



DATES TO REMEMBER

**HAPPY HOLIDAYS
OPEN HOUSE**



December 20, 2010
4:00—6:30 pm

Bulkley Valley Research Centre
1188 Main Street

Refreshments & Snacks
will be served

**Irving Fox Award
and the
Jim Pojar Award**

Nominations must be received
January 25, 2011

For more information, visit the
[Awards](#) page of the
Centre's website
www.bvcentre.ca under the tab
Get Involved

**Irving Fox Memorial
Scholarship**

Applications must be received
May 31, 2011

For more information, visit the
[Scholarship](#) page of the
Centre's website
www.bvcentre.ca under the tab
Get Involved

INTRODUCTION

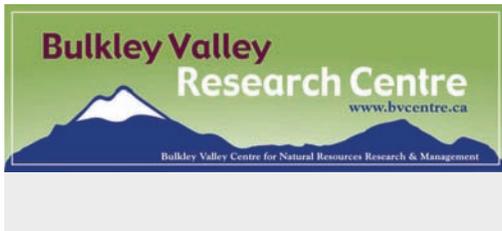
2010 has been a year of change at the Centre as we continue to seek alternate research/funding opportunities since the demise of the Forest Sciences program. We have had some success on the topics of climate change and fisheries, which has added to our membership base as well. We very much appreciate everyone's ideas and support and look forward to further dialogue in 2011 as the Centre continues to adapt to a changing sociopolitical environment.

**INTERDISCIPLINARY CLIMATE CHANGE
ADAPTATION* RESEARCH FOR FOREST AND
RANGELAND ECOSYSTEMS**

* CLIMATE CHANGE ADAPTATION: INITIATIVES AND MEASURES DESIGNED TO REDUCE THE VULNERABILITY OF NATURAL AND HUMAN SYSTEMS AGAINST ACTUAL OR EXPECTED CLIMATE CHANGE EFFECTS (IPCC 2007).

Over the past year, Don Morgan and Dave Daust have been involved in designing and implementing a "multi-scale, transdisciplinary vulnerability assessment," using the Nadina Forest District as a case study, funded by the Future Forest Ecosystems Scientific Council (FFESC). The FFESC was established in March 2008 to guide the allocation of a \$5.5 million grant-in-aid to research that supports the objectives of the Future Forest Ecosystems Initiative (FFEI) namely, adaptation of the forest and range management framework to climate change.

As its name suggests, the project is likely more multi-faceted than anything we have seen before. In a nutshell, it connects climate change specialists, social and ecological scientists, decision-makers, and citizens, in order to better understand and respond to the changes facing rural resource-dependent communities as a result of climate change. The project has four main parts:



Predicted BGC zones for 1961-1990

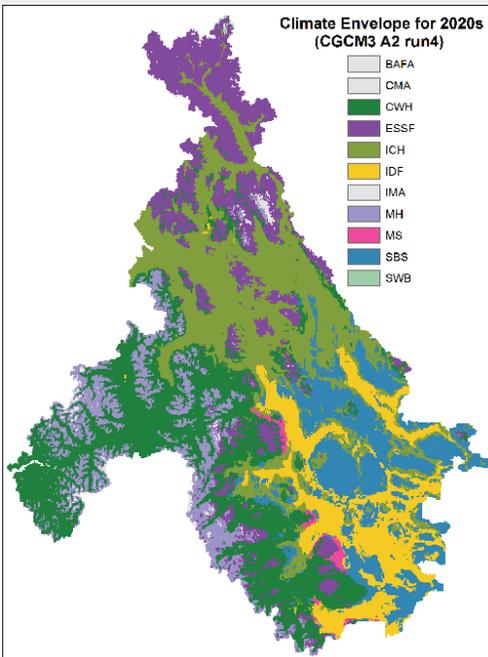
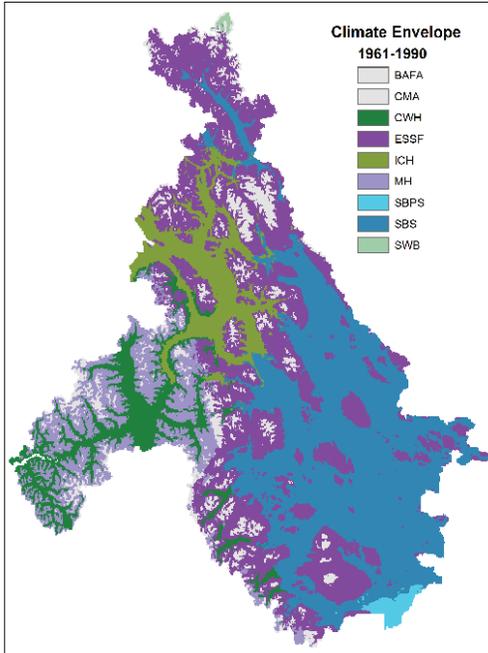


