Natural Disturbance Research and Forest Management

An Alberta Government Perspective

John Stadt – Provincial Forest Ecologist

Government of Alberta

Sustainable Resource Development

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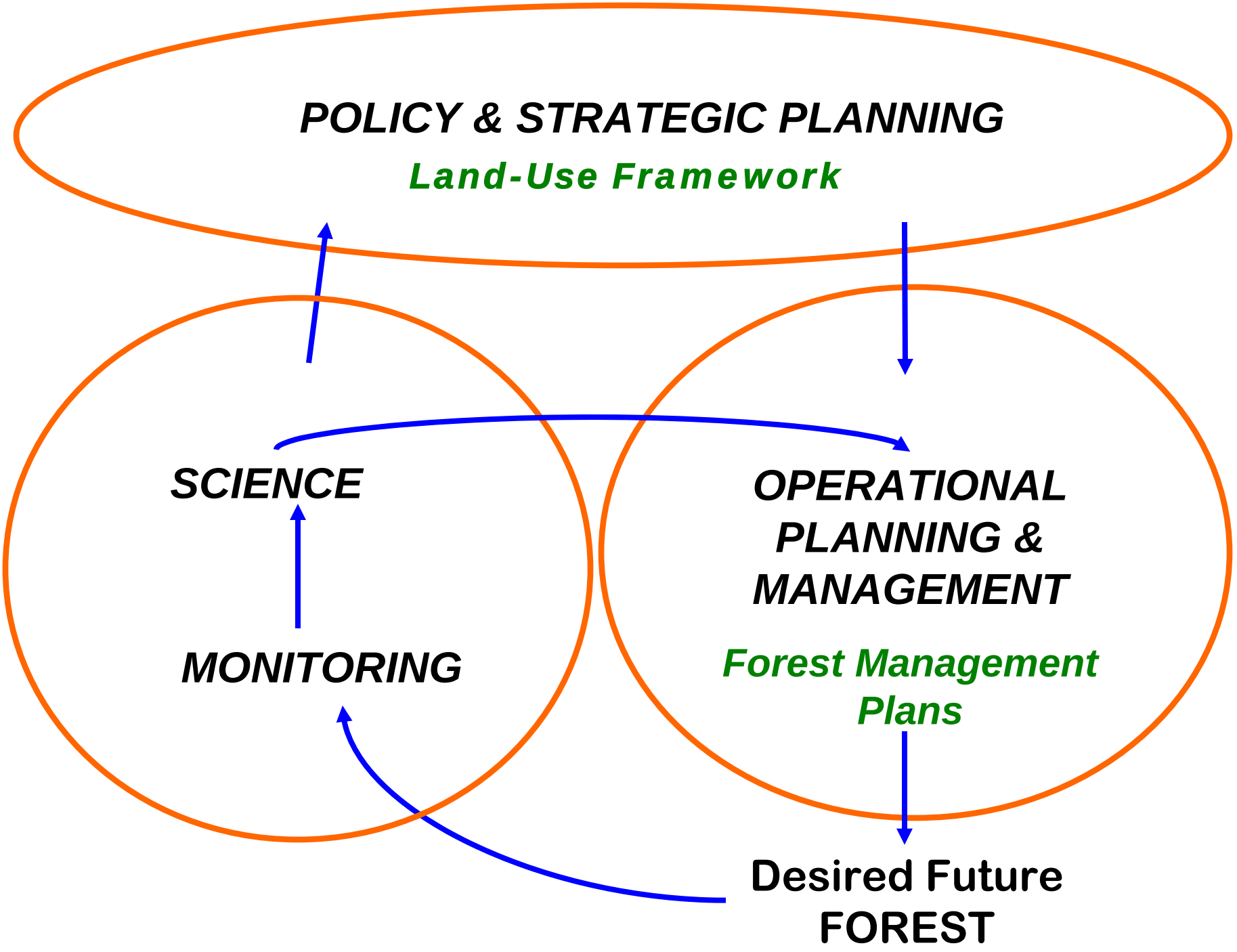
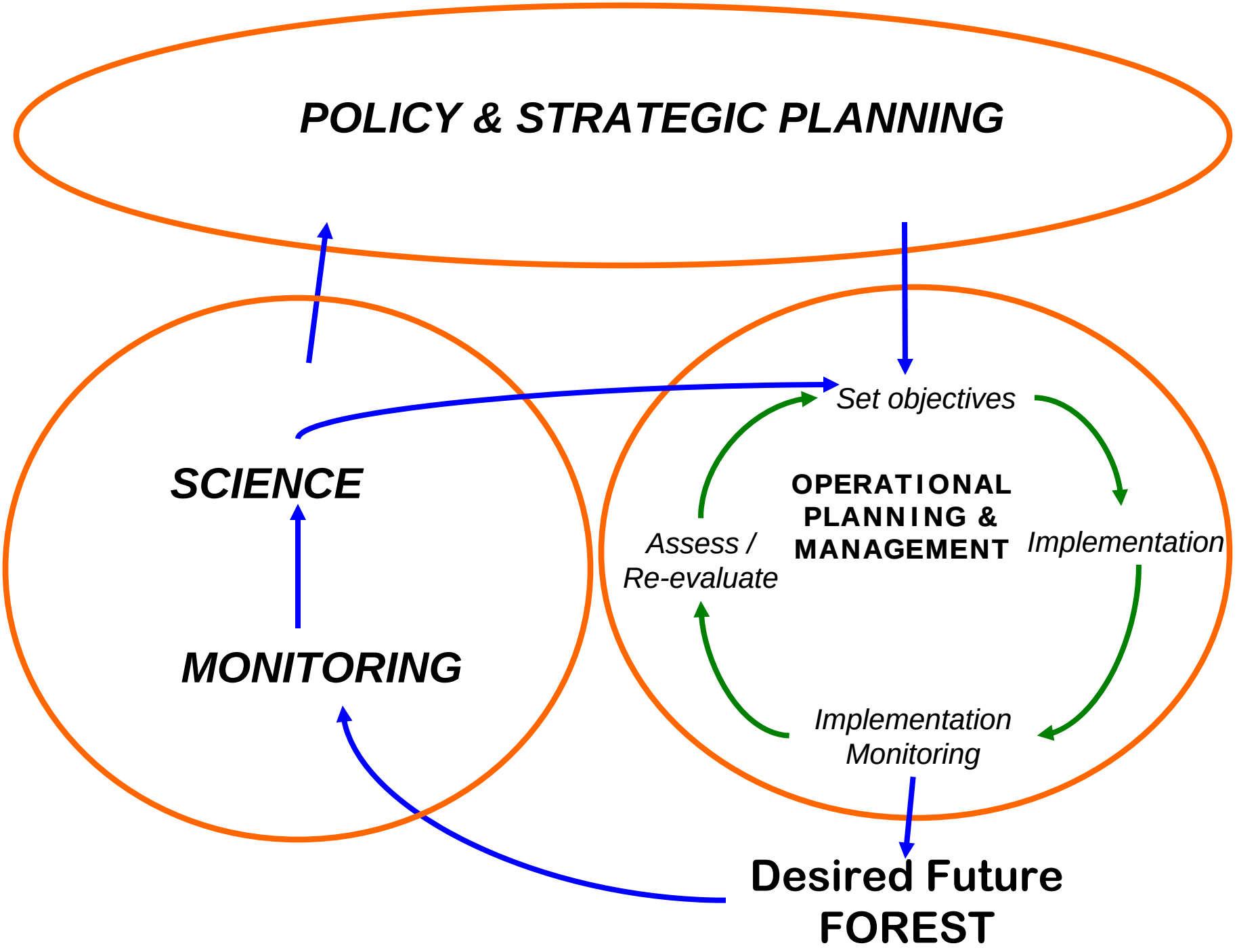
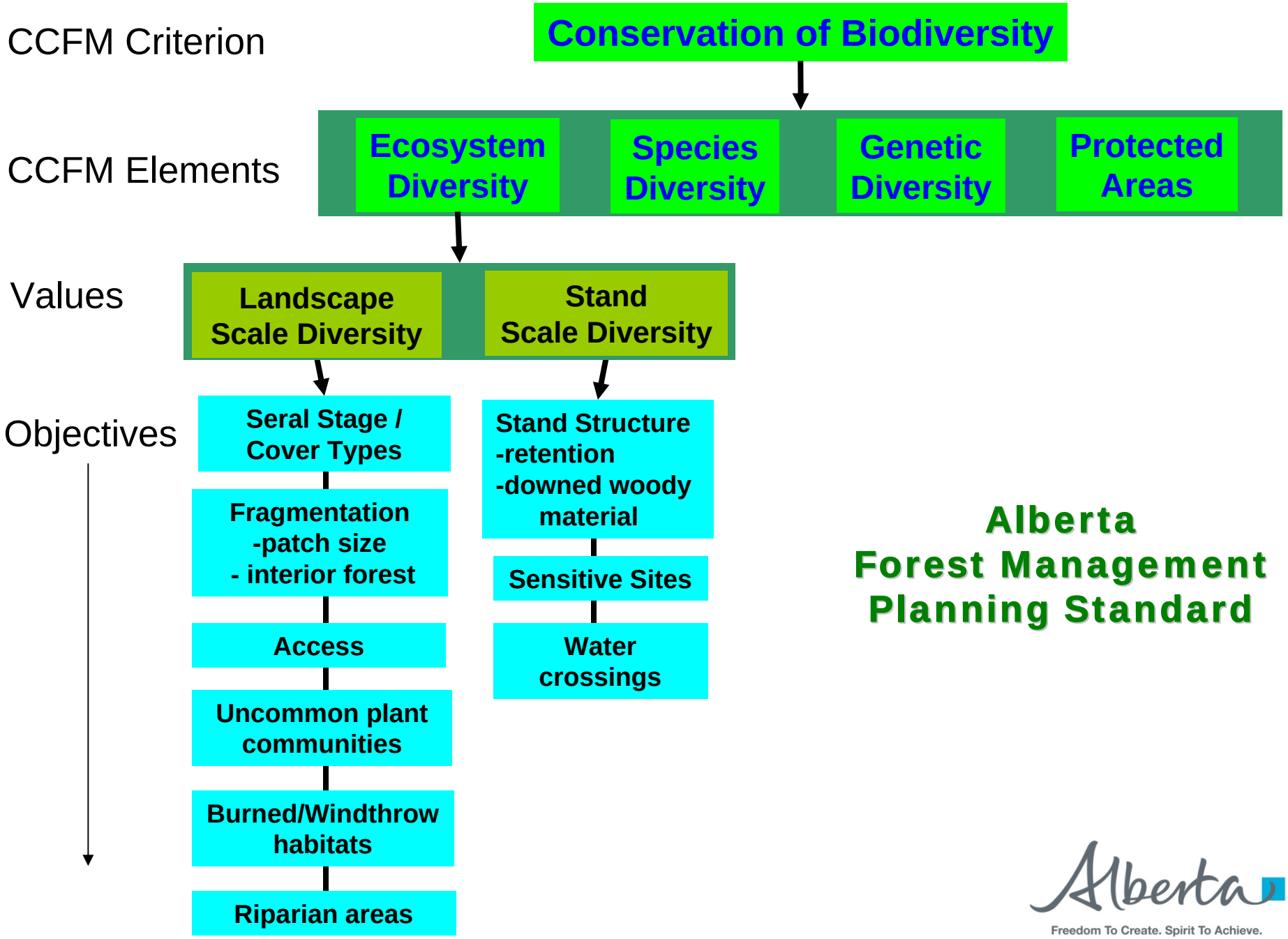

