branchlines

Volume 23#3 2012

In this issue:

UBC Forestry
University of British Columbia

dean'smessage

As you will see from the news item opposite, our undergraduate numbers are again up. Last year, we broke our Faculty's record for the number of enrolled students, primarily due to a large influx of new students. This year's numbers set a new record, and hidden in the numbers are a number of interesting trends. Much of this year's increase is due to higher retention of students who started last year. This is a strong signal of the entry of increasingly qualified students into the Faculty. It also suggests that we are doing a better job of keeping students interested in the topics that we teach. We have also seen a marked increase in enrollment by international students. These students are not displacing our domestic students – in fact they are enabling us to maintain programs that otherwise might have insufficient enrollment to justify their continuation.

The results of our Wood Products Processing alumni survey also provide some food for thought. Graduates from this program are in considerable demand, as shown by the very low unemployment figures six months after graduation. While in the past almost all students went into the wood products industry, a marked feature of current employment patterns is the 29% of graduates that went into the non-wood products sector. This strongly suggests that the skills being developed by our students are transferable to other sectors, something that is extremely good for their future careers.

The increasingly international flavour of the Faculty is reflected in the mix of articles in this issue of BranchLines. Did you realize that our cover image was of cacao pods, the source of chocolate? This is an important non-timber forest product in many tropical countries, and managing its production better could lead to important reductions in forest degradation.

More by chance than design, we also have 2 articles by Chilean foresters studying in the Faculty. One article deals with Chile, but the other deals with the Nass Valley in British Columbia. Some of our international graduate students come here to take advantage of our expertise, but choose to study a problem in their own countries. Others take advantage of the wonderful opportunities available to them to study problems facing British Columbia, thereby enriching both themselves and us. Our Future Forests Fellowship is making it possible to consider the very best graduate students from around the world.

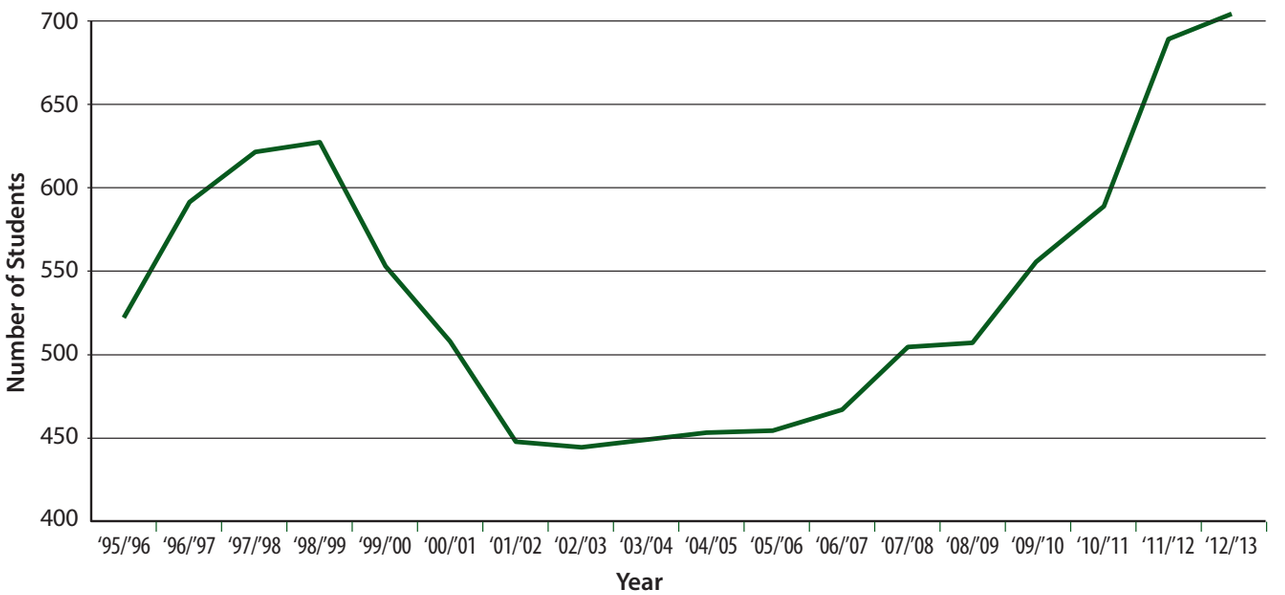
This issue of BranchLines also contains 2 articles about visual aesthetics, again by coincidence. One article looks at public preferences for cutblock design when seen from the air. This has often been given less attention than viewscapes from ground positions. However, the increasing use of Google Earth and other tools, and the increasing use of air travel make it important to consider aerial views as well. Travelling frequently, I am struck how I often have a bird's eye view of our Malcolm Knapp Research Forest on the approach to Vancouver International Airport; from the other direction, incoming flights cross over Vancouver Island, giving anyone looking out the window a clear view of all sorts of cutblock designs. The other article examines why such aesthetic concerns have not been dealt with more commonly in sustainable forest management. The reasons are startling, and I encourage you to read the article.

