Wildfire, Ecosystem Health and finding the right direction…..

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Why am I here today?

- I saw this newspaper article
- And the talk

Retired foresters share wildfire frustrations with Columbia Shuswap board

Increase in forest fuels result of wildfire suppression, management of Crown land

- Very susceptible to disease, pest outbreaks, drought and wildfires
- We need to return them to how they looked 100 years ago

Quotes :

“As well as providing t[illegible]uel for wildfires, old forests offer less diversity and [illegible]re susceptible to disease, pests and drought”,

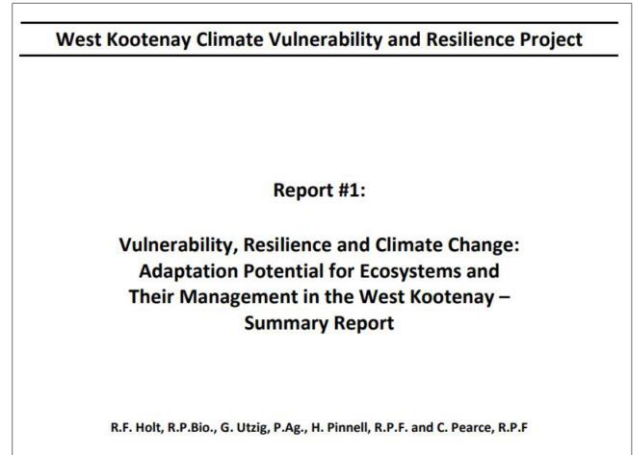
“We need to understand [illegible]t 9[illegible]er cent of our forests were not designed to become o[illegible]wth, they were designed to burn on a 25-year cycle,

CSRD Board chair and Salmon Arm rep Kevin Flynn called for scientific and expert-based solutions rather than those based on public opinion.

Who am I?

- Independent ecologist
- West Kootenay climate vulnerability and resilience project (2009 – 2012).

Vulnerability and Resilience project produced 11 thematic reports, including reports on climate science, fire regimes, forest health risks, barriers and opportunities, and social engagement. The project provides detailed West Kootenay climate projections and concludes with an overview of potential adaptation strategies. The reports for this project are available at https://www.kootenayresilience.org/ev-reports.



West Kootenay Climate Vulnerability and Resilience Project

Report #1:

Vulnerability, Resilience and Climate Change: Adaptation Potential for Ecosystems and Their Management in the West Kootenay – Summary Report

R.F. Holt, R.P.Bio., G. Utzig, P.Ag., H. Pinnell, R.P.F. and C. Pearce, R.P.F

Ecosystem Diversity – there is not a single solution

- But, we have managed the forests in the same way across these ecosystems

Sicamous area

Inland rainforest - Revelstoke

Fire risk – is increasing

- Because of the climate crisis
- And
- Because of how the landscape has been managed

- Let's get clear: unless we stop pumping out greenhouse gases, we are in serious trouble.
- No ceiling to the current warming and drying. Much of southern interior may not support trees in my lifetime.
- Harvesting of trees AND wildfires are the largest emitters of carbon in BC[1]

- 1: https://www2.gov.bc.ca/gov/content/environment/climate-change/data/provincial-inventory

Forest management has increased susceptibility to fire by:

- Removing deciduous species (extensive herbicides) to try to increase timber supply
- By ‘normalizing’ a naturally more mixed forest mosaic – creating large swathes of similar aged forest that is highly susceptible to fire
- By clearcutting that dries the ground and increases the immediate effects of climate change

- The relative effects obviously differ in the vastly different forested ecosystems

Science on old growth

- No evidence that old growth burns more often than other ages of forest[1, 2]
- IS evidence that old growth is less likely to ignite than 'managed' forest[2].
- If a stand has survived 200, or 400, or 1000 fire seasons then it likely will continue to do so …

- **1: Burton 2023. Frey SJ, Hadley AS, Johnson SL, Schulze M, Jones JA, Betts MG 2016** Spatial models reveal the microclimatic buffering capacity of old-growth forests *Science advances* 2 e1501392
- **2: Frey et al. 2016**
- **Bradley, C.M., Hanson, C.T. and DellaSala, D.A., 2016**. Does increased forest protection correspond to higher fire severity in frequent-fire forests of the western United States? *Ecosphere*, *7*(10), p.e01492

Science on fires

- Intense fuel management only reduces fire risk in intermediate weather conditions[1]
- Even intense management only reduced modeled burn probability slightly
- Primary forests (including old growth) do better in drought conditions (think of all the root systems, the diversity, the shrub layers etc.)[2]
- Intense plantation forestry, characterised by young forests and spatially homogenized fuels were significant drivers of wildfire severity[3]

