



Jane Hoek, Tyee Photo

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NEW SUPPORT PERSONNEL

Aaron Trowbridge

is our new
Junior Researcher.



He brings to the Centre expertise in biogeoclimatic ecosystem classification and mapping, and soil classification and mapping, as well as a special

interest in the integrative aspects of science, culture and the environment within the Pacific Northwest region. Aaron has worked with several B.C. consultants in the ecology and terrain sciences, most recently providing ecosystem and soils mapping services on environmental impact assessments within the mining industry.

Amanda Follett,

our new
Research Program Associate,



joined us in January. She helped organize the Centre's Complex Stands Conference and

the Innovative Monitoring Conference (see P. 4), and has edited a draft field guide on secondary structures in mountain pine beetle affected landscapes. She grew up in Toronto, Ontario, and graduated from Carleton University's Bachelor of Journalism program in 1997. Since then she has worked as a reporter and assistant editor at the Canmore Leader until moving to the Bulkley Valley in 2006.

The BV Research Centre has some exciting projects lined up this year, taking us into the social sciences field for the first time, as well as into the complexities of the ecological impacts of climate change. A study of historic Gitksan Berry Patches will be led by Rick Budhwa. Jeff Anderson is beginning a study of the impacts of climate variability on forest health and Craig Nitschke will be assessing ecosystem vulnerability in relation to climate change.

EXPANDING AREAS OF RESEARCH

GITKSAN HISTORIC BERRY PATCHES

The goal of this study is to identify the locations of historic managed berry patches for five different watersheds in the Gitksan traditional territories, and to provide a contextual research report. The map that will be produced is a key element in a strategic berry management plan for the Gitksan territories being developed as part of a larger program to identify and address forest restoration and enhancement priorities in Gitksan territories within the Kalum, Nass, Cranberry and Kispiox Timber Supply Areas. That program is part of the Northwest Forest Restoration and Enhancement Program of the Gitksan/BC Government Short-Term Forestry Agreement.

In the first phase of the project existing literature, including Delgamuukw case files and other scientific research, will be reviewed for information pertaining to the locations of all historic berry patches within the Gitksan traditional territories. Base maps will be prepared to show approximate boundaries of berry patches according to literary sources, including key reference features such as streams, lakes, wetlands, cultural trails, and old village sites with their place names.

The second phase will engage Gitksan chiefs, elders and other traditional knowledge holders in a process that will ratify the boundaries of berry patches shown on the base maps, and the capture of additional important managed berry patches on these maps. With the assistance of five Gitksan watershed administrative bodies, a database of literary and oral information regarding the locations and, if available, the relative value (in a watershed context) of berry patches will be created. Linked to the database will be a digital map compiled of historic berry patch locations based on literary and oral sources of information.

NEW STAFF SCIENTIST



Dr. Rasmus Astrup joins the Centre as *Senior Scientist*.

Rasmus' main research area is stand dynamics and growth predictions for complex mixed-species stands.

He is currently involved in several research projects that relate to topics such as quantifying individual tree competition across resource gradients, utilizing remote sensing techniques to parameterize process-oriented growth models, quantifying and predicting regeneration and secondary structure after Mountain Pine Beetle attacks, developing and evaluating SORTIE-ND as a growth model for complex stands, and incorporating uncertainty into decision making for complex stands.

Rasmus was born in Denmark and obtained his BSF at the Royal Agricultural and Veterinarian University in Copenhagen. He obtained his Ph.D. in quantitative silviculture and growth modeling at the University of British Columbia.

LINKING *DOTHISTROMA SEPTOSPORA* TO CLIMATE VARIABILITY THROUGH A PALEOCLIMATE PERSPECTIVE

In 2005 the linkage between an unprecedented outbreak of the *Dothistroma* needle blight fungus and recent mild wet summers, discovered by Alex Woods and Dave Coates of the BV Research Centre, and their colleague Andreas Hamann of the University of Alberta, provided an explicit demonstration of how anthropogenic climate change coupled with changes in land use practices can transform a formerly benign disease agent into a significant economic threat (see BVRC Newsletter No. 4).

Jeff Anderson, a geomorphologist associated with the BV Research Centre, is now taking those findings a step forward in a new project to examine the relationship between forest health impacts and climate forcing events. Using tree ring analysis, the project will reconstruct paleoclimate in the Kalum and Skeena Stikine Forest Districts in an attempt to develop a relationship between climate forcing events, such as El Nino and La Nina, and the observed *Dothistroma* outbreaks.