POLICY & STRATEGIC PLANNING
Land-Use Framework
SCIENCE
MONITORING
OPERATIONAL PLANNING & MANAGEMENT
Forest Management Plans
Desired Future FOREST


POLICY & STRATEGIC PLANNING
SCIENCE
MONITORING
Set objectives
OPERATIONAL PLANNING & MANAGEMENT
Assess / Re-evaluate
Implementation
Implementation Monitoring
Desired Future FOREST



Alberta Forest Management Planning Standard

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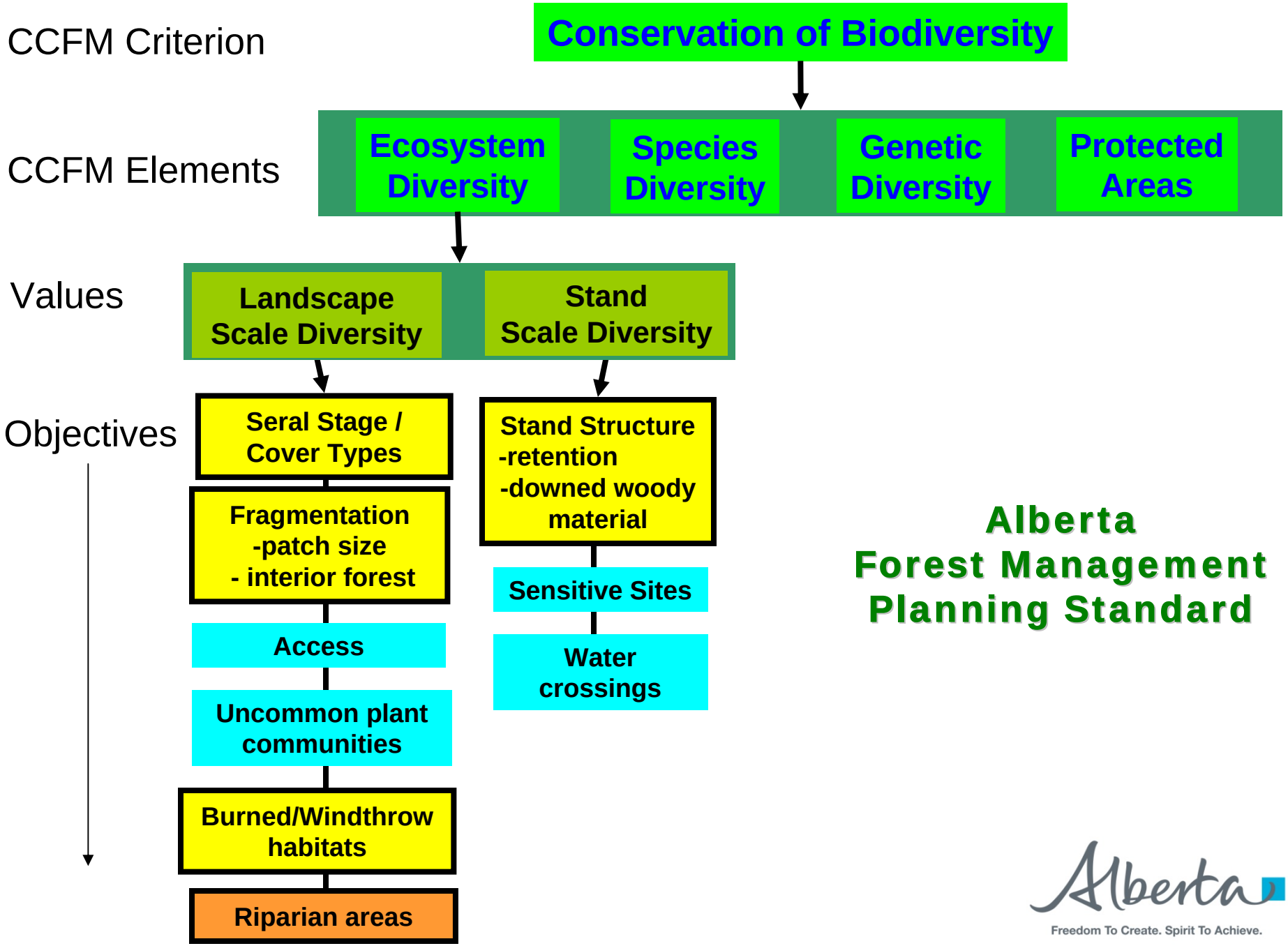