John L Innes
Professor and Dean

forestrynews

Undergraduate enrolment at an all-time high!

As of this September, we have 703 students registered in our 4 undergraduate programs. Of note is the increase in the number of international students registered in Forestry programs - this year we have 171 international students from 27 countries. It is interesting that 15 years ago, when our undergraduate enrolment was relatively high, we had only 4 international students from 3 countries in the program. Back then, most of our students were registered in the Bachelor of Science in Forestry program. Today, our largest program is the Bachelor of Science in Natural Resources Conservation.



Wood Products Processing alumni employment survey

This spring we graduated the 200th student from our BSc Wood Products Processing (WPP) program. Such a milestone seemed an appropriate time to update our WPP alumni employment survey (last performed in 2004). The survey, which we emailed to alumni in June, generated a 52% response rate, spread across the WPP graduating classes of 1999-2012.

Results to date indicate that 54% of alumni had permanent employment confirmed prior to, or immediately after, graduation. Another 26% had permanent jobs within 2 months of graduation. Fewer than 8% of the graduates were unemployed more than 6 months after leaving UBC. The average starting annual salary for respondents was $54,800 (in 2012 dollars). The locations of respondents' first employment positions were BC - 59%, rest of Canada – 32%, international – 9%. The locations of current positions are BC – 69%, rest of Canada – 20%, international – 11%. The industry sectors of first employment were primary – 40%, secondary – 40%, tertiary – 16%, non-wood products sector – 4%. The current sectors of employment are primary – 34%, secondary – 24%, tertiary – 13%, non-wood products sector – 29%.

Any WPP alumni who have not yet returned the employment survey are still encouraged to do so. Complete results will be posted on the Faculty website in a few months. For more information, contact Dr Simon Ellis, Wood Products Processing program director at 604.822.3551 or simon.ellis@ubc.ca.

New appointments

Dr Suzie Lavallee has been appointed to the position of Instructor I in the Department of Forest Sciences. Suzie has extensive teaching experience and is passionate about experiential learning and outdoor instruction. In her new appointment, Suzie will continue her role of coordinator of the 15-credit capstone course (CONS 451) for the Science and Management Majors of our Natural Resources Conservation program. She will also be teaching a 3rd year course that looks at the basic elements of conservation science and emphasizes some of the tools used in the discipline (eg experimental design, scientific writing and computer analyses). In recognition of her excellent teaching abilities, Suzie was awarded the Killam Teaching Prize for Forestry in the spring of this year. Suzie Lavallee can be reached at suzie.lavallee@ubc.ca or 604.822.4987.

Dr Janette Bulkan has joined the Department of Forest Resources Management as an assistant professor of Indigenous forestry. She is a linguist and anthropologist by training, is a former diplomat, and has work experience in social forestry, participatory resource management, monitoring and evaluation, cultural diversity awareness and protection, and teaching. Janette founded the Amerindian Research Unit at the University of Guyana and was its coordinator from 1985 to 1999. From 2000 to 2003 she was senior social scientist at the Iwokrama Centre for Rainforest Conservation and Development in Guyana. Janette is also interested in the areas of forest certification, control of illegal logging, anti-corruption, and REDD+ (reduced emissions from deforestation and forest degradation). In her new position with the Faculty of Forestry she will be teaching an undergraduate community forestry course and plans to develop other courses in the areas of social and Indigenous forestry. Janette will collaborate with colleagues in mainstreaming Aboriginal and Indigenous studies across the Faculty (Commitment #4 of the Faculty's Strategic Plan) and will help to develop mutually beneficial research collaborations between the Faculty of Forestry and Aboriginal communities in Canada and globally. Janette Bulkan can be reached at Janette.bulkan@ubc.ca or 604.822.8089.

Andrea Lyall has been appointed to the position of First Nations Coordinator for the Faculty of Forestry, effective September 1, 2012. Andrea is an alumnus of our Forest Resources Management program and a Registered Professional Forester in British Columbia. Her professional career has focused on operational planning and has included work with major forest companies such as Canfor and Western Forest Products. Andrea has also lived and worked in First Nations communities where she has overseen full-phase forest operations and successfully negotiated multi-million dollar capital projects with the federal government. Andrea is a member of the Kwakwaka'wakw Nation on the mid-coast of British Columbia. In her new role of First Nations Coordinator she will be responsible for student recruitment, student retention and community liaison. She will also be instructing our undergraduate Aboriginal Forestry course. Andrea Lyall can be reached at andrea.lyall@ubc.ca or 604.822.5294.

