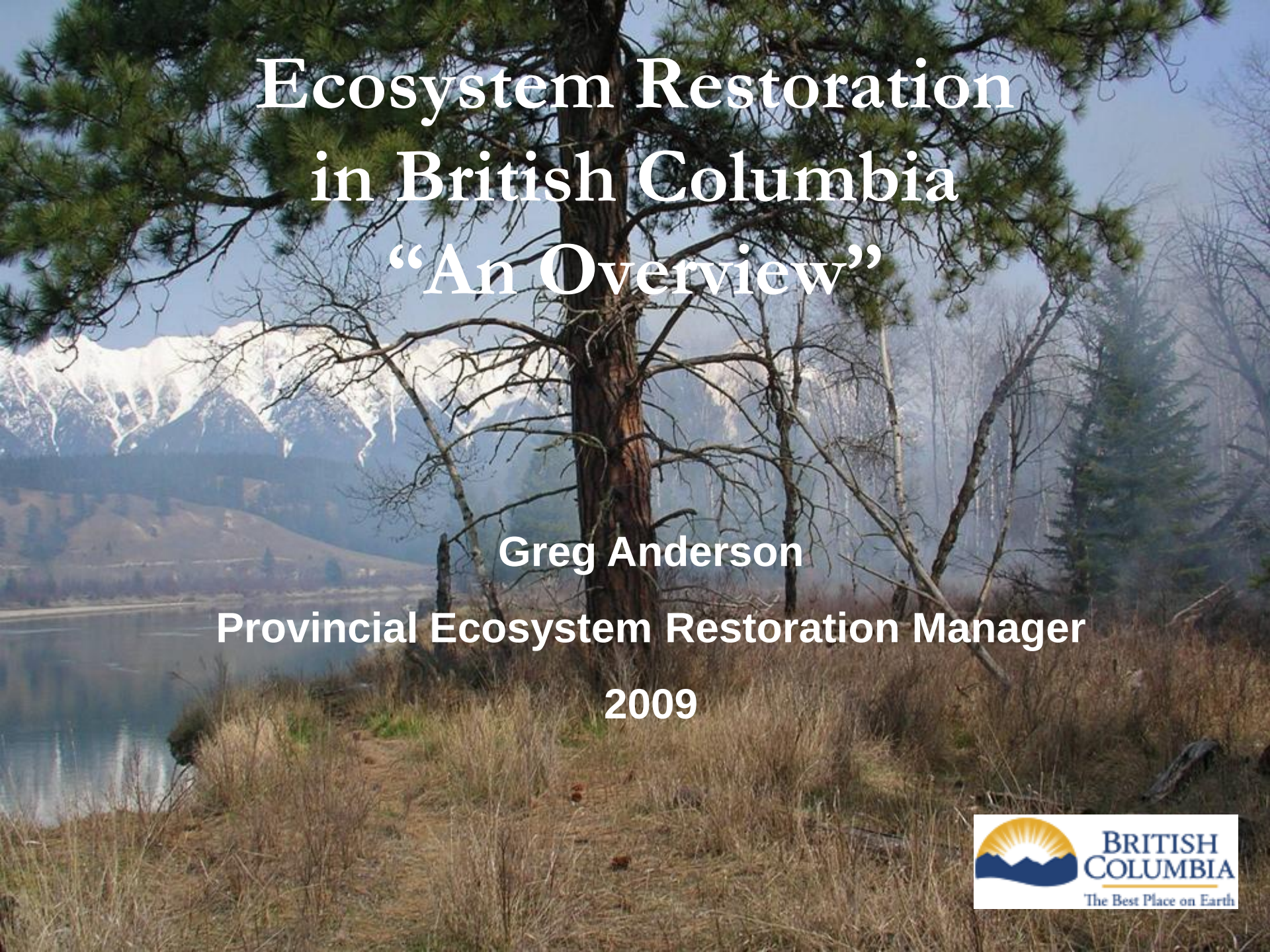


# Ecosystem Restoration in British Columbia "An Overview"

**Greg Anderson**

**Provincial Ecosystem Restoration Manager**

**2009**

BRITISH COLUMBIA
The Best Place on Earth

# Presentation Topics

- Where are we at & how did we get here?
- Understanding Ecosystem Restoration
- The Future – We're "Moving Forward"
- Strategic Planning

# Our Changing Land Base

In British Columbia our land base is experiencing the "perfect storm"…

And it will be a challenge as we navigate forward!

More frequent catastrophic wildfires

Kelowna, 2003

Increasing wildland/urban interface

***"Two key factors are contributing to the increasing fire risks. One is the population growth in areas where interface fires occur. The other is the build-up of combustible vegetation, a consequence of years of fire suppression activities."***

B.C. Auditor General's Report (2001)

Increasing losses of wildlife habitat & forage supplies

# Unprecedented forest insect epidemics

Lorraine Maclauchlan, MoFR

***"High fuel loads are not the only consequence of skipping (fire) disturbance intervals. Recent research shows that biodiversity and forage production are reduced, wildlife habitats are altered and the forests become susceptible to insects and diseases."***

Hon. Gary Filmon, Chair, Firestorm Review (2004)

# Loss of First Nation cultural values

Bitterroot

Balsamroot

Saskatoon

Matthew Jacob

***"We used to keep it open, for berries and for mule deer, now it's all dead and dying and bug infested, and you can't even walk through it. It's just like a plague, all over."***

David Walkem, Chief, Cook's Ferry Indian Band (2008)

*Bluebunch wheatgrass – an imperilled grassland species*

# And disappearing native grasslands……

(<1% of BC's land base is remaining native grassland while ~30% of at-risk species in province are grassland dependent!)

*Racer Snake – blue-listed grassland species*

*Badger – a red-listed grassland species*

***"This is a complex problem. However, we must recognize that areas with excessively high fuels create a risk to the public and to important forest values, such as community watersheds and habitat for endangered species."***

Bruce Fraser, Chair, Forest Practices Board (2006)

