

FEATURED ARTICLES

WHITE BARK PINE
 RESEARCH NEWS 1

SECOND COMPLEXITY
 WORKSHOP 3

AGM 2010 4

CHANGES TO THE
 BOARD EXECUTIVE 4

BULKLEY VALLEY
 RESEARCH CENTRE
 AWARDS 5

WHITEBARK PINE RESEARCH NEWS

Whitebark pine (*Pinus albicaulis*) has recently been listed by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) as a threatened species due to its exposure to multiple stresses (fire suppression, climate change) and disturbances (white pine blister-rust, mountain pine beetle). Formal “listing” of this species presents a double-edged sword – the species is considered to be facing extirpation, yet COSEWIC status opens up opportunities to study the species, and thus better understand its ecology and restoration potential. The whitebark pine-dominated ecosystems of west central British Columbia lie at the northwest limit of the tree’s range on the remote, unroaded eastern slopes and foothills of the Coast Mountains south of the Skeena River. These dry, open forests have distinctive white carpets of *Cladina* (reindeer) lichens and are considered to be hotspots of biodiversity and biocomplexity within a forest landscape that is dominated by dense, often monospecific stands of subalpine fir with shaded mossy understories.

The response of ecosystems to changes in environmental conditions is typically non-linear. Instead of shifting incrementally, ecosystems often display threshold-type behaviour whereby significant events serve as tipping points, precipitating a sudden switch from one state to another. A massive event such as the mountain pine beetle (MPB) outbreak that recently spread through BC provides an unparalleled opportunity to investigate such tipping point behaviour in forest ecosystems.

In 2007, scientists from the Bulkley Valley Research Centre, UBC Forest Sciences Dept and the BC Ministry of Forests and Range undertook a one-year study to demonstrate tipping point behaviour in whitebark pine-lichen ecosystems south of Smithers. They hypothesized that cumulative effects of MPB, white pine blister rust, fire exclusion and climate change would cause Pine-Lichen ecosystems to shift towards mesic Subalpine fir-Hemlock-Moss ecosystems with a net loss of ecosystem diversity across the subalpine landscape.

The results were decidedly equivocal: three study sites showed evidence of a shift towards mesophytic vegetation over 25-30 years, whereas two sites had increases in lichens and associated oligotrophic species. The net result was no significant change in ecosystem condition across five study sites and no statistically significant evidence of lower ecosystem diversity.



Photos of whitebark pine research plot near Coles Lake, with ingrowth of mountain hemlock apparent in more recent photo.



BULKLEY VALLEY RESIDENTS WIN ABCFP AWARDS

The Association of BC Forest Professionals (ABCFP) recognized two residents of the Bulkley Valley at its AGM and annual awards ceremony in April.



Centre member and past board member **Dave Wilford** received the Distinguished Forest Professional award, the highest honour the ABCFP gives to its members, for his “prolific contributions to the understanding of forest hydrology. He has enjoyed a productive career as a forest hydrologist (someone who studies water in the forest—how water from rain and snowmelt moves through forests, forest soils and streams) with the BC Ministry of Forests and Range. To this day, Dave is excited about doing the research that helps forest professionals manage BC’s forests.”

Our congratulations, Dave!

The researchers then hypothesized that a threshold exists at which, Pine-Lichen ecosystems below the threshold shift into the mesic Fir-Hemlock-Moss stability domain, whereas ecosystems above the threshold retain their distinct soil and vegetation features after MPB outbreaks through positive plant-soil feedback processes. Rather than becoming homogeneous, the ESSF landscape should thus retain nodes of highly resilient Pine-Lichen woodlands within a matrix of Fir-Hemlock-Moss forest. They refer to their revised hypothesis as the ‘Wal-Mart’ hypothesis because an analogous situation arises when highly competitive chain stores move into a retail landscape: local businesses that are not sufficiently distinctive go under, whereas specialty stores often demonstrate high resilience and enhanced competitiveness by increasing their distinctiveness from the superstore.