Is cultural diversity essential for biodiversity?

Cacao pods

Tropical agro-forests are home to millions of people worldwide who depend on them to meet their daily needs. Tropical agro-forests are also home to many varieties of important food crops that sustain the rest of humanity, such as our bananas, coffee, and chocolate. Interestingly, the seed stock of many tropical food crops is best maintained in situ – growing in agro-forests – as many do not survive well in frozen gene banks. For her doctoral research with Dr Sarah Gergel in the department of Forest Sciences, Kate Kirby was interested in understanding the factors influencing which crops are maintained by farmers when road building fragments tropical forests and provides improved access to outside markets. She was particularly interested in the relationship between culture and crops, and worked for several years in an extensive study with different ethnic groups in Panama's Darien region where she surveyed and mapped the botanical diversity of their agro-forests.

In the Darien, ethnic groups have a long history of farming. Two of these groups are indigenous to Panama, and a third are descendants of African slaves in Panama since the 1500s. Farmers of all groups practise shifting cultivation and maintain an impressive array of annual crop varieties and fruit tree species. For example, up to 10 varieties of rice might be planted in a single field, and over 50 tree varieties in an orchard, including a diverse mixture of fruit, nut, fibre, and timber trees. Kate surveyed agro-forests in villages situated at different distances to nearby markets – some along the Pan-American highway and others in remote areas only reachable by days of travel by foot or dugout canoe. Importantly, each ethnic group had villages near and far from roads, allowing Kate to contrast how farmers of different groups were responding to market access.

Kate found that different ethnic groups maintained very different crop species and varieties within their agro-forests, even in areas closest to roads with better market access. While farmers closer to markets maintained fewer total crop varieties, they did not always eliminate traditional crops in favour of cash crops. In particular, species and varieties with important cultural and ceremonial significance, as well as those preferred for traditional dishes, were still grown. Thus, across the Darien landscape, overall agro-biodiversity was higher because different groups maintained different crop species and varieties. Her results demonstrate that attention to interactions between biological diversity and cultural diversity should be an important component of conservation efforts in tropical agro-forest landscapes.

Kate is now a post-doctoral research fellow at the University of Toronto continuing her inter-disciplinary research associated with both the Departments of Ecology & Evolutionary Biology as well as Geography & Planning. For further information, contact Dr Kate Kirby at kate.kirby@utoronto.ca.

Coffee drying in the sun in the village of Nurra

Relating shape to human aesthetic evaluations

The appearance of forest harvests has long been an important characteristic of the landscape. The overwhelming trend in the industry has been to try to simplify the design of harvest blocks to increase efficiency and safety. However, issues such as the impacts of the designs on wildlife habitat have highligted the need to balance simplicity with additional design criteria. This is also true when it comes to the effects of harvest block design on visual aesthetics, although the relationships have yet to be fully explored in the literature.

A series of studies by Drs Mike Meitner and Brent Chamberlain, along with graduate student Angela Liu, have focused on shape perception and preference in the context of harvest design. This work has revealed a number of interesting findings. Circular shapes with smooth undulating edges were preferred over blocky angular shapes. Individuals also preferred shapes with medium or high levels of complexity. The results from these studies demonstrate that the shape of a harvest block may impact the overall aesthetic of the landscape, contrary to the literature to date. However, all the harvest designs presented in the initial studies were visualized from a perspective view such as looking out on a hillside from a road. As a result, we decided to shift the focus of our next study to investigate views from a different perspective.

Visual management of forests in British Columbia is often based on common viewpoints such as a roadside pullout, lodge, or lake. However, today it is also quite common to view forests from the air while in a plane or with programs such as Google Earth. Thus, we wanted to investigate the effects of harvest shapes when seen from this

Figure 1: Images from image set 1 (low, mid, high complexity).

Figure 2: Images from image set 2 (low, mid, high complexity).

perspective as well as determine the degree to which participants felt that visual forest protection should be expanded to include aerial views.

The experiment consisted of a computer survey that displayed 2 distinct image sets. The first set included aerial images of harvest designs in British Columbia extracted from Google Earth. These harvest designs were then analyzed and divided into 3 main categories: low-complexity, medium-complexity, and high-complexity. Fifteen harvest designs were selected from each category resulting in a total of 45 harvest designs for the first image set. The second image set was based on the same 45 designs from image set 1; only the shape was kept constant, all other landscape characteristics were eliminated (see figures 1 and 2). Two conditions were used: subjects were either shown the image set 1 (aerial) first or shown the image set 2 (shape only) first. Each subject was randomly assigned either to view image set 1 first or image set 2 first. Subjects were required to rate each image for preference on a 1-10 scale (1=least preferred, 10=most preferred).