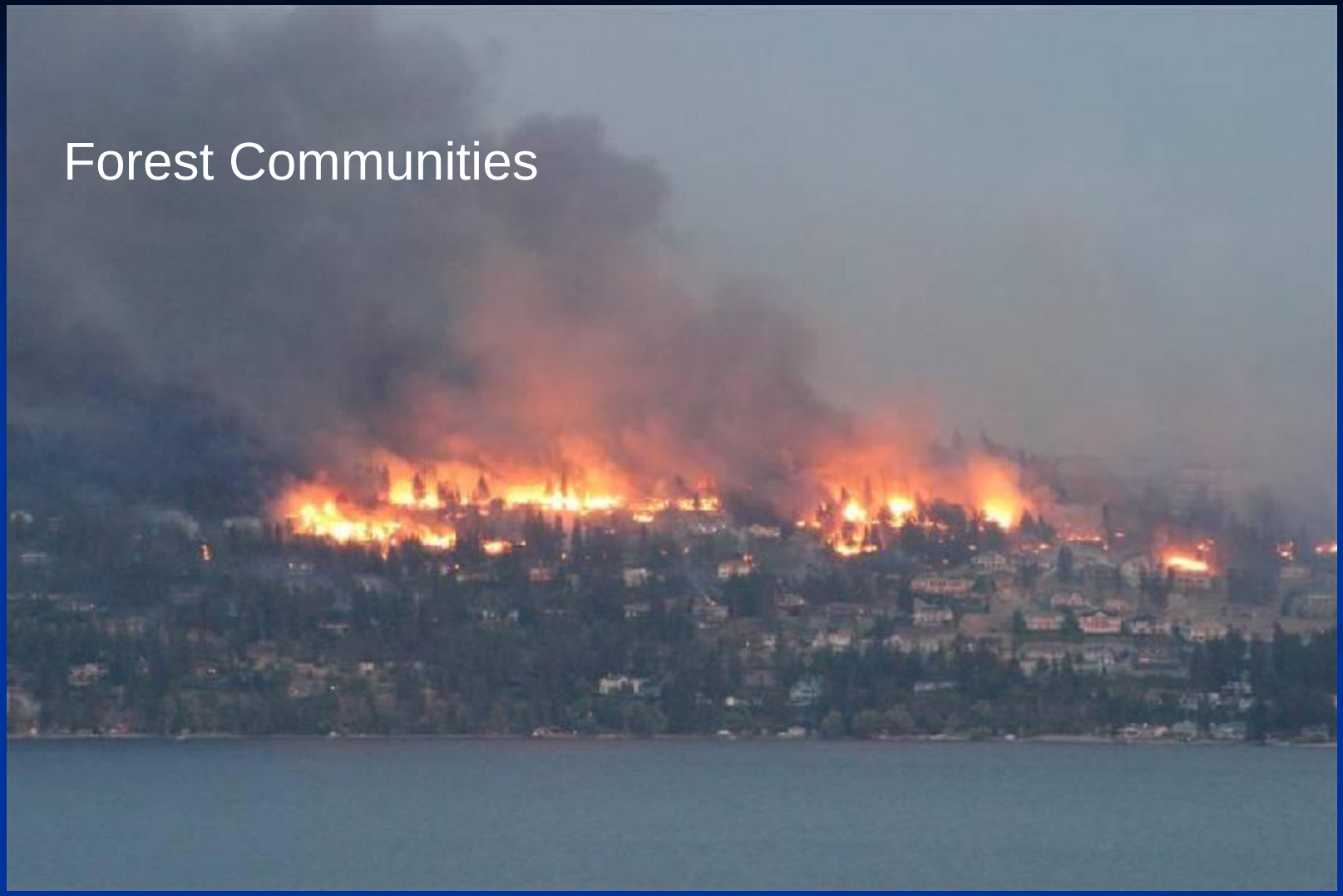
# and …. Climate Change

Scientists predict climate change will lead to increased wildfire activity & increased emissions of carbon dioxide with burn areas doubling or tripling over the next

50 years

But, also at high risk as a result are…….