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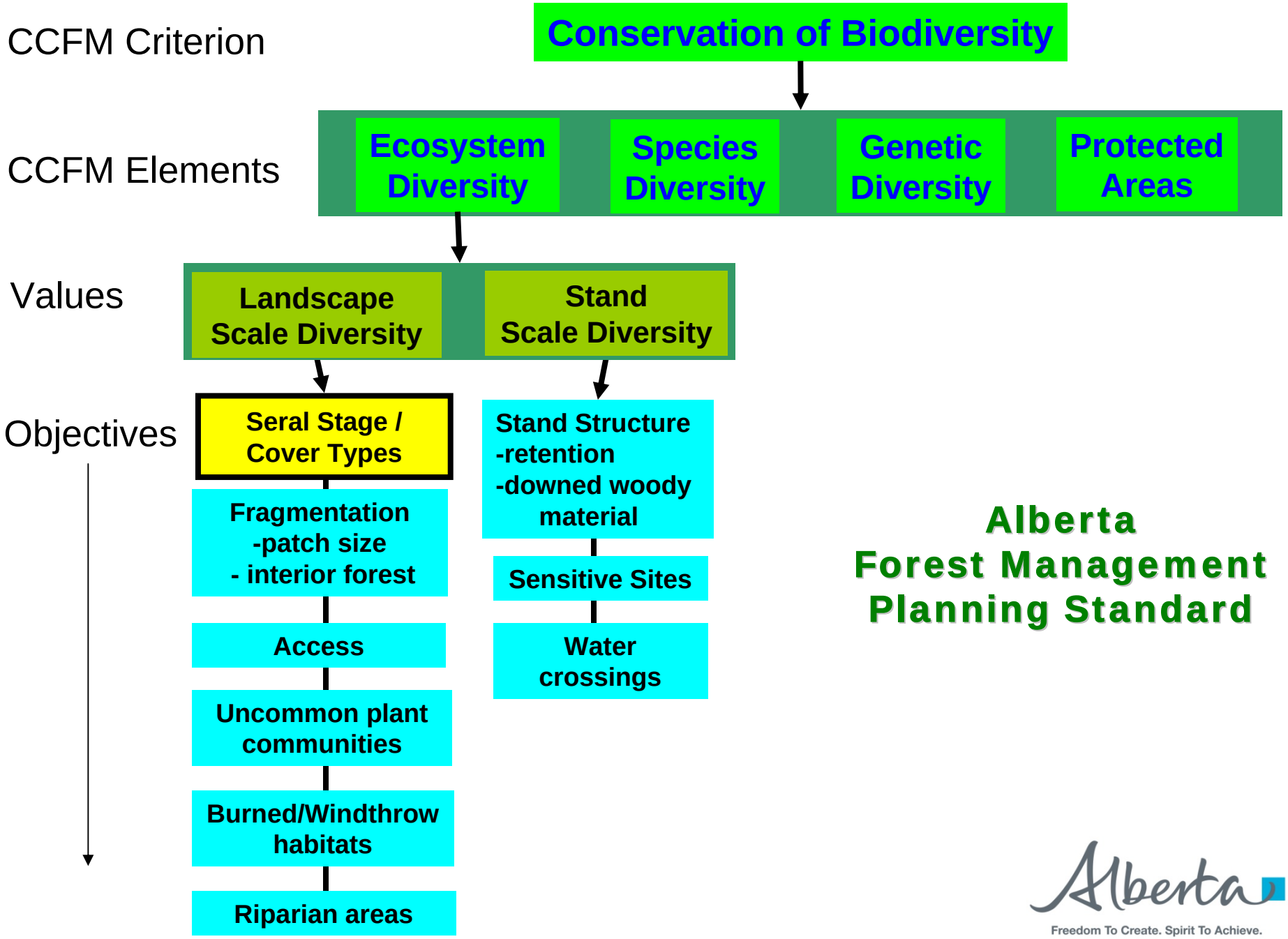

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Seral Stages

Objective: **Retain full range of *cover types* and *seral stages*.**

- **Indicator:** Area of **old**, mature, and young forest in each subunit by cover class
  - **Target:** Targets for each seral stage to be set for both the gross and net landbase

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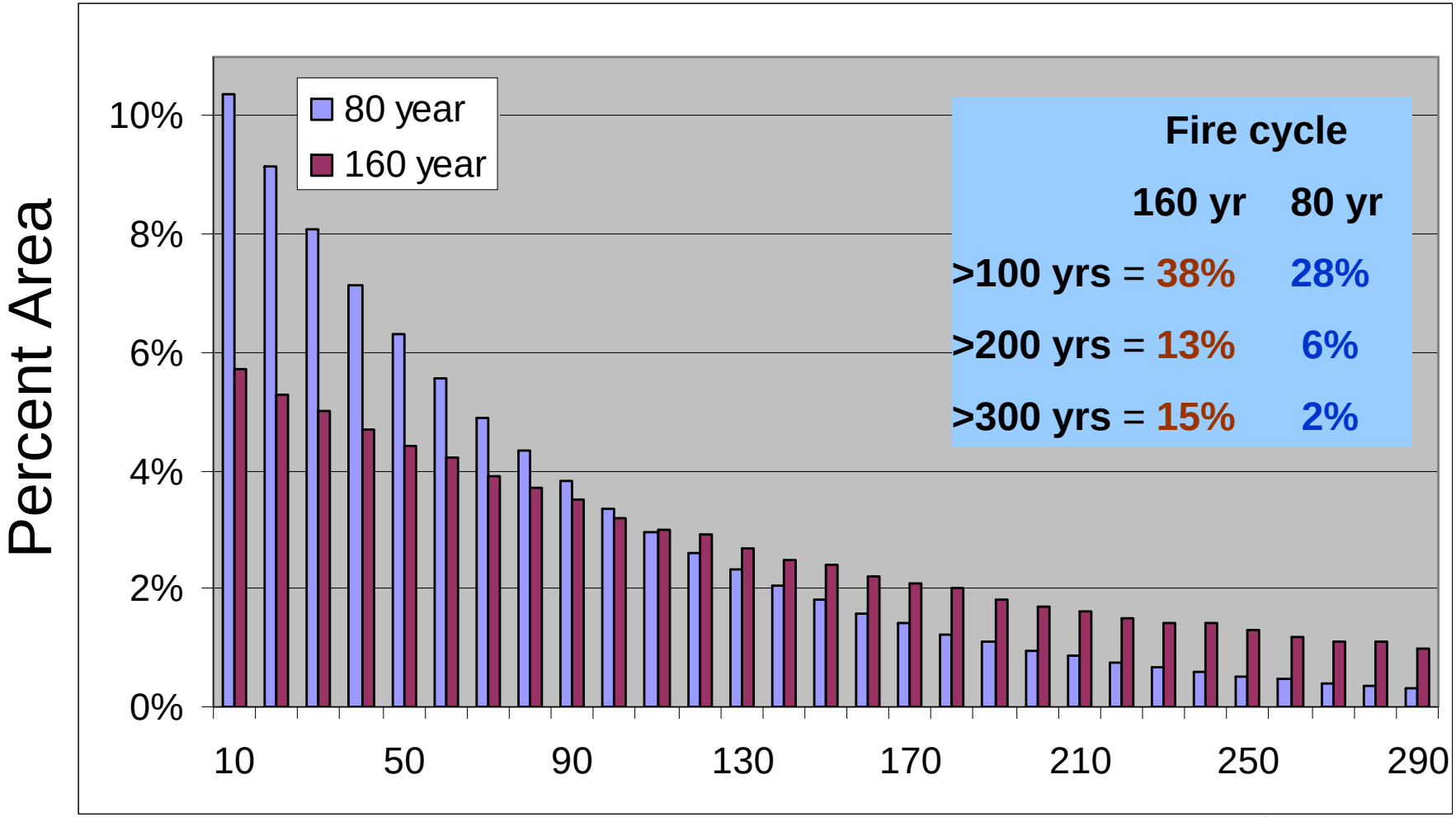
Age distribution of forests