The 3 variables explored in this study were: context (aerial versus shape only), order, and complexity (high, medium, and low). Our analyses revealed 3 statistically significant effects relating to shape perception. There was no significant effect of order so ratings were pooled in the rest of the analyses. The largest effect was due to the complexity of the shapes. The results revealed that designs with high and medium range of complexity were preferred over designs with low complexity, which is consistent with our previous findings with images seen from a perspective view. The other effect was due to context. The shape-only image set was rated higher than the aerial view image set by a small percentage (2%). The interaction between context and complexity was also significant. The aerial view image set was rated significantly lower at low levels of complexity than the shape-only image set, but rated higher at high levels of complexity.

"Visual management of forests in British Columbia is often based on common viewpoints such as a roadside pullout, lodge, or lake."

The results from this study can be linked directly to the design of harvest blocks to achieve greater degrees of visual protection, even when observed from the air. Although it was not surprising to discover that complexity was the most influential variable predicting an individual's preference (even though this variable has been largely overlooked in the literature), we were intrigued by the degree to which it played a role. Lastly, as to whether or not the subjects thought that forest managers should be considering aerial views in the context of visual forest management, the overwhelming majority of subjects (79%) responded positively. While this certainly brings with it a number of challenges it serves as a reminder that times are changing and the ability to view the forest from the air has dramatically increased. Although visual forest protection today may only be realized when viewing the forest with our feet planted firmly on the ground, that might not always be the case as the public starts to increasingly scrutinize our management from the air.

Angela Liu is working towards her MSc degree under the supervision of Dr Mike Meitner in UBC's Department of Forest Resources Management. She can be reached at angelaliu429@gmail.com.

Glacier retreat and its downstream consequences

For over a century, mountain glaciers have dominantly been receding in most regions of the world. Measurements at long-term monitoring sites over the past few decades confirm that the loss of glacier mass by summer melting of snow and ice exceeds the gain of mass by winter snow accumulation in most years. Given the prospect of sustained climatic warming over the 21st century, it is almost certain that glaciers will continue to retreat and many smaller glaciers may disappear entirely. At a global scale, the loss of long-term water storage in glaciers is an important contributor to rising sea levels. At a more local scale, prolonged shrinkage of glaciers can have significant consequences for the rivers they feed and the human communities and ecosystems that depend on those rivers.

Over the past decade, Forest Resources Management Professor Dan Moore has been working with his students and a group of collaborators to increase our understanding of the influence of glacier melt on downstream river flow and water quality in western Canada. Their work has demonstrated that glacier melt is most important during periods of hot, dry weather in late summer and early autumn. During these periods, streams that are not fed by glaciers can experience extreme low flows and high water temperatures, both of which can have negative influences on salmon and other aquatic species. In contrast, streams with as little as 2% of their catchment area covered by glaciers will have their flows significantly augmented by cold meltwater draining from the glaciers, thus sustaining water levels and helping to maintain favourable water temperatures.

Hydrologists generally agree that glacier-fed streams should respond to long-term climatic warming in 2 phases. The initial response involves a period of increased flows during the melt season as a result of the earlier onset of spring melt and an earlier disappearance of the previous winter's snow, which exposes darker ice and firn (old snow that has lasted through at least 1 summer's melt), which absorb more solar radiation and melt more rapidly. Eventually, however, glaciers will respond to sustained climatic warming by retreating, which decreases their surface area and ultimately limits the volume of water generated by surface melting. At that point, glacier contributions to streamflow should decline through time until the glaciers either reach a new equilibrium with the climate (assuming that the climate eventually stabilizes) or disappear. While there is agreement on this general 2-phase pattern of response, the time scales for response are not understood, particularly how long it takes for the transition from the initial phase of increasing flows to the second phase of decreasing flows.

> **"The results from this research will be particularly important given the increasing pace of resource development in northwest British Columbia."**

An analysis of streamflow trends for glacier-fed rivers in British Columbia by Drs Dan Moore and Kerstin Stahl (a former postdoctoral fellow now at University of Freiburg) revealed that, in most of the province, streamflow in August and September has been declining over recent decades, suggesting that the first phase has already passed. In northwest British Columbia, however, streamflow has been increasing in August and September, suggesting that those streams are still experiencing the initial phase of response. To increase our ability to predict streamflow response to climatic warming in glacier-fed catchments, and especially the timing of the transition from increasing to decreasing flows, Dan and his collaborators are currently applying a suite of advanced computer modelling techniques to several glacier-fed catchments in British Columbia. The aim is to reconstruct how glaciers and streamflow have responded to climatic variations

and change over the past century, and to make projections of how they will respond to future climate scenarios generated by global climate models. The results from this research will be particularly important given the increasing pace of resource development in northwest British Columbia and the associated need to understand how water supply could change as glaciers respond to changing climatic conditions.