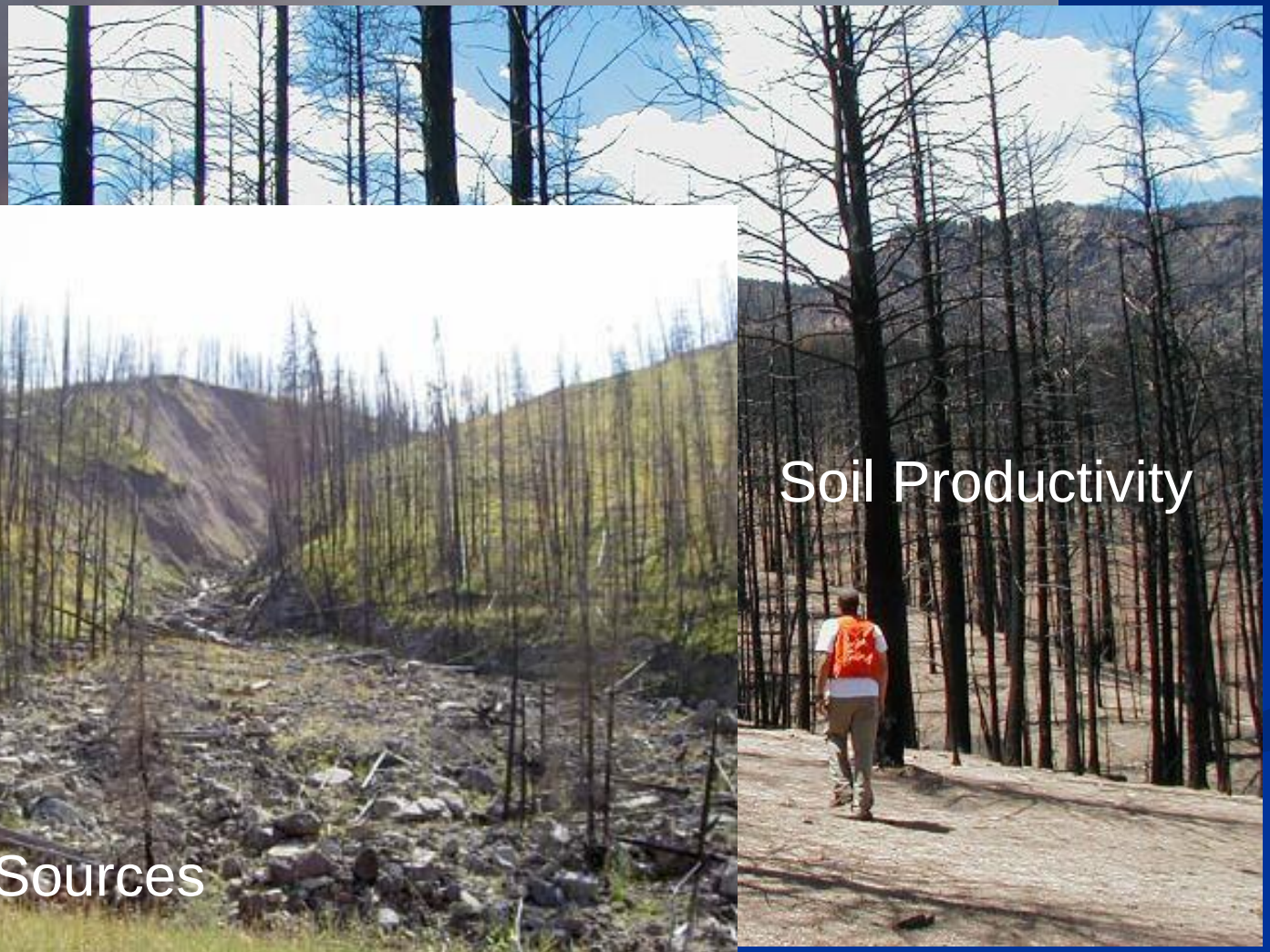
# Forest Communities



# Forest Communities

Forest Communities

Drinking Water Sources

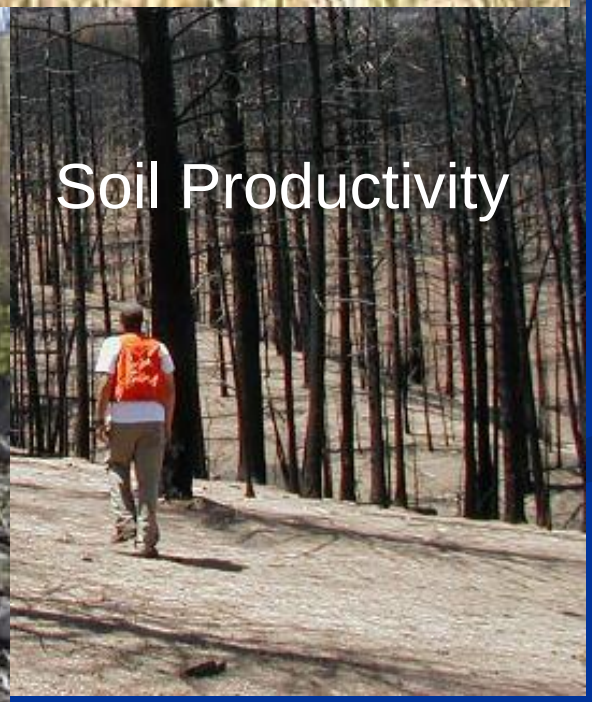


Soil Productivity

Forest Communities

Habitat for Sensitive Species

Drinking Water Sources



Soil Productivity

***"Climate change is the biggest challenge of our generation, but it is also the biggest opportunity…."***

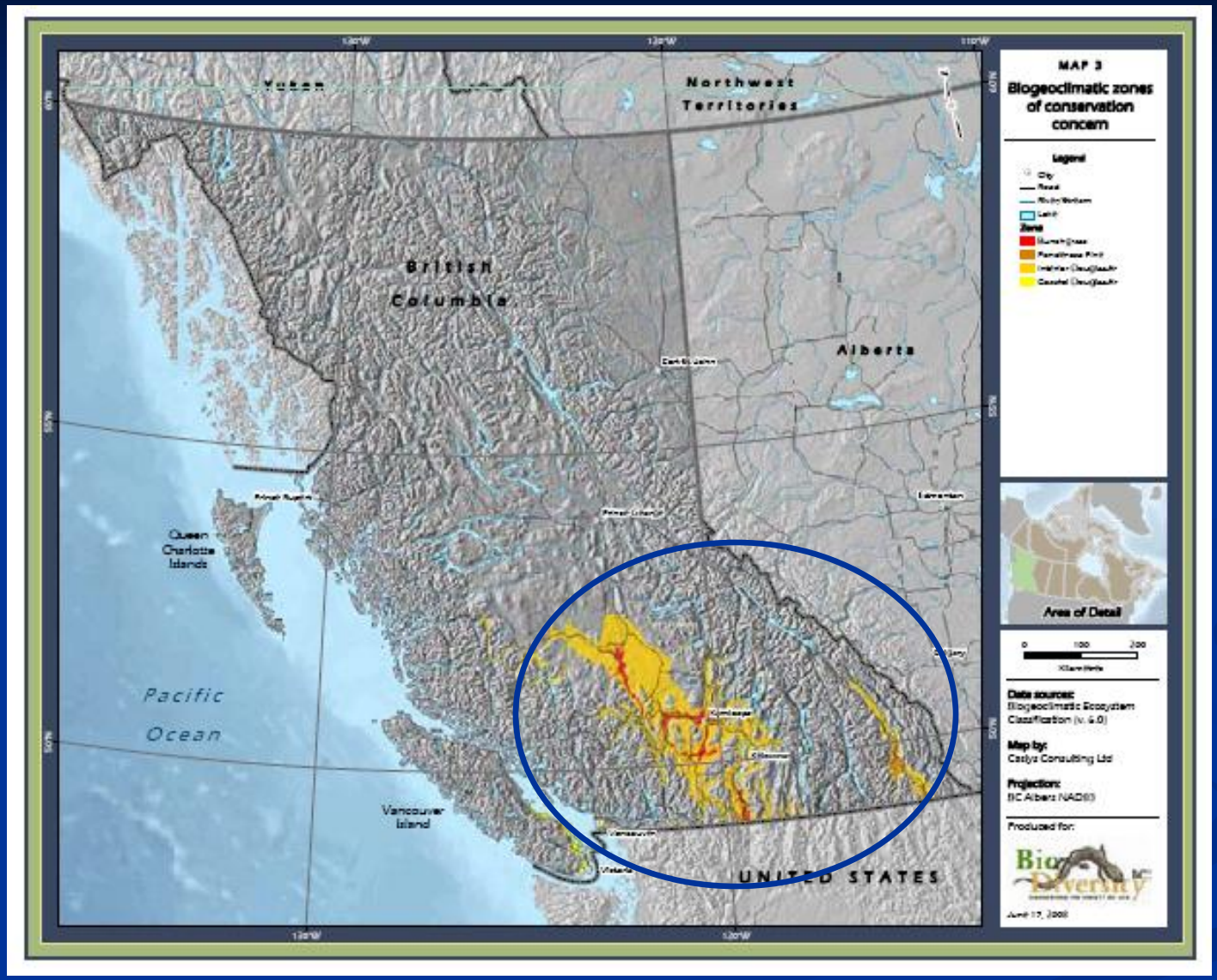
Hon. Pat Bell, Minister of Forests and Range (2008)

# One of the Government's Responses… a Provincial Ecosystem Restoration Initiative

- ER program announced by Minister in fall, 2006 – FIA funding in 07/08, 08/09 and 09/10 (modelled after Rocky Mountain Trench ER program)

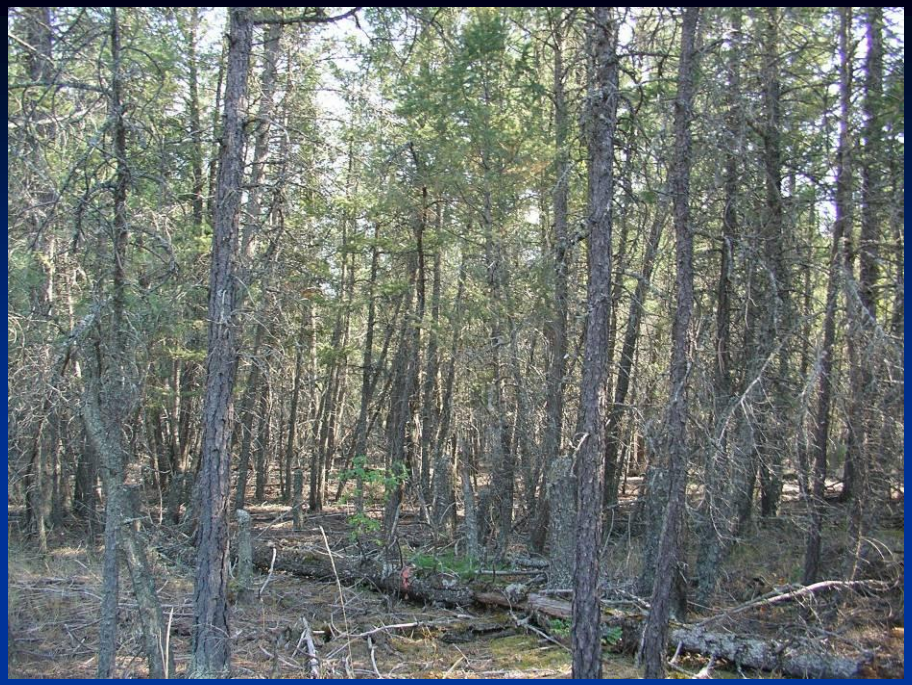
- Initial priority - "Fire Maintained Ecosystems", where the "perfect storm" is most upon us… (though eventually other ecosystems, too)


