



# *The Role of the Forest Professional and Current Forest Practices in a Changing Climate*

*Cowichan Watershed Board Forest Practices Workshop, November 21, 2016*

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Megan Hanacek RPF RPBio. - Forest Stewardship Specialist*

# *The Plan*

1. The profession; The Office; The Forester
2. Forest practice
3. Expectations and Assisting the Conversation
4. Professional Independence
5. Our Changing Climate
  - a) Canada's Forests
  - b) BC Forests and the Role of Professionals
  - c) Opportunities and Challenges



# *Who is the ABCFP?*



We are the organization that registers and administers foresters.

- Two types registered professionals
  - Registered Professional Forester (RPF)
  - Registered Forest Technologist (RFT)
- Set minimum standards for professional service
- Established by the legislature 1947





# *The Forest Office*



- 5300 members of the forest profession
- 55 million hectares of forest land
- 50 native tree species
- 16 biogeoclimatic zones
- 70 million m<sup>3</sup> harvest



The State of British Columbia's Forests 2010



# *What do Foresters do?*

## *Keeper of Forests*

- What do you want from your forest?
  - Objectives of owner
- Continuous connection with forest
- Application of science
  - Interveners
  - Conservators
- Oversee activities
- Confirm results



# *The practice of professional forestry*



- ✓ *evaluate forest ecosystems*
- ✓ *advise on forestry practice*
- ✓ *perform or direct work or service*
- ✓ *plan, prescribe, approve methods for treatments, supervise, and report on ...*

*....forests, forest lands, forest resources and forest ecosystems;*

*Foresters Act (2003)*

*- Practice of Professional Forestry*

# *We Need to Know Forester's Act and other Practice Legislations*



- Water Sustainability Act
- Forest and Range Practices Act
- Workers Compensation Act
- Wildfire Act
- Heritage Conservation Act
- Financial Administration Act
- Private Managed Forest Land Act

# *Legislation*

## *government and forest owner*

*“forest practice”*

*“forest management activity”* means a prescribed activity that is carried out by

- a) the government
- b) tenure holder
- c) land owner



# *forest practice or management activity*



# *forest practice or management activity*

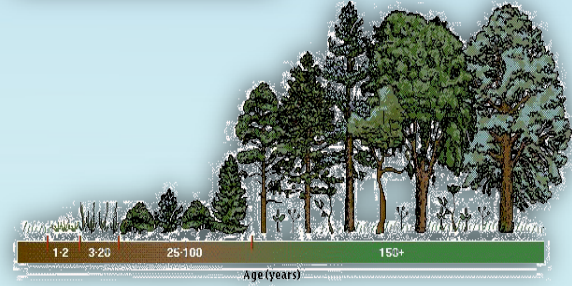


# *forest practice or management activity*

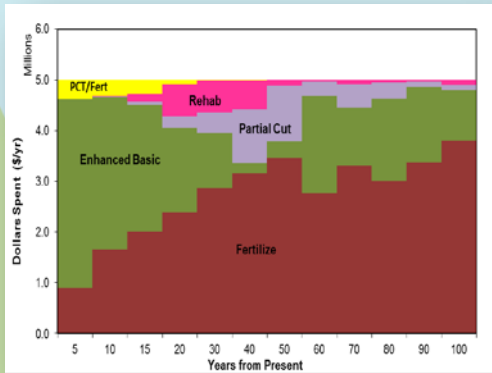
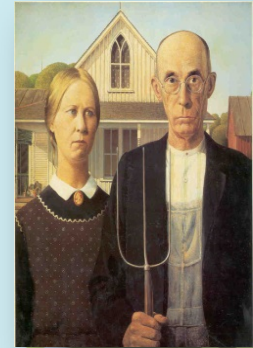


# *forest practice or management activity*





???





# A Growing List of Expectations

*Both ends of the gap that I am expected to bridge are changing rapidly:*

- *the body of knowledge that I must use, and*
  - *the expectations of the society that I must serve.*
- 
- ***The forest professional does not decide the forest land use***
  - ***The forest professional does affect the outcomes***

# *Foresters are independent professionals*

- Diversity of opinion
- Stay informed
- Aware of personal or organizational bias
- Understand the variety of opinions/options
- Objective in fact and appearance
- Use subjective methods to complete work
- Impartial



# Importance of professional independence

What your employer wants	independence qualities leading to social license
Strategic leadership	Science knowledge
FRPA stand obligations	Professional judgment
FA Revenue obligations	Providing perspective (time and size)
Office responsibilities	Innovation
Carry out employer interests	Professional guidance
Job responsibilities	Monitoring/applying effects of forest activities
Participate in team building	Verifying proper practices



# Our Changing Climate

1. Canada's Forests in a Changing Climate
2. BC Forests and the Role of Professionals
3. Opportunities and Challenges in a Changing Climate
4. Case Study
5. Resources for Professionals



# 1. Canada's Forests in a Changing Climate

## WORLD FORESTS

Canada has the third-largest forest area in the world.

1st RUSSIA  
2nd BRAZIL  
**3rd CANADA**  
4th USA  
5th CHINA

## PUBLIC LAND

**All public lands**  
harvested must be regenerated.

Over **540 million seedlings**  
planted in 2014

2016 State of Canada's Forests Report



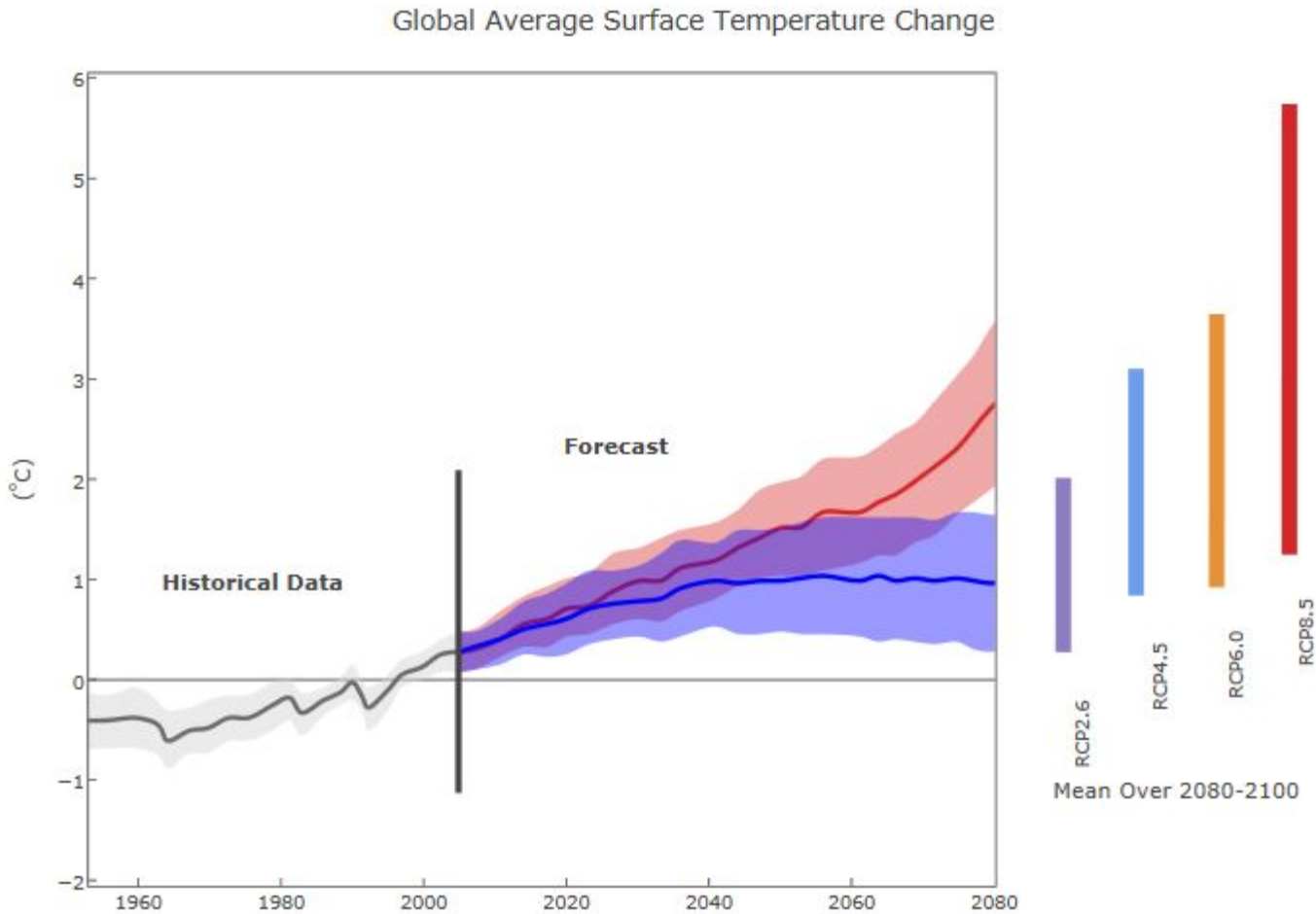
# 1. Canada's Forests in a Changing Climate