FIGURE 1. PRESENT BIOGEOCLIMATIC ZONES AND ZONES FOR 2020 BASED ON PROJECTED CHANGES TO CLIMATE ENVELOPES FOR THE SKEENA WATERSHED

1. Management Unit Vulnerability Assessment

This component aims to build adaptation capacity and addresses the general question: What will broad changes in ecosystem composition and function mean for ecosystem values such as representative ecosystems in protected areas, species at risk, regionally important wildlife, biodiversity, and timber supply? The Nadina Forest District’s existing forest management plans identify socially valued ecosystem services. Participants at an April 2010 workshop highlighted three broad ecosystem services for further examination. Subsequently, three workshops held in November 2010 assessed the potential impacts of climate change on biodiversity, trees and timber, and hydro riparian ecosystems. Note that in the context of this project, vulnerability refers to the degree to which a system is susceptible to, or unable to cope with, adverse effects of climate change, including climate variability and extremes. Vulnerability is a function of the character, magnitude, and rate of climate variation to which a system is exposed, its sensitivity, and its adaptive capacity. (Intergovernmental Panel on Climate Change IPCC).

2. Management Unit Adaptation Policy

This part of the project is focused on adaptation planning. Workshops with government, industry, First Nations, and citizenry will be held in February 2011 to examine vulnerabilities related to existing land-use plans and to explore options for adaptation. A series of climate change narratives will be used to communicate the extent and uncertainty of climate change in the Nadina study area and the related vulnerability of ecosystem services, based on the results of part one. Figure 1 (see sidebar) provides an example of the projected changes in climate envelopes that have been modelled for the Skeena region, which are pivotal to this discussion.

3. Multi-scale Transdisciplinary Vulnerability Framework

Ecosystems are typically considered in hierarchical scales, for instance, stands, landscapes, and biomes. Similarly, management policies that influence ecosystems are created at multiple levels, including national, provincial, regional, and local. Scientific assessments typically focus on a single domain of knowledge, such as silviculture, and may consider only one of these ecological scales. Multidisciplinary, cross-scale and cross-level interactions generate complexity that has been a challenge to assess and manage for.



**FIELD NOTES:
CURRENT TOPICS IN
RESEARCH MANAGEMENT**

The Bulkley Valley Research Centre has a regular Friday noon hour spot on the Smithers Community Radio (CICK 93.9) for discussions on issues relating to natural resources in northwest BC. Email the Centre, www.bvcentre.ca, or phone 250-847-2827 for information on the topic of the week and/or to offer to participate.



FUNDING OPPORTUNITIES

Are you seeking funding for your project? Check out the opportunities on the Funding page of the Centre's website www.bvcentre.ca under the tab Research. Here it lists a number of funding sources with their deadlines.

COMPLEX SYSTEM CHARACTERISTICS

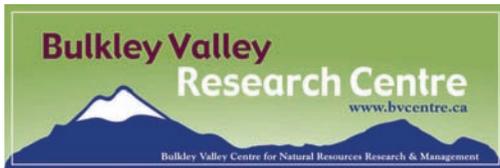
Characteristic	Description
Undetermined Boundaries	boundaries of the system are difficult to determine and are open to external influences
Interacting Parts	parts interact with one another and their environment over multiple scales of time and space
Feedbacks	interactions may be strong or weak and can be modified by feedbacks that are either positive (amplifying) or negative (dampening)
Non-linearity	interactions are non-linear with minor changes producing disproportionately large and unpredictable changes
Memory	system's have history, the elements evolve with one another and past system states influence present and future system state
Emergence	complex systems arise from simple interactions - the whole is greater than the sum of the parts
Self Organizing	pattern at the global level of a system emerges solely from numerous interactions among the lower-level components of the system with out being guided by an external source

Decisions or ecosystems processes, which operate at different scales than the management unit under assessment, could be critical for interpreting and designing relevant forest management adaptation policy for climate change.

A multi-scale transdisciplinary vulnerability assessment framework facilitates understanding and evaluation of interactions across social (decision-making) and ecological domains and helps explain differences in vulnerabilities among regions. The framework will address questions such as how do vulnerabilities between two regions compare, what is the source of the differences, which ecosystem services are more vulnerable, and how do decisions at different scales interact synergistically

4. Livelihood Assessment

This final component of the project will test methods to support adaptation of communities to climate change using the concept of sustainable livelihoods. A livelihood is considered sustainable when it can cope with and recover from stresses and shocks, and maintain and enhance capabilities while not undermining the natural resource base. Livelihood assessments describe how people influence or are influenced by the world around them; they clarify the links between people, communities, employment, resources, and climate change. By clearly defining the problem, and engaging people to be part of the re-jigging process, adaptive capacity can be developed. In particular, this project intends to engage First Nations communities meaningfully in this process.



