branchlines

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In this issue:

UBC Forestry
University of British Columbia

dean'smessage

The unifying theme of this issue of Branchlines is the amazing diversity of the research being undertaken in the Faculty of Forestry. While much of our research is of an applied nature, the Faculty also promotes and undertakes fundamental research and it is critical that we maintain an appropriate balance between the two.

The article by Carolyn Churchland on pages 8-9 shows how basic science can contribute to an applied research issue. She and her colleagues have been looking at how carbon flows from trees into the faunal and microbial communities in the soils of a forest stand. The information gained from this study will provide important guidance on nutrient losses following harvesting, and on the needs of seedlings in harvested areas.

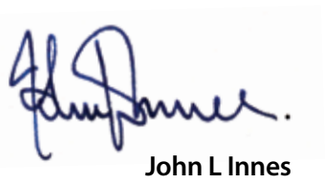
Not all research can be completed in a single field season, and the long-term studies of song sparrows on Mandarte Island are a case in point. Martha Essak describes on pages 14-15 what it is like to take part in a study where many others have gone before. The research has been run for more than 35 years, and many very significant findings have been made. Such long-term research is essential if we are to understand how our ecosystems and the different species within them function.

One of the strategic goals of the Faculty is to increase our engagement with Aboriginal communities. The work of Harry Nelson, Jean-Michel Beaudoin and William Nikolakis fits neatly into this category. In particular, their research partnership to develop the "ABC in Forestry" should help Aboriginal communities identify the goals that they wish to achieve through the economic development of their forest resources. As they state, the project "has the potential to redefine what is sustainable and, consequently, redefine the culture and practices of professional foresters and decision-making leaders".

This issue also again highlights the very different forms of education on offer from the Faculty. Our traditional undergraduate programs continue to go from strength to strength; we currently have more undergraduates than ever before, and this year we had over 1800 applications for approximately 300 places. We are also exploring the possibility of offering summer courses, drawing on the very considerable depth of teaching and research expertise in the Faculty.

Our graduate programs are currently fairly stable, but we expect to see an increase in the number of students in 2012 and 2013 as our new course-based programs start. The article by Robyn Hooper on pages 18-19 indicates a very different type of degree that has become available through increased student mobility links with Europe. In addition to these formal degree programs, we offer a range of other training and we recently completed a training course for young leaders from a range of forested countries around the world (see the news section opposite). We also offer mid-career training for senior forest service administrators, a program that we are hoping to expand.

With such a diversity of research, The Faculty looks likely to continue to be the destination of choice for young scientists from around the world.



John L Innes
Professor and Dean

forestrynews

MegaFlorestais 2012

In June, the Faculty of Forestry co-organized an important training session for promising mid-career officers in public forest agencies from countries as diverse as Brazil, Peru, Cameroon, South Sudan, Liberia, Democratic Republic of Congo, Indonesia and China. The course was organized together with the Canadian Forest Service, the BC Ministry of Forests, Lands and Natural Resource Operations and Rights and Resources Initiative. It focused on governance issues, and participants had the opportunity to learn of the rich diversity of British Columbia's forests and their governance. The course was supported by a range of Canadian and international resource personnel, providing an excellent opportunity for the participants to interact with experienced forestry experts from around the world.

Jenn Burt awarded the Governor General's Gold Medal

Jenn Burt, MSc '12 was awarded the Governor General's Gold Medal at UBC's May 24 Congregation Ceremony. The Medal is awarded to the student with the most outstanding academic record in UBC's graduating class for a Master's degree. At UBC there is only one annual award for approximately 1,000 Master's graduates and one award for more than 300 Doctoral graduates. Jenn's thesis entitled "Influences of parental identity and elevated incubation temperature on the survival, development and early life history traits in sockeye salmon" also won her the Best MSc Thesis Award in the Faculty of Forestry for 2010/2011. Well done Jenn!

Maja Krzic receives Soil Science for Society Award

Maja Krzic (joint appointment between Forest Sciences and Land and Food Systems) has been awarded the Canadian Society of Soil Science (CSSS) "Soil Science for Society Award" for her outstanding contribution towards promoting soil science to the general public. Maja's commitment in bringing soil science to students, community organizations, and members of the general public through the Virtual Soil Science Learning Resource initiative (http://soilweb.landfood.ubc.ca/promo/) embodies the spirit of this award. Maja's award was presented at the CSSS annual conference in Quebec City earlier this month.

Undergraduate enrolment and graduation at an all-time high

This past academic year has seen several records broken in the Faculty of Forestry. Our undergraduate enrolment reached its highest level ever with 686 students. Our previous all-time high was 650 students in 1997. That year we had only 3 international undergraduate students. In 2011/12 we had 127 international students at the undergraduate level – representing 18.5% of our total undergraduate enrolment. This year's graduating class was also the largest ever. We graduated 107 students at the May Convocation Ceremony (51 with BSc degrees in Natural Resources Conservation, 36 with BSF degrees, 14 with BSc degrees in Wood Products Processing and 6 with BSc degrees in Forest Sciences. Janice Burns, BSF '12, was the student speaker at the Convocation Ceremony on the morning of May 24. Following the ceremony, many of our new graduates and family members gathered back at the Forest Sciences Centre for a reception.

Forests and floods: Decades of scientific investigation gone awry


BC Ministry of Transportation

A LONG-ENDURING schism between science and public perception on the topic of forests effects on floods has prompted repeated calls by scientists to educate the public and policy makers. Calls for questioning the science, however, have been rare, perhaps in part due to the political sensitivity of the topic.

Although some dissenting views continue to be voiced, most scientists have argued that there is enough agreement to incorporate select research into management and policy: "Now forest hydrologists generally agree that, although forests mitigate floods at the local scale and for small to medium-size flood events, there is no evidence of significant benefit at larger scales and for larger events" (comment by Ian Calder, University of Lancaster, Nature 2007).

Since little research has been conducted on larger, operationally-relevant watersheds, this "consensus" on how forests affect larger floods predates data collection in research watersheds. This preconception has been reaffirmed by the outcomes of decades of paired watershed studies, rarely exceeding a few km^2 in size. Paired watershed study design, the modus operandi of forest hydrology research, evaluates the effects of harvesting on floods by comparing control and harvested watershed responses corresponding to the same rainstorm, or same annual snowmelt freshet. Relying on this approach, in 2000 Robert Beschta and co-workers at the Oregon State University in Portland (USA) declared "It does not appear that the hypothesis of large increases in flood size peak flows as a result of past and current forest land management practices should rank high on the list of future research questions." contributing further to the perception of no effect of forests on larger floods.

In a 2009 study published in Water Resources Research (WRR), Younes Alila and co-workers at the University of British Columbia challenged the perception of "no evidence" of a relation between forests and large floods in small watersheds as being indefensible, since it is shaped by paired watershed studies that were guided by inappropriate experimental designs. The main flaw with paired watershed studies is the focus on investigating a difference in magnitude between pre- and post-harvesting floods paired by equal freshet or rainstorm input. This type of chronological event pairing (CP) leads to an incorrect change in magnitude because it doesn't account for the fact that floods have changed in frequency as a result of harvesting, and consequently strips a fundamental part of the physics from the science of forests and floods. The attributes of magnitude and frequency of a flood are inextricably linked through an inverse, highly non-linear relation (flood frequency distribution). Forest harvesting induced changes in 1 of these 2 attributes causes a change in the other. The frequency (magnitude) of a specific flood event depends not only on its own magnitude (frequency) but also on the magnitude (frequency) of all other flood events in a historic flood record. Younes and co-workers assert that the question that should guide research on forest

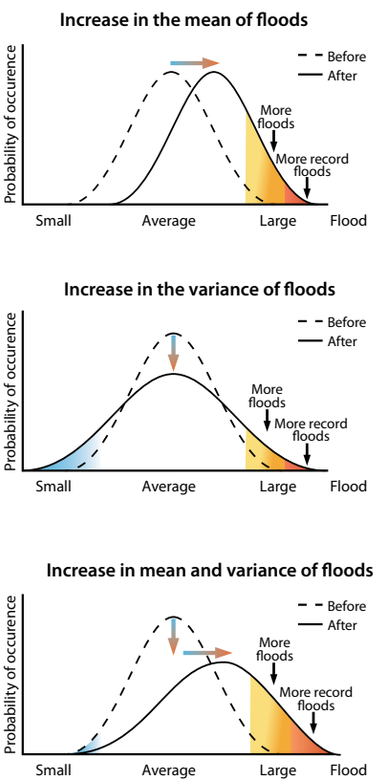
and flood relations is: What is the change in magnitude (frequency) for a peak flow with a frequency (magnitude) of interest? Such an investigation focuses on the difference in magnitude between pre- and post-harvesting floods when paired by equal frequency instead of equal chronology. As illustrated in the figure, to answer this question we must first address the following: How does forest harvesting affect the frequency distribution? Does harvesting shift the mean only, or does it affect both the mean and variance? Does it change the shape of the frequency distribution? In their 2009 study, Alila and co-workers also illustrated how investigations of flood response conducted using CP-based analyses mask the effects of harvesting practices, especially on larger floods. They have called for "an objective re-evaluation of the forests and floods relations by the forest hydrology scientific community," causing government agencies such as the Canadian Forest Service and United States Forest Service to rethink the outcomes and implications of decades of watershed research.

In a 2012 follow up study also published in WRR and spotlighted by the American Geophysical Union, Younes Alila and graduate student Piotr Kuraś re-evaluated a number of long-standing precepts related to the effects of forest harvesting on floods in snow environments. Taking advantage of a well-tested computer model, this study examined the effects of harvesting on floods with return periods of up to 100 years. For their test site at 241 Creek, a 5 km^2 drainage in the Upper Penticton Watershed Experiment (Okanagan, BC), they found that not only did harvesting increase the severity of all floods in the 100 years of simulated record, but that it had a scaling influence on their magnitudes and frequencies. The model showed that the larger the flood, the more its magnitude was amplified by harvesting, with 10- to 100-year floods increasing in magnitude by 9 to 25%. Following a simulated removal of half of the watershed's trees, the authors found that while 10-year floods occurred twice as often, 100-year floods became at least 5 times more frequent. This proportional relation between increasing flood magnitudes and frequencies following harvesting and the size of floods directly contrasts with the prevailing perception in hydrological science and has major implications for the lifespan and safety of structures such as bridges and dams, human settlements, drinking water quality, and the sustainability of river ecosystems.