2016 State of Canada's Forests Report



# 1. Canada's Forests in a Changing Climate



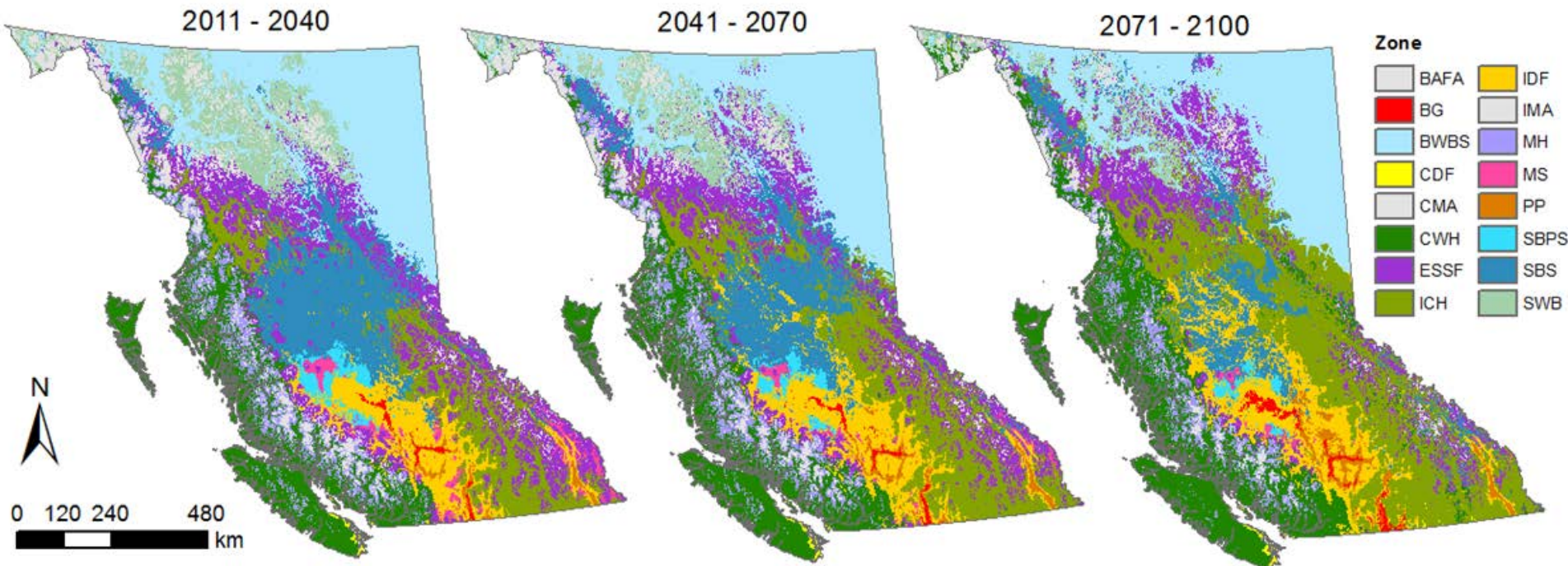
Source: [The Carbon Brief](#)