As glaciers retreat, they expose land and water bodies that will evolve through time and provide new terrestrial and aquatic habitats, and also modify the export of sediment, nutrients and organic matter to existing downstream aquatic ecosystems. Studying how these post-glacial landscapes evolve provides an exciting opportunity to test existing and develop new theories about landscape dynamics. Dan Moore's group has recently begun focusing on the evolution of post-glacial landscapes and their implications for downstream aquatic ecosystems. For example, MSc student Natasha Cowie found that the development of riparian forest along recently exposed proglacial streams in the Coast and Cascade Mountains could take one to several centuries, depending on elevation and channel stability. A major focus of ongoing research will be the recently exposed proglacial zone at Bridge Glacier, located 170 km north of Vancouver. The glacier has been retreating at an average rate of 200 m per year for the past decade (for an animation, see http://glacierchange.org/2011/09/animation-recession-of-bridge-glacier-british-columbia/).

Dan Moore's research on the downstream implications of glacier retreat has been funded by the Natural Sciences and Engineering Research Council through a Discovery Grant and post-graduate scholarships to his students, the Climate Change Action Fund of Natural Resources Canada, and the Canadian Foundation for Climate and Atmospheric Science through its support of the Western Canadian Cryospheric Network. For further information, contact Dr Dan Moore at dan.moore@ubc.ca.

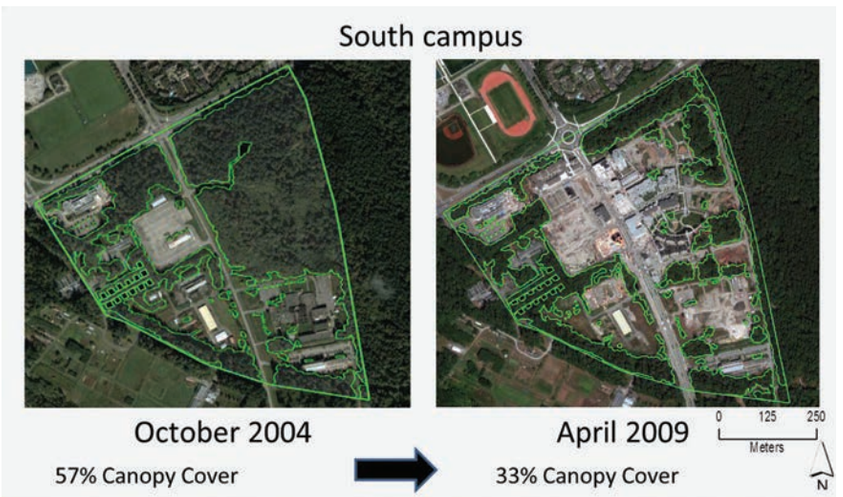
Photo: Colleen Kimmett

Bridge Glacier in 2011. It has retreated over 1 km since 2005

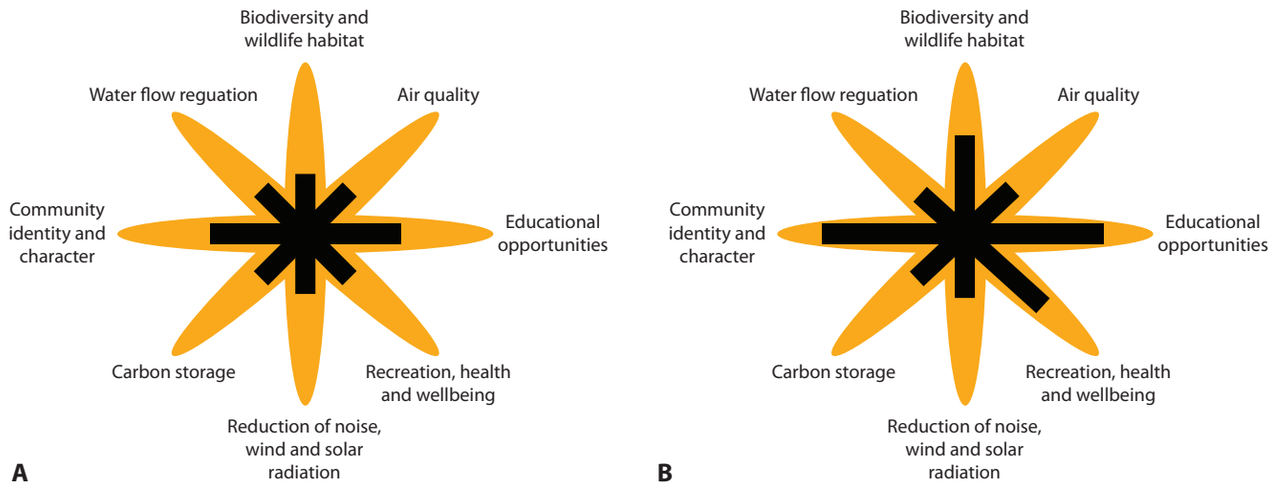
The role of urban trees in campus sustainability

The urban tree canopy at the University of British Columbia (UBC) is not only essential for campus sustainability but also for the community's well-being yet this valuable resource is declining by as much as 5% anually in portions of campus. The campus' tree canopy may be underutilized for promoting UBC's commitment to sustainability.