- **1: Beverly, J. L., Leverkus, S. E., Cameron, H., & Schroeder, D. 2020.** Stand-level fuel reduction treatments and fire behaviour in Canadian boreal conifer forests. *Fire*, *3*(3), 35.
- **2: Julika Wolf1 , Johanna Asch1, Feng Tian2, Katerina Georgiou3 and Anders Ahlström.** Canopy responses of Swedish primary and secondary forests to the 2018 drought.
- **3: Zald and Dunn 2018. https://esajournals.onlinelibrary.wiley.com/doi/10.1002/eap.1710**

Old forest, structure and microclimate

- Walk into old growth forest in summer. The temperature can be up to 10 degrees cooler, and there is moisture everywhere.
- This effect is greater in wetbelt forests, but occurs in most forests due to increased understory vegetation and diversity.
- No old growth remains in driest ecosystems – need restoration.
- Regrowing clearcuts: hotter, drier, more uniform and burn easily.

What are others saying?

- Forest Practices Board: …

> The way we have managed forests and fire has impacted the scale, intensity, and severity of current wildfires. For most of the twentieth century, forest management policy excluded Indigenous fire stewardship, emphasizing fire prevention and suppression, livestock grazing, and wood production to meet the demands of a growing society.[iii] In general, these policies have contributed to increases in the amount and distribution of forest fuel across the landscape.

What are others saying?

- Old Growth Strategic Review Panel – “prioritise ecosystem health, change practices and maintain old forest”.

1. **Outdated Thinking:** An overriding theme heard throughout our engagement phase was that we need to change the way that we think about our forests and that we need to preserve the integrity of our natural systems as much as possible, particularly the old forests component. Individuals with international experience and our own research on other jurisdictions indicate that this sentiment is consistent with global trends.

2. **Focus on the right priorities:** Managing forests in a way that does not unduly compromise timber supply puts our focus on the wrong thing. This treats ecosystem resilience and reducing biodiversity risk as constraints, which, over time, are constantly being eroded by compromises. Making choices about risk to biodiversity in return for another defined benefit might be a necessity but those choices need to be made with the overarching goal of maintaining ecosystem health in mind.

Everyone agrees: Change is needed

Solutions

- Modify fire suppression policies
- Retain old growth – it slows fires, and maintains ecosystem resilience.
- Do not clearcut – it simplifies the forest, destroys ecosystem health, and dries out the forest further.
- Do not clearcut – leads to single aged stands that are vulnerable.
- Move away from timber priority that has promoted removal of deciduous species.
- Treat whole forest as the Wildland Urban Interface zone!

A local example of a highly vulnerable landscape.