## 2. BC Forests and the Role of Professionals

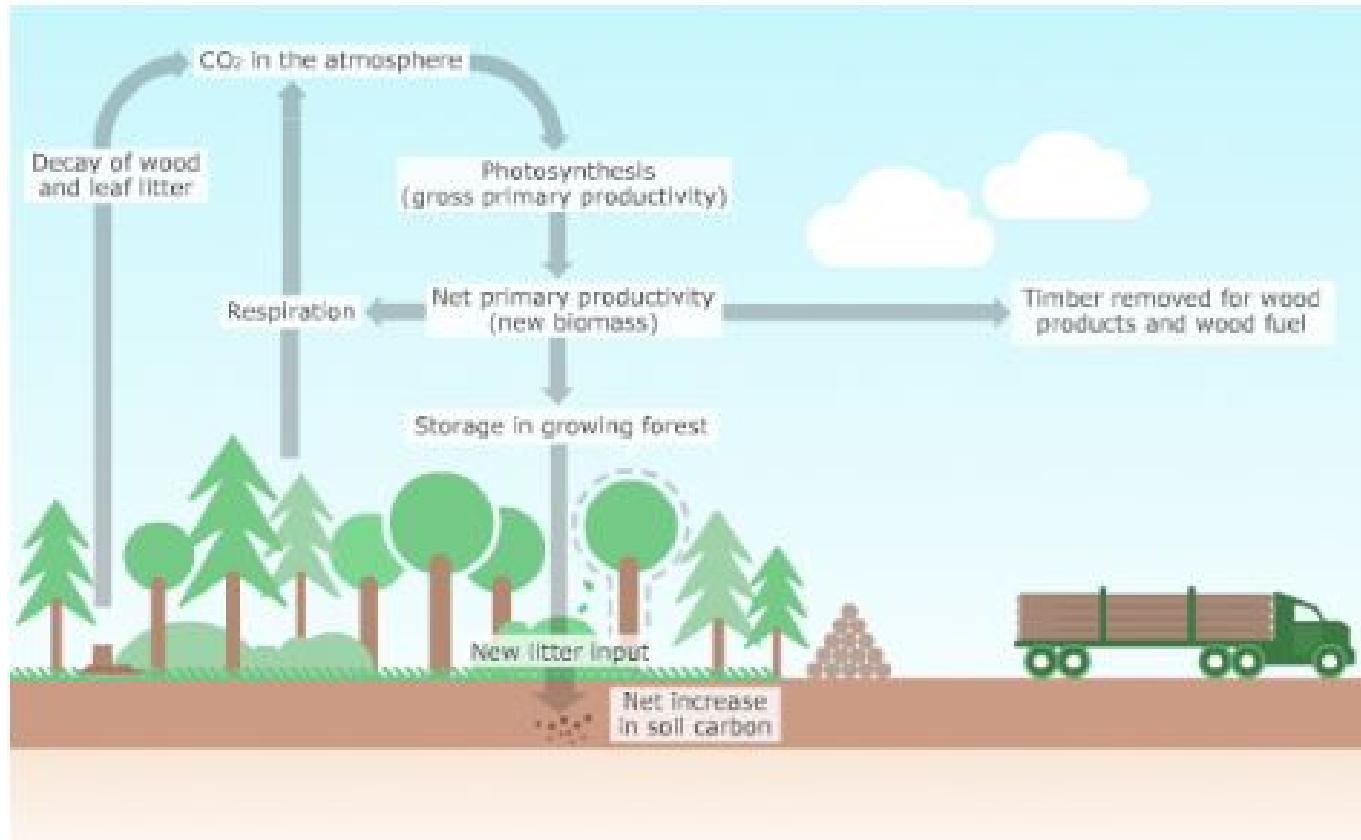
### • The Future Forest Environment

#### *Our Changing Climate*

- Consensus projections for future shifts in BEC envelopes due to climate change (Tongli Wang, UBC)



## 2. BC Forests and the Role of Professionals



## 2. BC Forests and the Role of Professionals

# ABC FP Position – Climate Change, Forests and the Practice of Professional Forestry

Professional forestry is based on the application of science and our understanding of how forest ecosystems respond to change.

It is incumbent on practicing forest professionals to expand their awareness and develop competencies that enable adequate consideration of the effects of climate change on forests while seeking new approaches to adapt in their practices.

*(2014 ABCFP Climate Change Position Paper)*

## 2. BC Forests and the Role of Professionals

### Professional Member Feedback:

Recent surveys by Association of BC Forest Professionals and College of Applied Biology *show that majority of members believe climate change is an important issue and need to respond*

Joint action is needed among resource professionals (e.g Joint statement in 2014)



ASSOCIATION OF BC FOREST PROFESSIONALS COLLEGE OF APPLIED BIOLOGY PROFESSIONAL ACCOUNTABILITY apb ASSOCIATION OF PROFESSIONAL BIOLOGY Society Biology Professionals since 1980 PIBC PLANNING INSTITUTE OF BRITISH COLUMBIA

### FOR IMMEDIATE RELEASE

TUESDAY, JULY 8<sup>TH</sup> 2014

#### BC professionals pledge joint action on climate change

Vancouver. As national controversy about how to address climate change continues, four of BC's professional associations, representing more than 9,000 forest professionals, professional biologists and technologists, and professional planners, today released a joint statement recognizing that "climate change is occurring and it has fundamental impacts on British Columbia's communities and ecosystems." This is the first time anywhere in the world that a joint statement of this kind has been released by professional associations, and recognizes the role and responsibility of the associations and their members in addressing climate change.

The Joint Statement commits the professional associations to take steps to enable and encourage their members to "incorporate the best available climate-science into [their] professional decisions." As well, the professional associations ask all levels of government to support the role of professionals through "strong action and leadership on climate change."

"Forest professionals are used to planning many years out, so we have been seeing the effects of climate change for a while now," said Sharon Glover, CEO of the Association of BC Forest Professionals. "Formally acknowledging that the ecosystem is being affected by climate change is an important first step towards taking adaptive actions. We look forward to working with the other professions to ensure climate change is addressed."

"The College of Applied Biology has developed practice guidance on incorporating principles of stewardship which calls for our members to take a comprehensive, holistic view, maintain resilient ecosystems, assess alternatives and maintain future options in all of their work," explained Pierre Lachetti, PAg, RFP, MCTP, Executive Director of the College of Applied Biology. "The joint statement on climate change complements our principles of stewardship and fits with our mandate of upholding and protecting the public interest by preserving and protecting the scientific methods and principles that are the foundation of the applied biological sciences."

"Professional Planners in BC recognize that climate change is real and are concerned about its probable negative impacts on communities, economic well-being, and of course the environment" says, Andrew Young, President of the Planning Institute of British Columbia. "Unified action is needed now to help reduce the vulnerability of current and future generations to climate change induced impacts. BC's Registered Professional Planners look forward to collaborating with other professionals to help address the challenges created by climate change."

"Globally, the involvement and input from biology professionals is paramount to preventing, minimizing, adapting and monitoring the effects of climate change," said Megan Hancock, RFP, RPBio, Managing Director of the Association of Professional Biologists. "Continued collaborative work between members of natural resource professional associations and governing bodies is key to tackling climate change, one of the greatest challenges ever faced by mankind and ecosystems."

COLLEGE OF APPLIED BIOLOGY Professional Accountability www.cab-bc.org



## 2. BC Forests and the Role of Professionals

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Climate change has already impacted BC's forests and forest ecosystems.	1.8%	4.0%	16.2%	50.5%	27.5%
Climate change impacts will pose future threats for BC forests.	1.6%	3.8%	15.0%	45.8%	33.8%
I think it is important to consider climate change in the management of forests.	1.2%	1.8%	10.4%	49.7%	36.9%

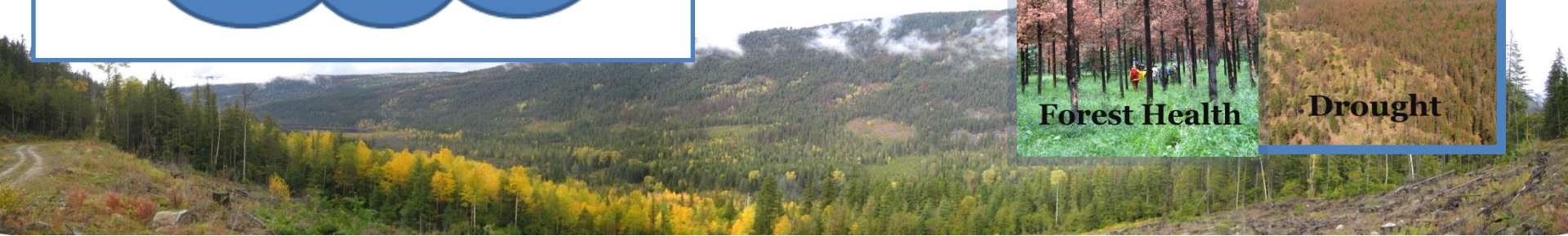
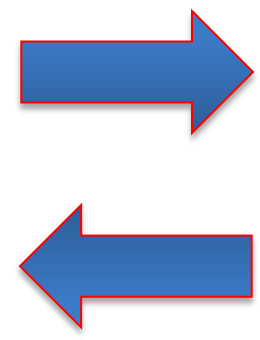
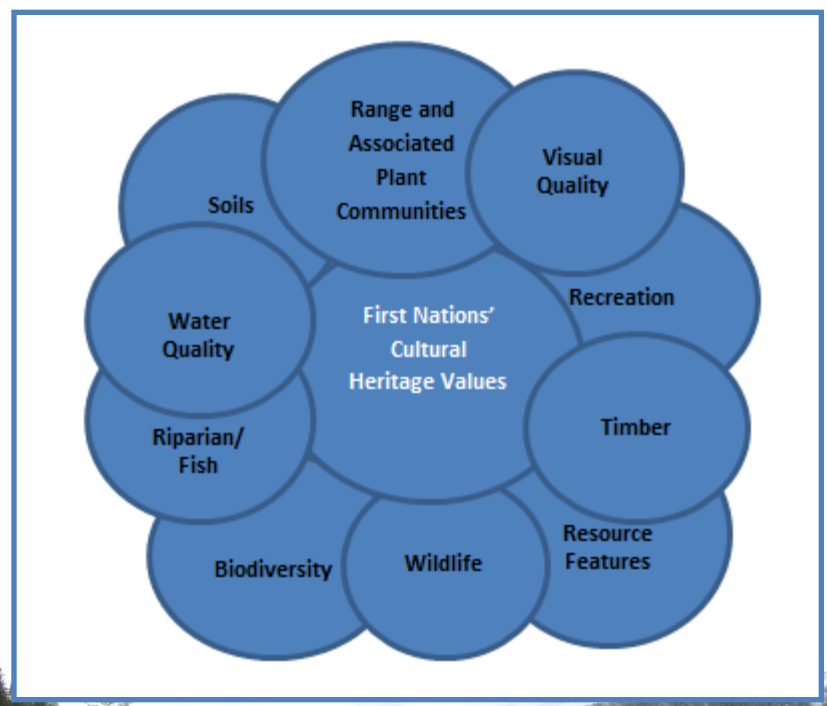
*2016 ABCFP Climate Change Survey*

