

# **Association of BC Forest Professionals Climate Change in BC Forests 2013 Awareness Survey**

## **What have we learned and where are we going?** (condensed from FACOP webinar)

Presented to the BCCFA Conference

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Casey Macaulay, RPF



# The Role of the ABCFP

- To serve and protect the public interest, enforcing the Foresters Act
- To uphold the public interest respecting the practice of professional forestry
- To advocate for and uphold principles of stewardship of forests, forest lands, forest resources and forest ecosystems





# What is the ABCFP's Involvement in Climate Change Adaptation?

- Members are involved in all manner of activities affected by climate change: research, operations, silviculture (the practice of professional forestry)
- Members put a resolution to ABCFP council in 2012
  - Climate Change Task Force
- Empowered by the [Principles of Forest Stewardship](#):
  1. *Ecological Integrity*
  2. *Information and Understanding*
  3. *Forest Management Goals and Objectives*
  4. *Social Foundation*
  5. *Temporal Options*
  6. *Spatial Strategies*
  7. *Adaptive Practice*

# Climate Change in BC Forests

Some obvious indicators:

- warmer winters = pine beetle epidemic
- drought = increased fire frequency and severity
- rain on snow = increased flood severity
- less rainfall = decreased low stream flow





# Climate Change in BC Forests

Less obvious indicators:

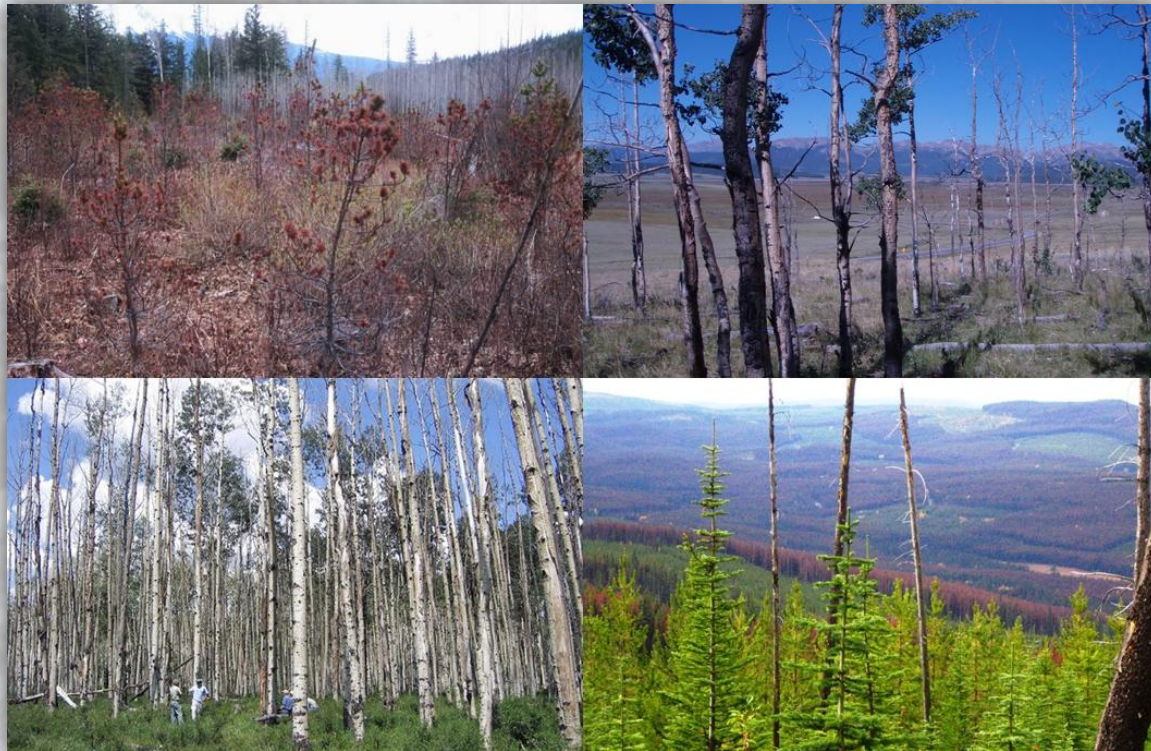
- increased storm severity = more windthrow
- low mid-elevation snowpack = decreased seasonal soil moisture (interior), yellow cedar mortality (coast)
- delayed winter frost = increased insect survival
- temp / precip regime change = dothistroma