As part of a UBC Social Ecological Economic Development study, Forestry undergraduate student Ira Sutherland has compiled a UBC tree canopy report. Ira's advisor on this project was Dr Sarah Gergel in the Department of Forest Sciences. The report is intended to help campus planners identify what types of urban trees offer the most benefits to the university community. It also provides a snapshot of the entire UBC urban tree canopy and shows change in canopy cover and structure at a variety of study sites across campus.



The benefits people obtain from nature are often referred to as ecosystem services. Urban tree canopies provide ecosystem services that have measurable significant monetary value. For example, carbon storage, air quality improvement, urban water



Potiential increases in ecosystem services derived from the UBC tree canopy. A represents services before management and B after management. Black bars represents the magnitude of ecosystem services being produced by the UBC tree canopy. Some urban tree canopy ecosystem services could be increased through innovative management practices thus offsetting declines experienced elsewhere on campus due to development. Such an approach could be an important part of supporting UBC's commitments to sustainability.

regulation and other urban tree or urban forest ecosystem services, are valued at over $246 million in Vancouver's Lower Mainland. Research has also shown that urban trees support vibrant communities, improve human health, and reduce stress. The value of such services is difficult to quantify but is important to UBC's vision of promoting campus as a healthy, unique and internationally-renowned university capable of attracting high-quality staff, faculty and students. Lastly, the role of campus trees in supporting urban biodiversity is important to UBC's commitment towards sustainability.

UBC has the vision of becoming a world leader in sustainability. Thus, it is critical that the university demonstrates stewardship and sustainable management of its own forests and tree canopy. Given current expansion and building infill plans at UBC, this is an important time to evaluate impacts of development on the campus' urban trees. Canopy ecosystem services may be declining in areas where increasing campus development results in the replacement of large mature trees with small nursery trees, thus greatly reducing canopy coverage. Ira's study involved a geospatial analysis documenting canopy cover decline from 26% to 9% at the Marine Drive Residences study site between 2004-2009. Over this same period the south campus study site (see figure opposite below) lost 11ha of canopy cover (from 57% to 33% cover) at the 46 ha site. Meanwhile, canopy cover in other parts of campus were unaffected by development and are experiencing very slow increases in canopy cover (eg, 0.6% a year) due to natural tree growth.