# 3. Opportunities and Challenges in a Changing Climate

## The Current Climate Change Challenges in BC Forestry

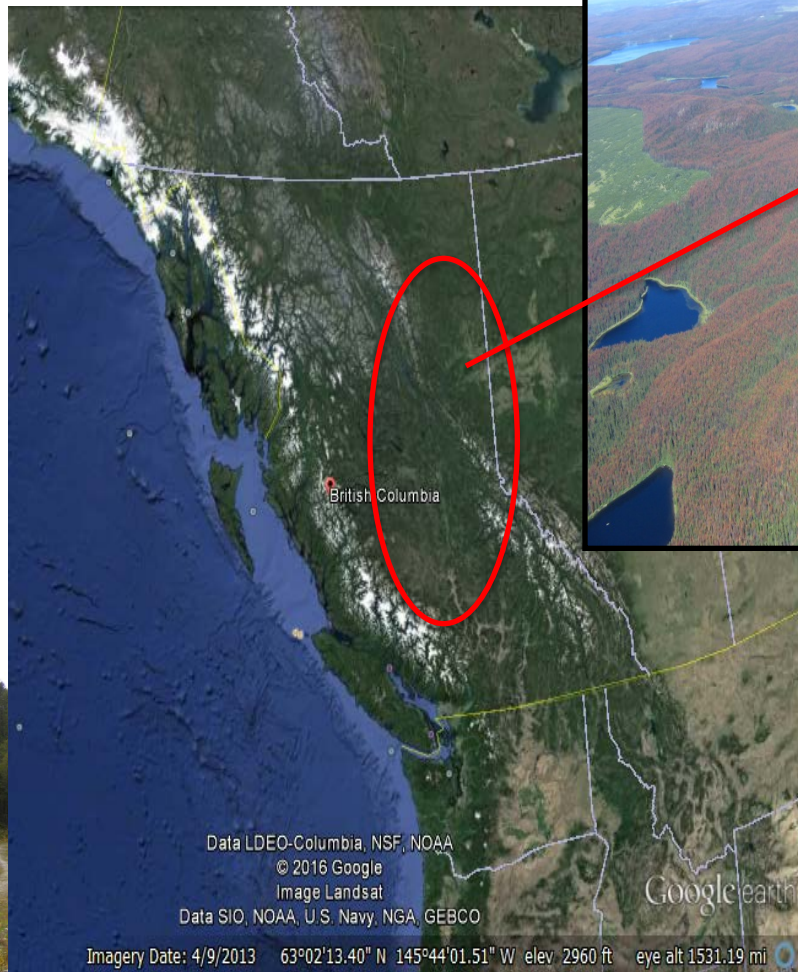
BC Forest and Range Practices Act: **11 values**

World forests are experiencing very real climate related disturbances. These disturbances are often interrelated but can be broadly classified as:



# 3. Opportunities and Challenges in a Changing Climate

## 1996-2012 Interior of BC Forest Health



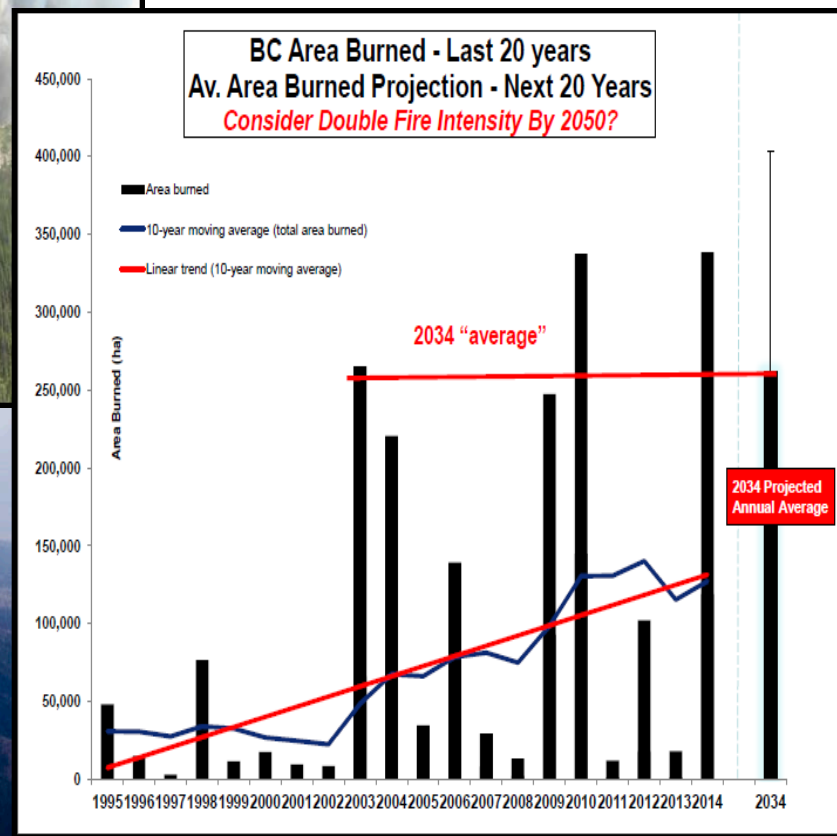
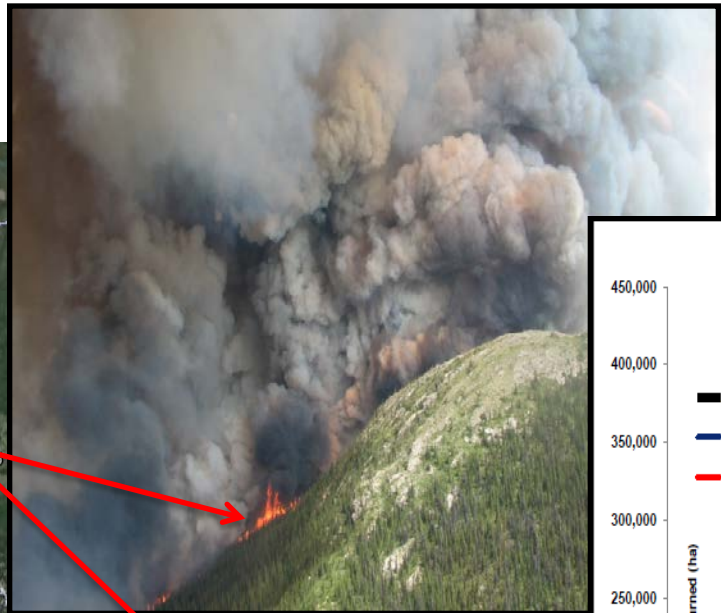
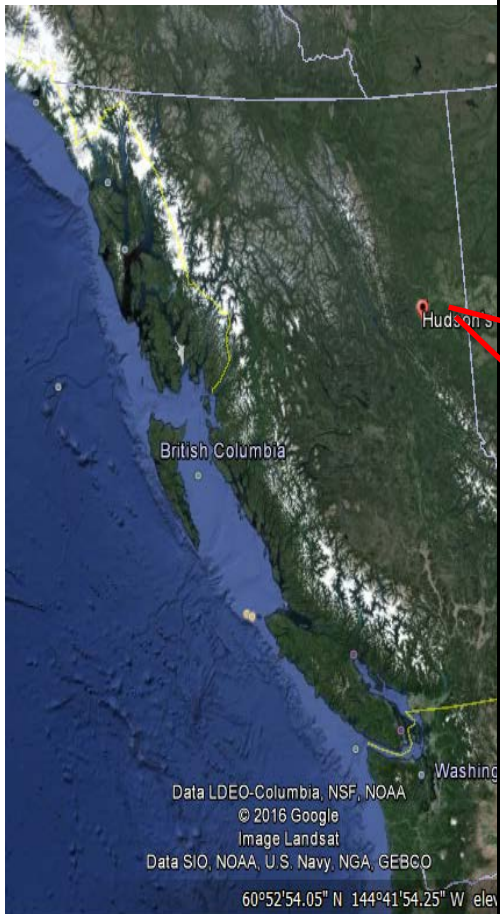
- Mild winters lead to explosion of Mt. Pine beetle
- 1/3 of forested land base impacted (**18million ha**)
- \$Billions in lost revenue to crown
- Multiple FRPA values impacted
- Set stage for other current impacts (fire, drought, other forest health issues, wildlife issues)