80 and 160 year fire cycles



Seral Stages – Natural Range of Variation

- **Fire regime analysis**
  - Fire cycle
  - Disturbance size distribution
- **Spatial simulation modeling** (e.g. LANDMINE (Andison), BFOLDS (Ontario)

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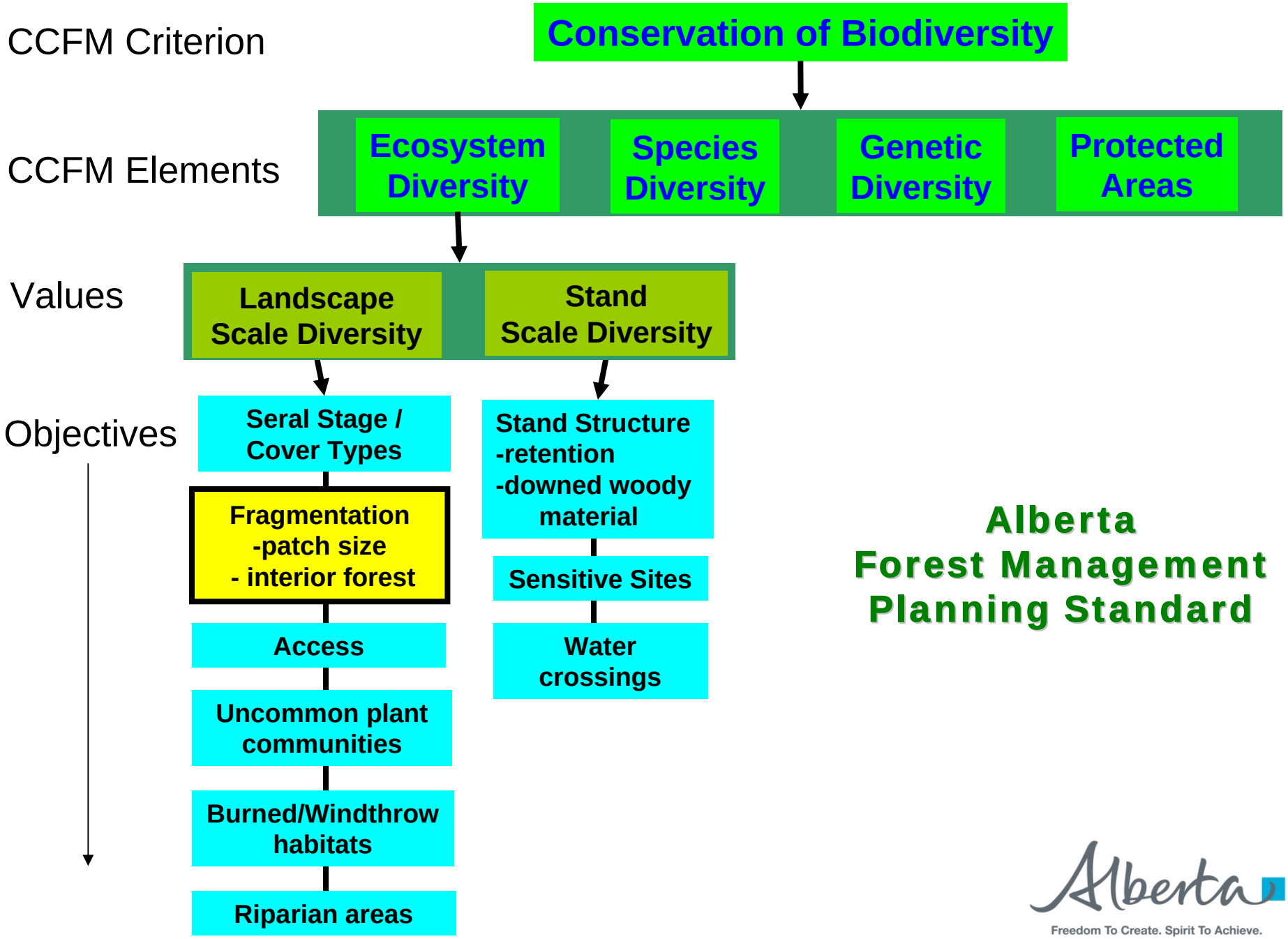

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Fragmentation

Objective: Avoid landscape fragmentation

- **Indicator 1:** Range of **patch sizes** (current harvest pattern)
- **Indicator 2: Interior old forest** for each cover class