# Climate Change in BC Forests

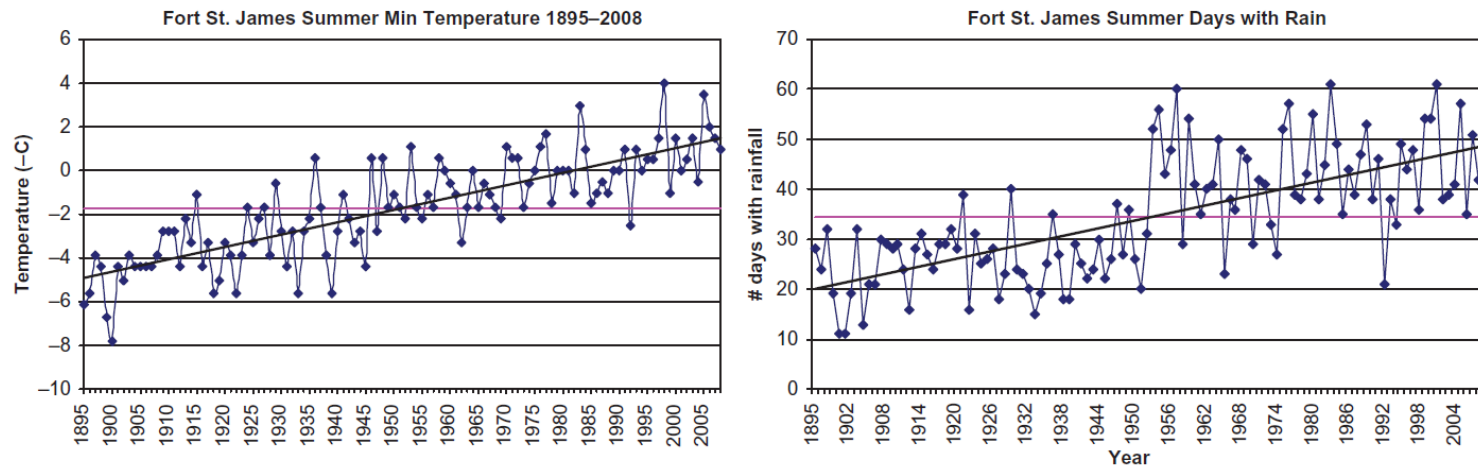
Is the climate changing faster than some forest ecosystems are capable of adapting?



# Is There a Debate?

While some debate the causes or the magnitude of future change, most scientists and forest professionals agree that climate is changing and we need to adapt.

Good stewardship = adaptive approach = best practices



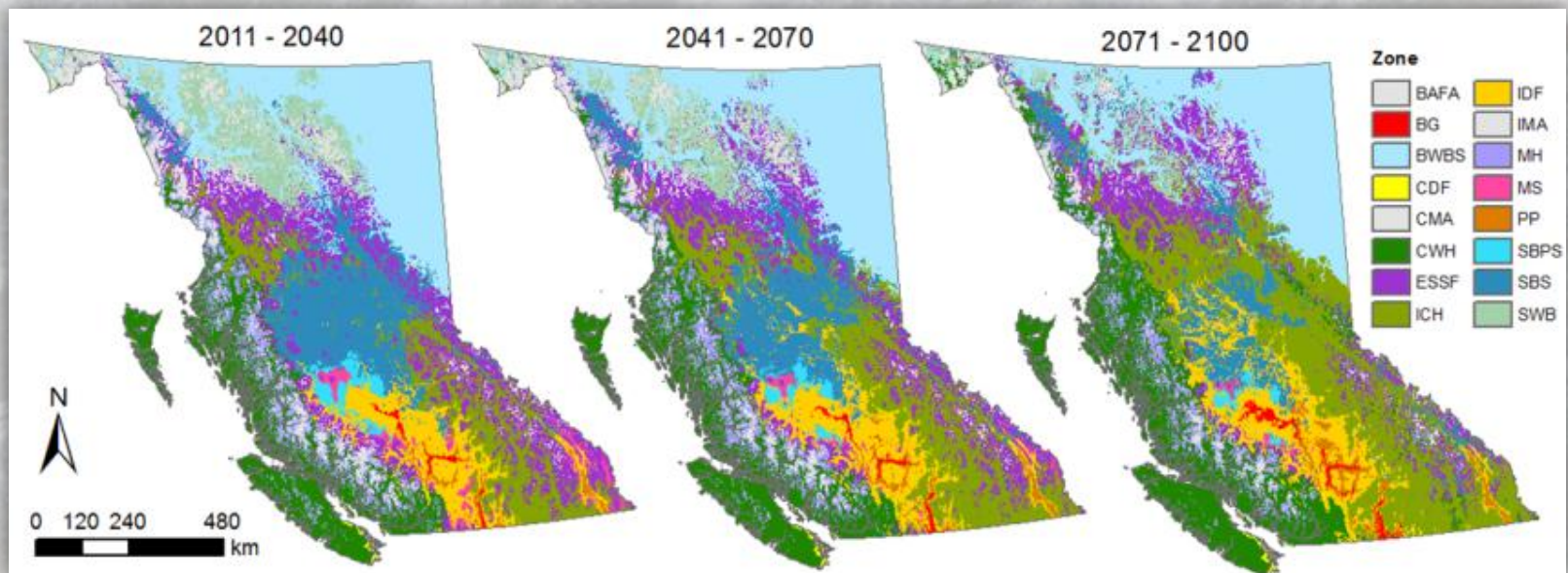
**Fig. 2.** Long-term weather trends of two primary environmental drivers of foliar disease, overnight minimum temperatures in summer (left) and number of days with rain in summer from the Ft. St. James weather station in the central interior of BC, Canada. Courtesy of V. Foord, BC Forest Service, Northern Interior Forest Region.