# 3. Opportunities and Challenges in a Changing Climate

## 2014 August- Northern BC Wildfire

- >26,000 ha
- Loss of Mt. Caribou habitat
- Damage to Alterra Power Wind Turbines (smoke)
- Evacuation of Hudson's Hope



# 3. Opportunities and Challenges in a Changing Climate

## 2014 November - Coast of BC Water/ Slide Events

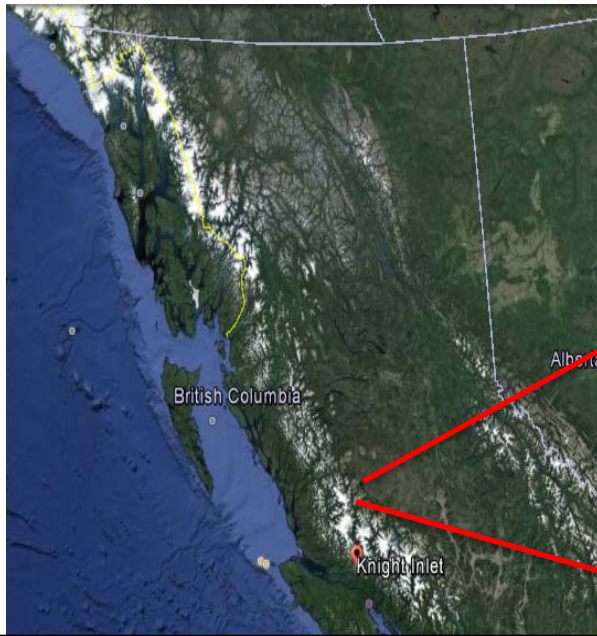


- **2014:** lowest September flow rate ever measured then highest October flow rate
- Temporary access cut off to BC Timber Sales and Western Forest Products tenured areas
- Temp public access cut off to high value recreation (Raft Cove/Cape Scott) and community of Winter Harbour
- Repairs in excess of \$2,000,000



## 3. Opportunities and Challenges in a Changing Climate

### 2013 September- Water/Slide Events



- >250 slides
- >237, 000 m<sup>3</sup> of lost timber (BC Timber Sales Market Pricing Area)
- Matsiu River- salmon bearing river and several wildlife habitat areas impacted
- >90% slides not associated with past forestry activity

*“In the 20 years with the Ministry of Forests I have not seen anything like this,”* said Mike McCulley, Engineering Specialist with Ministry of Forests, Lands and Natural Resource Operations (FLNRO). *“There is a massive amount of debris in the inlet and lots of navigational hazards. Log salvages will be out there gathering up material that is viable. I have seen fish farm pens completely clogged with residue. We have lost infrastructure, bridges and roads, and the forest service road will be closed until further notice.”*



# 3. Opportunities and Challenges in a Changing Climate

## 2015 Aug – Interior of BC Drought

- Dieback of several species are being seen with effects of climate and other associated events (wildfire)
- Actual shifts in **Biogeoclimatic zones** are being seen (based on soil, terrain and climate)



### TreeTopics

Serving small woodland owners and managers in the Willamette Valley and northwest Oregon

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#### Many Douglas-fir with dead tops and branches in the Willamette Valley this year

Posted on May 5, 2015 by withrowb

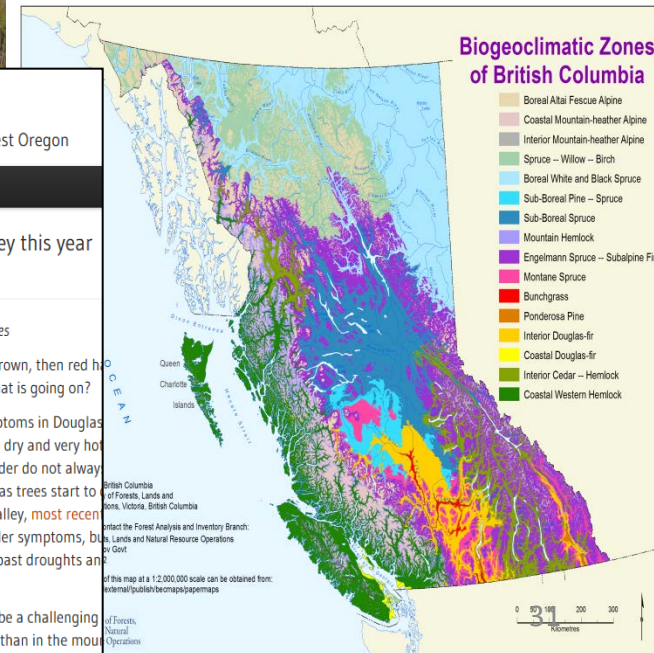
By Brad Withrow-Robinson, Forestry & Natural Resources Extension Agent, Benton, Linn and Polk Counties



Young Douglas-fir trees with dying branches or tops turning brown, then red is a common sight all around the Willamette Valley this spring. What is going on?