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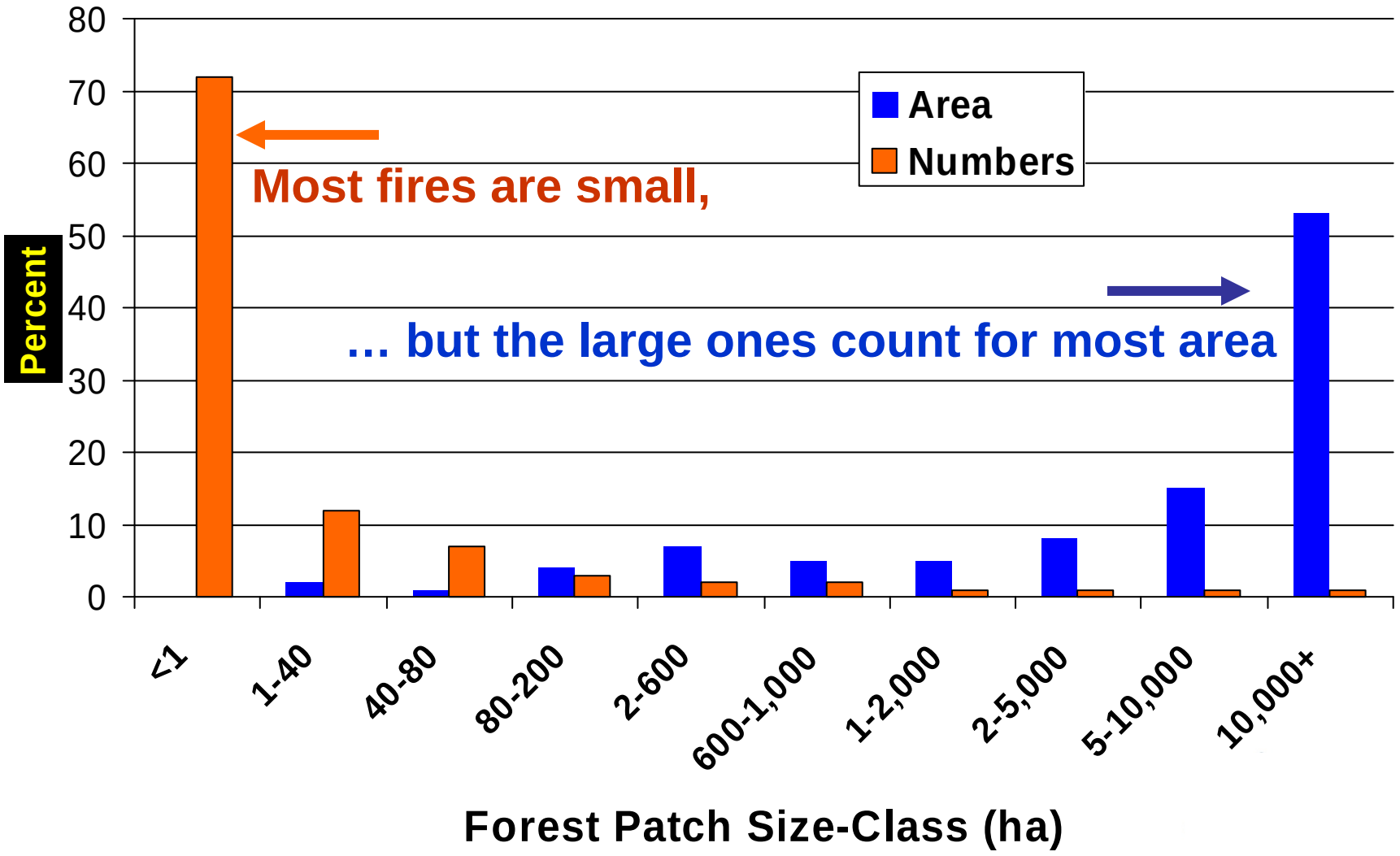
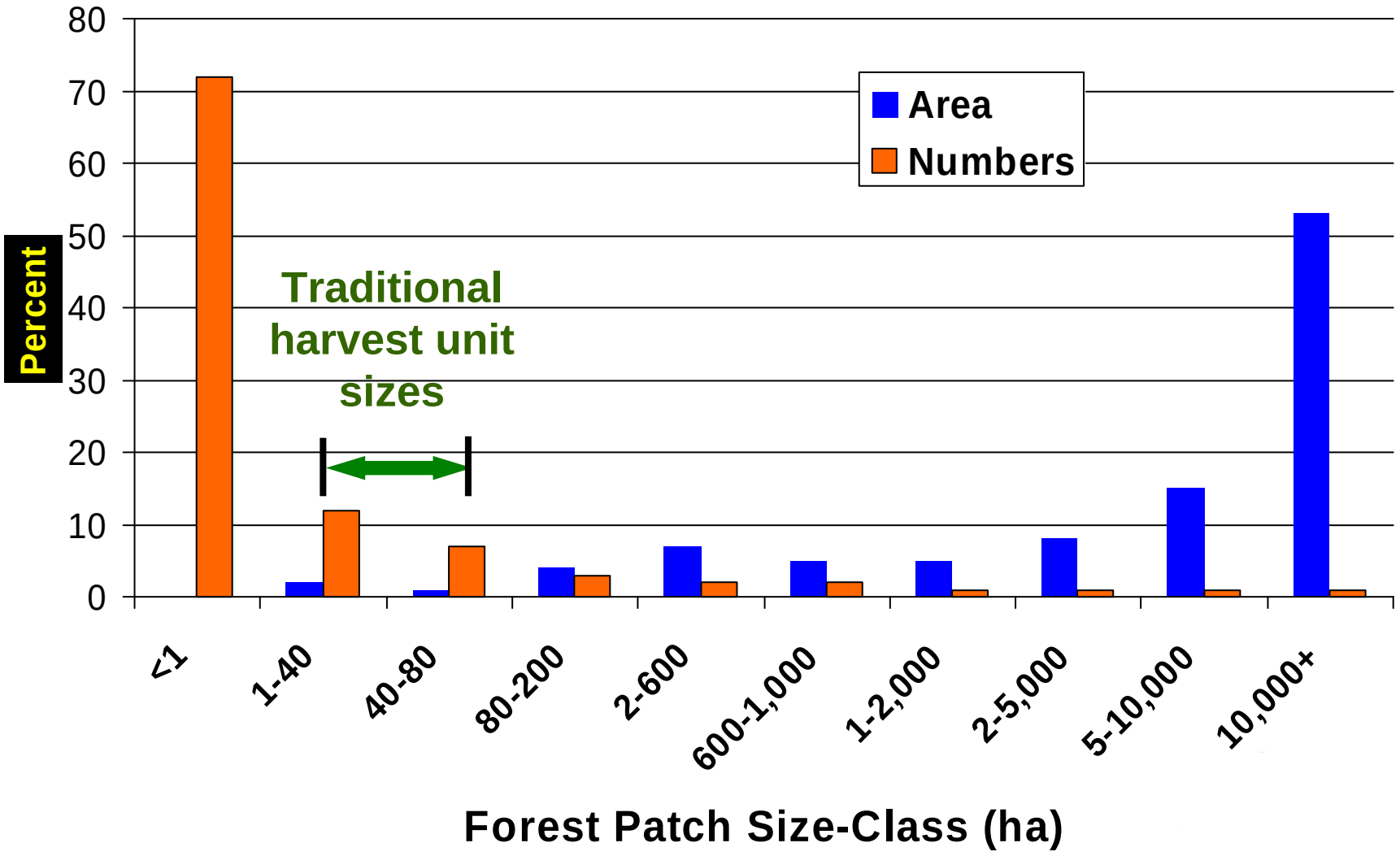
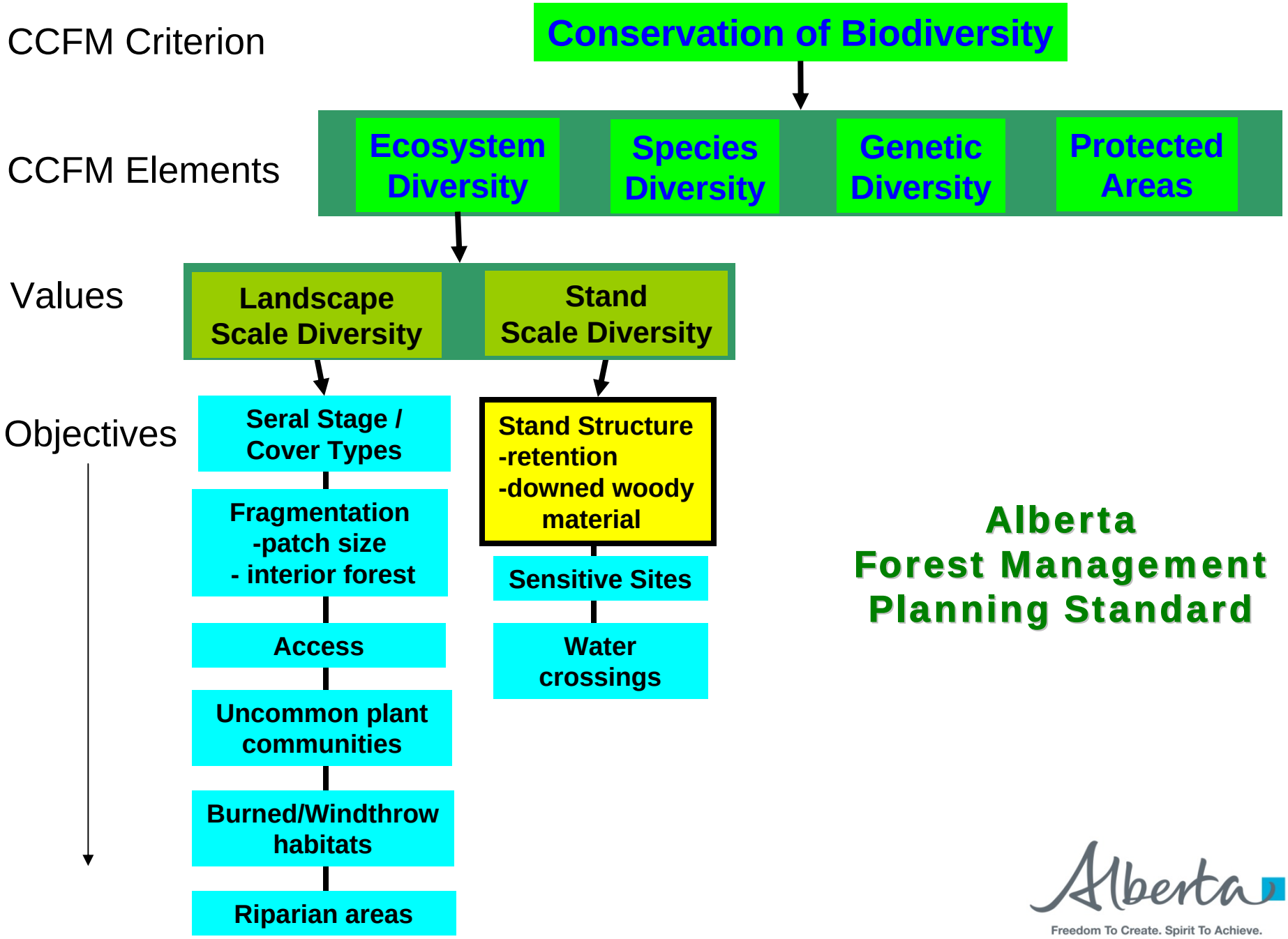
Disturbance Sizes & Disturbance Numbers