# BC's Fire-Maintained Ecosystem




**Importantly, our ER treatment priority area has also been identified as a "provincial conservation concern"**

*(from "Taking Nature's Pulse – the Status of Biodiversity in B.C., 2008")*



# The issues in the fire-maintained....

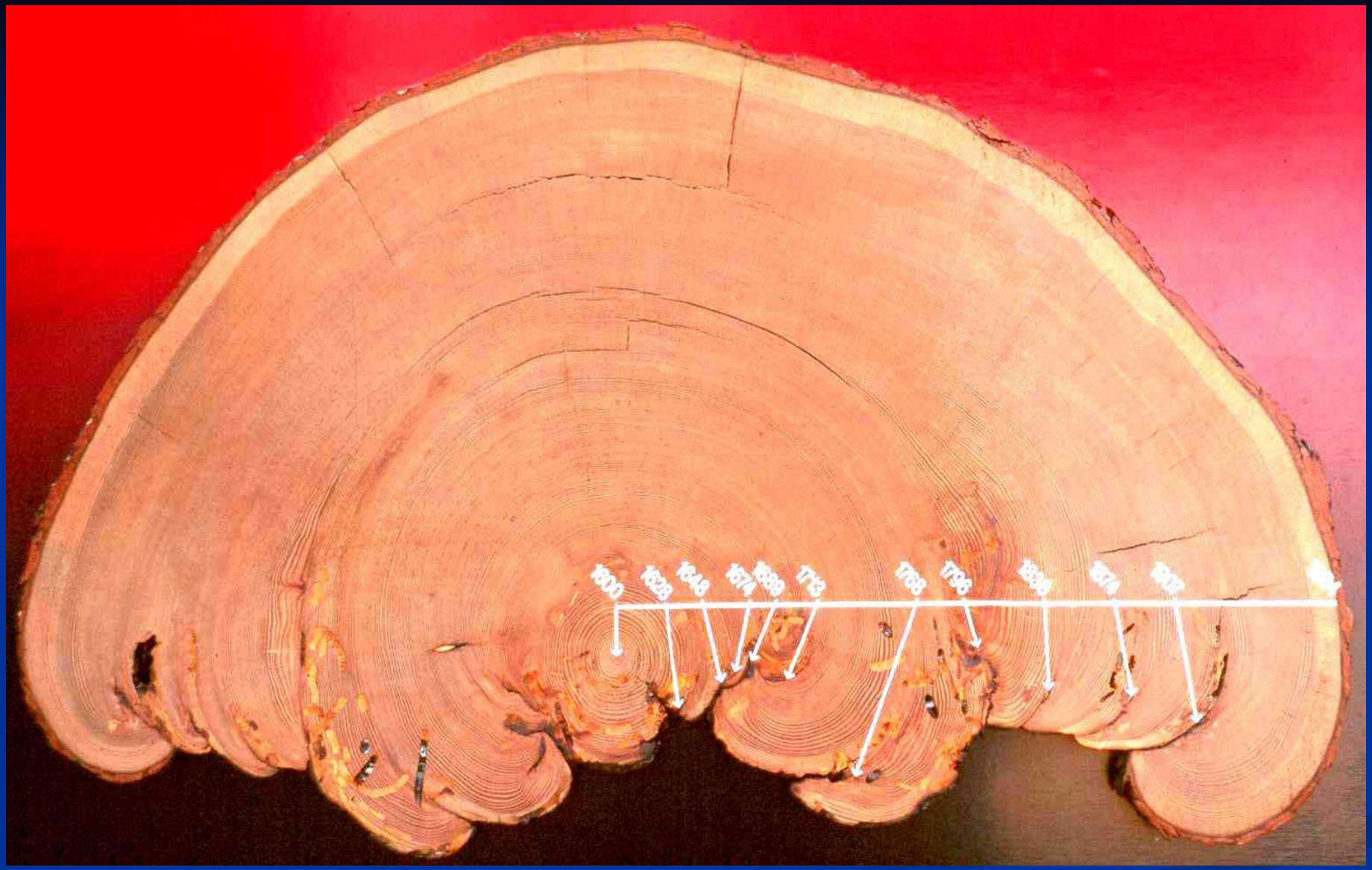
"ingrown" open forests (up to 100,000+ stems/ha) & native grassland "encroachment"

# Fire-Maintained Ecosystems

- Pre-European contact to 1880 – mixed fire regime - frequent low, with less frequent moderate & high severity fires (lightning and First Nations)

- 1940's to present - fire suppression era

(Gray, 2001; Swan, 2002 Bighorn in Our Backyard Project)

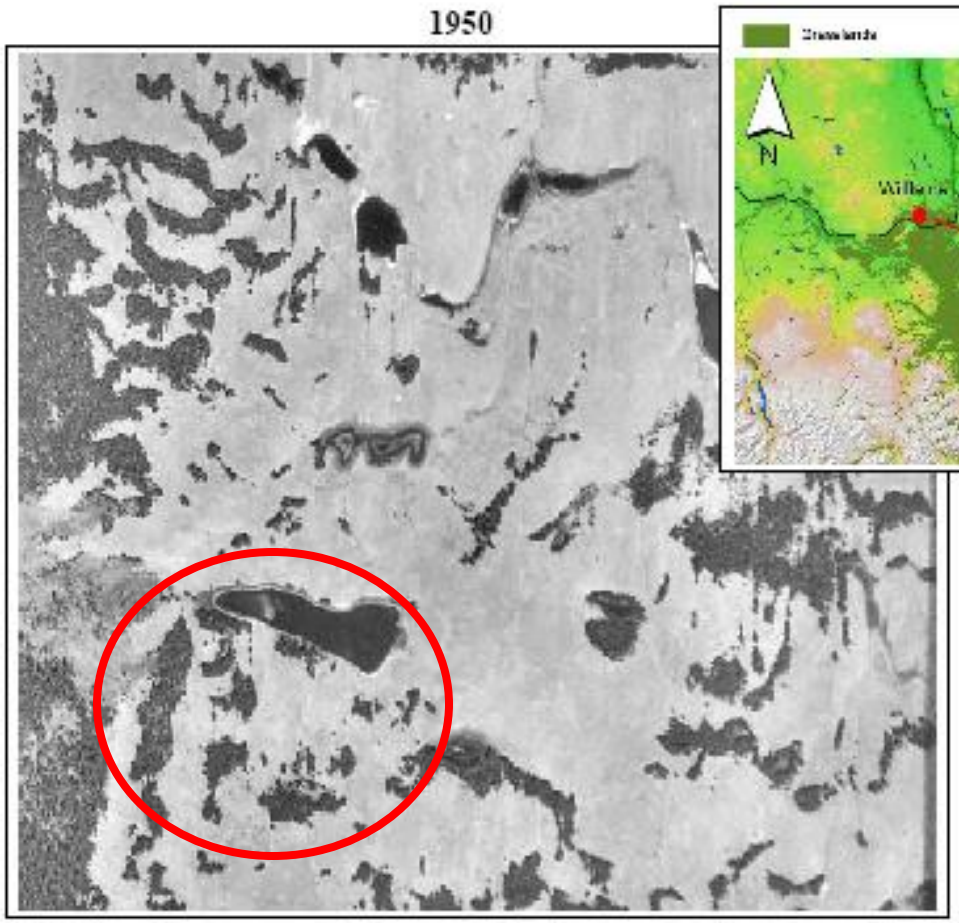


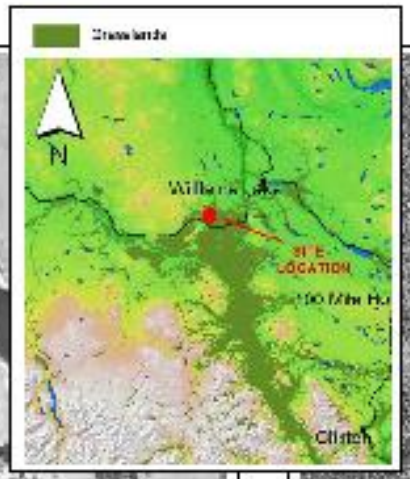

400 year old western larch from Rocky Mountain Trench showing 10 fire scars between 1628 and 1907 (~28 year interval)

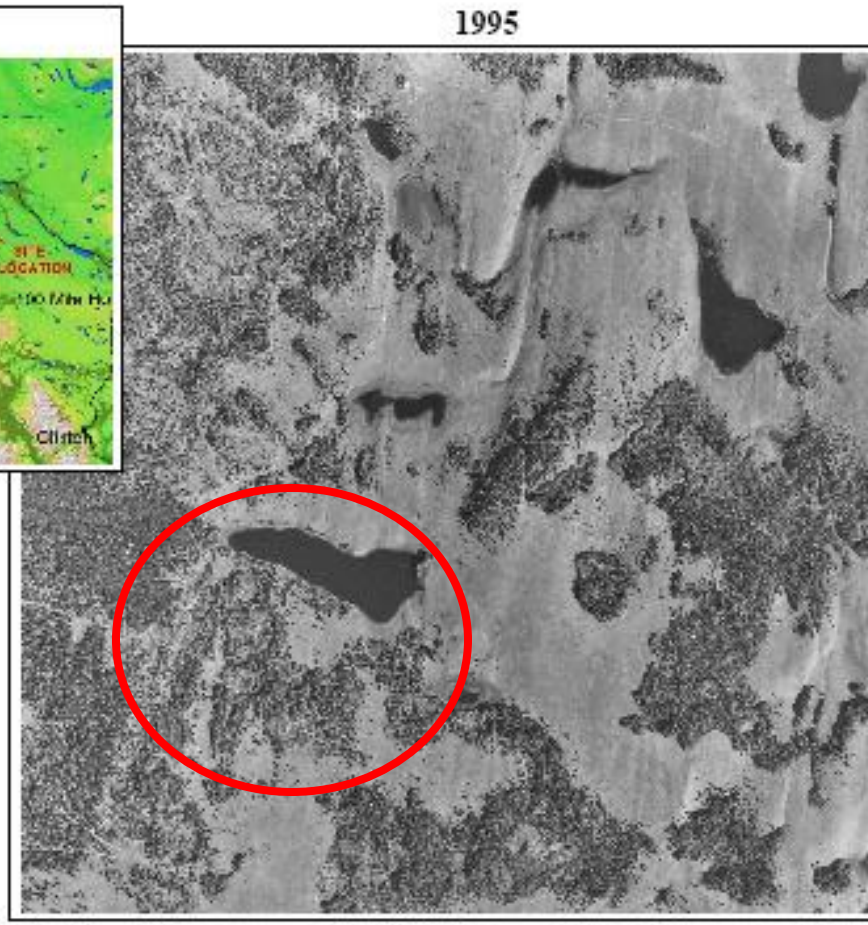
# Cariboo-Chilcotin



FIGURE 16: Cariboo-Chilcotin: forest encroachment (Becher's Prairie)