High elevation Mountain Hemlock (*Tsuga mertensiana*) and White Spruce (*Picea glauca*) will be collected, processed and analyzed to create a ring-width index from which a climate signal will be extracted. The final output will include an annually resolved ring width index and a response function analysis of growing conditions over the past two-three hundred years from which a link with *Dothistroma* will be based. This project will further incorporate recent work from UNBC that has identified *Dothistroma* outbreaks in *Pinus* species through host- non host tree-ring analysis, as well as recent work from the University of Victoria's Tree Ring Laboratory identifying paleoclimate relationships in the Pacific Northwest. Through a data-sharing partnership these findings, combined with co-located climate chronologies, will be used to link *Dothistroma* and climate forcing events together. This research will also provide a platform for modeling and/or predicting ecosystem responses such as insects, disease, and growth and yield attributes of tree, stand and landscape scale systems. Our next newsletter will report on the progress of this study.

**DAVE COATES
NAMED
FORESTER OF THE YEAR**

Bulkley Valley Research Centre founding member Dr. Dave Coates is the recipient of the Professional Forester of the Year Award, presented by the Association of B.C. Forest Professionals. The award was given for his "outstanding recent service to the forestry profession and for furthering the association's principles".

Coates was honoured for his work on the mountain pine beetle's effects on midterm timber supply. His research looked at alternatives to current salvage supply and pointed out the need for more strategic reviews of the issue. The applicability of the research to forestry practices in B.C. was noted by the association. The award was also based on previous work done with Alex Woods that focused on *Dothistroma* and climate change.

Coates is the first Smithers-based forester to be honoured with the Professional Forester of the Year Award.

Congratulations, Dave!



ASSESSING ECOSYSTEM VULNERABILITY TO CLIMATE CHANGE FROM THE 'TREE - TO STAND - TO LANDSCAPE' LEVEL

Climate change is a stressor that will directly or indirectly influence the processes that impact ecosystems. Currently, projected changes in climate include increasing temperatures, changes in precipitation, and increased frequency and intensity of extreme climatic events. These changes will influence ecosystems via changes in the frequency and intensity of fires, pests and diseases. Ambiguity in predicted changes, along with the conventional management philosophy assuming environmental stasis, has created a situation where resource managers often simply ignore climate change. However, the recent linking of the mountain pine beetle epidemic and the *Dothistroma* outbreak in northwest BC to climate change, as well as the predicted increases in fire season length and severity, have made climate change an increasingly salient issue with forest managers.

Changes in any biophysical component of an ecosystem can alter the stable dynamic equilibrium that exists between biotic and abiotic components, leading to creation of new ecosystems. Ecosystems provide the foundations for sustainable forest management, and any process that results in a restructuring of controlling variables and processes will destroy or weaken the foundation from which current ecological services are provided. A restructuring of controlling variables and processes can shift an ecosystem to a new stable state. The ability of an ecosystem to recover from disturbances and persist under changes in climate is referred to as ecological resilience.

The ability to achieve a sustainable forest industry will rely on our understanding of ecosystem vulnerability to climate change. Gaining an understanding of how climate change may influence ecosystem resilience is also an essential foundation for determining how climate change will influence forest health and condition and growth and yield from the stand to the landscape-level. The study will address this important principle by:

- applying a tree and climate assessment model (TACA) to assess species and ecosystem resilience to climate change in the Sub Boreal Spruce zone near Smithers, BC;
- applying TACA to assess how climate change will impact a site's moisture regime (site type);
- linking the results of TACA to a stand-level forest dynamics model, SORTIE-ND, to predict how changes in site type and species resilience will affect stand-level competition, development and growth and yield under climate change; and,
- using the results from TACA and SORTIE-ND to investigate the impact of climate change and disturbances (e.g. mountain pine beetle, *Dothistroma* fungus, root rot fungus and fire) at the landscape-level.

LARRY PEDERSEN
Deputy Minister of Agriculture and Lands

PRAISE FOR THE MONITORING CONFERENCE

"It was a real pleasure for me to be back in the Bulkley Valley and see so many past acquaintances (and make some new ones). It was a lot of fun being there, tracking the discussion, adding my voice into it and being part of what I thought was an incredibly well organized and relevant workshop.