(In the Alberta Foothills (Andison))



Disturbance Sizes vs Traditional harvest sizes





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Stand level structure

Objective: Retain stand level structure:

- **Indicator:** % area or volume or stems of residual structure within harvest area
  - Representative of harvest area
  - **Target:** patches, clumps, stems comprising X% of harvested area/volume/stems

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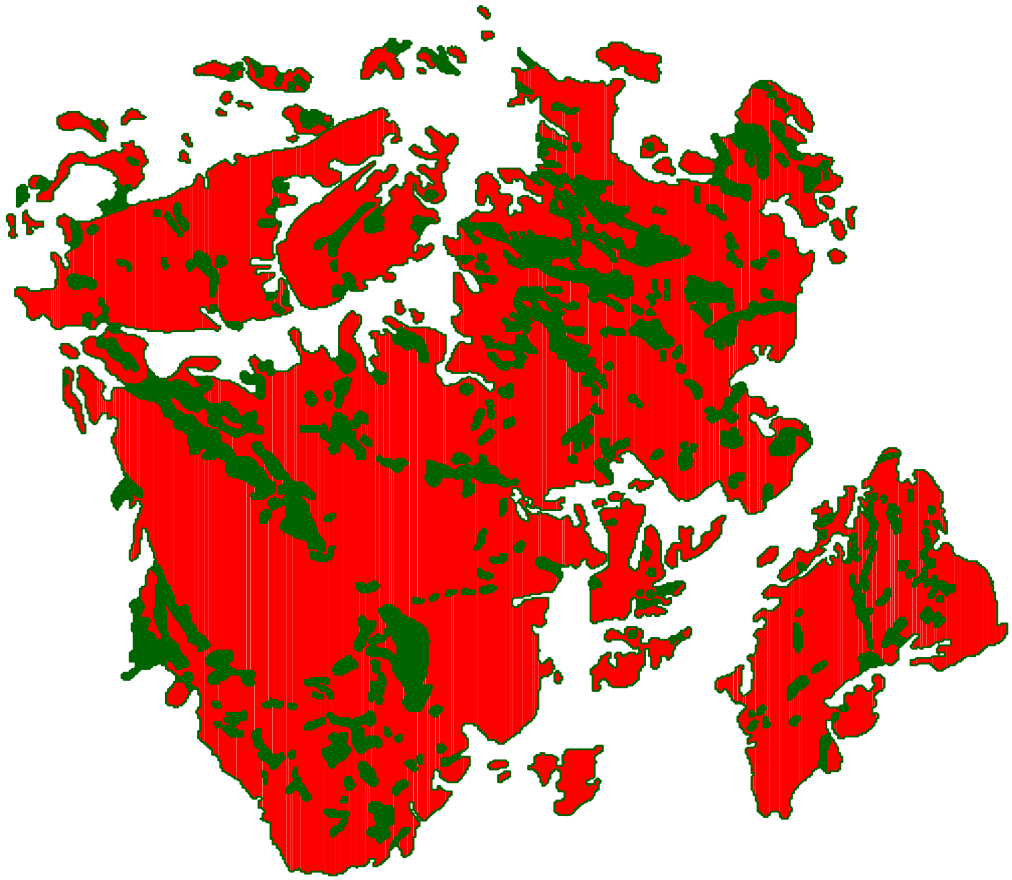
NEPTUNE tool – classifying within fire pattern