Graduate student Alana Clason who holds an NSERC Industrial Scholarship jointly at the Bulkley Valley Research Centre and the University of Alberta is testing aspects of the Wal-Mart hypothesis by re-measuring vegetation at existing 25– to 30-year old ESSFmk/02-03 Biogeoclimatic Ecosystem Classification plots within the study area. She is trying to better understand:

1. how these whitebark pine ecosystems have changed over time in relation to each other and to a reference (ESSFmk/01) ecosystem; and
2. how overstory-understory relationships within ESSFmk /02 ecosystems vary across site types to determine how ongoing changes to the overstory may influence understory communities and regeneration in these stands.

Alana’s research results will guide forest management activities seeking to enhance the ecological resilience of the future forest.

As you read this, Alana is likely deep into her thesis writing. As her work progressed this spring it became obvious that her master’s thesis was just the beginning. She has recently been accepted by NSERC for PhD funding. Alana has chosen UNBC and Phil Burton as her institution and advisor, respectively. Her PhD work will take a broader perspective and employ forest modelling techniques to take a look at the future of whitebark pine across its range in North America, and to identify opportunities for restoration.



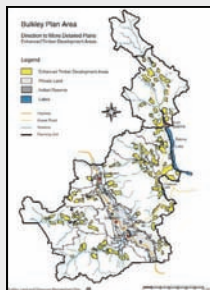
Whitebark pine field crew at Coles Lake study area, just north of Ootsa Lake: Andrew Sheriff, Alana Clason, Sybille Hauessler, Beth Henderson. (The water was marvelous!)



BULKLEY VALLEY RESIDENTS WIN ABCFP AWARDS - continued

The ABCFP also recognized Bulkley Valley resident **Tim Toman** with the ABCFP Honourary Members Award, the highest honour the ABCFP gives to non-members of the association. Individuals presented with this award are made members of the association to honour them for what is usually a lifetime of work for the betterment of forestry in BC.

Tim Toman is a dentist and woodlot owner. He was on the first Bulkley Valley Community Resources Board and helped to develop the Bulkley Valley Land and Resources Management Plan (LRMP) during the 1990s. He has been a strong believer in giving the community a voice when it comes to forestry issues, earning the respect of forest professionals and community members alike.



SECOND COMPLEXITY WORKSHOP

On February 19, the Bulkley Valley Research Centre held the informal, participatory workshop Complexity in Everyday Life. The workshop explored new approaches for solving complex problems encountered in work, civic affairs and day-to-day life and was a follow-up to our successful 2009 Complexity Science and Global Change workshop. It was intended to be less technical and more interactive and to appeal to a broader cross-section of the community than the earlier event.

The workshop began with an introductory talk by Richard Overstall on social networks (not quite the same as Facebook and Twitter, but certainly related!) and featured several group exercises and a lengthy discussion session. The discussion topics ranged widely and included the relevance of complexity science to everyday life, as well as more scientifically focused subjects such as complexity science and resilience research.

One participant, Debbie Wellwood, said afterwards that the discussion helped her to build on her ideas about grizzly bear management. "Effectively maintaining or restoring grizzly bear populations in BC in the face of expanding developments and increasing human activities, along with the uncertain effects of climate change, clearly poses a significant challenge for biologists, planners and managers.



NINJA BEARS—PHOTOGRAPHER UNKNOWN

As researchers," Debbie says, "I think we tend to oversimplify our approach to understanding the effects of the interactions of bears with other bears, other species and their environment. Bears are clearly not part of a simple system. At the same time, grizzly bear populations and their associated interactions don't fit within the concept of a chaotic system either; a chaotic system infers that nothing can be done to reduce uncertainty in our predictions about what may or may not help to improve a given situation. When it comes to understanding and managing for current and future cumulative effects of human activities on bears, or predicting the effects of change, the limitations of a reductionist approach are



NEW BOARD MEMBERS

Tony Pesklevits

and his wife Lisa moved to the Bulkley Valley in 2008. He works with



ILMB's First Nations Initiatives Division building collaborative agreements between government and First Nations on land use and resource management, shared decision-making, resource revenue-sharing, and governance.

Before joining the BC government in 2007, Tony spent nine years at Acadia University in Nova Scotia, leading an environmental field research program to develop a strategic research plan for the Southwest Nova Biosphere Reserve. Tony completed a graduate degree and post-graduate research at Dalhousie University focused on complex-systems approaches for conserving and restoring eastern old-growth forests. His research interests focus on collaborative governance, community resilience, conflict resolution, and locating the prime fishing holes in the greater Skeena watershed.