**Site Information**

Ecosection: Fraser River Basin
Biogeoclimatic Zone: IDFxm
Elevation: 980 to 1000 meters
Slope and Aspect: relatively flat prairie with some gently rolling hills

**General Description**

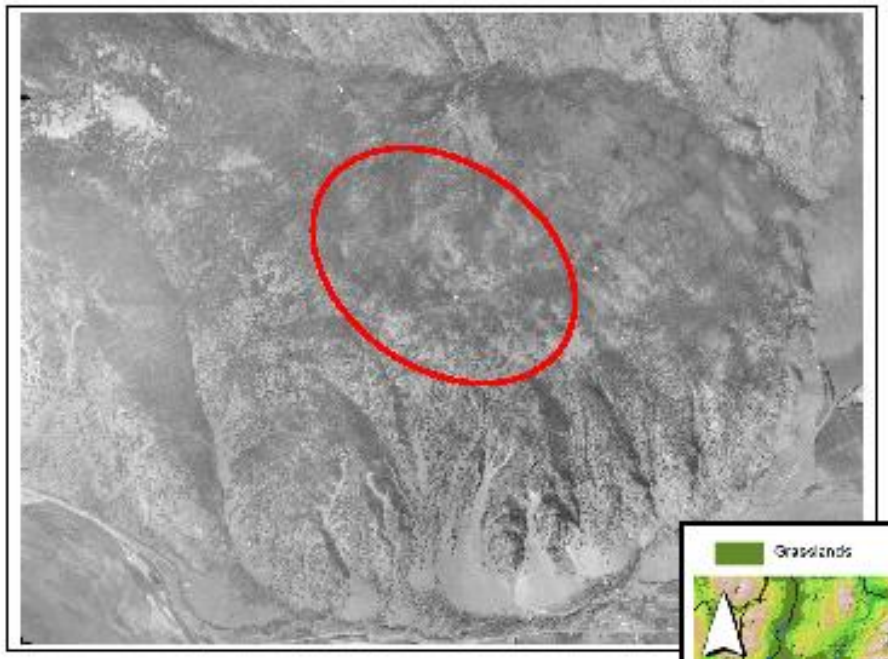
Forest encroachment is widespread across this prairie, with open grassland succeedi to closed forest on many sites. Ross (1997) has estimated an average decrease in op grassland of more than 90 ha/yr on Becher's Prairie Range Unit. At the northern edg of the bunchgrass grassland ecotype, rates of forest encroachment are very high.

# Okanagan

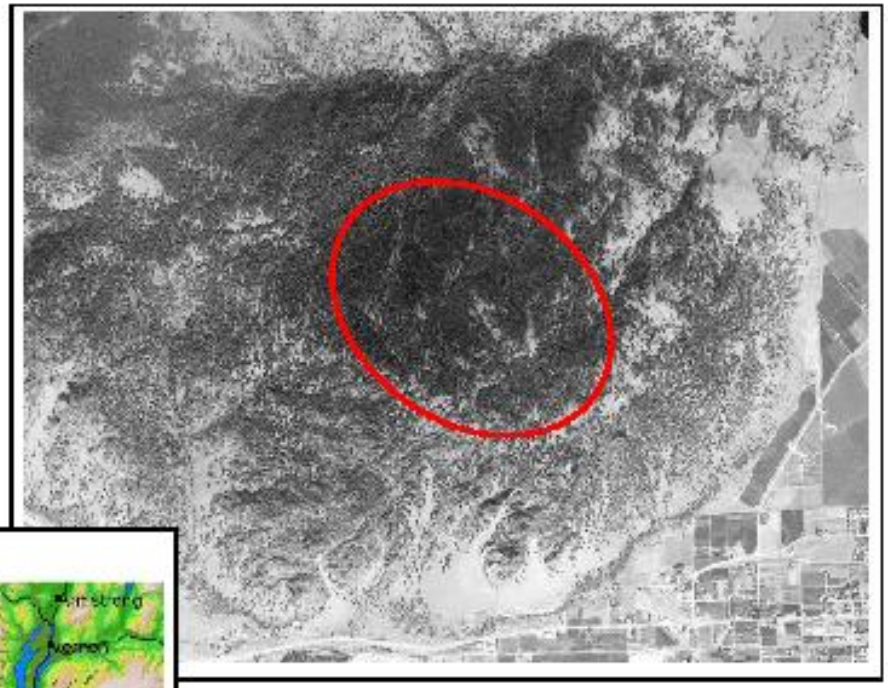


FIGURE 7: Okanagan: forest ingrowth (Shuttle Creek Hills/Keremeos)

1951



2001




**Site Information (within circled area)**

Ecosection: Okanagan Range
Biogeoclimatic Zone: IDFdk1
Elevation: 1200 to 1600 meters, increasing from northwest to southeast
Slope and Aspect: moderate to steep north facing slope

**General Description**

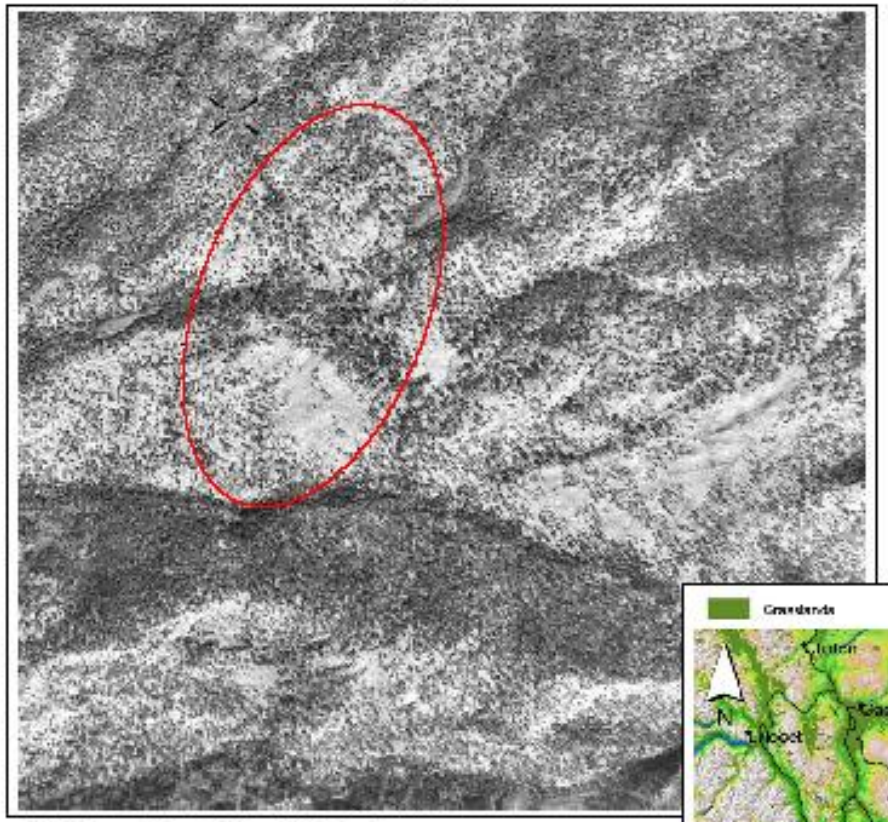
Gyug and Martens (2002) noted considerable infilling of forest in this area during their study of canopy cover changes in the Lower Similkameen. Treed grasslands and open forests have been converted to closed forests in many areas. Conditions on this north facing site in the IDFdk subzone are generally cooler and moister than the surrounding areas in the IDFxh subzone. The degree of infilling is greater on this site when compared to the warmer and drier surrounding sites.

