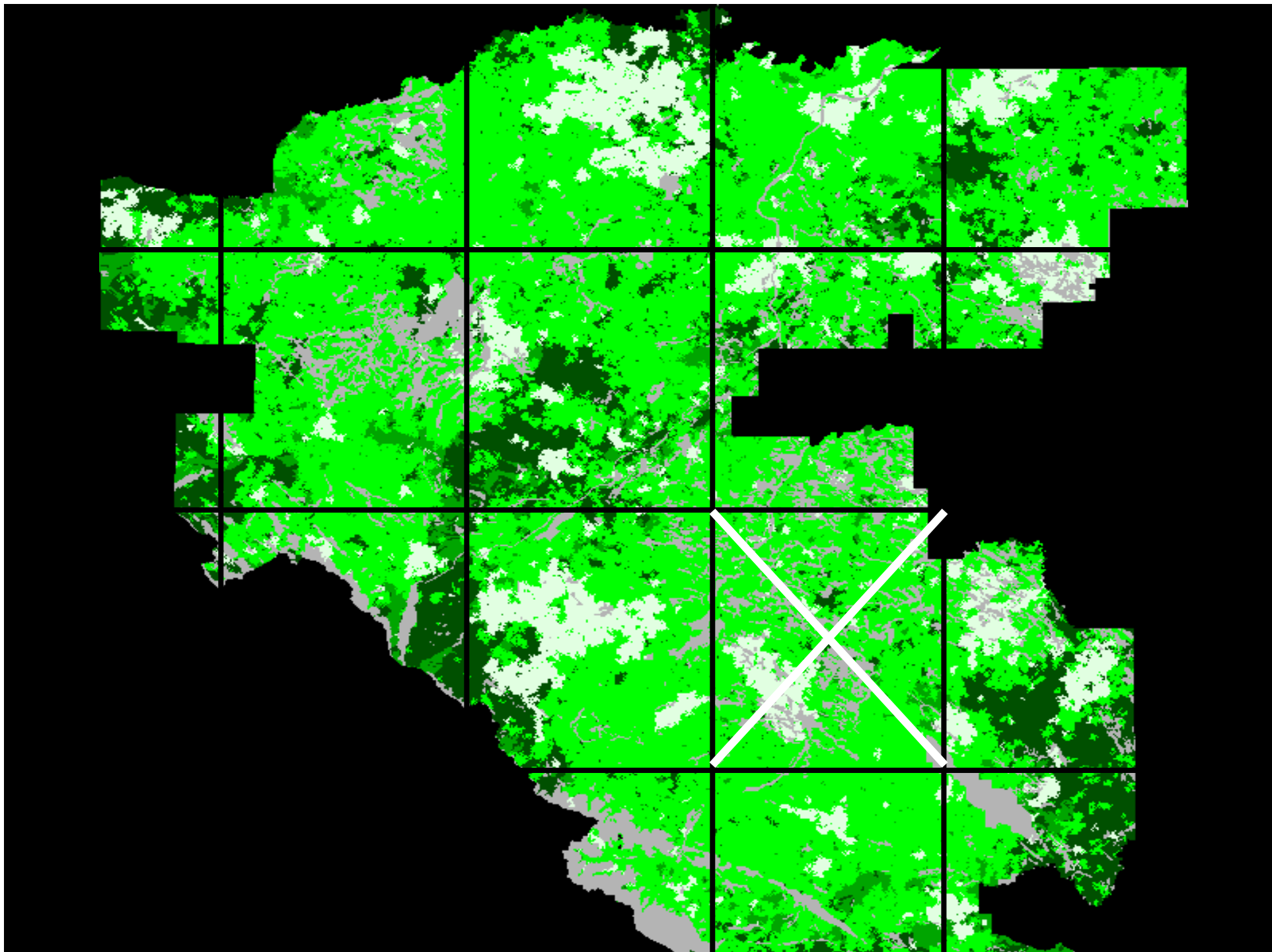


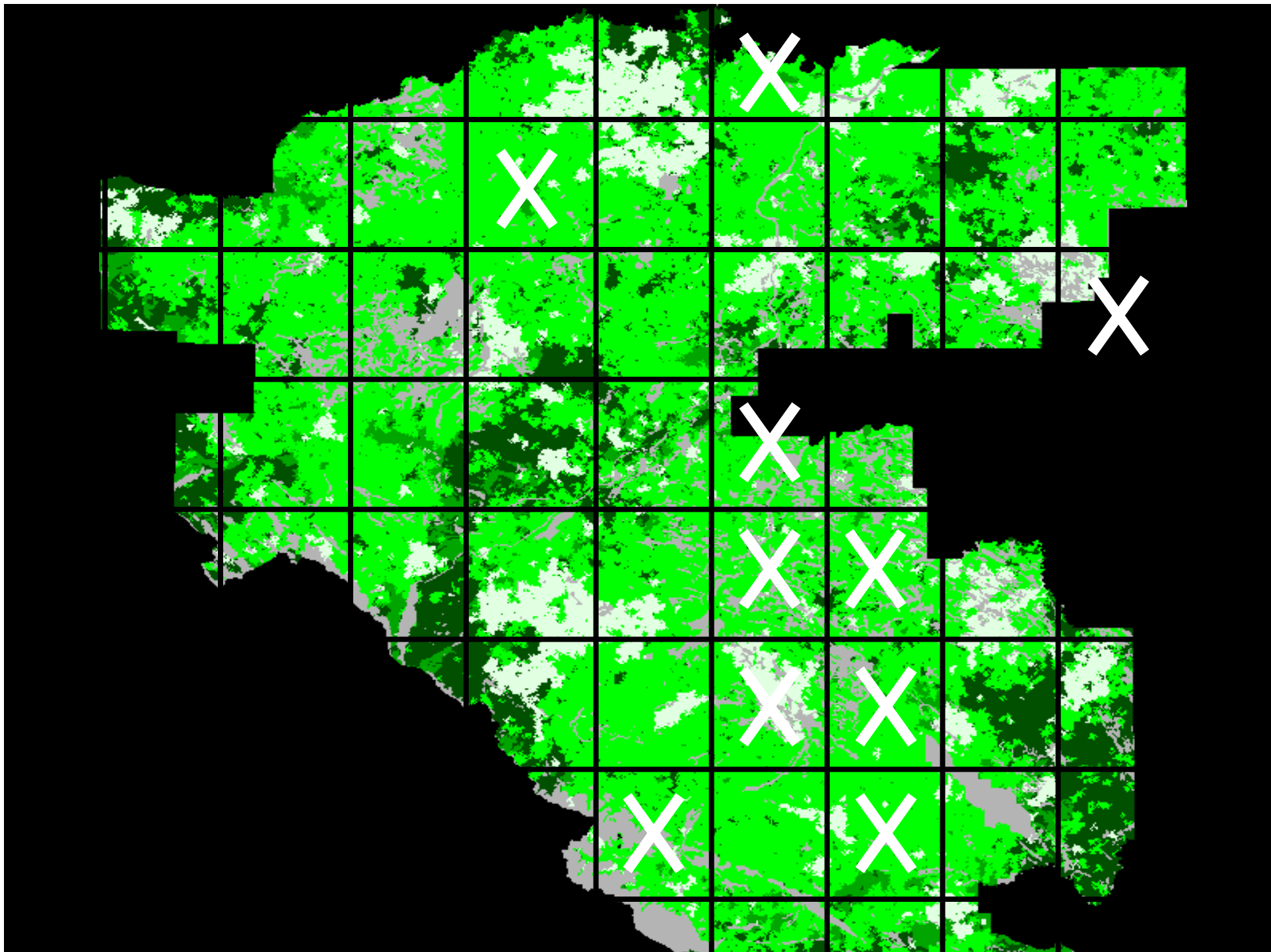
9%



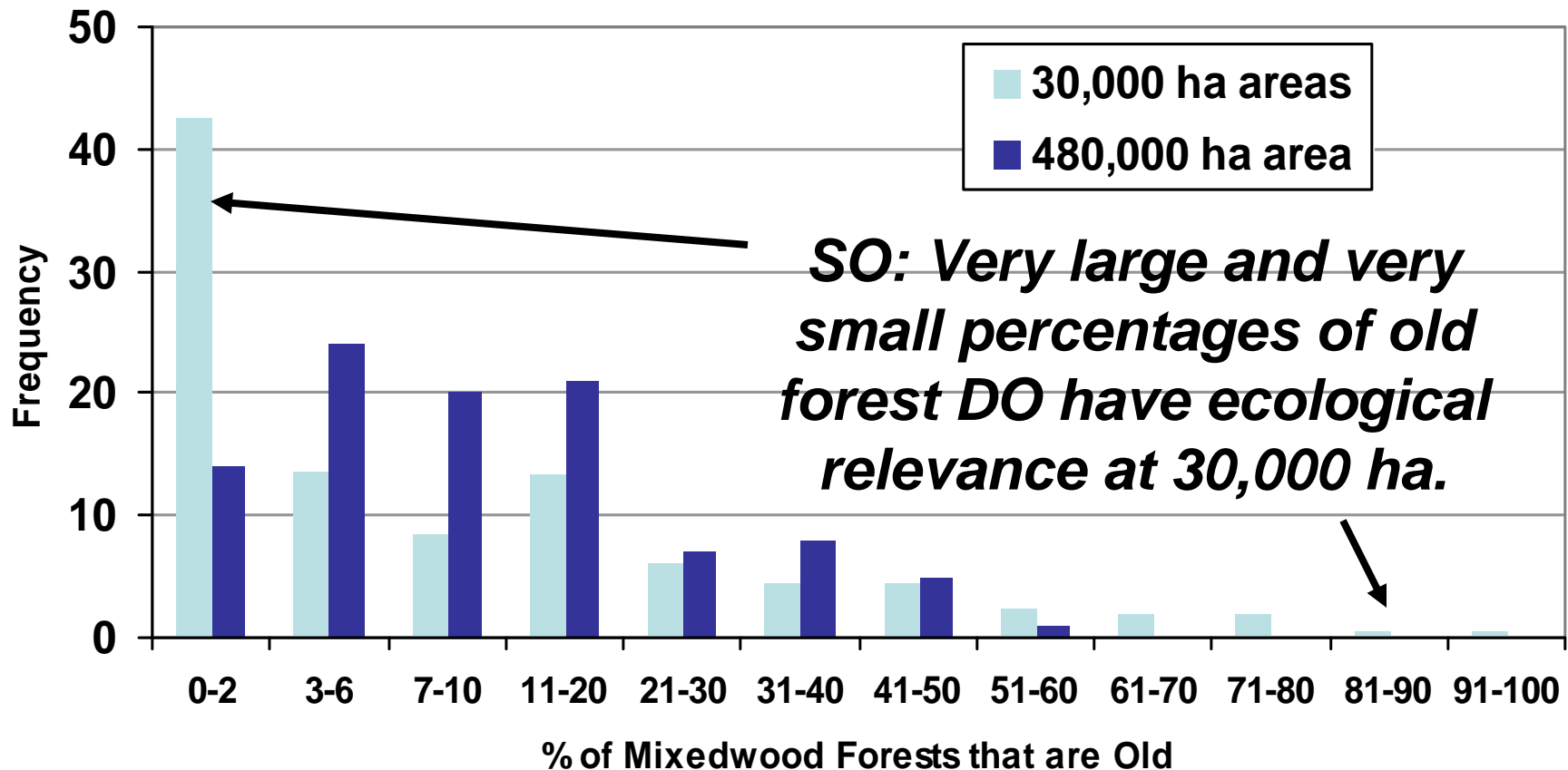
17%







Estimated Historical Frequency of Old Mixedwood Stands in the Upper Foothills Sub-region on the Hinton Wood Products FMA



- *Do average and range capture this?*
- *Is one scale adequate?*

Summary:

A simple question leads to several realizations:

- 1. We are (still) new at this.**
- 2. The importance of asking the right question.**
- 3. There is a logical order to NRV knowledge.**
- 4. The importance of a shared language (of methods, definitions, indicators, etc).**