[Woods, Alex\(2011\) 'Is the health of British Columbia's forests being influenced by climate change? If so, was this predictable?', Canadian Journal of Plant Pathology, 33: 2, 117 — 126](#)



# Consensus Projections: Ecosystems

- Based on projected changes in temperature and precipitation: 20 climate change scenarios
- 140 scenarios from the IPCC Fourth Assessment
- Shifts in bioclimatic envelopes for BC ecosystem zones, based on the most frequently projected zone
- Similar maps can be generated by [ClimateBC -Map](#)



Wang, T., Campbell, E. M., O'Neill, G. A., & Aitken, S. N. (2012). Projecting future distributions of ecosystem climate niches: Uncertainties and management applications. *Forest Ecology and Management*, 279, 128–140



# Who's Working on Climate Change in Forests?

Agency	Initiatives
Future Forests Ecosystem Scientific Council	<a href="#">Research outcomes</a>
Ministry of Forests Lands and Natural Resource Operations	<a href="#">Climate Solutions, Competitiveness and Innovation Branch</a>
	<a href="#">Tree Species Selection</a>
	<a href="#">BEC Web</a>
Natural Resources Canada	<a href="#">Pacific Forestry Center</a>
Climate Action Secretariat (Min of Env't)	<a href="#">LiveSmart BC</a>
FORREX	<a href="#">Various publications</a>
UBC Faculty of Forestry	<a href="#">Research, Partnerships</a>
SFU	<a href="#">Impacts Research Consortium</a>
Pacific Climate / UVIC / UNBC / SFU	<a href="#">Programs, Resources, Tools</a>
Pacific Institute for Climate Solutions	<a href="#">Research, Education</a>
West Coast Env't Law	<a href="#">Coordination, Collaboration</a>
Genome BC	<a href="#">Adaptree, Forest Health Monitoring</a>

# The Climate Change Task Force

- Objective: *that forest professionals will be guided in adapting practices in a changing climate.*
- Priority areas:
  - survey of membership
  - collaboration with agencies and other professions
  - link research to on-the-ground practices:
    - compile resources that influence forestry practice
    - develop / share best practices and future guidance
  - develop ongoing workshop material
  - recognize innovators in our membership: regional, provincial












# Climate Change Awareness Survey

- First recommendation of the task force
- Conducted in January 2013, available on [web site](#)
- Survey design:
  - form a baseline of climate awareness
  - measure the degree of adaptive practice
  - identify areas of focus for the task force
  - suggest priorities for ABCFP advocacy
  - promote 2013 adaptation workshop series (gov't)
- Response rate: 26% of membership














# Survey response: Employer group

Response	Chart	Percentage	Count
Government		40%	523
Industry		22%	286
Consulting		23%	301
Academia		2%	24
First Nations		1%	14
Student		0%	4
Retired		8%	110
Unemployed		1%	10
Other, please specify...		4%	50
Total Responses			1322



# Survey response: Region you work in










Response	Chart	Percentage
Vancouver Island		18%
Mainland South West		8%
Thompson Okanagan		15%
Kootenays		9%
Cariboo		12%
North Coast		4%
Nechako		11%
North East		5%
Canada but not BC		3%
International		2%
I work in several regions/provincially		14%