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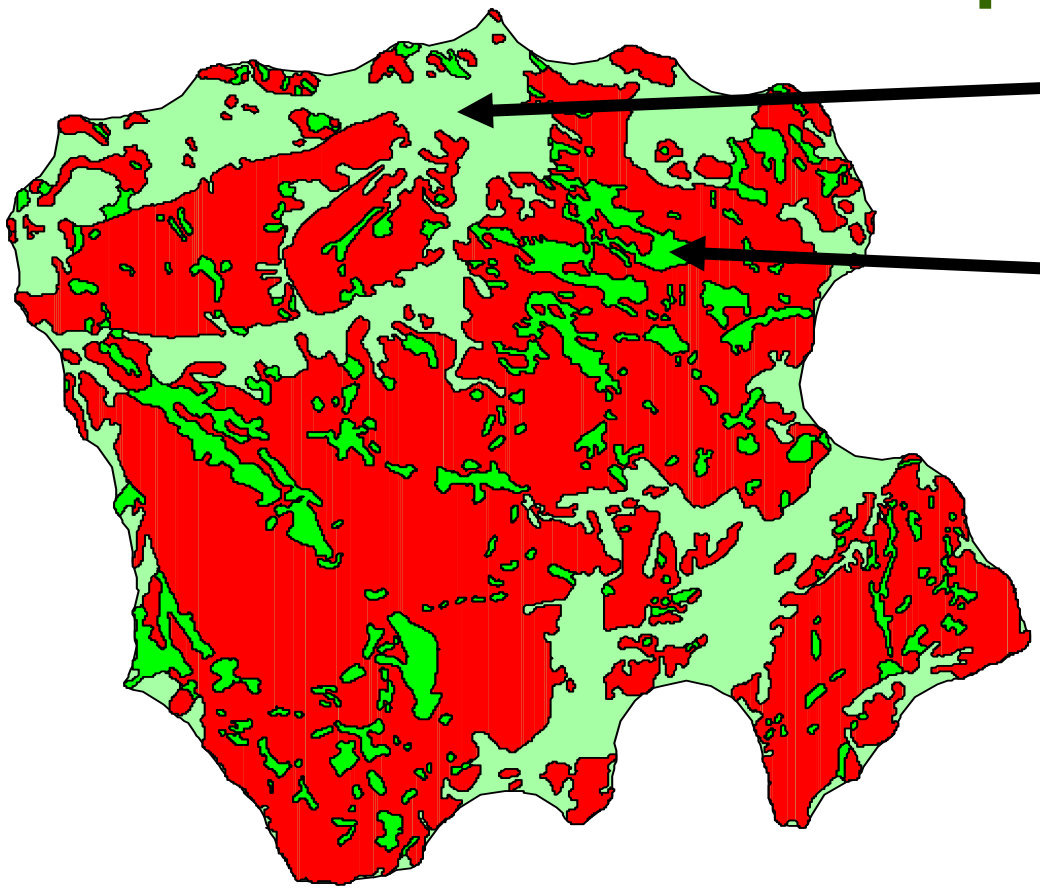
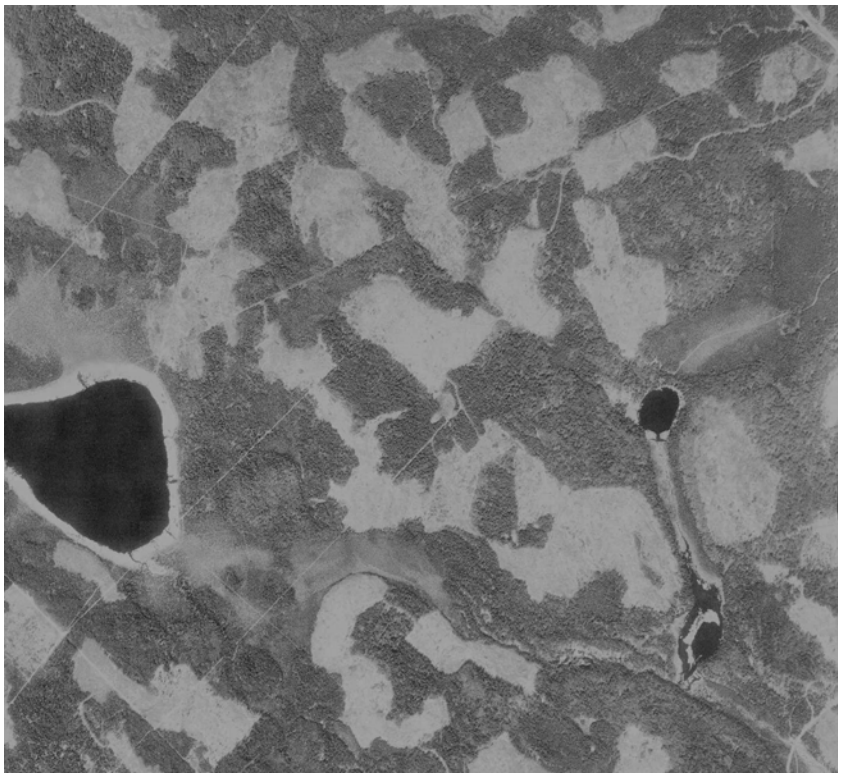
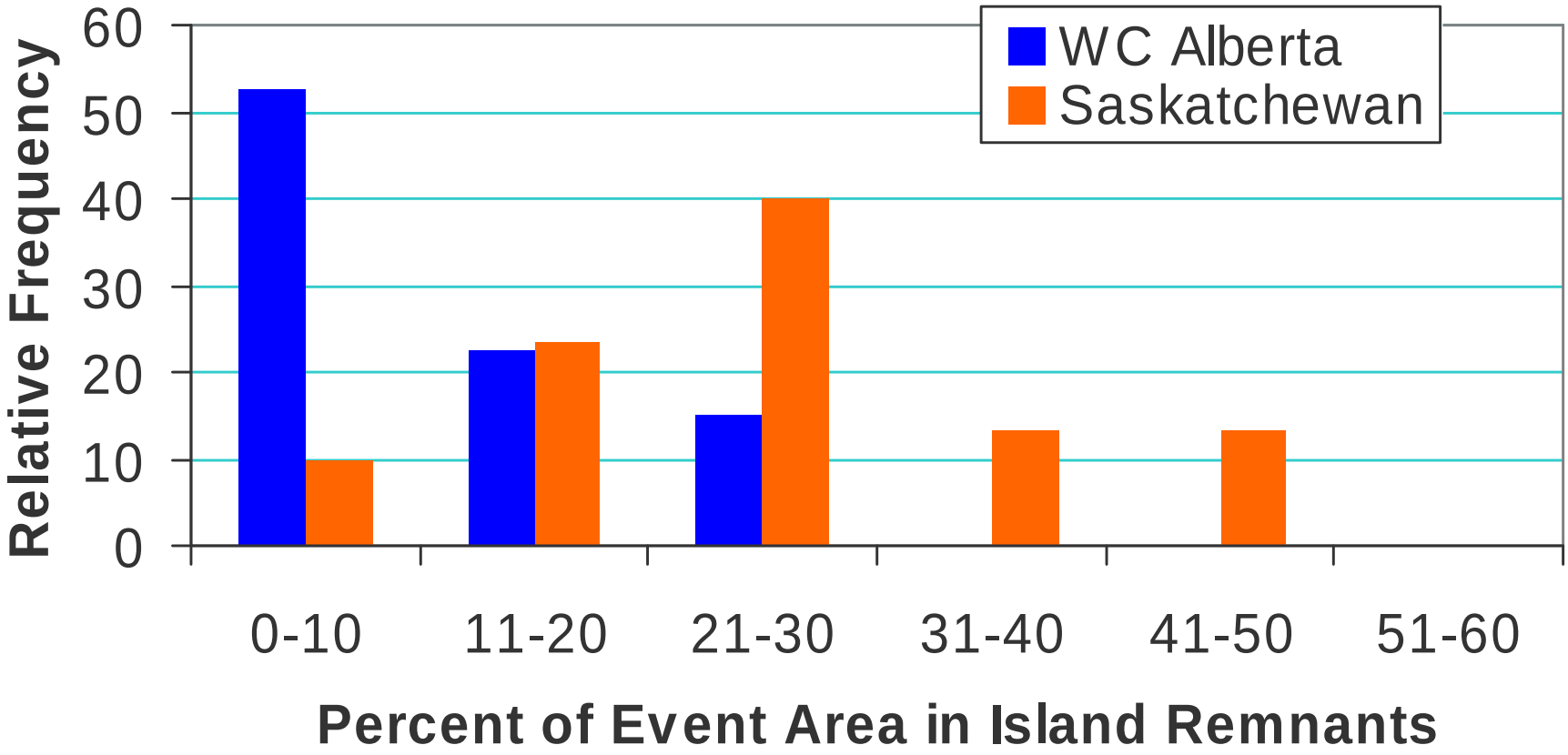


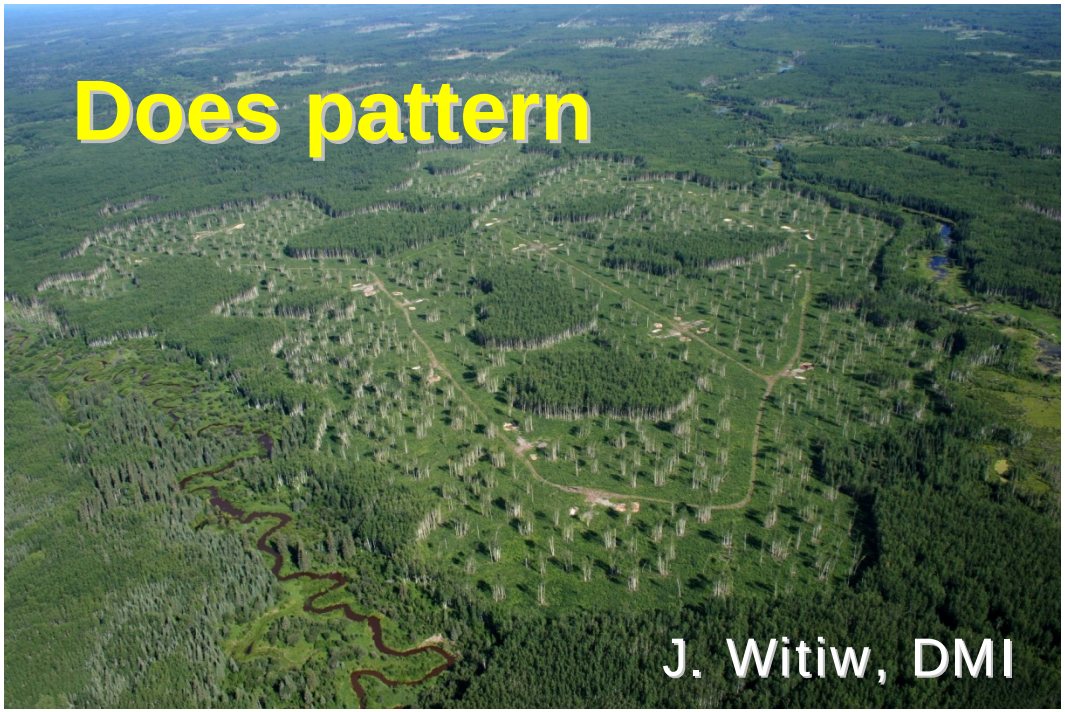
Matrix Element

Island Remnant



Area in Island Remnants for WC Alberta and Saskatchewan





= **Biodiversity ?**

Fire

vs.