The outcomes of decades of small paired watershed studies continue to be used to support policies related to timber supply and land-use management over larger basins in hydroclimate regimes worldwide. It is important, therefore, to expose the caveats of past studies and to put an end to using their potentially erroneous outcomes to influence land-use policy. Younes' recent discoveries are consistent with the outcome of his earlier study on the larger Baker Creek Watershed (~ 1600 km^2) commissioned by the Forest Practices Board of BC which made headline news in 2006. Baker Creek is one of the headwater tributaries of the Fraser River. The upper 60% of the areas drained by the Fraser River are heavily affected by the mountain pine beetle infestation and subsequent salvage logging. One cannot say with certainty that this large scale forest disturbance in the upper tributaries translates directly to more risk of the mainstem Fraser flooding in the Lower Mainland. However, the intensification of flood flows in these upper tributary watersheds due to salvage logging will also result in more scouring of their channel beds, increasing the amount of sediment ultimately deposited in the lower Fraser. More sediment deposition (siltation) can raise the river bed and reduce the Fraser's capacity increasing the chances of dikes being overtopped. Younes' frequency pairing new paradigm paves the way to much needed research on forest landuse and flood risk over large river basins in various hydro-climate regimes.

Dr Alila's work challenging current understanding of the influence of forests on floods calls for an urgent re-evaluation of existing forest land use policy; especially in light of a changing climate and wide spread mountain pine beetle infestations affecting the northern boreal forests. These new discoveries also call into question the CP-based ad-hoc concept of hydrological recovery that has guided forest management in BC for decades.

For further information contact Younes Alila at younes.alila@ubc.ca.



Conceptualization of forest harvesting effects on the flood frequency distribution caused by shifts in (a) mean, (b) variance, and (c) both mean and variance (the shape of the distribution can also change but is not depicted here)

Legality requirements and the Chinese wood products industry

THE WORLD'S FORESTS are under enormous pressure and vast areas are being converted to agriculture, human settlements, and heavily degraded lands. Much of the land conversion is considered to be illegal. As concern for forest degradation and deforestation grow, some regions are implementing regulations and laws to prohibit market access to wood products that do not satisfy minimum environmental and social criteria. Two recent initiatives, the United States (US) Lacey Act Amendment and the European Union (EU) Timber Regulation, seek to address these concerns through different avenues.

The US Lacey Act Amendment was passed and became effective in 2008. According to the Amendment, it is unlawful to import, export, transport, sell, receive and purchase in interstate or foreign commerce any plant (including trees) taken or traded in violation of the laws of the US, a US state, or relevant foreign laws. The EU Timber Regulation was passed in 2010 and will be effective in 2013. It prohibits any operators to place illegal timber and timber products on the EU markets.

However, these laws and regulations can only have the desired effect if changes are made by the producers in major exporting regions. China, a major wood products processing and exporting country, has a limited domestic log supply. This makes China a global importer of primary wood products, especially logs and sawn wood, in order to feed the country's very large wood products industry. There is concern that a large proportion of China's imported primary products originate from illegal logging activities. At the same time, the US and EU are importing increasing volumes of Chinese value-added wood products, especially wooden furniture and plywood.

Given these circumstances, a key question is: How will these 2 new regulatory initiatives influence China's wood products industry? Yu Huang (a doctoral candidate in UBC's Department of Forest Resources Management under the supervision of Drs Gary Bull and David Cohen) has explored the impacts of these new global legality requirements on China's wood products industry. A previous article in BranchLines (Volume 22#2) described the purpose, background and proposed methodology for Yu's study. She addressed the issue of regulatory influences on China's wood products industry with two approaches. Firstly, she surveyed 107 wood furniture manufacturers to investigate their knowledge, perceptions and responses. Secondly, for the wood products sector as a whole, Yu used a partial equilibrium trade model (International Forest and Forest Products – IFFP), to examine the potential impacts of the legality requirement on wood products production, marginal prices, imports, and exports. This model was developed at UBC by Drs Steven Northway and Gary Bull.

Results from Yu's survey showed that Chinese furniture producers exporting their products perceived global legality requirements (such as the US Lacey Act Amendment and the EU Timber regulation) as both challenges and opportunities. Most manufacturers considered legality requirements as a green trade barrier that would increase the costs for trade, supply chain management and certification (see chart opposite). They anticipated an increase in prices for raw and processed materials and final wooden furniture products. A small proportion said they would stop selling in the US and the EU markets; however, most would continue to export and seek new opportunities due to the legality requirements. These requirements could also enhance their firms' awareness of environmental and social responsibilities, which could create new export opportunities. Manufacturers would actively make efforts along their supply chain to avoid the risk of market share loss.

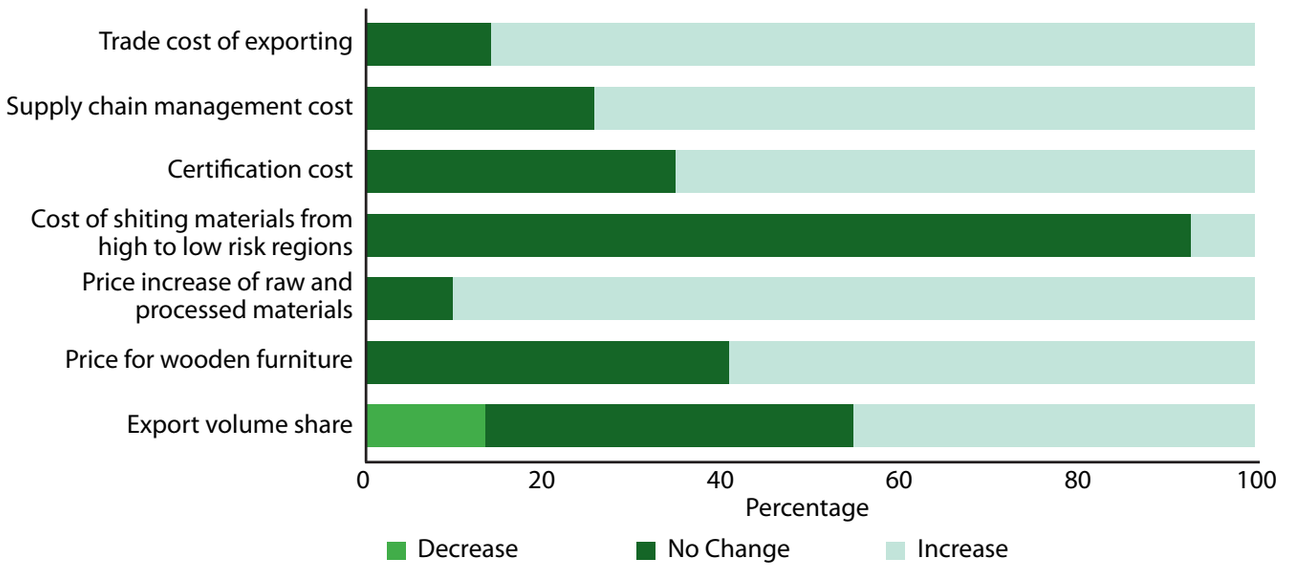
Using the IFFP model to assess the impacts of these new laws and regulations on the wood products sector, we found they will have different impacts on different categories of China's wood products

compared to the status quo. Firstly, China's production, marginal price, and net export of plywood, veneer sheet, and fibre board will decrease (see graph below). Secondly, the production and marginal price of China's sawnwood and particle board will increase, but the net imports, especially the imports from US/EU, will decrease. Thirdly, while China's domestic log harvest will remain unchanged, the import of illegal logs will likely decrease. Fourthly, there will be greater export opportunities in the US and the EU for China's products made from certified wood.

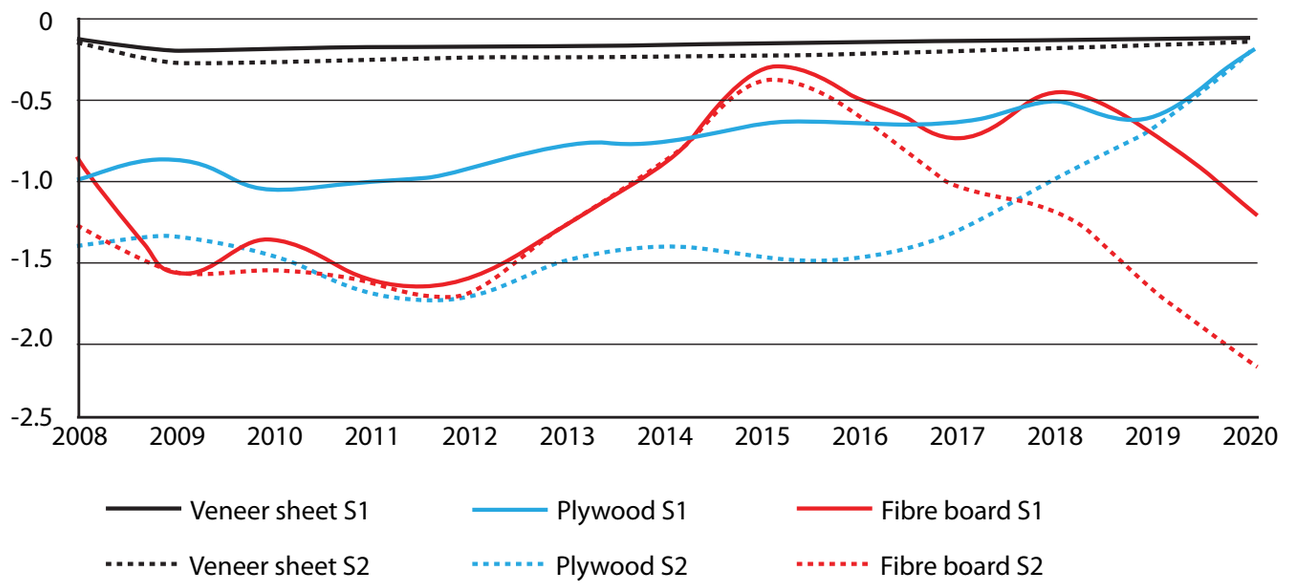
The new regulatory initiatives in the US and the EU will influence all types of firms and wood products industries that export wood products to the US or the EU. In order to fulfill the legislative requirements and avoid the risk of prosecution, China's customers in the US and the EU will increasingly require proof of legally-sourced wood products. It is important that Chinese suppliers enhance their awareness of legality requirements and ensure traceability along their supply chain to ensure legality. Besides enhancing legality awareness, stakeholders (eg government, industry associations, and NGOs) can help the Chinese suppliers use existing tools such as forest certification and legality verification schemes to minimize the risk of having illegally-sourced raw materials entering the supply chain.