In his free time, Tony is a chainsaw ecologist with a passion for ecoforestry, counting tree rings, and making sawdust.

clear. On the other hand, if we do more to explore our assumptions about grizzly bears within the context of complexity science, we will open doors that increase opportunities for better decision making."

The organizers (Sybille Haeussler, Don Morgan, Richard Overstall, Jim Pojar, and Debbie Wellwood) thank all who participated and hope that they found the session rewarding. A series of interest articles have been posted in the "Events" section of our website

(http://bvcentre.ca/events/detail/complexity_in_everyday_life_a_participatory_workshop/). Anyone can post articles or comments on this page by sending an email to info@bvcentre.ca. We will not be publishing proceedings from the 2010 workshop; however, the 2009 proceedings are now available as a joint UNBC/BVRC publication (<http://www.bvcentre.ca/files/Conferences/Complexity/NRES-OP-05-Haeussler-Thorpe-2010.pdf>).

AGM 2010

This year's annual general meeting took place on March 22 at the Trakside Cantina in Smithers, and was attended by about four dozen people. As in previous years, it was preceded by an informal get-together which, judging by the decibel level of voices and laughter, was much enjoyed.

Sybille Haeussler, the Centre's outgoing president, conducted the AGM at a brisk and efficient pace to allow more time for the presentation of awards and more socializing afterwards.



Outgoing board members **Brian Fuhr** (who wants to spend more time sailing in his well-earned retirement from government service) and **Jim McCormack** of Canfor were thanked for their contributions to the Centre. **Tony Pesklevits** and **Andrea Kosalko** (see side columns), were voted in as two new board members.

CHANGES TO THE BOARD EXECUTIVE

Sybille Haeussler has stepped down from the role of president after leading the board for six years. As president, Sybille was the public face of the Centre and raised our profile by actively promoting the organization at conferences and meetings. She also oversaw the board's transition from one that ran the Centre's day-to-day operations while developing basic policies, to one



NEW BOARD MEMBERS - continued

Andrea Kosalko is the School of Exploration and Mining manager at Northwest Community College. The school is built on partnerships between industry, the college and First Nations, backed mainly by funding from the provincial and federal governments. Andrea has coordinated the school since its inception in 2005 and it has won several awards for its partnerships, program design and contributions towards building sustainable communities.

Andrea would like to see communities maximize benefits from exploration and mining and sees this realized through research identifying further opportunities for the North.

Andrea's educational background is business administration and she holds a BA honours degree from Bournemouth University in the UK.



that focuses on strategic direction with a staff that manages the research program. Sybille will remain on the board and, we are sure, will continue to encourage us to explore new areas of research. Thank-you, Sybille, for all of your hard work.

Laurence Turney has stepped into the role of Centre president. Laurence is a wildlife biologist with a B.Sc. in zoology from the University of Victoria, and has worked for consulting firms and government in a wide variety of disciplines and geographic areas. His consulting company Ardea Biological Consulting Ltd. has worked closely with government, forestry and the mining industry completing research, inventories and environmental assessments for the last 20 years. He has spent time in the Queen Charlotte Islands and Beaufort Sea working on seabirds and marine mammals, and also spent five years with the Department of Renewable Resources in Yellowknife, NWT, working in the areas of policy and planning, land use planning and geographic information systems. Laurence has been a board member since 2007.

Anne Harfenist, who has continuously and efficiently been the board secretary since the Centre's inception, handed over the reins to **Irene Ronalds**.

BULKLEY VALLEY RESEARCH CENTRE AWARDS

At its annual general meeting each year, the Centre honours the successful candidates for its awards. The two awards that were presented this year reflect the Centre's growing interest in salmon sustainability, and the need for research in this area to improve the understanding required for sustainable management. Sockeye returns for the Skeena River last fall were roughly half their projected numbers. "The BVRC, as part of our diversification efforts, has become more actively engaged in salmon research. This area presents an exciting new opportunity and we are receiving much positive recognition in this area and are expected to be a key agency in moving forward with Skeena salmon habitat research and management," Centre research program manager Rick Budhwa told the four dozen people attending the AGM.

The **Jim Pojar Award** recognizes publications that have come out in the past five years that improve scientific understanding or public appreciation of the ecological, social or human dimensions of natural resource use in northwestern BC.

