CFS Activities Relevant to ABoVE

(Maximum 2 page)

1. Project Title

A Proposed Project:
Integrated Climate Change Vulnerability Assessment of High Elevation and High Latitude Forests and Forest Management

2. Investigators (include email).
a) Project Lead;
b) CFS collaborators,
c) external collaborators (individuals/institutions)

a) Jason Edwards, Northern Forestry Centre, Canadian Forest Service (Jason.Edwards@Canada.ca)

b) CFS: Dr. Ted Hogg, Dr. David Price, Roger Brett, Dr. Ron Hall, Dr. Guillermo Castilla, Dr. Marc-André Parisien, Dr. Daniel Thompson, Dr. Jag Bhatti, Dr. Barry Cooke, and potentially others.

c) Government of Northwest Territories, Parks Canada Agency

3. Project Description (200 words maximum)

Recent evidence of climate-related impacts on forest health is a confirmation that Canada's northern forests are already exposed to multiple, and potentially serious, threats from climate change. Understanding these impacts and taking appropriate adaptation actions are key steps for maintaining resilient forests, and related forest-derived social values, into the future. We propose to work with Government of Northwest Territories and Parks Canada Agency to conduct integrated climate change vulnerability and adaptation assessments of their respective forest management objectives and activities. Through these assessments we (all parties) will be able to develop targeted climate change adaptation activities, including research efforts aimed at addressing specific forest health monitoring and assessment needs.

The vulnerability assessments will follow the guidance developed by the Canadian Council of Forest Ministers Climate Change Task Team. This guidance calls for the integration of scientific knowledge with practitioner and local knowledge to define adaptation actions relevant to local decision making contexts. Ongoing CFS research in these regions (see above listed collaborators) will contribute strongly to the assessments.

4. Timelines and current funding (level and source)

This project is currently in initiation phase but builds on existing CFS research by the listed project participants. Vulnerability Assessment scoping will occur this fiscal year, 2016-17. The vulnerability assessment activities will commence 2017 fiscal.

Funding proposals are being submitted to CFS Forest Change Initiative and Parks Canada Agency. Government of Northwest Territories has expressed great interest in the vulnerability assessments and is willing to contribute in-kind and likely contribute funds to the project. Details and commitments are emerging.

5. Reference (1-2 key publication, website)

Edwards, J.E.; Pearce, C.; Ogden, A.E.; Williamson, T.B. 2015. Climate change and sustainable forest management in Canada: a guidebook for assessing vulnerability and mainstreaming adaptation into decision making. Canadian Council of Forest Ministers, Ottawa, Ontario. 160 p. www.ccfm.org

Gauthier, S; Bernier, P.; Burton, P.J.; Edwards, J.; Isaac, K.; Isabel, N.; Jayen, K.; Le Goff, H.; Nelson, E.A. 2014. Climate change vulnerability and adaptation in the managed Canadian boreal forest. 2014. Environmental Reviews 22(3):256-285. DOI: 10.1139/er-2013-0064.

6. ABoVE question being mainly addressed (please highlight)

1. How are environmental changes affecting critical ecosystem services - natural and cultural resources, human health, infrastructure, and climate regulation - and how are **human societies** responding?

2. What processes are contributing to changes in **disturbance** regimes and what are the impacts of these changes?
Building on existing CFS research in remote sensing, fire, and forest insects, we plan to integrate wo

3. What processes are controlling changes in the distribution and properties of **permafrost** and what are the impacts of these changes?

4. What are the causes and consequences of changes in the **hydrologic system**, specifically the amount, temporal distribution, and discharge of surface and subsurface water?

5. How are **flora and fauna** responding to changes in biotic and abiotic conditions, and what are the impacts on ecosystem structure and function?

6. How are the magnitudes, fates, and land atmosphere exchanges of **carbon** pools responding to environmental change, and what are the biogeochemical mechanisms driving these changes?

7. Linkages with ABoVE:

- **a. Data being collected/generated**
- **b. Expected key benefits and potential challenges from collaborating with ABoVE**
- **c. Ongoing and / or interest in future involvement in ABoVE**

a. Exploring ways ABoVE data/projects can round out the information and knowledge required for the vulnerability assessments would be useful.

b. Benefits include increased data resources, access to additional

researchers, building on existing research collaborations, outreach/knowledge exchange collaborations.

c. This proposed project creates a direct connection between research and forest management and local communities. Ongoing collaboration between this project and ABoVE would allow a richer knowledge base for local decision making.