This study provides some initial information on a new and growing use of environmental performance to govern market access using regulations and/or laws.

For further information, please contact Yu Huang at huangyu0716@yahoo.com.cn or Gary Bull at gary.bull@ubc.ca.



Anticipated impacts on export cost, price and volume



Impacts on net export of China's wood products: deviation from status quo

Measuring a tree's carbon footprint

Carolyn adds carbon-13 isotope enriched glucose to the stem-injection apparatus

IN THE PAST FEW decades the forest sector has made good progress in developing alternative harvesting techniques to protect endangered birds, mammals, frogs, insects and plants. Whether it is through dispersed or aggregate retention, alternatives to clear-cut harvesting preserve wildlife corridors and support animal communities. What has not been considered is how to best maintain and support the soil faunal, fungal and bacterial communities when harvesting. Soil microbes are responsible for the ecosystem services integral to the functioning of forests; for example microbes decompose plant litter which recycles nutrients back into the soil for plant growth. They also produce and consume gases that can affect the global climate. The fungi that live in close association with tree roots, mycorrhizae, are also integral for seedling growth, improving nutrient and water uptake, as well as maintaining site fertility.

Unlike plants, most soil microorganisms cannot fix their own carbon and so they rely on carbon produced by trees in the form of fallen leaves, branches, and carbon compounds released by roots, to support their growth. In turn, soil microorganisms become the food of soil animals. The carbon released from the roots is typically in the form of simple sugars and organic acids, an easy source of energy for the microbial community. Since carbon is the limiting nutrient for the growth and activity of most soil bacteria and fungi, any carbon released by the roots is quickly absorbed by microbes. In the area surrounding the roots there may be up to 100 times more bacteria than in the bulk of the soil. Trees, such as Douglas-fir, have large root systems that can support large soil microbial and faunal communities. Retaining large trees on harvested sites could maintain pre-harvest soil microbial and faunal communities.

Professor Sue Grayston (Forest Sciences Department) and doctoral student Carolyn Churchland, in collaboration with colleagues at the University of Cumbria and Lancaster in the UK, the University of Saskatchewan, and Lund University in Sweden, have been developing a method to measure an individual tree's range of influ-

ence on the microbial community. Specifically, we are asking: how far into a clear-cut will trees at the edge of an aggregate retention patch support soil bacteria, fungi and fauna? To answer this question we needed to observe the flow of carbon within a forest ecosystem. Observing carbon flow from retained trees into the microbial community and characterizing which groups of microbes are dependent on root-exuded carbon will enable us to assess the ability of live trees to preserve soil microbial and faunal communities on harvested sites.

To label the carbon in trees we had to overcome two hurdles, first what kind of label could we use and second how can you get this label into big trees. We made use of the fact that several elements of biological interest (such as nitrogen and carbon) have 2 or more stable isotopes, with the lightest of these isotopes present in much greater abundance naturally. For example, carbon-13 only comprises 1.1 % of the total carbon on earth and carbon-12 comprises 98.9 %. As a result, manufactured compounds highly enriched in carbon-13 can be used as tracers of carbon in the environment. A second problem was how to get labeled carbon into large trees. Previous studies have used CO_2 gas highly enriched in carbon-13 to label plants and small seedlings in enclosed systems, but this was not feasible with large trees. This led us to develop a stem-injection technique that adds large amounts of carbon-13 directly to the tree. The carbon-13 label moves through the ecosystem naturally. Through observation of carbon-13 being released in soil-respired CO_2, microbial biomass and faunal biomass over time, we are able to observe the flow of carbon in the ecosystem.

The stem-injection technique is relatively simple. A small hole is drilled into the bole of the tree, just past the phloem. Then a stopper is placed in the hole and sealed to the tree with silicone. Two tubes connect the back of the stopper (exposed to the back of the drilled hole, and the tree phloem), one of the tubes connects to a funnel containing a solution of carbon-13 enriched sugars, and the other tube acts as a flow through, ensuring no blockages in the system. The carbon-13 enriched sugar is then allowed to passively incorporate into the tree phloem, and will move throughout the tree, down into the roots, where a small percent of what was added will be exuded by the roots.

Using this method we have shown that trees can support microbial communities up to 20 meters from their base, and can support faunal communities up to 10 meters from their base. Initially the carbon-13 is observed in soil-respired CO_2. This is the result of both root respiration and soil microbial respiration of the root-released carbon. A few days after, the carbon-13 is observed in bacteria and fungi. Within 2 weeks, the carbon label is found in enchytraeid biomass, a small worm-like soil animal. Not only does this method allow us to determine how far into the clear-cut a tree will influence soil microbes, but it also allows us to see how carbon moves through the ecosystem over time.

Stem-injection apparatus


Observing injected label in soil respired CO_2

Although the range of tree influence will vary with tree species, topography and climate, this stem-injection labelling method will allow researchers to determine how to harvest sites in a fashion that best maintains soil microbial and faunal communities. This will minimize nutrient loss and ensure future seedling growth and success.

For further information contact Carolyn Churchland at carolyn.churchland@gmail.com or Sue Grayston at sue.grayston@ubc.ca.

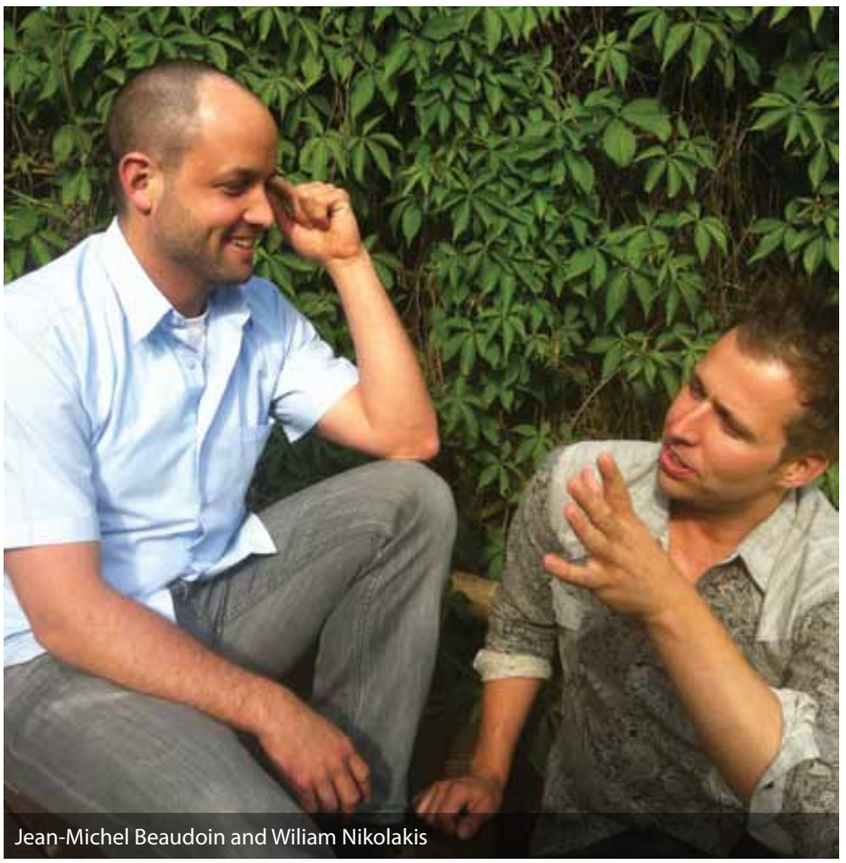
Aboriginal forestry: Visioning and payment for ecosystem services in Canada

Clayoquot Sound, BC

ABORIGINAL PEOPLES ACROSS Canada are becoming increasingly involved in forest-based opportunities. Such ventures improve their level of autonomy, self-sufficiency, socio-economic conditions and, most importantly, increase their control of activities occurring on their traditional territories. In fact, many of Canada's Aboriginal communities are located within commercial forestry zones and the Courts and Governments have encouraged opportunities for Aboriginal peoples to participate in forestry. While economic values are important for Aboriginal peoples working in forestry, there is also an emphasis on cultural and spiritual values as well as on non-timber forest products that support livelihoods. Striking a 'sustainable' balance can be challenging for Aboriginal forest companies trying to create jobs while preserving areas of high value.

It is clear that a profit maximizing view is insufficient and even conflicts with the values of some Aboriginal groups. While the forest sector now includes hundreds of Aboriginal businesses and an even greater number of jobs held by First Nation members, participation rates are low. Major barriers remain for Aboriginal forestry to fully blossom within the Canadian forestry sector. Factors constraining participation include: limited power of First Nations over decision-making processes; timber supplies already allocated to forest companies; difficult market conditions; and a lack of capacity. Documented capacity issues include a lack of institutional support and access to financial capital, as well as constraints around expertise. Such situations make it difficult for First Nations to take advantage of forest-based opportunities. In summary, forestry is not providing the expected benefits for Aboriginal communities. On the contrary, First Nation members believe forestry operations can negatively impact forests and the uses that they desire of forests.