St. Marys – Dewar and Redding

Further large clearcut blocks are planned by Canfor and BCTS

Managed contrary to the natural patterns for these ecosystems

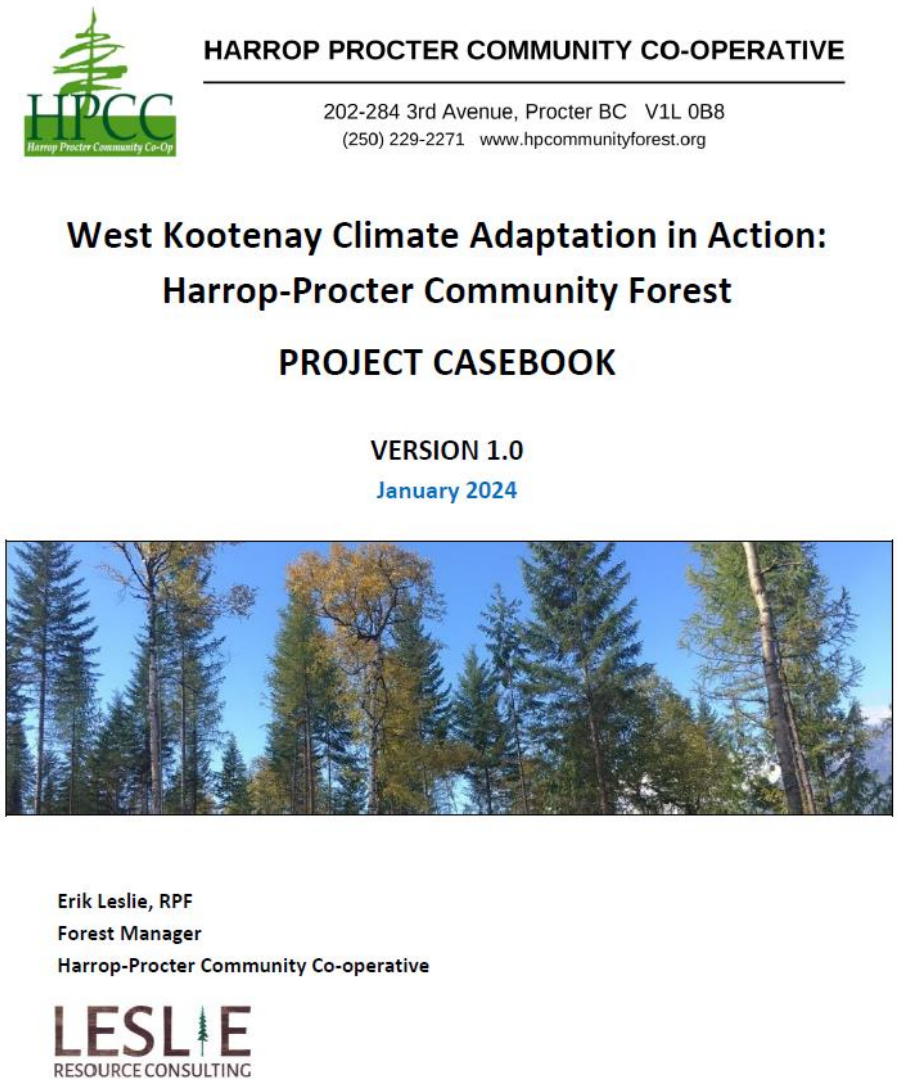
Additional material

- https://www2.gov.bc.ca/assets/gov/environment/natural-resource-stewardship/nrs-climate-change/regional-extension-notes/kbren160222.pdf

The **Ministry of Forests Extension Note prepared by Deb MacKillop and Kathy Hopkins** (2016) provides a detailed list of climate adaptation considerations for Kootenay Boundary forest managers. This Extension Note also provides an overview of regional climate change projections and descriptions of ecosystem impacts (including altered natural disturbance regimes, hydrology, and biodiversity impacts). It also outlines adaptation strategies, including planning and practice considerations. The Extension Note is available at https://www2.gov.bc.ca/assets/gov/environment/natural-resource-stewardship/nrs-climate-change/regional-extension-notes/kbren160222.pdf

Harrop Proctor Climate Vulnerability and Resilience Project

- Really good, thoughtful approaches outlined



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West Kootenay Climate Adaptation in Action: Harrop-Procter Community Forest

PROJECT CASEBOOK

VERSION 1.0

January 2024

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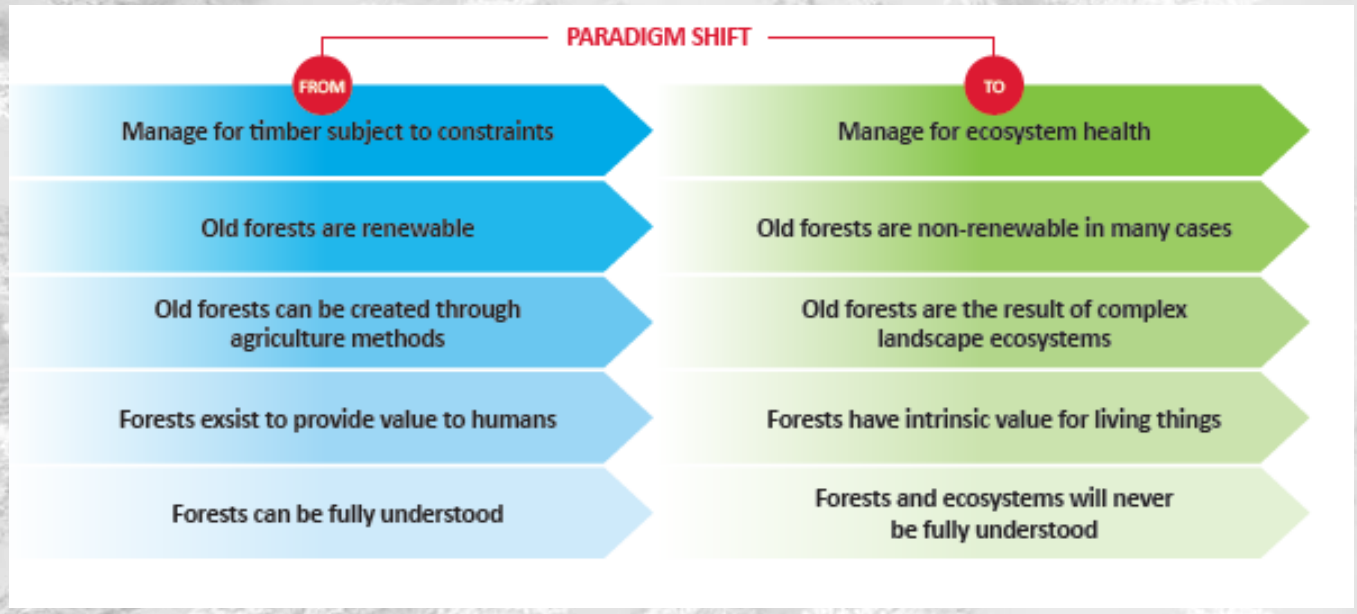
LESLIE RESOURCE CONSULTING

Old Growth Strategic Review and Action Plan



This report: is not about old growth – but about forest landscapes and the effects of timber prioritisation