# Thompson-Nicola

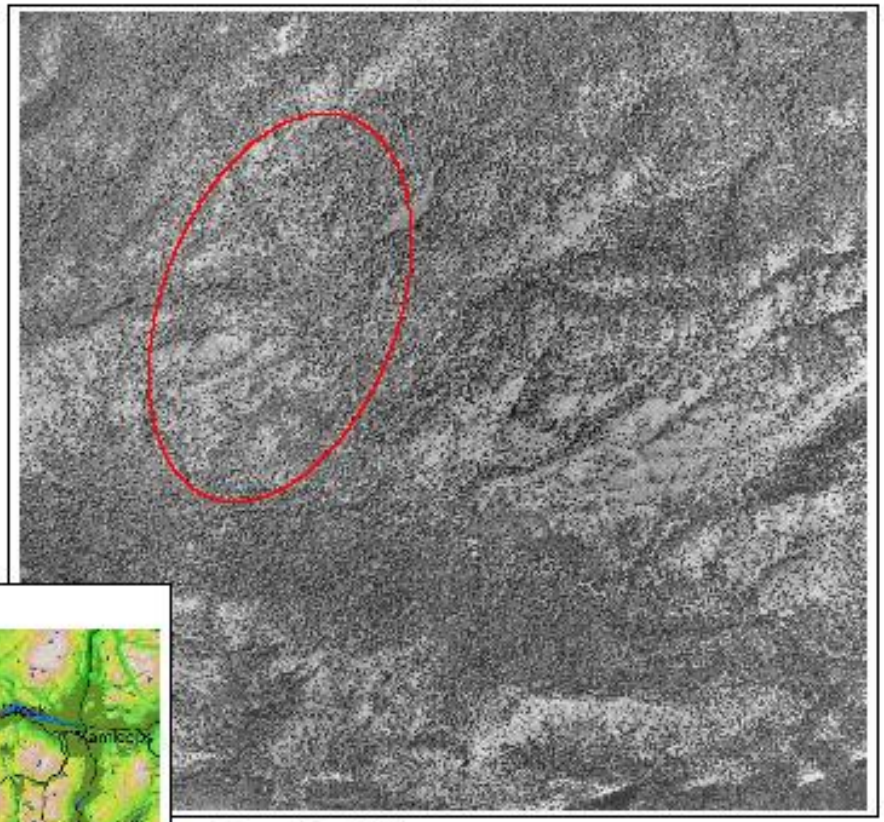


FIGURE 12: Thompson-Nicola: forest ingrowth (Nuaitch Creek/Canford)

1948



1996




**Site Information (within circled area)**

Ecosection: Pavilion Ranges
Biogeoclimatic Zone: IDFxh2
Elevation: 1000 – 1300 meters, increasing from southeast to northwest
Slope and Aspect: moderate to steep slopes of east to southeast aspect.

**General Description**

Treed grassland and open forest in this area have experienced considerable ingrowth, with some sites succeeding to dense forest over a 48 year period. Upper slope positions appear to be less affected by ingrowth than lower slope positions.


Dealing with the aftermath of the Mountain Pine Beetle

# Ecosystem Restoration Defined

MFR is using the classic definition as a starting point:

"***process*** **of** ***assisting*** with the ***recovery*** **of an** ***ecosystem*** that has been ***degraded, damaged*** **or destroyed** by re-establishing its ***structural characteristics, species composition and ecological processes***"

# Ecosystem Restoration Treatments

ER is conducted by the MFR and our partners using a suite of treatments in varying combinations of……..

Conventional Harvesting

Slashing/Spacing

Prescribed Fire

***"Keep in mind that fire is a natural part of the environment, about as important as rain and sunshine…fire has always been here and everything good has evolved with it."***

Dr. Harold Biswell

Renown Fire Ecologist

University of California, 1989


Burn unit in the “Rocky Mtn. Trench” – ~500 ha “open forest”

Planning & communication are essential as we undertake more prescribed fire treatments closer to & within the interface

There is no room for error, training & experience are critical!

# A Social Decision – Smoke Remains an Issue


City of Cranbrook Rx Fire – fall ‘06

The public has a social choice of living with a few “small” controlled puffs with smoke lingering for a day or two

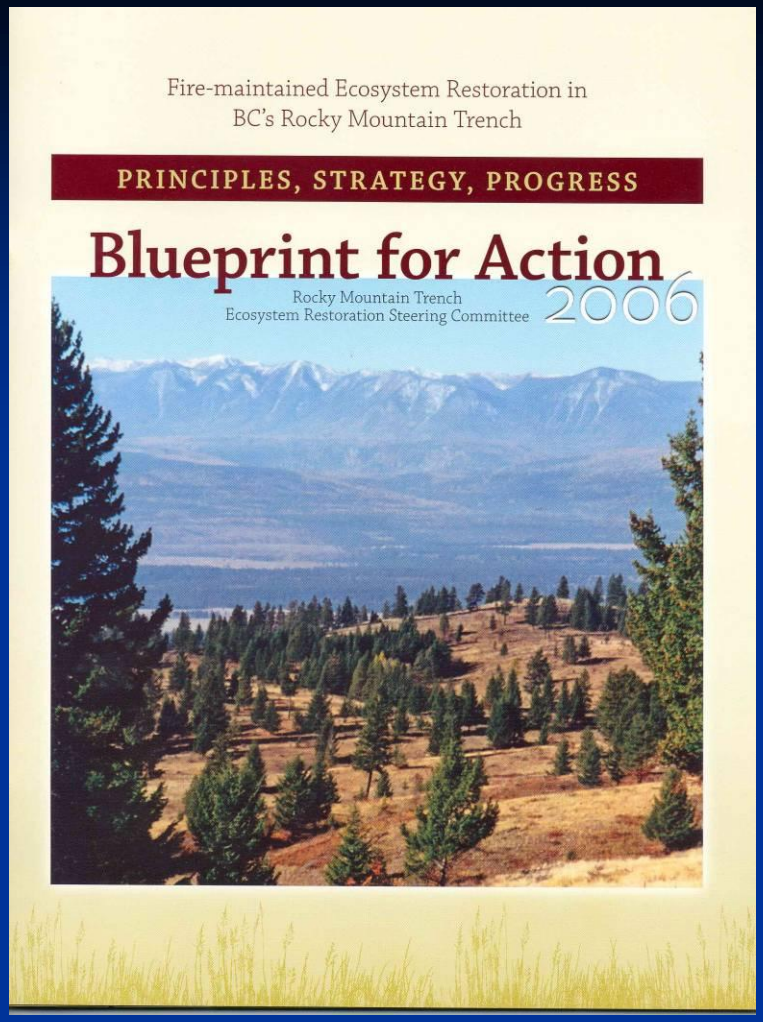
or…..