Harvesting

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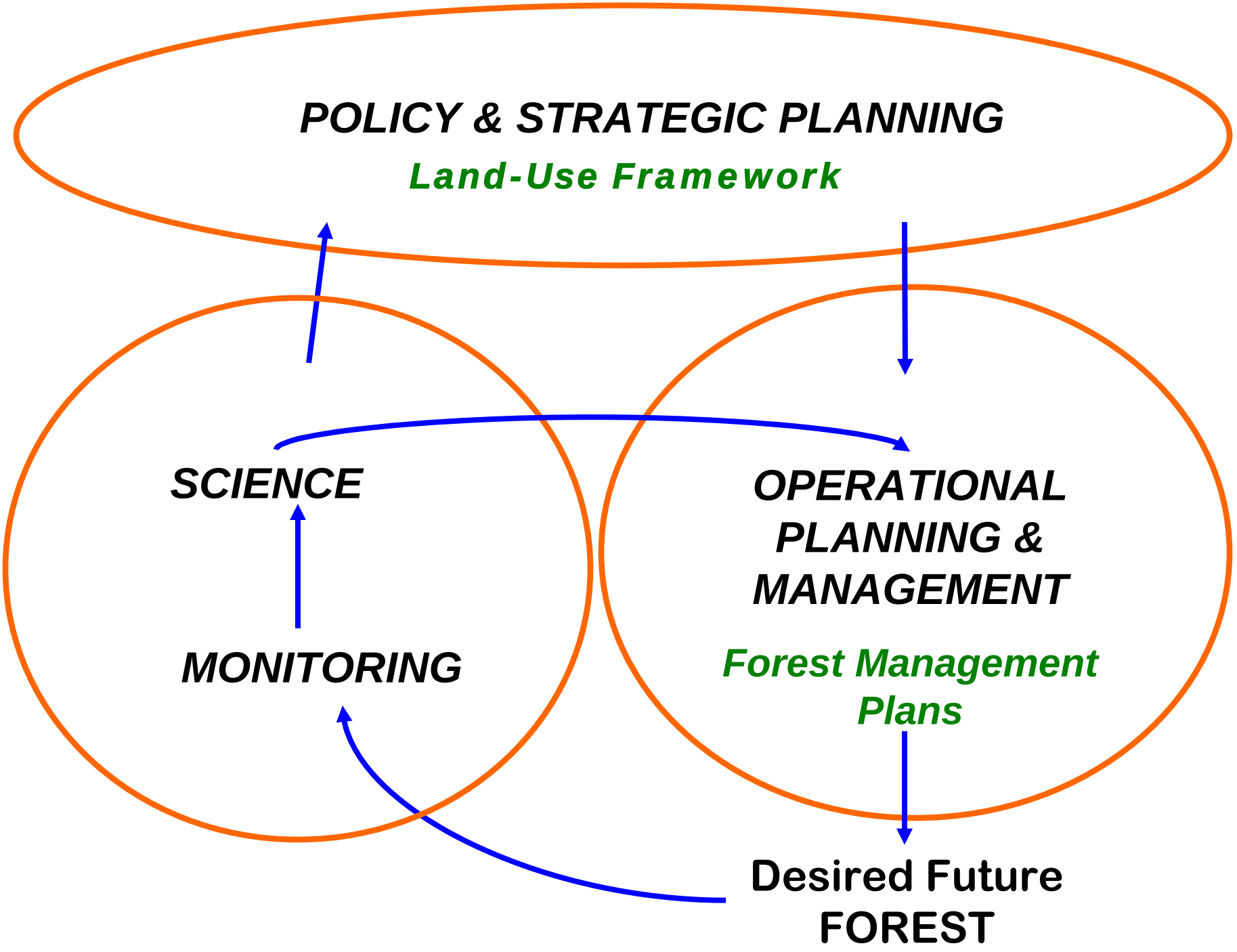
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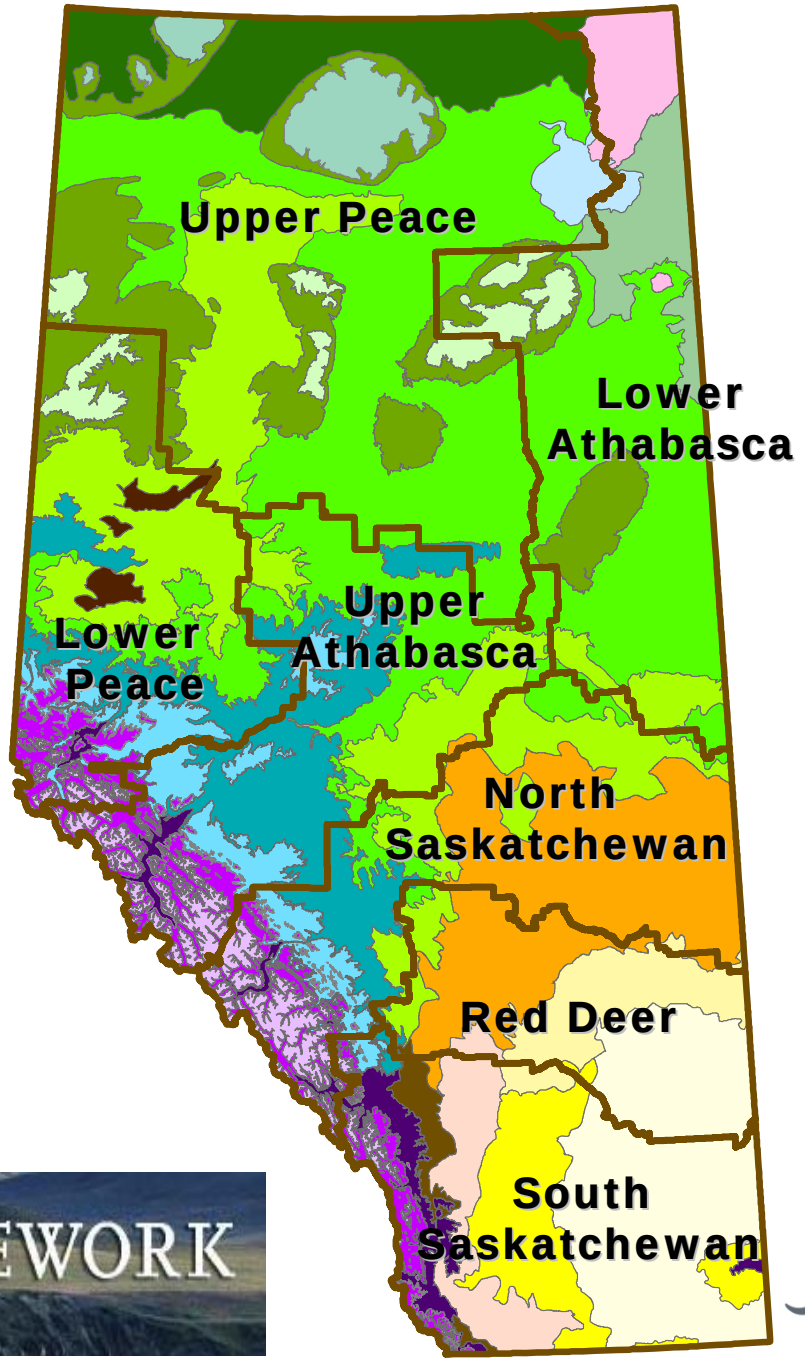
- 7 Regional Plans
- Provincial Outcomes
  1. Healthy economy
  2. Healthy ecosystems
  3. Healthy communities



LAND-USE FRAMEWORK

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Thank You