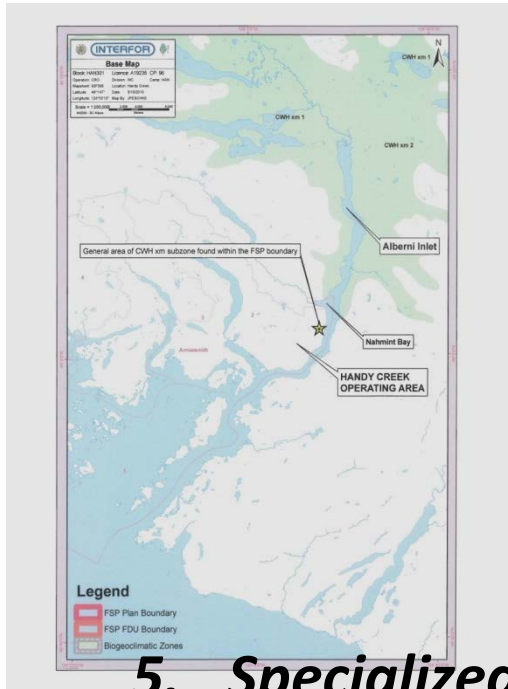
This "flare out" of branches and tops are classic drought symptoms in Douglas-fir linking to last year's weather when we had a particularly long, dry and very hot summer. Late season drought injuries to the stem and leader do not always occur, but often express themselves the following spring as trees start to show these drought damage events from time to time here in the valley, most recent again before that around 2000. Older trees typically have milder symptoms, but older, flat-topped Douglas-fir trees you see are a reflection of past droughts and damage.

It is important to keep in mind that the Willamette Valley can be a challenging area for Douglas-fir. Summers are significantly hotter and drier in the Valley than in the mountains. Many Douglas-fir trees have many poorly drained or shallow soils that are not well-suited to many kinds of Douglas-fir.



### 3. Opportunities and Challenges in a Changing Climate

- 1. Stronger team approach**
- 2. Specific geospatial information on multiple resources**
- 3. Information transfer to professionals**

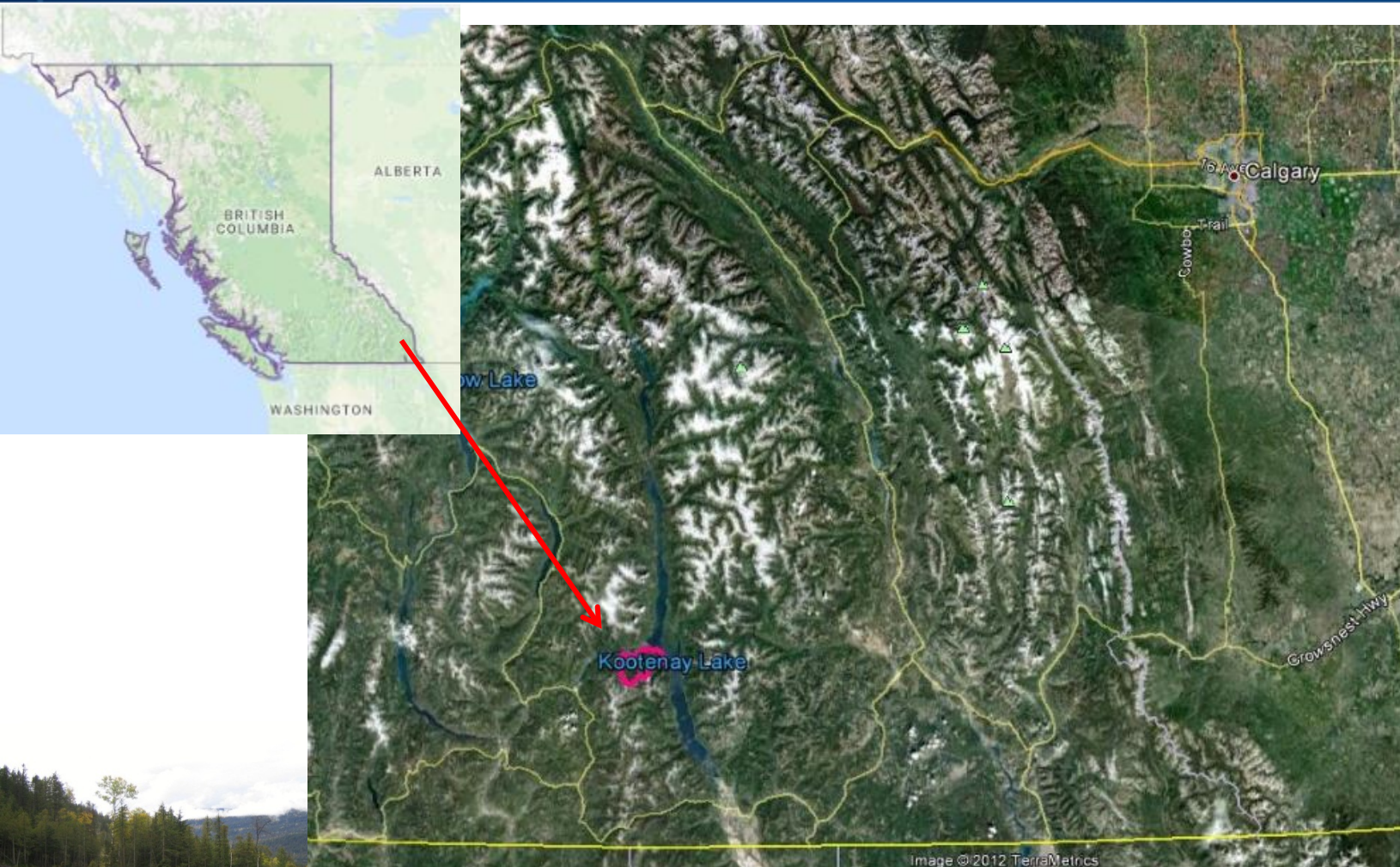


- 5. Specialized practitioners**
- 6. Requirements for design, implementation, and conformance**
- 7. Specific multiple resource objectives for forest land**