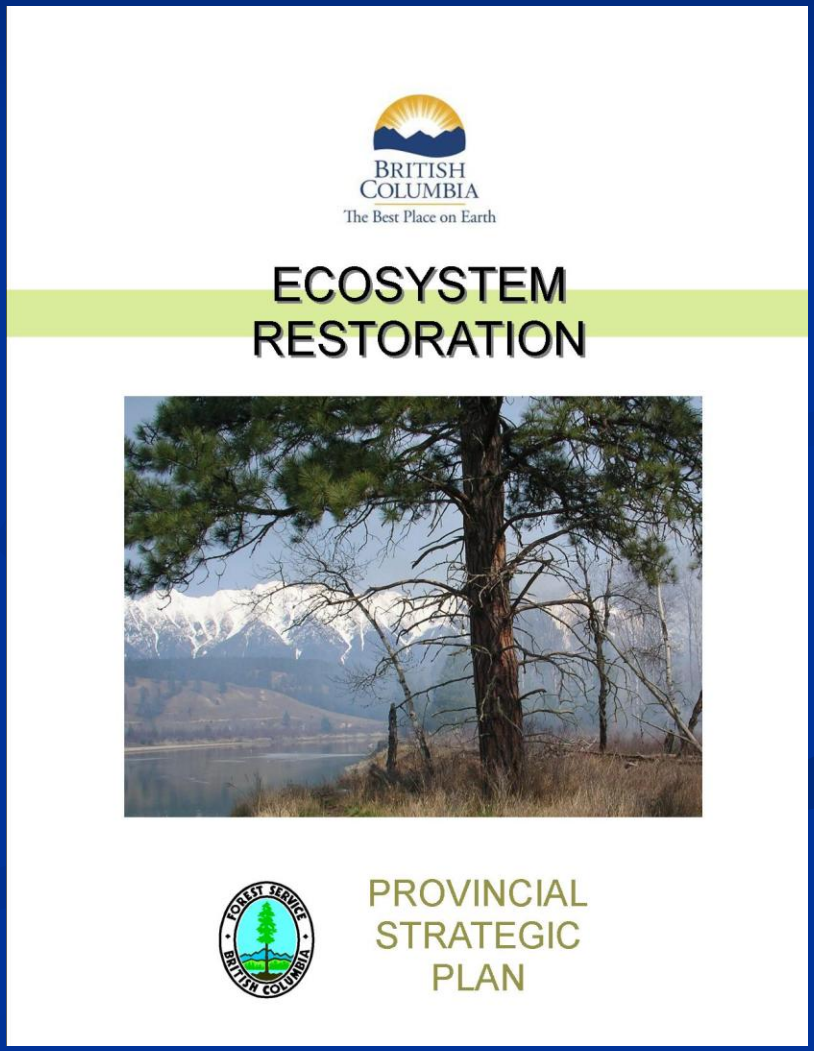


…one real “big” scary uncontrolled puff that may linger for weeks, destroy homes, and severely setback ecosystem recovery

# Future Planning

Local plans and prescriptions for site treatments generated

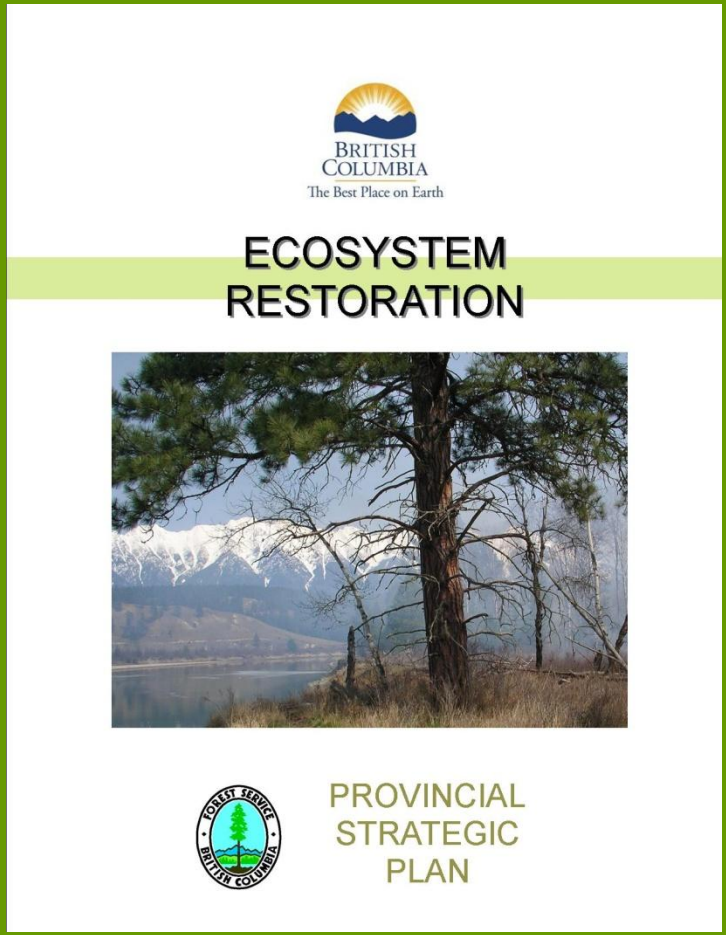



"Draft" Provincial ER Strategic Plan

# The "Draft" Provincial ER Strategy

The Ecosystem Restoration Strategy will form the foundation for a multi-agency provincial initiative.



# Vision

Forest and grassland ecosystems restored to an ecologically appropriate condition creating a resilient landscape that supports the economic, social and cultural interests of British Columbians.

# Mission

To establish and maintain an effective multi-sectoral ecosystem restoration initiative.

# Guiding Principle of the MFR ER Program

The MFR will provide leadership through its ER program to facilitate a multi-sectoral ER initiative that achieves the mission and goals related in this strategy and creates synergies with other related programs and initiatives.

The expected benefits of the initiative are ecological, economic, social and cultural including:

- Creating resilient ecosystems
- Restoring & protecting FN values
- Mitigating catastrophic wildfire risks
- Managing air emissions
- Restoring species at risk habitat
- Improving timber harvest values
- Potential bio-energy source
- Increasing natural forage
- Increasing resilience of community watersheds

# Over the next 3 years (2009-12), a provincial ER initiative will be implemented that initially focuses on fire-maintained ecosystems.

**This will be accomplished by establishing 3 core goals supported by strategic priorities.**

# Goal 1. *Establish a sustainable ER initiative*

***Strategic priorities***

a) Establish ER as a budgeted main vote program within the Ministry of Forests and Range.
b) Establish a multi-sector planning structure.
c) Incorporate the principles of the government's "New Relationship with First Nations" into the ER initiative.
d) Develop alternative funding sources to help achieve ER treatment goals.
e) Facilitate ER treatment activities by addressing economic challenges and explore opportunities such as bioenergy and carbon credits.

# Goal 2. *Develop an effective resource management framework*

***Strategic priorities***

a. Prioritizing treatments based on principles of sustainability.
b. Adaptive management to inform ER guided by monitoring, research and links to related initiatives.
c. District-specific ER plans and apply prescribed treatments.
d. Develop synergies with other initiatives.
e. Judiciously expand the application of prescribed fire.