Jean-Michel Beaudoin (a doctoral candidate with Dr Harry Nelson in the Forest Resources Management Department) is looking at ways that Aboriginal communities can mobilize and develop strategies to generate the outcomes that best meet their aspirations for



Jean-Michel Beaudoin and Wiliam Nikolakis

the forests. Jean-Michel will implement a collective visioning and planning process that will help to generate a better understanding of Aboriginal approaches to the economic development of forest resources. The project will explore what kind of economic opportunities Aboriginal communities want to pursue, what existing strengths and needs they have to support them in their actions, and what steps are required to successfully take advantage of the targeted opportunities.

A related project, led by Drs Harry Nelson and William Nikolakis (funded by SSHRC), is looking at the feasibility of Payment for Ecosystem Services (PES) as a way to balance economic and customary aspirations. This work will investigate how PES can coexist with the forest sector in coastal British Columbia for First Nations in Clayoquot Sound. William, a post-doctoral fellow with Harry Nelson, will undertake field work later in the year which will help improve understanding of the decisions and trade-offs made by First Nations around PES (such as carbon) and timber harvesting.

Over the past 2 years, Jean-Michel, William, and Harry have been developing a research partnership. "ABC in Forestry" is a research initiative building collaborations across North America among academics, Aboriginal communities/organizations, governments, and the forest industry. This research partnership is focusing on how Aboriginal communities can identify the goals they want to achieve through the economic development of forest resources and what steps are required to successfully take advantage of the opportunities the communities face. A fundamental objective of the project is to understand how the social, environmental, and economic characteristics of Aboriginal communities affect their engagement and success in economic development of forest resources.

At regional and national scales, researchers in this partnership will identify those macroeconomic factors and policies that can support successful development, especially those ones that promote good governance and business development. Jean-Michel's doctoral project is an important piece of this research initiative as it will allow for a more in-depth understanding of these factors.

Recently, the First Nations Forestry Council supported ABC in Forestry by funding a visit to Clayoquot Sound to help recognize the aspirations of local First Nations involvement in the forest sector as well as in PES. While groups in Clayoquot Sound are not rejecting conventional forestry such as logging, the discussions indicated that there are priorities for First Nations to protect forests where there are strong cultural ties, coupled with a sense of stewardship toward their traditional territories. Interviewees wanted to build a sustainable local economy around forestry which would, at the same time, keep their culture strong and support a vibrant tourism business. But there is pressure to create jobs for growing communities in the area and commercial opportunities are sporadic. Reaching a balance between economic, cultural, and environmental values represents a great challenge for the First Nations in Clayoquot Sound.

A longer-term research goal is the transfer of knowledge to First Nation communities, researchers, and practitioners for the benefit of more sustainable forestry through a better understanding of the factors supporting successful forest-based development. ABC in Forestry will incorporate, in a meaningful and respectful way, Aboriginal perspectives on the different values we hold for forests and how these values should be balanced. ABC in Forestry has the potential to redefine what is sustainable and, consequently, redefine the culture and practices of professional foresters and decision-making leaders.

For further information contact Jean-Michel Beaudoin at jean.michel.beaudoin.1@gmail.com or William Nikolakis at william.nikolakis@ubc.ca.

Navigating a path through climate change

UNCERTAINTY POSES A pivotal problem when planning for a future under climate change. How can communities formulate plans for infrastructure and economic development if they don't know what the future will look like? Enter: Dr Harry Nelson from the Faculty of Forestry and his colleagues from across the University of British Columbia (UBC).

Since January 2010, Harry and his team have been working with representatives from industry, communities, and several orders of government in the San Jose Watershed to figure out exactly what climate change will mean for local forests and waterways. A sub-watershed of the Fraser Basin in central British Columbia, the San Jose Watershed encompasses approximately 1,067 square kilometers from 100 Mile House to Williams Lake.

The project is one of 21 projects funded in British Columbia by Natural Resources Canada under the Regional Adaptation Collaborative (RAC) program, designed to help communities figure out how they can adapt to a changing climate.

Harry was drawn to the RAC program because it offered the opportunity to learn more about the cascade of impacts from climate, to forests, to rivers and the effects on communities and people living in the watershed. By assessing these impacts and exploring the options available to address them, the project provides information for policy-makers, resource managers, and local decision-makers that can be integrated into planning and decisions – something he feels is critical to successful adaptation.

"Ultimately, the people living and working in the watershed are the ones who will carry out the activities necessary to respond and adapt to climate change," asserts Harry. "They are the ones who care most about the impacts, and they can help researchers by identifying what values they hold for the landscape and providing information about impacts that are already occurring."

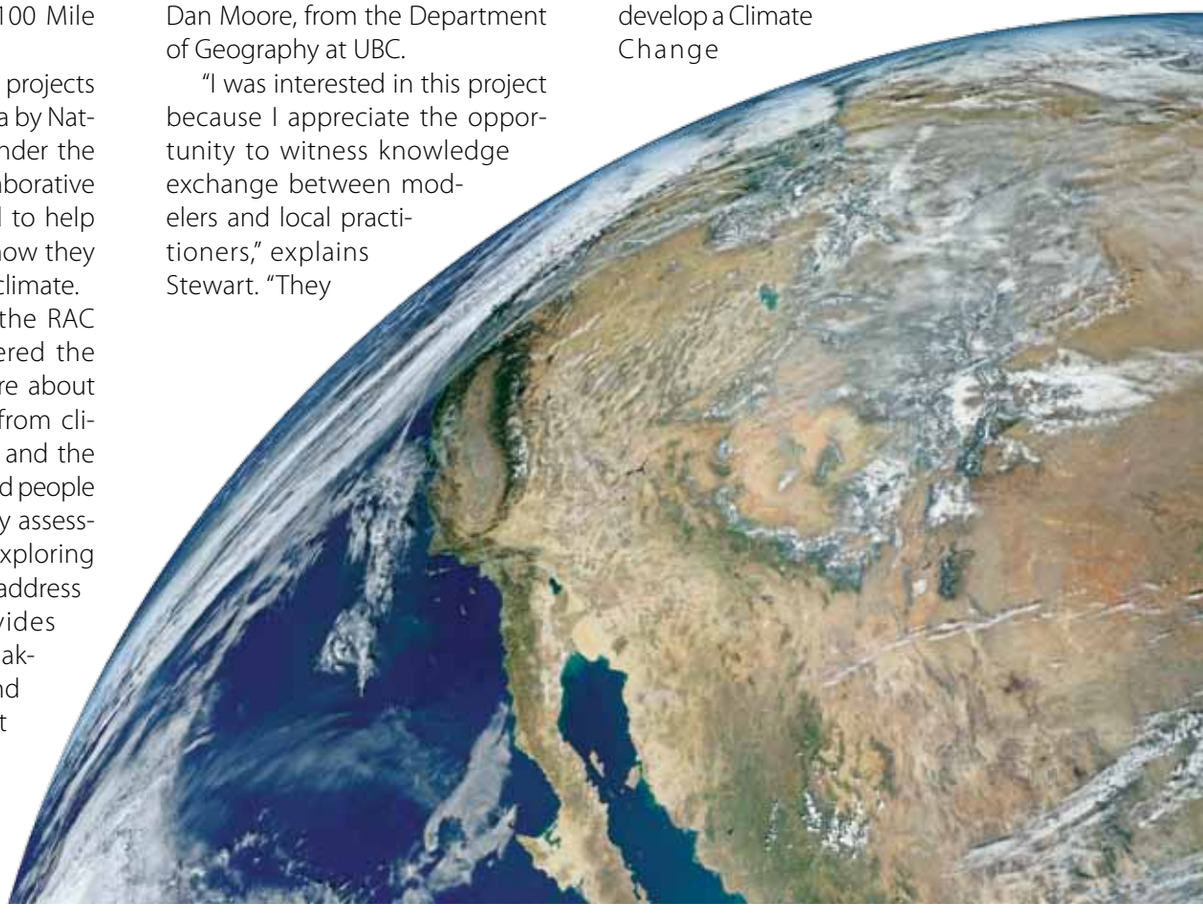
To tackle this project, Harry reached out to colleagues from across UBC. His team consists of geographers, hydrologists, climate modelers, foresters, and climate change experts. Among them are Ken Day, Manager of the Alex Fraser Research Forest in Williams Lake; Dr Stewart Cohen, of Environment Canada's Adaptation & Impacts Research Section; and Dr Dan Moore, from the Department of Geography at UBC.

"I was interested in this project because I appreciate the opportunity to witness knowledge exchange between modelers and local practitioners," explains Stewart. "They are able to learn a lot from each other."

Dan was similarly captivated by the opportunity to bridge approaches to forest and hydrological modeling, and adds that working with representatives from the watershed was a powerful experience.

"These are communities that place strong values on their forest and water resources," explains Dan. "They are keenly aware of how closely linked their economy, livelihood, culture, and identity are to these aspects of the watershed."

The issue of climate change was already on the minds of local communities when the project team arrived. The regional government had partnered with the Fraser Basin Council and was working to develop a Climate Change



Adaptation Strategy, and the Cariboo Chilcotin Conservation Society had partnered with the City of Williams Lake to implement the Water Wise residential water conservation program.

But attention to climate change had raised more questions than answers. To plan effectively for the future, residents and representatives needed better information about what is in store.

Ken, a long-time resident, helped the team to identify and contact key people in the forest industry, government, and communities with an interest in forest and water resource management and climate change. These people became the core of the project, voicing their information needs, helping to develop and refine research questions, vetting the modeling framework, and offering insights into how new information could be incorporated into planning and decisions at all levels. The project team organized a series of workshops which offered both the opportunity to share information and the chance to build a local network of practitioners to work together on climate change-related issues.

Recognizing the opportunity to stimulate dialogue between participants about local issues, the team also organized a tour of the watershed, which included a visit to a local ranch, a stop at the Alex Fraser Research Forest, and a meeting at a local forestry company office.

"Following the river all the way along, from the top to the bottom, it was amazing way to see how people's perspectives changed," Harry recalls. "They began to understand the challenges affecting the watershed and the common issues they face in managing the watershed sustainably."

Capturing the attention and participation of local practitioners was easy; modeling the impacts of climate change was the real challenge. The team needed to find a way to not only predict how climate change will affect the growth, species distribution, and economic value of forests, and the changes in timing and volume of flows in the San Jose River, but also assess the interacting effects between forests and river hydrology. Despite the challenges, collaboration between researchers in different disciplines offered a truly exciting opportunity.