This year, the award went to University of Alberta researchers **Martin Krkošek** and **Mark Lewis**, and northwestern BC fisheries biologists **Allen Gottesfeld**,



INTERFACE CONFERENCE

Planning for the Crown-Settlement Interface Lands

Conference and Workshops

Smithers, British Columbia

June 16 - 18, 2010

www.bvcentre.ca/interface2010



SHORT-TERM HIRING POLICY

Periodically, the Centre has short-term work arise, often with a quick deadline and very little notice. The tasks may involve field or office work. If you are interested in such work, please make sure that we have your resume with a short (no more than one page), point-form summary of the types of work that you are qualified for and would consider.

We will continue to send out announcements and run hiring processes for contracts over \$5000.

Bart Proctor, Dave Rolston, and Charmaine Carr-Harris for their paper, "[*Effects of host migration, diversity and aquaculture on sea lice threats to Pacific salmon populations*](#)", published in 2007 in the Proceedings of the Royal Society, Series B 274, 1341-3149. The paper was instigated by Martin Krkošek's PhD dissertation at the University of Alberta.

Published in a prestigious international journal, this paper is based on three years of data from juvenile pink salmon near the mouth of the Skeena River, coupled with a sensitivity analysis of a locally parameterized salmon population model. Based on sea lice concentration thresholds that are projected to bring about salmon population collapse under different conditions, the authors suggest that the evolution of "migratory allopatry" (the period of spatial separation between adults and juveniles that defines the anadromous salmonids) is the result of strong natural selection favouring the avoidance of parasites and diseases being transmitted from adults to young. However, contrary to the diversity-begets-stability paradigm, the authors also suggest that more diverse food sources can support high levels of parasites and pathogens, thereby inducing system collapse rather than system stability. Not only does the paper reinforce the observable dangers of increased sea lice populations associated with salmon aquaculture, it also offers an explanation as to why the salmon life cycle might have arisen, and how manipulation of this complex system based on imperfect knowledge can lead to unfortunate results. All in all, it makes a valuable contribution to our understanding of both evolutionary and management issues.

In view of the ongoing debate regarding the fate of wild salmon stocks, and the degree to which open-net fish farms may be contributing to high sea lice populations that in turn stress those wild salmon, the paper may be considered controversial. However, its assumptions are clearly stated (and, indeed, seem to make an effort to balance the uncertainties involved), other data sources used in model development are clearly identified, and the research on which it is based was funded from a balanced range of sources. Furthermore, the question and its results are placed in an interesting framework of evolutionary biology and ecological theory that make it very exciting. In short, this paper constitutes good, repeatable, and stimulating science, the kind of regionally and socially relevant research that the Bulkley Valley Research Centre is honoured to recognize.

(This year's Award Evaluation Committee members were Phil Burton, Sybille Haeussler, Rick Budhwa, and Mark Shrimpton from UNBC.)



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

The second annual recipient of the Centre's **Volunteer Distinction Award** is local lawyer and Centre member **Richard Overstall**, whose tireless volunteer work made last September's Skeena Salmon Habitat Conference a reality. This conference brought some of the Northwest's top salmon experts to Smithers and has helped the Centre become an important agency in moving forward in salmon research and management.

Richard is a long-time resident of the Bulkley Valley with wide experience in issues relating to the use of natural resources. He initially graduated from university with a degree in geology, after which he spent ten years as a mineral exploration geologist in Ireland and Western Canada. He later worked in farms, sawmills and construction in the Bulkley Valley. These experiences led to a deep interest in public interest environmental work, seeking more environmentally sustainable logging practices and less polluting mining practices. He worked for many years with the Gitksan and Wet'suwet'en peoples, including coordination of the scientific evidence in the Delgamuukw trial, and advice on the subsequent settlement and treaty negotiations, particularly in the areas of forest and land use.



Richard received a law degree at the University of Victoria in 2000 and is currently a partner in the law firm Buri, Overstall in Smithers. He is a trustee of the Babine Watershed Monitoring Trust, as well director of the Northwest Institute for Bioregional Research, West Coast Environmental Law, and the Silva Forest Foundation. He is also legal adviser to SkeenaWild Conservation Trust and a Fellow of the Environmental Law Centre at the University of Victoria.



**HAVE
A
GOOD
SUMMER**