"Upon entering the standing-room only hall, I was first struck by the incredible depth of talent represented in the room. As I entered, Jim Pojar was waxing eloquent from the podium about the need to bring the community of players into closer collaboration and dialogue as we seek the elusive balance between conservation objectives, development objectives and community needs. And while I was struck by the relevance of all the presenters' topics, I found myself pondering the forces that brought such a diverse range of interests under one roof. It would be easy to say because of the common bond we all share around our interests in resource management, and while there's a truth to that, I think the answer lies in something more organic and unique to the Bulkley Valley. This high quality collaborative dialogue speaks volumes about the maturing of relationships, as people with differing interests in resource management have learned to speak to one another in a respectful manner, with the common aim of improving resource management. I don't doubt that a decade or two ago the discussion wouldn't have gone as smoothly and thoughtfully as what I witnessed during my short visit. I congratulate everyone involved for being part of what I consider one of the most timely and relevant resource conferences that I have attended in recent years - which is quite a few. Keep it up. Only good will come from an accord of civility and common interest!"

In addition to its regular winter seminar series, in February and March the Centre sponsored two major conferences and a workshop. All three were well attended and attracted participants from far afield.

COMPLEX STANDS RESEARCH AND MANAGEMENT, FEBRUARY 19 AND 20, 2007

This conference, which drew over 70 participants, focused on the ecology and management of complex stands - forested areas made up of many tree species with differing ages and layers, which are managed for a variety of purposes.

Topics covered by the presentations included approaches to complex stand management, stand dynamics and succession of complex stands, ecology and regeneration of mountain pine beetle attacked stands, and growth prediction in complex structured stands. Speakers included scientists from New York, the University of Alberta, UBC and UNBC, Victoria and the Bulkley Valley.

Participants included B.C.'s Chief Forester Jim Snetsinger. "I commend the Bulkley Valley Research Centre for facilitating this conference," Snetsinger said. "The management of complex stands will become important as we deal with the challenges associated with the mountain pine beetle and climate change."

SORTIE-ND WORKSHOP, FEBRUARY 21 AND 22, 2007

This workshop followed the Complex Stands Conference, and provided in-depth insight into the stand level simulation model SORTIE-ND. Participants were provided with:

- hands-on experience using the model for simulation of complex stands,
- knowledge of the model's predictive ability,
- knowledge of parameterization approaches and data requirements, and insight into model development.

INNOVATIVE MONITORING AND ITS INFLUENCE ON RESOURCE DECISION MAKING, MARCH 13 AND 14, 2007

The theme of this conference, which was attended by almost 100 people, was "Monitoring - how do results feed back into resource decision making?" Speakers showcased innovative monitoring processes and models, and discussed issues such as why monitor, who should monitor and who pays, how and what to monitor, and where to monitor, with the objective of helping participants become better informed about opportunities for efficiencies and collaboration, and how to use monitoring to improve decision-making.

Proceedings for both conferences will be available in June on the BV Research Centre website.

CHANGING THE CENTRE'S BUSINESS MODEL?

BV RESEARCH CENTRE NEW OFFICE

The BV Research Centre opened an office at **1188 Main Street**, Smithers, with an Open House for members on December 8th, 2006.

This marked an important milestone in the development of the Centre, which until that time had operated out of private homes and offices, and symbolizes our success to date. The office is able to accommodate our growing staff and support personnel, and has room for board and other meetings.



We are grateful for the generous donations of office items by members.

Office Chairs for Board Meetings are still needed.

LOST AND FOUND FROM CONFERENCES & SEMINAR SERIES

"Friends of the Smithers Library" bag with a Yukon, Whitehorse fleece sweater and exercise gear.

"Whitehorse Trading Co." brown travel mug.

A green clipboard with a pad of paper and two photocopied publications.

The Board of the BV Research Centre has begun a review of the business model under which we operate. This review is driven by our growth over the past years to the point that we need an office and several support staff.

The original concept for the Centre was what can be loosely termed a "membership fees" business model, i.e. the assumption that membership fees would largely pay for a staff member to manage the organization and secure new funding. We have actually been operating under a "membership fees /administration fees" model where over half our costs are covered by administration fees from research contracts. Even with current high funding levels, it is a struggle for the Centre to break even as some funding sources do not allow the recovery of overhead costs. We have been using a reserve fund built up during our first two years, when our contracts were managed by volunteers. Clearly, this is unlikely to be sustainable in the long-term.