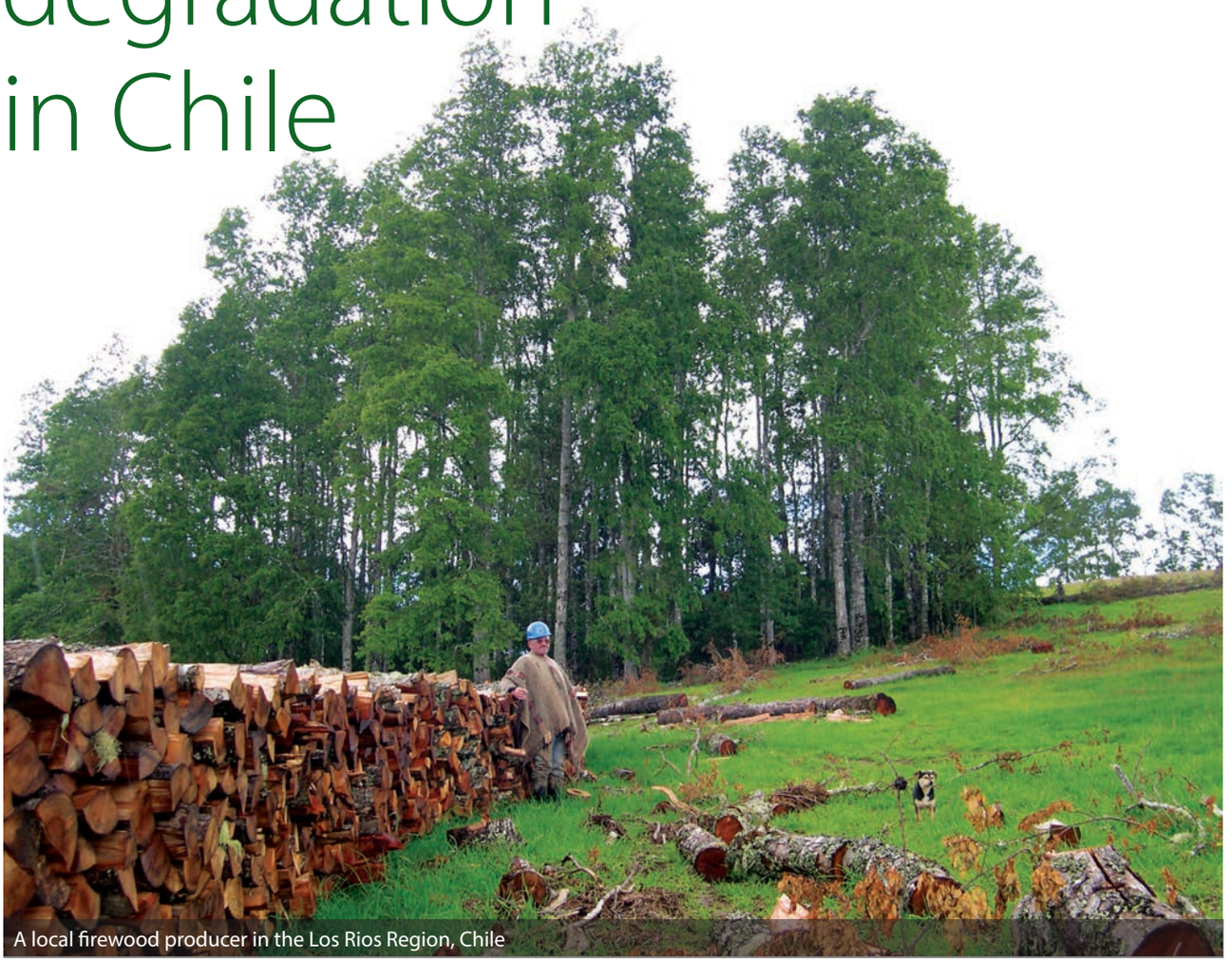
The results from this research suggest that the University should make greater effort to sustain canopy benefits and better utilize trees for promoting campus sustainability. This may include maintaining or increasing campus canopy cover (currently estimated at 30%) or enhancing the ecosystem services of existing trees through tree management strategies to promote native biodiversity, recognizing cultural values of Musqueam First Nations, supporting the "living lab" initiative, or encouraging alumni engagement in planting memorial trees.

For further information on this project, contact Dr Sarah Gergel at sarah.gergel@ubc.ca or Ira Sutherland at mountainira@gmail.com.

About Ira Sutherland: Ira's interest in the benefits provided by urban trees was initiated many years ago through his exploration of forests in the Vancouver area. He enjoys visiting the monumental trees of our local forests and values the sense of revitalization and intellectual inspiration gained from walking amongst the ancient trees found in places such as Stanley Park, Seymour Valley and of course, UBC.

Recently, Ira adopted the goal of increasing Vancouver residents' knowledge and appreciation of our forests as a means of building support for the conservation and stewardship of our urban and provincial forests. He is leading free public hikes to his favourite groves, presenting slideshows, co-chairing the UBC Ancient Forest Committee, and offering interpretation of specific forest areas on his blog and his new online hiking guide (vancouversbigtrees.com). Ira has also started creating short films of some of our local forests. His efforts have not gone unnoticed. Recently, Ira was honoured as a Wesbrook Scholar, UBC's most prestigious undergrad designation.

Woodfuels and native forest degradation in Chile



A local firewood producer in the Los Rios Region, Chile

Woodfuels are a very important energy source in many parts of the world. The Food and Agriculture Organization of the United Nations estimates that almost 53% of the world's roundwood production is used to produce energy. Furthermore, it is estimated that 2.4 billion people use this energy source, especially households in developing countries, representing 36% of world population.

Chile is one of the Latin American countries where woodfuels are an important component of the primary energy matrix, accounting for around 20% of all energy used. The country has abundant forest biomass, but no fossil fuels. Heating with woodfuels is between 3 and 5 times less expensive than using fossil fuels. From a cultural standpoint, people prefer firewood heat over that produced by kerosene, liquefied gas or electricity. This is understandable in regions where relative humidity is very high for 7 to 8 months the year. Chile's annual woodfuel consumption increased from 7 to 20 million cubic meters between 1980 and 2008. In the southern regions of the country, where the climate is rainy and cold during the winter, more than 80% of the households use firewood. Many industries and public buildings (hospitals, schools, municipalities, etc) also consume firewood and forest wastes to produce steam, heat and power. Unlike some African and Asian countries where woodfuels are also an important energy source, in Chile the residential consumption of woodfuels is more oriented to heating than cooking. Another significant difference is the importance of the industrial sector, which consumes 46% of the total

Although deforestation has declined during the past decade, forest degradation remains a major threat for the conservation of these ecosystems. "

volume (and this figure is growing). Wood pellets are starting to be used by the residential, commercial and public sectors, and industry forest wastes and black liquor are used to produce electricity in pulp mills.