"I appreciate seeing modelers from different disciplines working to enable information flow between them, so that the various modeling results are consistent within the research team," says Stewart. "This means that each model result is contributing to the whole story about how future climate change could affect the forests and water supply of the San Jose Watershed. This is a story that could not have been created by only one model."

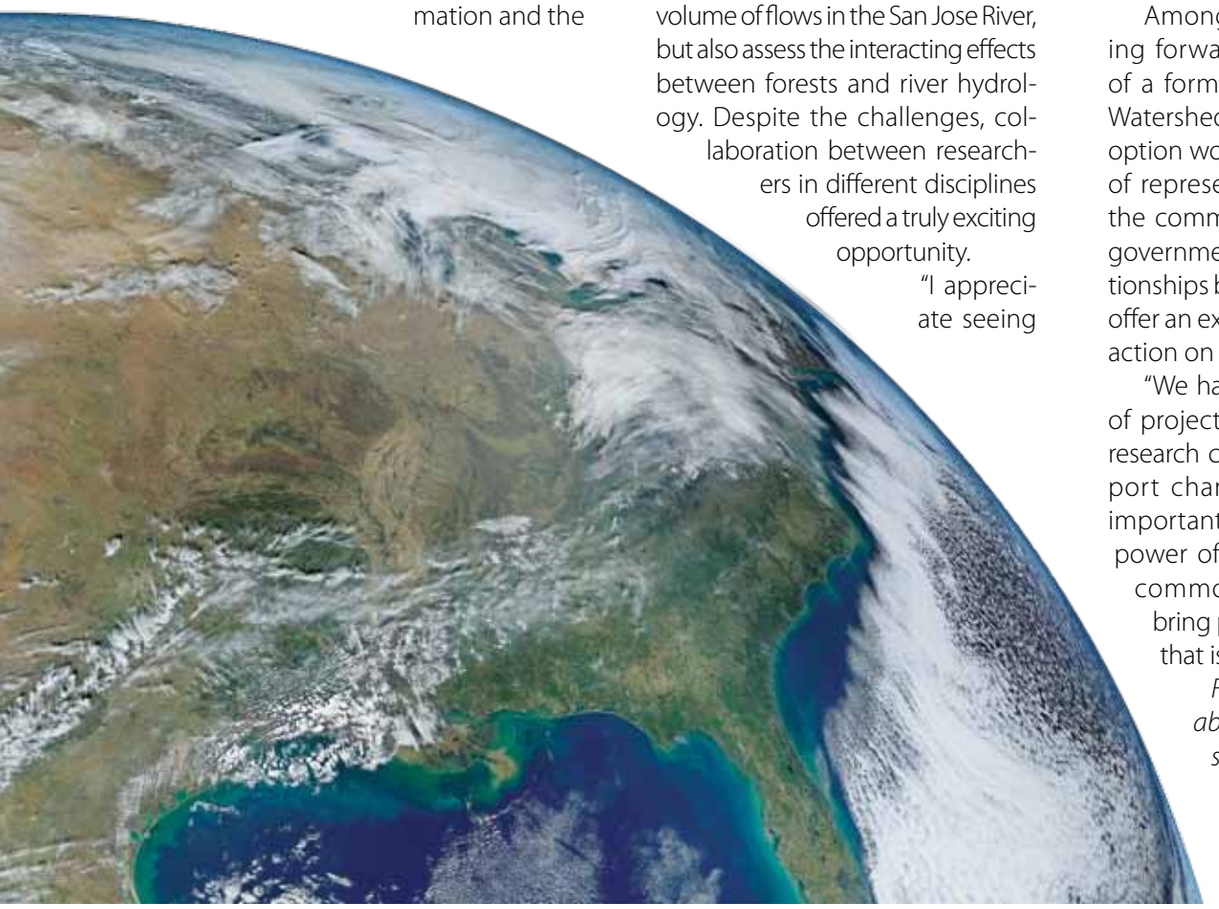
What remains now is to work with local practitioners to integrate new information about climate change into decisions and planning. Ultimately, it is up to local communities to figure out what actions best suit their needs in terms of adaptation, with support from the project team.

"I hope that the legacy of this project will be planning efforts, changes in how we manage those forests, and engagement by policymakers that will support local efforts," says Harry. "People can look at this project and find a way to move forward."

Among the options for moving forward is the development of a formal Watershed Plan or a Watershed Advisory Board. Either option would require cooperation of representatives from industry, the community, and all orders of government. Fortunately, the relationships built over the past 2 years offer an excellent starting point for action on climate change.

"We have shown that this type of project can be done and that research can help catalyze or support change," says Harry. "Most importantly, we have shown the power of information to build a common understanding and bring people together in a way that is relevant to them."

For more information about the San Jose Watershed RAC project, contact Harry Nelson at harry.nelson@ubc.ca.



A day in the life of a field biologist

by Martha Essak

Martha Essak with female adult sparrow

LONG BEFORE THE sun appears on the horizon, gulls are shrieking and walking on my roof. Even with my pillow over my ears, I can hear them landing softly, and taking off loudly. Mostly I hear the cacophony of the gull colony, constant chatter that ranges from content murmurs to threatening shrieks. I force myself back to sleep until my alarm clock beeps, telling me that the sun is rising and it is time for me to get up.

After a quick breakfast, my co-workers and I head out to different parts of the island. I am wearing an outfit that is all practicality: rubber boots, rain pants over regular pants, and rain coat over t-shirt and sweater. Although the day promises to be hot, the morning dew on the shrubs would soak me in a few minutes if I weren't wearing rain gear. With me I have binoculars, a clipboard with paper and pens, a stick and a hat.

The stick and hat are essential components of my fieldwork outfit. On Mandarte Island, there are thousands of gulls that are currently busy raising chicks. The adults are convinced that I am a predator that wants to eat their chicks, which are black-spotted gray balls of fluff that I carefully avoid stepping on.

The parents dive at my head and would hit me with claws and beak if I weren't holding the stick over my shoulder to deter them from getting too close. The hat protects my hair from the excrement that they release while flying.

On a bad day, I'll get hit in the face. On a good day, I won't get hit at all.

I navigate the trails through the shrub and emerge into a grassy meadow. I find a position on a high rock and look down into the shrubs. I ignore the gulls that make irritated sounds in my meadow. They are not the birds I am interested in.

I watch the branches and leaves carefully, looking for any sign of movement that isn't caused by the wind. I listen for sounds other than gull calls.

I hear a sound to my left, and identify the bird producing it. Perched high on a branch, a male song sparrow sings to defend his territory. He starts with a few solid notes and ends with a trill. It is quite an impressive song for an otherwise not-very-exciting-looking bird. Song sparrows are brown with light bellies, and gray and brown streaks on their heads. Their most distinctive feature is a dark brown spot on their chest.

Since males and females look similar but only males sing, I know that this bird is male. I look at him through my binoculars to examine the bands on his ankles. All the song sparrows on this island have a different combination of one metal and three color bands, with two bands on each leg. I check the papers I have with me – maps of the island. This bird has been defending his territory for months. He also has a mate, a female that must be hiding somewhere in the shrub. She is the one I am interested in. Since her first brood of chicks have fledged and have been seen on their own elsewhere on

Song sparrow chick on banding day – 6 days old

the island, we think that she might have started a second nest.

I will spend at least the next hour staking out this territory to find out what she is up to. I am hoping to see her coming or going from one area, indicating the nest location.

Since 1975, all song sparrows on Mandarte Island have been watched like this. Once the nests are located, they are monitored until the eggs hatch. All chicks are given bands so that we can identify each individual. Using the data on individuals and relationships between individuals, research has been conducted on inbreeding, climate, evolution, mating systems and many other topics.

Long term studies like this are essential for understanding how animals adapt to fluctuating environments and climate change.

Dozens of researchers have watched these sparrows before me and some, like me, have held birds in their hand for the first time on this particular island.

When chicks are 6 days old, we collect blood samples and measure different features such as mass and wing length. The chicks seem annoyed at being woken and will sometimes fall asleep in our hands. We give them their leg bands and return them to the nest.

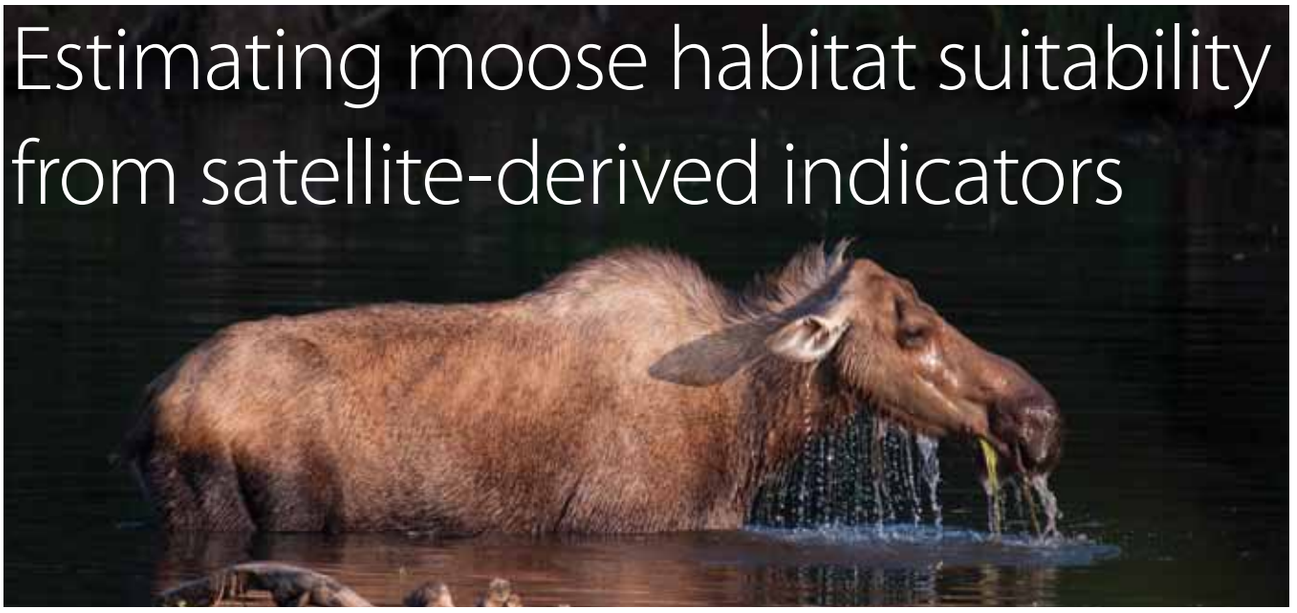
Unfortunately, songbird chicks are not cute like ducklings. Sparrows hatch naked, with translucent skin and tiny featherless wings. As they get older their looks improve, and when they are about 2 weeks old, they are feather balls with short tails. They make brief bumblebee-like flights, tiny wings pulling their heavy bodies through the air. They beg continuously from their parents, who rush around trying to keep the chicks fed. When they are about 3 weeks old, they have to learn to fend for themselves.