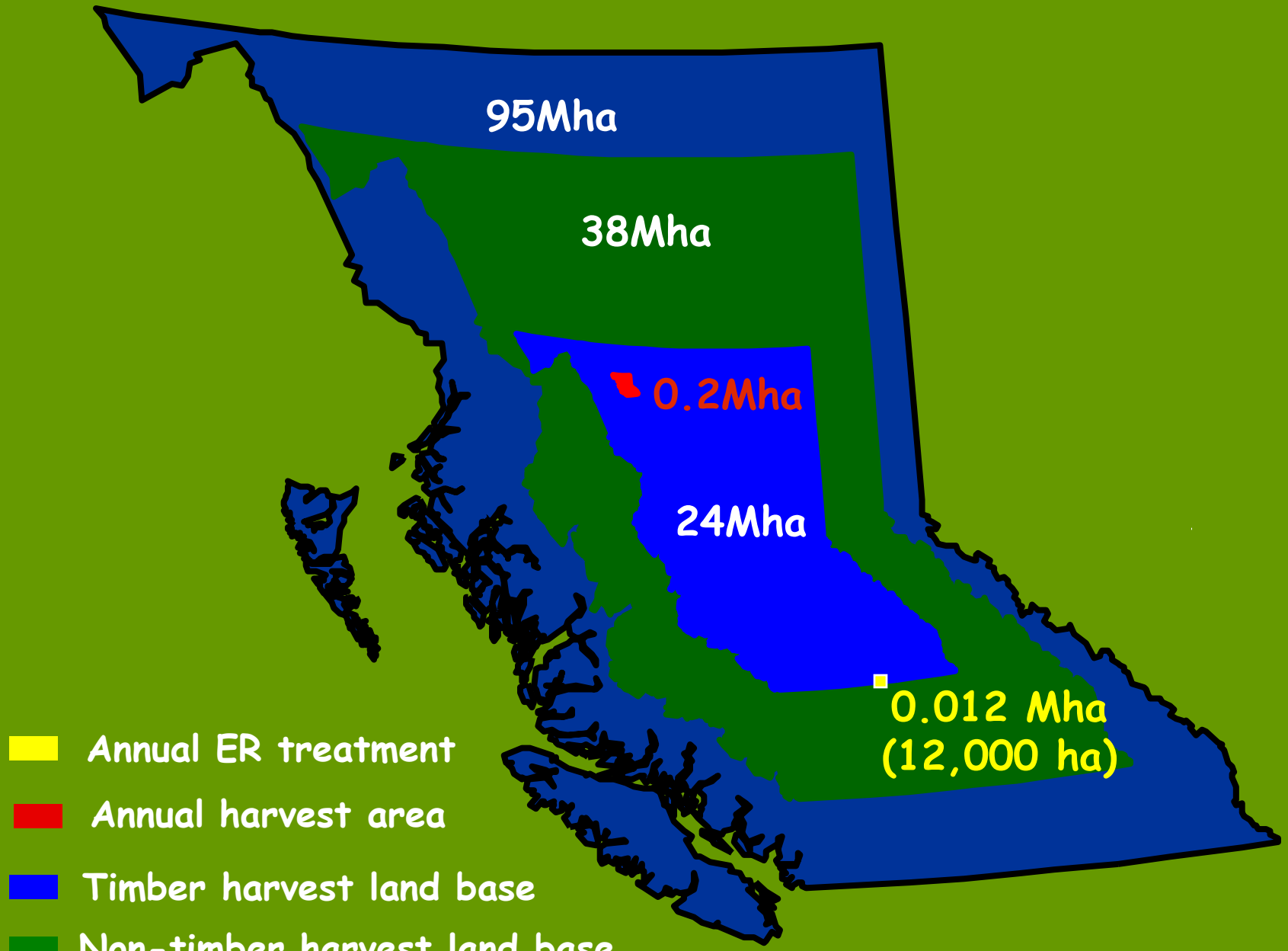
# *Goal 3. Attract effective people and partners to the ER initiative*

***Strategic priorities***

a. Implement a communication plan.
b. Partnerships with academic institutions and First Nations to provide joint learning opportunities.
c. Position British Columbia as a world leader in ER.

# Performance Measures

- **Short-term performance measures (Achieved by 2012):**
  - 14 Forest Districts with Steering Committees
  - Established planning tools
  - Collaboration with other related provincial government, First Nations, partnership groups and academic institutions are occurring
  - 12-17,000 ha of restored area per year




Dave Spittlehouse

# Medium to long-term performance reviews:

- Vision, Mission and Guiding Principles reviewed in 5-10 years
- Goals reviewed in 3-5 years
- Strategic Priorities reviewed in 3 years

# MFR Service Plan

- **Goal 1: Sustainable forest and range resources**
  - Objective 1.1: Well managed, healthy, productive forest & range resources
    - Ecosystem restoration and reforestation ensure that land and timber productivity and carbon sequestration are restored or maintained.

# ER is a Tool in Response to Climate Change

Research has found ER treatments can:

- Make forests more resilient to wildfire, insects & disease
- Create young thriving forests that remove carbon at high rates
- Reduce wildfire severity & emit less smoke & carbon
- Assist shifts in native plant communities – more drought & insect resistant species
- Help balance carbon budget - thinned material used for bioenergy or wood products

# USFS Climate Change Strategy

GOAL 2: ADAPTATION - Enhance the capacity of forests & grasslands to adapt to climate change & maintain ecosystem services.

- "Activities to restore forests & grassland health and reduce the risk of severe wildfires or pest outbreaks (such as thinning overstocked stands, fuels reduction, and prescribed fire) also serve to restore ecological health & resilience. More extensive application of such measures is vital for adaptation of forests and grasslands……"

# Restoration

Before
July, 2003

July, 2006
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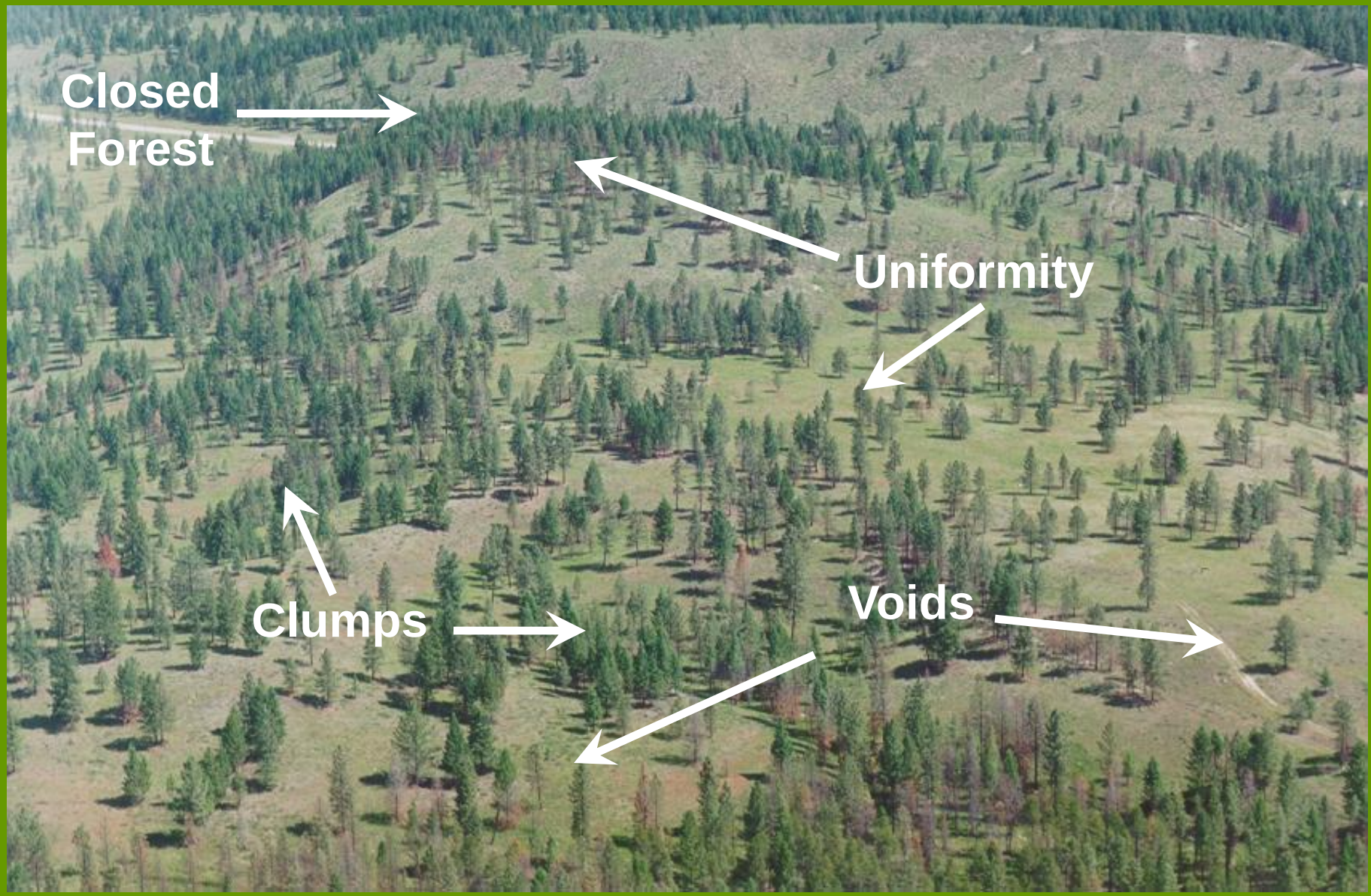
3 Months
After Rx Fire

# Maintenance


The ideal ‘open forest’ result in a ‘fire-maintained ecosystem’ after first-pass harvesting, slashing & burning

# Contact Information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