We have looked at several new business models and, after discussions within the board and with a non-profit governance expert, we feel that a "Consulting Services" model is the most suitable for the Centre. Other organizations, such as the Innovation Resource Centre in Prince George, which runs special projects with the profits returning to the organisation, have been successful with this model.

Some details of the consulting service model:

- BV Research Centre staff would work on projects and the Centre would charge out their services at a day rate for the project that would cover their salary and office overhead.
- Projects should capitalize on the specific expertise of our staff and the Centre's resources and equipment. It should fill existing gaps in the Northwest -to minimize competition with existing contractors and small businesses.
- Substantial integrated research projects that currently are taken on by large outside consulting companies could be pursued by the Centre. The Centre would manage the project, use its staff and sub-contract to local consultants. The Centre would provide a level of coordination that would give local researchers access to the larger projects.
- Socio-Ecological Resilience, First Nations and Community Sustainability research that is presently done piecemeal would be coordinated through the Centre as above.

Transition to a new business model will require two main steps:

- 1) The board and interested members will participate in a visioning session to develop a clear concept of the business model, priorities and implications.
- 2) A formal business plan will be developed that includes a review of how other similar organizations have succeeded or failed, clients and client needs, our capacity (staff and/or strategic partnerships), and products and services.

The visioning session will take place on the morning of May 14, 2007. If you would like to participate by attending please contact Kirsteen Laing. We also encourage you to discuss the idea with any board member.

BOARD OF DIRECTORS

Many thanks to departing Board members Tom Buri, Dave Bustard, Kevin Kriese, Paul Sandborn, Carl vanderMark and Dave Wilford.

Tom, Kevin, Paul and Carl, have been with the BV Research Centre since its beginning in 2002. The hard work of these individuals has been invaluable to the Centre.

We welcome our new board members: Phil Burton, Debbie Cichowski, Brian Fuhr, Jim McCormack and Laurence Turney.

BOARD MEMBERS (2007-2008)

Sybillie Haeussler, President

Don Morgan, Vice-president

Brian Edmison, Treasurer

Anne Harfenist, Secretary

Phil Burton

Debbie Cichowski

Rosemary Fox

Brian Fuhr

Jim McCormack

Laurence Turney

Jim Pojar, Past President

For more on the Board of Directors and BV Research Centre staff and support personnel, go to www.bvcentre.ca/html/board

MAJOR TIMBER GROWTH AND VALUE PROGRAM SYNTHESIS CONFERENCE PLANNED FOR NEXT WINTER

The BV Research Centre will host a major conference focused on the seven major themes identified as priorities within the 2007/08 Timber Growth and Value Program of the Forest Investment Account-Forest Science Program (FIA-FSP). The conference program will address the need for all researchers within the program to congregate to present and synthesize research, discuss the state of knowledge, and identify gaps for future research. We intend to expand the potential audience for extension of the results of program projects beyond the traditional targets (partners, managers, and consultants actively involved in the primary study area) to include academia, First Nations, community representatives and all other interested parties. We feel that this collaborative approach to such information acquisition and sharing will produce an informed knowledge base on which resource management decisions may be based, and result in more holistic and representative interpretations.

The two day conference is planned for next winter. Conference proceedings and web-based results dissemination are being included in the planning. In connection with the conference, the BV Research Centre will create and manage an ongoing "network" of conference participants and other interested individuals. This group of academics, students, resource professionals, consultants, government individuals, and others, will continue to communicate through this newly created network, via an email list, dedicated website and newsletters. This type of extension "monitoring" is an innovative practice that the BV Research Centre emphasizes in all of our extension projects.

Of importance to the success of this conference and associated extension activities will be the involvement of First Nations. The BV Research Centre's traditional knowledge guidelines emphasize First Nations participation at higher levels of research design and implementation. For this conference, First Nations representatives will be on the advisory committee and participate as keynote speakers.

HAVE A GOOD SUMMER

**PLEASE CONTINUE TO CHECK OUR WEBSITE FOR
NEW INFORMATION & UPDATES**

Bulkley Valley Centre for Natural Resources Research & Management

Box 4274, Smithers, BC, V0J 2N0 • Ph: (250)847-2827 • info@bvcentre.ca