Out on the island, watching the chicks grow up, I feel connected to the passage of time. As the grass goes from green to gold, the baby animals become awkward teenagers and then young adults. One summer on Mandarte has given me many unique memories of nature, and a new appreciation for the beauty of the province where I have lived all my life.

Adult male song sparrow

Martha Essak is a graduate student with Dr Peter Arcese in the Forest Sciences Department. She can be reached at martha.essak@gmail.com.

Estimating moose habitat suitability from satellite-derived indicators



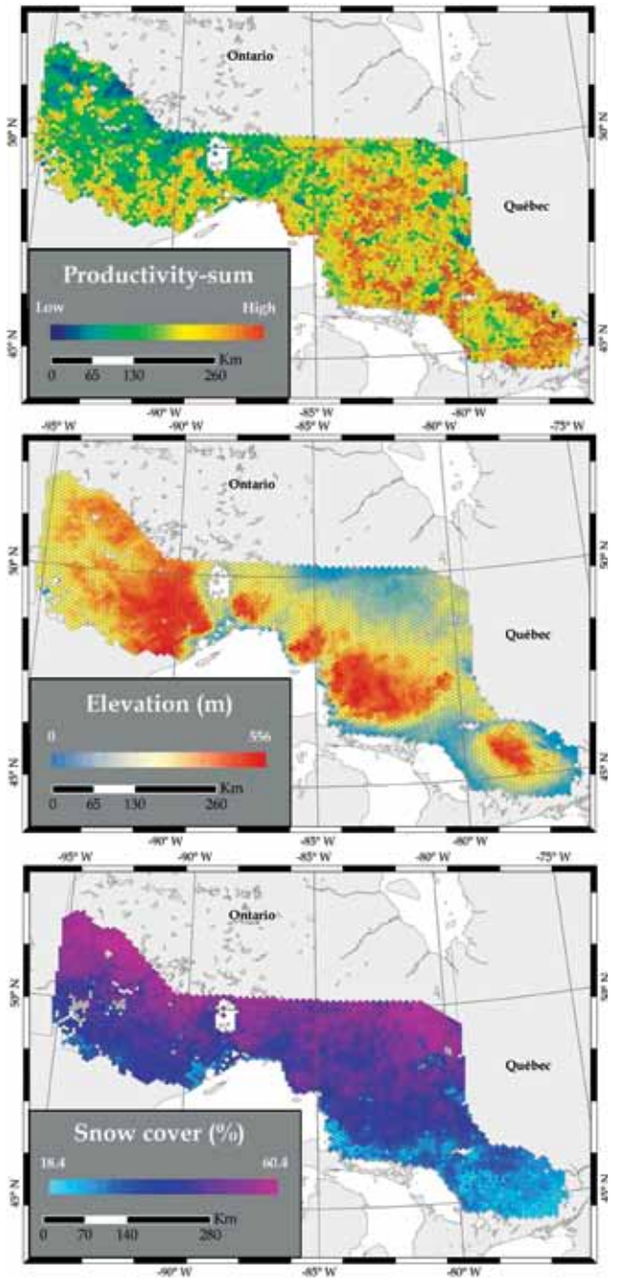
MOOSE (*Alces alces*), Canada's iconic ungulate, play a fundamental ecological role in the structure and function of boreal forests. This charismatic species also contributes substantial social and economic benefits to the communities across its range. However, in recent years their distribution and density in North America has become increasingly variable. In Newfoundland, for example, moose are overabundant and have significantly altered vegetation assemblages; whereas, in southern Ontario the species is no longer present. To understand the population dynamics, the Ontario Ministry of Natural Resources (OMNR) annually undertakes extensive moose aerial surveys across Ontario. Surveys of ungulate populations are however expensive, and, as a result, mapping and monitoring key habitat attributes and understanding how they vary through space and time have the potential to help manage the population.

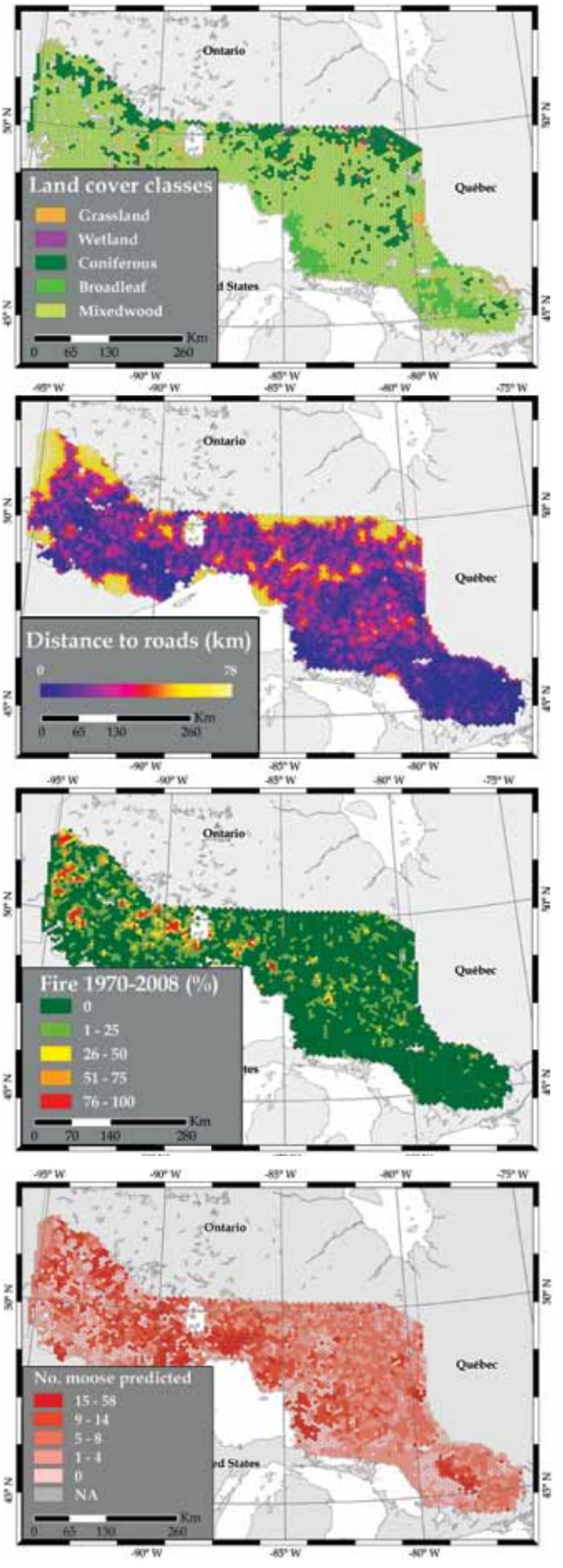
The principal limiting factors for moose habitat selection are, in order of importance, predation, food availability, climate, parasites and disease. Moose feed on wetland aquatic vegetation, deciduous and shrub vegetation found in newly disturbed forest, shrubland, grassland, deciduous and mixedwood stands and find protection from predation and extremes in climate in coniferous stands. Long and severe winters can result in increased snow accumulation, and adversely impact moose mobility and food intake. On the other hand, areas with deeper snow cover can sometimes be selected by moose to limit predation risk, as moose are better adapted to travel in deep snow than their main predators. Natural and anthropogenic disturbances, such as fire, harvesting, insect defoliation and weather events are important for moose habitat as high quality forage is often available following disturbances. Overall, moose habitat selection is the result of complex behavioral decisions that balance access to high quality/quantity forage and protection cover with low food abundance/quality, but providing shelter from weathering events and predation.

Remote sensing, through its regular data acquisition, offers a data source uniquely suitable to monitoring environmental conditions at a range of spatial and temporal scales in a cost-effective manner. Indicators derived from satellite imagery have the potential to characterize species distributions and biodiversity patterns.

In the Integrated Remote Sensing Studio (IRSS), Jean-Simon Michaud, Professor Nicholas Coops in collaboration with the Canadian Forest Services (CFS) and the OMNR, have been using a wide range of remote sensing datasets to characterize moose habitat throughout the Ontario moose range. They utilized environmental covariates to determine whether moose habitat selection responded to (i) Food availability, (ii) Protection, (iii) Snow impediment, (iv) Disturbance (v) Land cover variability. Using land cover driven from remote sensing, they identified substantial forage (ie, grassland, shrubland, wetland, deciduous and sparse forests) and land cover types providing protection (ie, dense and open coniferous). Remotely sensed vegetation productivity was then used to provide insight on the site phenology, the landscape's capacity to sustain appropriate levels of protection cover, and on the forage quality and availability. Satellite estimates of snow cover fraction were collected monthly from September to June to account for movement impediments due to snow cover. Additionally, topographic information, which is a surrogate for vegetation productivity and snow cover, ecosystem disturbances, distance to nearest human settlement, roads and water features were also evaluated to predict spatial/temporal variation in moose abundance validated by the moose aerial survey.