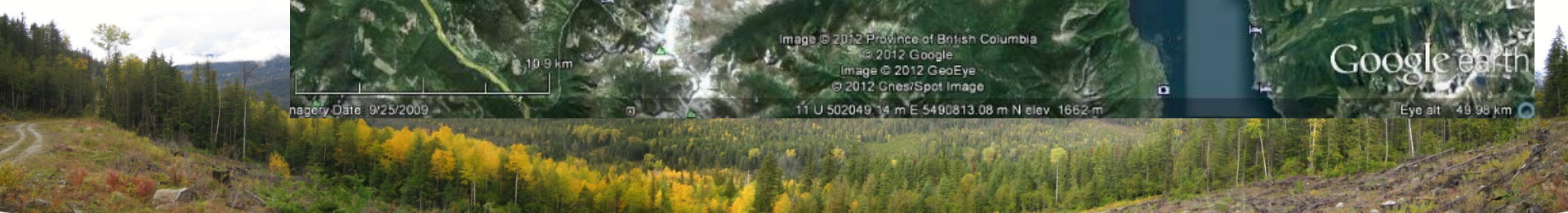
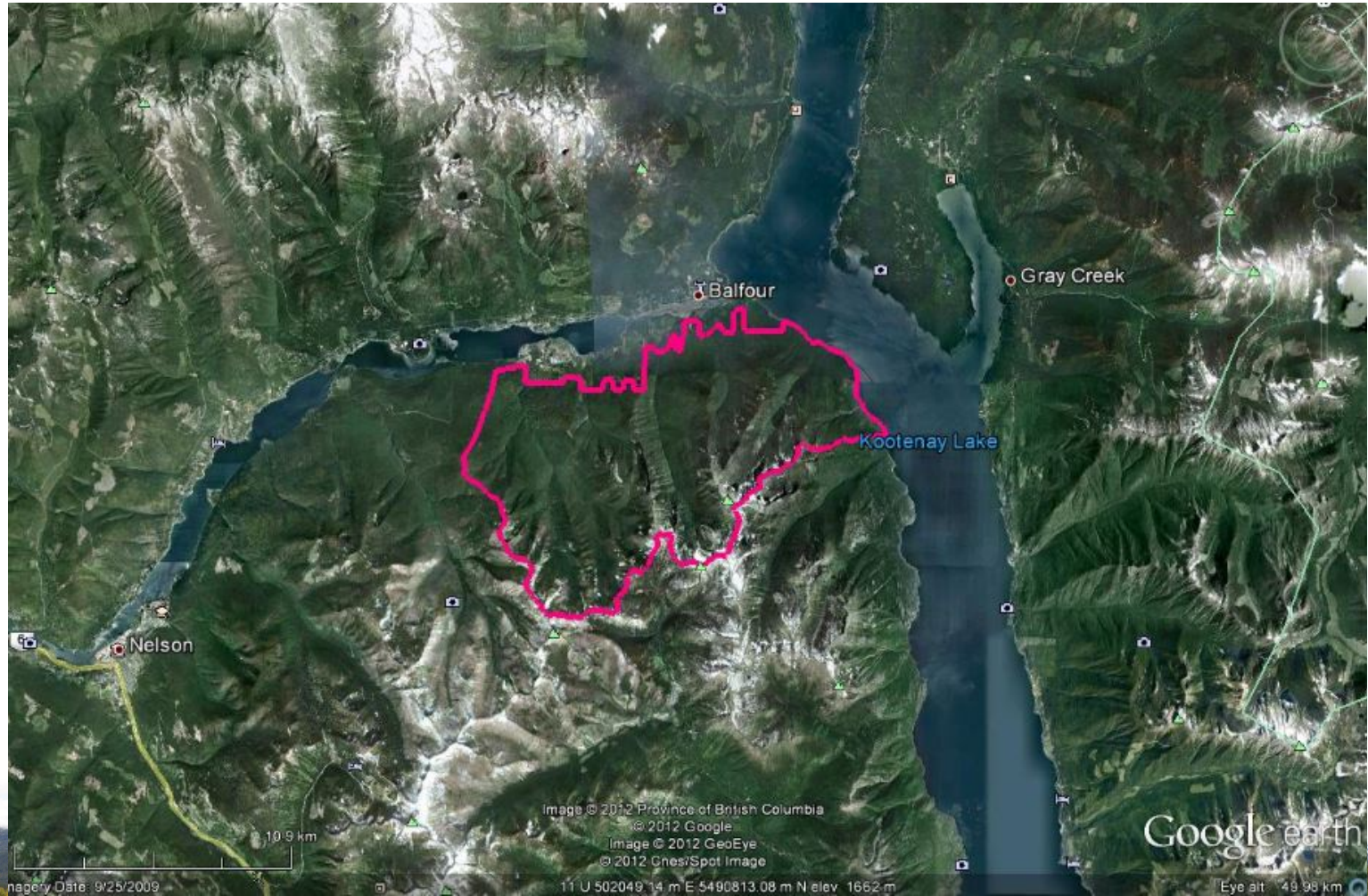




## 4. Case Study- Harrop Procter Community Forest




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## 4. Case Study- Harrop Procter Community Forest

Climate change projections and risks have been widely discussed in broad terms for several years, but climate change adaptation principles are poorly integrated into operational forest management decision-making. **Real world examples of systematic climate change adaptation efforts in the forestry sector are sparse.**

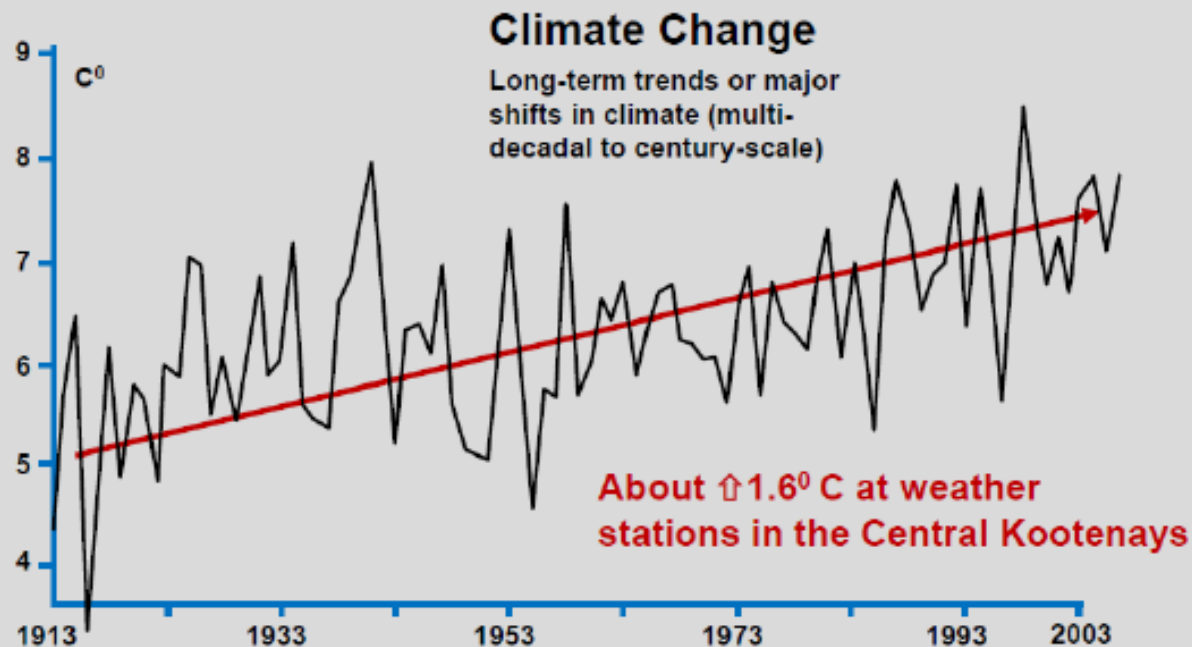
**This project will provide a well-documented case study that demonstrates how to integrate climate science and risk assessment into tangible forest management decision-making** on a specific landbase within a specific rural community. This project is led by a grassroots community-based forest management organization and thus includes a deep and enduring community engagement component.