# Taking stock of current knowledge associated with climate change, please indicate your level of agreement











	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Don't Know
Globally and at continental scales, the climate is changing faster now than it has changed for millennia.	4%	10%	15%	36%	27%	8%
The current pace of climatic change is significantly affected by emissions of carbon dioxide and other gases.	3%	6%	15%	42%	29%	5%
Climate change has already impacted BC's forests and forest ecosystems.	2%	7%	14%	47%	27%	3%
Climate change impacts will pose future threats for BC forests.	2%	6%	12%	43%	33%	4%
I think it is important to consider climate change in the management of forests.	2%	4%	10%	47%	37%	1%
I know where to find information to inform my management decisions relative to climate change impacts, risks and opportunities.	3%	20%	25%	39%	10%	4%
I have a good understanding of how to assess climate change risks and minimize its impacts.	6%	31%	32%	22%	5%	5%



**Please check any of the following items that you would identify as a threat to BC forests in a changing climate or that you have observed in your region**


Response	Chart	Percentage
Increased levels of natural disturbance/mortality due to wildfires		59%
Increased levels of natural disturbance/mortality due to insects and disease		83%
Regeneration failures		43%
Changes in stand-level productivity		34%
Increase in invasive species		50%
Genetic maladaptation		23%
Biome conversion (e.g. forest to shrub, grassland, etc.)		32%
Business disruptions due to extreme weather		41%
Other, please specify...		13%

**The biggest barriers I face in working to minimize the impacts of climate change in my forestry decisions are (check all that apply):**



Response	Chart	Percentage
Lack of employer awareness of impacts.		12%
Lack of employer interest in minimizing impacts.		18%
Lack of personal knowledge, expertise or ability.		32%
No authority to make adaptation recommendations/decisions.		33%
Lack of strategic vision or policies that support innovation/diversification of practices.		43%
Lack of guidance, standards or best practices.		45%
Costs are prohibitive.		17%
My workload allows little time for this.		25%
No barriers.		14%
Other, please specify...		18%



**Do you have the appropriate level of training needed to make balanced, scientifically sound climate change adaptation decisions in accordance with your current scope of professional practice?**










Response	Chart	Percentage
Yes		40%
No		60%

**Do you have access to the professional development opportunities that you need to keep current on climate change and climate change adaptation?**






Response	Chart	Percentage
Yes		58%
No		42%



Please indicate which, if any, adaptation practices you are currently undertaking

Response	Chart	Percentage
Research (e.g. use of climate models, projections)		10%
Experimentation (e.g. small scale pilots, operational trials)		12%
Risk, impact and / or vulnerability assessments		10%
Incorporating into strategic planning		15%
Incorporating into operational planning		16%
Practices on the ground (to meet obligation requirements)		19%
Monitoring and evaluation		23%
None of the above		46%
Other, please specify...		8%

**I seek out professionals with specialized knowledge to advise my plans and decisions in order to provide due consideration of climate change factors and risks.**




Response	Chart	Percentage
Never		34%
Rarely		19%
Sometimes		27%
Often		13%
Always		7%



**Please indicate (if known) your employer's awareness of potential climate change impacts on forests.**

Response	Chart	Percentage
Very Aware		17%
Aware		43%
Neutral		17%
Not Aware		5%
Not At All Aware		2%
I don't know		17%

# Does your employer have a climate change adaptation strategy or action plan in place?

Response	Chart	Percentage
Yes		29%
No		37%
Don't Know		34%



# Survey – Interim Conclusions

1. There is room for increased awareness of climate change concepts.
2. Professionals are hungry for knowledge.
3. Practitioners are already finding techniques to adapt.
4. A lack of policy, vision, guidance and standards are currently obstacles to minimizing impacts.
5. Professionals need room to innovate within the policy framework.
6. The natural resource sectors needs more go-to experts – particularly in linking research to practice.
7. More employers could benefit from action plans.
8. Adaptation looks different as you move around the province.
9. There is some (limited) reluctance about climate science.

## Key Messages (to date)

- Forest professionals must develop an ongoing awareness.
- There is enough scientific data available for professionals to begin pursuing adaptation.
- Policy makers and practitioners must manage for uncertain future conditions.
- The ABCFP will advocate for and support policies that lead to improved climate adaptation.
- The ABCFP supports collaboration between governments, industry, researchers and practitioners.



# Next Steps

- Currently reviewing relevant research papers for findings that relate to adaptive practice.
- Share knowledge publicly via web-site.
- Foster innovation and sharing of best practices, with an emphasis on regional variation.
- Examine the need for specific guidance, consistent with past advice.
- Continue to collaborate with agencies and other professional associations.
- Advocate for policy and / or legislation that enables professionals to adapt and be accountable for that work.



For more information, contact the Professional  
Practice and Forest Stewardship Team

[www.abcfp.ca](http://www.abcfp.ca)