Results from this analysis indicate that the models developed using remotely sensed indicators provided considerable benefit to the characterization of moose habitat suitability across Ontario. Results indicated that





the predicted moose distribution was more accurate when compared to moose abundance. Moose distribution was mostly influenced by the presence of coniferous stands and the diversity of vegetation types, whereas snow cover, presence of disturbed land, forage availability and diversity were significantly important for abundance. These results are valuable to wildlife managers in that they provide a greater understanding of variations in moose distribution and their habitat use as inferred from occurrence and abundance. Apart from finding correlations between covariates and moose habitat suitability, these models can also be applied to areas where no moose survey data are available, allowing assessment of habitat supply under current and future situations. This research was undertaken in collaboration with Dr Margaret Andrew (CFS), Dr Michael Wulder (CFS) and Dr Glen Brown (OMNR). Funding for this research was provided by the Government of Canada through the Canadian Space Agency Government Related Initiatives Program and the CFS in collaboration with the University of British Columbia.

Jean-Simon Michaud can be reached at michaudjs@gmail.com.

2 degrees, 2 years, 2 countries and twice the experience

by Robyn Hooper

IN SWEDEN, STUDENTS greet each other with "hej," which sounds like "hey". During my first year of graduate school I noticed such small similarities and differences between Sweden and British Columbia – in language, in the boreal forests of northern Sweden, and in the small forestry university population of the Swedish University of Agricultural Sciences (SLU) in Umeå, Sweden. As one of the students in a new cohort of the Transatlantic Forestry Master dual degree program (TRANSFOR-M) completing a year of studies in Europe, and year of studies in Canada, I will be finishing with not 1, but 2, Master's degrees.

Robyn Hooper, a TRANSFOR-M UBC student studying her first year in Northern Sweden at SLU

Graduate programs with an international focus are increasing in popularity as a means to adding breadth and perspective to a student's experience. The TRANSFOR-M program is a new initiative that offers international experience to graduate students, but with some unique highlights. University of New Brunswick, Fredericton, leads the Canadian initiative, partnered with the University of British Columbia and the University of Alberta. The European partner universities are: Albert-Ludwigs-Universität Freiburg in Germany, Bangor University in Wales, the University of Eastern Finland, and the Swedish University of Agricultural Sciences. Students are able to indicate their university and Master's degree preference for their host and home institution. As well, there is a living stipend for 12 months at the host institution and a travel stipend to the host country.

A highlight of the program is that we participate in 2 3-week field courses touring the countries of each institution. The field courses provides an environment for students in the program to meet and share their experiences, as well as to learn about forest and natural resource management in the 5 countries (including 3 provinces in Canada). The first field course for new TRANSFOR-M graduate students occurred in August 2011 and we toured British Columbia, Alberta, and New Brunswick. We visited natural reserves and parks, forestry operations, museums, forest management regimes in different ecosystems, mills and forest product companies, private forests, and more. Students spoke with managers, scientists, government staff, private forest owners, mill and factory workers, First Nations' representatives, machine drivers, and even company directors. In our second field course this August, we will tour Wales, Germany, Sweden, and Finland.

While undertaking Master's theses or graduate essays, we can gain support from advisors at both institutions, as well as participate in graduate courses at each location. I entered the program with a thesis topic of climate change adaptation and forest management. With support from my UBC and SLU advisors, I was able to expand on this topic and begin a discussion on the differences and similarities between British Columbia and Sweden. While in Sweden, I completed interviews with Swedish forest managers on adapting forest management in a changing climate. The results of my SLU thesis are in the final stages, and I hope to continue research when back at UBC in September as part of my graduate essay.

Courses while abroad in Sweden have been remarkably interesting for me and have added to my international graduate experience. At SLU, the ratio of staff to students is very high with 1 teacher to every 2.6 students, and the small class sizes promote a high degree of engagement. Also, students usually take only 1 course at a time, so I was able to focus completely on a subject matter and gain in depth

understanding in a short period of time. For example, I learned about Swedish forest management and environmental monitoring, as well as advanced tools such as GIS, remote sensing, and database management. The perspective on these subjects provided by another institution and country gave me an appreciation for the diversity of contexts and methods available to natural resource practitioners and foresters.

Another component of the TRANSFOR-M program is an internship chosen by the student. I will be spending part of my summer in Vilhelmina, Sweden working with their Model Forest (part of the International Model Forest Network) to compile historical climate data, local observations and future climate predictions. After speaking with high-level forest managers for my thesis research, I am looking forward to working with a small community on climate change for another perspective. In British Columbia, many small communities similarly have forestry and climate change as a significant component of their livelihoods and daily life. Understanding how communities may be part of adaptation to climate change fascinates me, and comparing experiences internationally will provide a novel way of looking at the problem, given our uncertain climate future.

On my return to British Columbia and UBC in September, I hope to continue expanding on the experiences gained abroad (courses, thesis, internship, field course), and explore new research and work opportunities. The TRANSFOR-M program is a way of breaking down borders and enhancing the educational, as well as life experience, of graduate students. However, international experiences become more real when students can go home and put learning into practice. I continue to ask myself the question, "what can I bring home to BC? What can we do better? What can Sweden do better? How can we learn from each other?" My goals go beyond my own learning and year of exchange, because I hope that in sharing my experience I may encourage other students and researchers to reach out of their comfort zones and try something new. As Mahatma Gandhi so thoughtfully put it, "Be the change you want to see in the world," and it may also be added that we should look to understand our world better in order to make those changes.

Robyn Hooper is a TRANSFOR-M graduate student in the Faculty of Forestry at UBC. She can be reached at robyn.hooper@gmail.com. For further information on UBC's TRANSFOR-M program, contact Jorma Neuvonen at jorma.neuvonen@ubc.ca.

Trans-Atlantic Dual Master's Forestry Students on Canadian Field Course at Mt Robson, British Columbia

development & alumninews

Start a Knowledge Evolution with Research

In the Faculty of Forestry, research has 2 roles: it is the key to identifying and defining problems, and is also the key to solving them. Research creates new knowledge, drives innovation and fosters an engaged intellectual community in our Faculty. The application of research contributes to the environmental, social and economic well-being of society.

UBC Forestry has demonstrated research excellence in a number of areas, including:

- Forest products biotechnology and bioenergy
- Forest genetics and genomics
- River and landscape ecology
- Below-ground ecology
- Forest management
- Business operations and management
- Climate change and advanced landscape planning

Since a peak in the mid-1990s, there has been a steady squeeze on the amount of research funding available to the Faculty due to government and associated agency cutbacks. This is most evident in the upstream forestry research: silviculture, management, operations and community work. On the other hand, areas such as genomics have flourished.

We must increasingly look to private philanthropy in order to maintain the level of research excellence upon which scientists, foresters and industry professionals depend.

There are many examples of relevant and applicable research in the Faculty of Forestry; here are just a few:

John Richardson and Forest Management

Since the 1970s, foresters have left a 30-metre buffer around freshwater streams and lakes to protect waterways and aquatic ecosystems. Today, as the rules around buffers are changing, Professor John Richardson is testing the 30-metre rule, trying to determine the optimal size and location of buffers.

John has been studying the effectiveness of the 30-metre rule since 1998, comparing how streams reacted to various harvesting strategies. His research shows that even with large buffers there is a strong impact on aquatic ecosystems.

He is neither condemning nor condoning the recent "emulation of natural disturbance" strategy, where the forest is cut to the waterline. Rather, he suggests that this new strategy should be studied carefully, and that other options for protecting freshwater habitats be considered as well.

Nicholas Coops and Remote Sensing

With the world's second-largest landmass, Canada is home to incredible plant and animal biodiversity. Yet 14 regions across the country are at high risk for biodiversity loss. Remote sensing offers the opportunity to observe, map and analyze large areas in a systematic and repeatable manner.

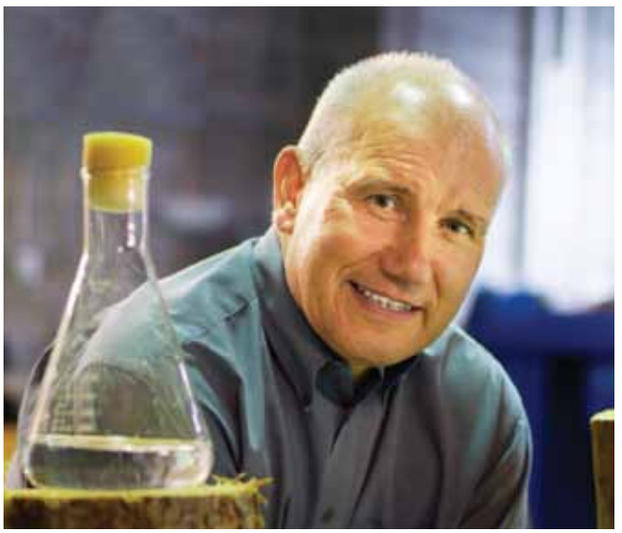
The Biospace Project is a collaboration among the Canadian Forest Service, Canadian Space Agency, and UBC. Using satellites, researchers observe the physical environment (climate, topography), vegetation production or function, spatial arrangement and structure of habitat, and metrics of disturbance. Monitoring these indicators over time has the potential to function as an early warning system for biodiversity change.

Jack Saddler and Biofuels

Jack has held the NSERC Chair in Forest Products Biotechnology since 1990. His research team is investigating ways to make a range of fuels and chemicals from forest biomass in a sustainable and economically viable way.

Advanced biofuels research is focused on 3 areas: pretreatment to disintegrate the complex nature of lignocellulose to a substrate, enzymatic hydrolysis to convert the substrate to monomeric sugars, and fermentation to convert those sugars to ethanol.

Jack's research group is achieving significant advances in each of these areas. For example: methods such as steam explosion, to open up the cellulose so enzymes can break it down more effectively, are now being commercialized by companies building biofuel plants around the world.



Private philanthropy can help

Cindy Prescott is the Associate Dean for Graduate Studies and Research in Forestry. "As a world-class Faculty of Forestry we are aware of a multitude of research problems and innovation opportunities available for our investigation," she says. "The pace of change – in ecosystems, in technology, in industry, and in communities – is accelerating, and sound research is more important now than ever to ensure sound decisions are made by governments, industries and communities."