## 4. Case Study- Harrop Procter Community Forest

### Premise 1: we have enough science to act

#### Average Annual Temperature has Increased Over the Last Century

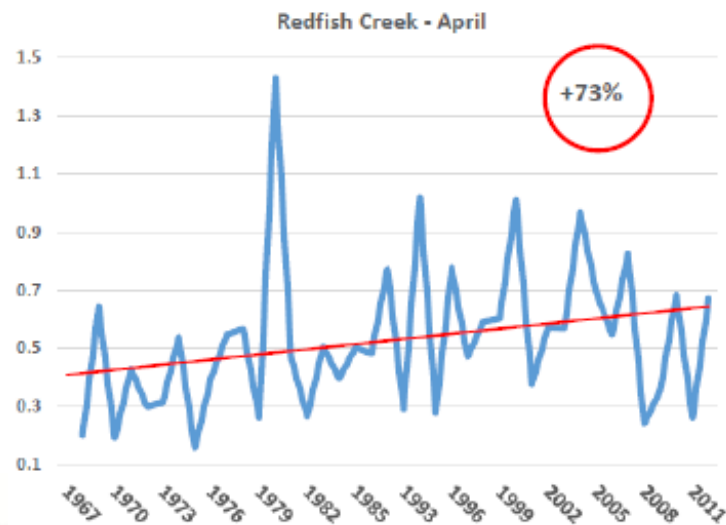


From Reasoner 2014

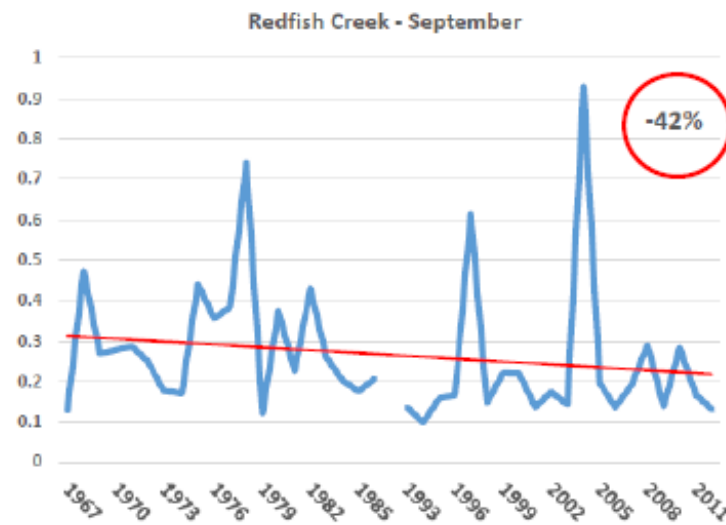
# 4. Case Study- Harrop Procter Community Forest

## Significant changes over past 30 years

### Climate Change Impacts Streamflows and Snowpack



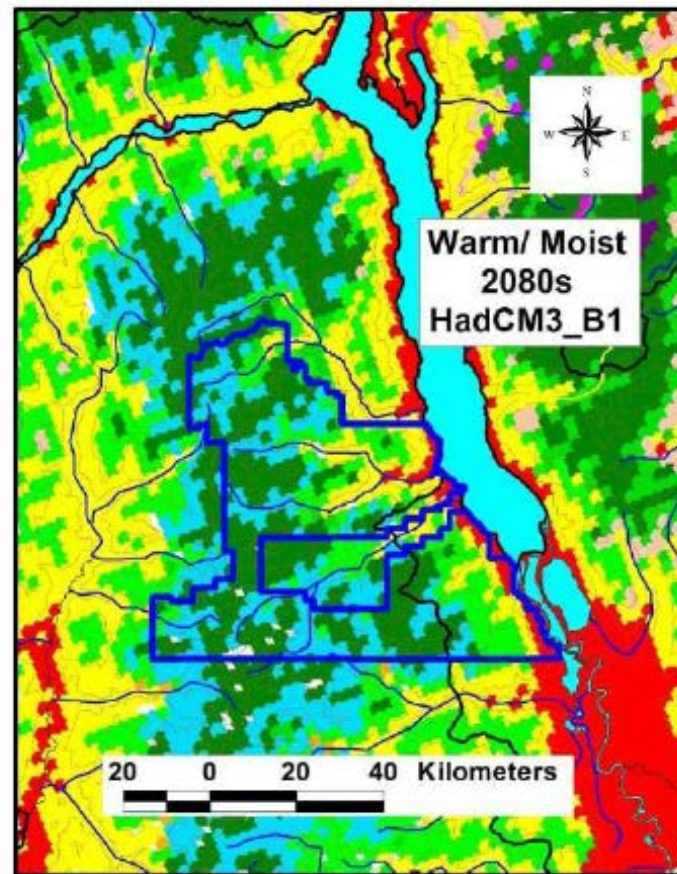
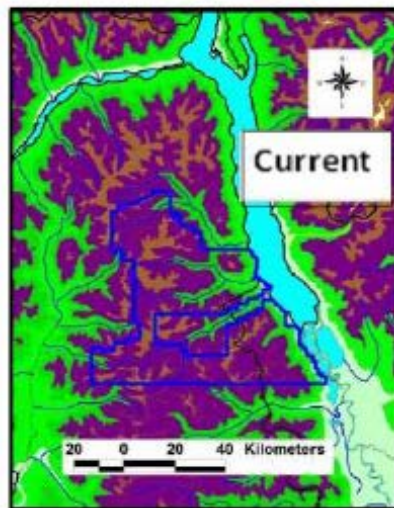
Trend Analysis (Zhang, 1999)  
Mann Kendall  $p = 3.8E-2$



Trend Analysis (Zhang, 1999)  
Mann Kendall  $p = 3.7E-2$

Monthly Mean Discharge (m<sup>3</sup>/s)

# 4. Case Study- Harrop Procter Community Forest



- Alpine
- Alpine parkland
- Wet subalpine forest
- Dry subalpine forest
- Coastal hemlock
- Transitional coast/ interior hemlock
- Montane/sub-boreal spruce forest
- Wet interior cedar/ hemlock
- Moist interior cedar/ hemlock
- Dry interior cedar hemlock
- Grand fir/ Douglas-fir
- Wet Douglas-fir
- Dry Douglas-fir
- Ponderosa pine savannah
- Grassland/ steppe

From Utzig et al 2012/ 2016

# 4. Case Study- Harrop Procter Community Forest

## Premise 2: we have enough high-level direction

**Climate Change Strategy (2013 – 2018)**  
Ministry of Forests, Lands and Natural Resource Operations

September 10, 2013

*Adapting Forest Management in the Kamloops  
TSA to Address Climate Change*

*The Kamloops Future Forest Strategy*



**FINAL REPORT**



By the KFFS TSA Team



**BCTS**  
BC Timber Sales

**Provincial Climate Change Action Plan**

*Managing Risk and Seeking Opportunity in a  
Changing Climate*

February 3, 2015



BC Ministry of Forests, Lands and Natural Resource  
Operations

**Forest Stewardship Action Plan  
for  
Climate Change Adaptation**

Seminar  
March 1, 2012

Kathy Hopkins - Technical Advisor - Climate Change



## 4. Case Study- Harrop Procter Community Forest

### Premise 3: community values

- Water
- Homes/ infrastructure
- Biodiversity
- Jobs/ timber





## 4. Case Study- Harrop Procter Community Forest

### Desired project outcomes

- Climate change projections & risks integrated into real world decision-making
- Community wildfire protection understood in broader context (landscape-level, long term, ecosystem-based)
- Local residents involved in meaningful discussions of climate change risks and in forest management decision-making process
- Results and methods broadly shared—outreach through Columbia Basin

## 5. Resources for Professionals

### Thinking “outside the box” for climate change adaptation in the BC forested land base



Interdisciplinary knowledge and collaboration supports making the best decisions

Use qualified professionals with local knowledge (climate, meteorological, hydrologic, hydrotechnical)

Expand adaptation education for professionals, consultants, staff & students (more case studies)

## 5. Resources for Professionals

### BC Professional Associations Adaptation Working Group Joint Statement (2014)

- Improve communication to empower professionals
- Develop a process for integrating climate risk management skills into professional practice
- Use existing tools more effectively
- Increase the effectiveness of tools
- Develop/communicate educational opportunities
- Support collaboration among professionals

## 5. Resources for Professionals

### Current Actions for Future Forest

- *Member driven resolution that passed by 100%*
- *Support the work of CDFCP to demonstrate the profession's concern for future forest ecologies.*
- *Advocate for good stewardship of the CDF*
- *Educate members and the public regarding the conservation of forest ecologies*



COASTAL DOUGLAS-FIR  
& ASSOCIATED ECOSYSTEMS  
CONSERVATION PARTNERSHIP





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