LIBRARY AND FIELD EQUIPMENT FOR LOAN TO MEMBERS

The Centre has received donations of a number of books and journals that are available for loan to members. It also has an inventory of a range of field equipment that is available for use by members. A full list of what is available is on the Centre website under the tab *Media Centre, Items of Interest*. The following are examples:

LIBRARY

- A Biologist's Guide to Mathematical Modeling in Ecology and Evolution. *Otto, Day.*
- Planning on Uncertainty. Decision making in Business and Government Administration. *Ruth P. Mack*
- Carbon Management in British Columbia's Forests. Opportunities and Challenges. FORREX Series 24
- Journal of Wildlife Management. January 1954 – August 2007
- The Mountain Pine Beetle. A Synthesis of Biology, Management and Impacts on Lodgepole Pine.
- The Canadian System of Soil Classification – Third Edition 1998
- Statistical Computation for Environmental Sciences in R – Lab Manual for Models for Ecological Data. *James S. Clark*

FIELD EQUIPMENT

- Tree ring counter and accessories
- Belt and disc sander
- Compasses
- Diameter tapes
- GPS
- Collapsible and extendable saws
- Cruisers vests
- Height Pole
- Clipboards & Field Binders

This project is reminiscent of the Old Growth Strategy and Protected Areas Strategy public involvement processes of the 1990s. Current tools of analysis are much more sophisticated but fundamentally meaningful change still appears to initiate at the local level. According to Jim Pojar, who participated in the Nadina Management Unit Vulnerability Assessment, this process strives for more broad-based engagement than those of the '90s. Whether the political will is there to expedite the process and follow through on recommendations remains to be seen.

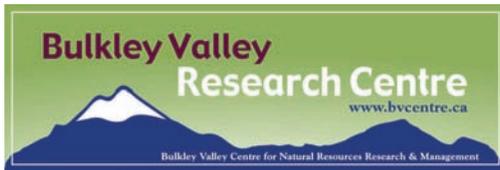
For more information on the project, go to http://bvcentre.ca/research/project/a_multi-scale_trans-disciplinary_vulnerability_assessment/

ALANA CLASON WINS 2010 IRVING FOX MEMORIAL SCHOLARSHIP

Alana Clason, no stranger to Bulkley Valley Research Centre members and many others in the Bulkley Valley, is this year's recipient of the Irving Fox Memorial Scholarship.

Originally from Ontario, Alana first came to BC on a high school trip to Vancouver Island, which persuaded her to return one day. In 2002 she fulfilled this wish by enrolling in UBC's Forest Sciences program where she studied for her B.Sc. During this time, she spent two summers in the Bulkley Valley as a field research technician for a UBC PhD candidate, studying the breeding ecology of songbirds on Hudson Bay Mountain. She lived in one of the ski cabins on the mountain, and determined to return to the Bulkley Valley.

Alana's interest is in pursuing a career in natural resources research, with a focus on northwest BC. As a native of Ontario, BC's diversity of landscapes has always amazed her. After graduating from UBC in 2007, and spending most of a year gaining experience as a field assistant in both the Yukon and Panama, she enrolled in the University of Alberta's Department of Renewable Resources to study for a master's degree in forest ecology. The focus of her master's studies was ecosystem change in northwest BC, specifically on changes over time in whitebark pine (*Pinus albicaulis*) – lichen ecosystems. To pursue her chosen field



BOARD MEMBERS (2010-2011)

Laurence Turney,
President

Don Morgan,
Vice-president

Brian Edmison,
Treasurer

Irene Ronalds,
Secretary

Phil Burton

Deborah Cichowski

Rosemary Fox

Sybille Haeussler,
Past President

Anne Harfenist

Andrea Kosalko

Bob Mitchell

Tony Pesklevits

For more on our board and staff
visit *Our People*
on the Centre's website
www.bvcentre.ca

of study, Alana contacted the Bulkley Valley Research Centre and made contact with Bulkley Valley researchers, who helped her apply for, and secure an NSERC scholarship. This enabled her to return to the Bulkley Valley (one of her ambitions), where whitebark pine, a blue-listed species in BC, occurs at the northern edge of its range. The Centre made space for her, and she was able to work out of the Bulkley Valley Research Centre office as an Adjunct Researcher.

Alana received her M.Sc. this year, and has now enrolled in a PhD program at UNBC with the aim of extending her master's work on whitebark pine ecosystems.

Alana has particularly impressed her professional colleagues with not only her intellect and exceptional organizational and analytical skills, but also her determination and ability to get to where she wants to go. To quote a colleague, "Alana is a very determined self-motivated person and my observation is that she almost always succeeds in what she sets out to do but when faced with a setback she digs in and figures out a solution."

Alana's connection with the Centre is an excellent example of how the Centre can work to assist researchers in the field of natural resources, at the same time adding to the understanding of ecosystem function in northwest BC, which in turn informs management agencies, the scientific community and the public on the wise use and conservation of ecosystems found in this region.

In addition to her academic work, Alana is active in the Bulkley Valley community. Amongst other things she's a knitter and spinner, and enjoys hiking and canoeing, and gardening. She and her husband, Mark Wong, live in a log home at Evelyn, just outside Smithers.



ALANA ON HANKIN PLATEAU