"We welcome partners whose support can help us stay at the forefront of basic and applied research. These additional resources can help us create solutions for local and global issues."

If there is a problem in forestry you think needs attention… if there is a research area you believe is undersupported… if you want to see UBC break through with a certain innovation… then please get in touch. Contact: Emma Tully, Director of Development, at emma.tully@ubc.ca or phone 604.822.8716.

alumninews

On May 24, 131 Forestry students joined the ranks of over 5000 Forestry alumni and 275,000 UBC alumni. we'd like to welcome them to the alumni community and are proud to have them join us!

Reunions

It is reunion season for Forestry grads. In mid-May, 17 members and guests from the Forestry class of 1952 gathered in Vancouver to celebrate their 60th reunion. The 2 days were filled with activity and kicked off with a luncheon at Sage Bistro on campus. Alumni came from as far away as Thunder Bay to join fellow classmates who had not seen one another since their 50th reunion 10 years earlier. In addition to the luncheon, the group enjoyed a tour of the Forest Sciences Centre and the Centre for Advanced Wood Processing, a ride on the gondola at Grouse Mountain, with dinner at the top, and a walking tour of campus the following day. It was a momentous 2 days and a special greeting goes out to those classmates who were unable to attend.

Other reunions that have taken place or are in the planning stages:

- May 25-27, 2012 – the class of **1972** gathered in Parksville for its 40th reunion
- June 20 – 21, 2012 – the class of **1956** gathered in Sidney for its 56th reunion
- September 17-19, 2012 – Class of **1960** 52nd reunion: Loon Lake, BC
- September 19-20, 2012 – Class of **1962** 50th reunion: Loon Lake, BC and Vancouver, BC

The classes of **1983**, **1985** and **1948** have already begun planning for reunions in 2013. Will your class be celebrating a milestone in 2013? If so, contact Caely-Ann McNabb at caely-ann.mcnabb@ubc.ca or 604.822.8787 to find out if someone from your class is already in the planning process or if you would like to be involved.

Events

On April 26, over 70 alumni, friends, faculty, staff and students gathered at the Malcolm Knapp Research Forest (MKRF) to tour the forest and enjoy a dinner and reception hosted by Dean John Innes. This annual event, the Alumni and Friends – Loon Lake Tour and Barbeque, provides a special opportunity for alumni to connect with current students while they are at the MKRF spring camp. This year's event was one to remember with 3 stops in the forest: the first at a thinning site where 3 students joined the group to discuss the thinning project they completed at camp earlier in the week; the second was at a stream where Forest Sciences Head and Professor, John Richardson, stopped by to share with the group the research he and his team are conducting at the site; and the third was a stop at the mill which was a highlight. The sun even decided to come out to greet us, which was a welcome surprise! The reception and dinner in the gymnasium and dining hall at Loon Lake provided an excellent opportunity for guests to get to know the students who were at camp.

It was a busy day on campus on May 26 with alumni coming back to campus for Alumni Weekend. The Faculty of Forestry booth was very popular thanks to the live caddis flies and the wooden bows on display. Forestry Professor, David Cohen, gave a very lively and enlightening talk on Sustainability: Innovation Driver for

the 21st Century, which is available as a podcast from the alumni website www.alumni.ubc.ca.

Mark your calendars for these upcoming events:

- July 1, 2012 – Canada Day: UBC booth at the Canada Day celebrations in Trafalgar Square in London, UK
- July 10, 2012 – 3rd annual South Okanagan alumni summer social in Okanagan Falls
- July 12, 2012 – 5th annual North Okanagan alumni summer social in Vernon, BC
- August 31, 2012 – Forestry alumni and friends event in Nelson, BC

For more information on any of these events, contact Caely-Ann McNabb at caely-ann.mcnabb@ubc.ca or 604.822.8787.

Class of 1961 creates a legacy program student award

In 1961, undergraduate enrolment at UBC was just over 11,000 students, with men outnumbering women almost 3 to 1. The bus fare from city limits to campus (a 2-mile distance) was 5 cents. The student handbook offered fashion advice (Women: "For classes, a skirt and a sweater or blouse, or a basic wool dress are acceptable." Men: "There is little demand for blue jeans, black leather jackets and hobnail boots."). The only cafeteria on campus was in the basement of the Old Auditorium.

And in the spring of 1961, 35 students received their undergraduate degrees from the Faculty of Forestry.

This closely-knit group held its first reunion 5 years later. Then 5 years after that, and again in 5 years, and so on until 2011, when all but 5 members of the class gathered for their 50th reunion.

Gary Kenwood was a member of the reunion planning committee. "It was a memorable couple of days…we visited the Malcolm Knapp forest one day, then had a wonderful tour of campus the next day. Many in the class hadn't been back to either the forest or the campus in years and were amazed at all the changes and the potential available to today's students. I believe that motivated the class to establish a legacy gift which would further encourage students to unlock that potential."

To mark the 50th anniversary of their graduation, the Class of 1961 decided to establish a student award as part of the Faculty's Legacy Program. A $1,000 award has been endowed for an undergraduate student who is in good academic standing and has demonstrated leadership skills and involvement in UBC or the community. Undergraduate students in all years are eligible, and the award will be given for the first time in September 2012.

Sue Johnson contributed to the scholarship on behalf of her late husband, Charlie. "I believe so strongly in supporting students," she says. "We benefited so much from our UBC educations; it's our responsibility to help others the way we were helped."

If you are interested in learning more about how to support a student yourself, or as part of a graduating class milestone anniversary please contact Deepti Mathew Iype, deepti.mathewiype@ubc.ca, or phone 604.822.0898.

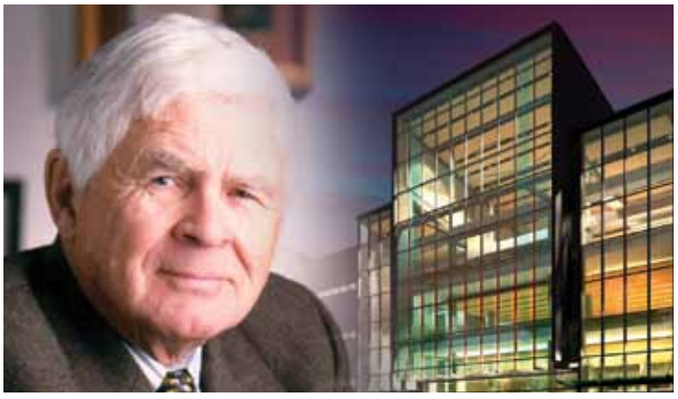
If you would like help organizing a class reunion please contact Caely-Ann McNabb, caely-ann.mcnabb@ubc.ca, or by phone at 604.822.8787 for more information.

Making a difference

Forestry alumnus, Mathew Caissy, is on a mission this summer, a mission to plant 100,000 trees and he is well on his way. Over the past 6 years, Mat has planted 600,000 trees, so why, you may be asking, is another 100,000 this summer special? Well, this year he is bringing awareness to his tree planting journey by planting trees for people. He wants to plant a tree for you! All you have to do is fill out the form found online and Mat will plant a tree, take a photo of it and send it to you. You can learn more about Mat and his endeavor by reading his online blog (blog.caissyinthewoods.com) or following him on Twitter and Instagram @caissyinthewood. What are you doing this summer?

Send us your email address! The majority of our alumni communications are sent out via email and we don't want you to miss out! Email caely-ann.mcnabb@ubc.ca and you'll start receiving the monthly Forestry Alumni e-Newsletter as well as invitations to any alumni events happening in your area.

A tribute to Irving (Ike) K Barber 1923 – 2012



BC forestry and the forest sector lost one of its characters and leaders on April 13, 2012. Irving K (Ike) Barber was born in Alberta in 1923, graduated from the UBC Faculty of Forestry in 1950 after his service during WWII and by 1998 had built one of the most successful forest products companies and largest lumber producers in Canada.

Ike was best known for building Slocan Forest Products (SFP) which originated in 1978 when he was 55 years old after he received the approval of his wife, Jean, to mortgage their home so he could purchase the first of many small lumber company acquisitions that ultimately constituted SFP. Throughout the years he fought against companies interested in taking-over the company until a suitable arrangement was made with Canfor in 2004.

After the sale of SFP to Canfor, Ike became very involved in philanthropy. His focus was on education and learning. He created the Irving K Barber Scholarship Society and was instrumental in the creation of the Irving K Barber Learning Centre at UBC, the UBC Okanagan School of Arts and Science and the UBCO Learning Centre interface program, the UNBC Irving K Barber Enhanced Forestry Laboratory and Forestry Chair and the Irving K Barber Endowment for Educational Opportunities at Kwantlen Polytechnic University.

Throughout his career, Ike always looked to HR MacMillan as his visionary. Like HR, Ike always had the interests of BC forestry in mind. After graduating as a forester, Ike immediately joined MacMillan Bloedel (MB) and became a senior forester in the 1960s, contributing to the company's pioneering move into silviculture. He was one of the first foresters to become a company logging manager in the forest sector. He later left MB to become the Vice-President of the Kitimat-Eurocan Pulp Company logging and forestry, where he continued an approach to forestry that was innovative for the time including logging utilization, long haul roads, and pup-trailers for tree-length hauling.

Throughout his career, Ike was always good talking with people, especially students. He was constantly promoting BC forestry and giving "direction" and encouragement to BC Chief Foresters, industry foresters and academics on what was needed to advance forestry and the forest sector. It did not matter whether you reported to him or not, if he thought you were in a position to do something he always "directed" you to do so. His belief in BC forestry was reflected in the funding for a 1994 book, "The Working Forest", which presented pictures of landscapes before and after logging to promote BC practices to customers and the public.

Ike always had the interests of his employees and the communities in which he operated in the forefront. He focused on the interior but continued to keep the whole Province in mind. He was unconventional and one-of-a-kind. He received numerous awards, including the Order of BC, Business Hall of Fame, Junior Achievement Business Laureate and honorary degrees from UBC, UNBC and Kwantlen Polytechnic University. His leadership will be missed. He is survived by his wife Jean and 3 children.

This tribute was provided by Bill Bourgeois, BScAg'65, MSAg'69.

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