At a national level, two-thirds of Chile's woodfuels come from native forests and one-third from forest plantations. However, in the southern regions almost all woodfuels come from native forests. Chile's native forests have great ecological and evolutionary importance due to their high level of endemism. These forests have been classified by the World Bank and World Wildlife Fund as one of the world's top 20 eco-regions for conservation priority. Although deforestation has declined during the past decade, forest degradation remains a major threat for the conservation of these ecosystems. Official statistics indicate that over 90% of timber harvested from native forests is used for energy purposes (woodfuels). Unfortunately, an important share of this volume is from timber harvested illegally.

A large proportion of Chile's native forests are in private hands, particularly in the most populated regions. Indigenous peoples, descendents of European settlers, Chilean farmers and companies share the territory, a mix that adds complexity to the forest degradation process.

Rene Reyes is a doctoral candidate with Dr Harry Nelson in the Forest Resources Management Department. He is looking at the process of native forest degradation in Chile by attempting to understand how the woodfuel market influences forestry producer decisions. Rene plans to analyze the relationship between demographic, social, economic, cultural and psychological variables and the management of native forests, using a sample of more than 300 farms in the Los Rios Region (a region of Chile with high woodfuel consumption from native forests). He will also explore the potential impact of an increased woodfuel demand from the industrial sector, and its potential effects on the management of native forests. Ultimately, Rene hopes that his research will lead to policy recommendations focussed on reducing forest degradation in Chile.

For further information on this project, contact Rene Reyes at renereyesgallardo@gmail.com or Dr Harry Nelson at harry.nelson@ubc.ca.

Before coming to Canada Rene worked on community-based forestry and woodfuel trade projects in his home country of Chile. He is a founder of the National Firewood Certification System, which was the first initiative in Chile to regulate the woodfuel market. To quote Rene "I believe that the production, trade and consumption of woodfuels creates many positive externalities such as employment, local development, carbon reduction and energy security. The challenge is to take advantage of these positive impacts while, at the same time, controlling the negative ones."

Forest workers cutting timber into 1-meter lengths for transport out of the forest

A stressful tale

Intergenerational effects of stress in sockeye salmon

by Natalie Sopinka

Salmon fry

This is a story about a fish, which after living in the ocean for a number of years embarked on a journey back to the freshwater stream she was born in to find a mate and reproduce. It is no small endeavor this fish is completing. As a sockeye salmon migrating back to natal spawning grounds in British Columbia's Fraser River watershed, she has begun an arduous but necessary, once in a life time expedition that will render her totally stressed out. She is a significant economic, cultural and ecological resource for North America. Her vital role in commercial and recreational fisheries, First Nations beliefs and livelihood, and marine and freshwater habitat viability greatly intensifies the concerns about the persistent decline of her species in British Columbia.

As a doctoral student in the Pacific Salmon Ecology and Conservation Laboratory, I am a member of a diverse research team dedicated to the study of Pacific salmon physiology, behaviour and ecology. Led by Dr Scott Hinch (Department of Forest Sciences, UBC), postdoctoral, graduate and undergraduate researchers are currently investigating how environmental and anthropogenic stressors such as climate change and fisheries capture are impacting sockeye salmon, from tissue specific gene expression to migratory behaviour and survival.

Driven by the evolutionary urge to produce offspring, she departed the ocean in late summer and headed toward freshwater. She had no choice but to swim upstream along the Fraser River and endure all of its twists and turns. The mighty Fraser River was once a relatively tame environment for her ancestors to travel through but today teemed with numerous stressors she must survive to reach her final destination, home. As she torpedoed against the current, she suddenly paused and became disoriented. Which way was home again? Perhaps the toxic chemicals flowing into the river from agricultural and urban runoff were interfering with her ability to sense the direction home. Eventually she regained orientation and continued on. The water temperature began to rise and swimming became increasingly more strenuous for her. Why were salmon around her dying before reaching home? Within moments, a large net enveloped her whole. She thrashed frantically exhausting every muscle in her body, her jaws opening and shutting rapidly before gaping wide while she soared through the air and splashed back into the warm, murky flows of the Fraser River. Continuing to breathe quickly, she reoriented yet again only to encounter the ferocious rapids of Hell's Gate. Determined more than ever, she bulleted forward through the rapids as shadows of ravenous seals lurked behind her tail. At long last, she arrived at the stream where she had grown from egg to fry. The eggs that developed inside of her during the challenging journey home were released into the gravel bottom of the stream and fertilized with her mate's sperm. Within days she died, after carrying out one of nature's most astonishing migrations, but the story does not end here and there remain many unanswered questions. What will happen to her offspring? Did the extraordinary stress experienced throughout her migration home affect the quality of her eggs, the building blocks that generate the next generation of sockeye salmon? Did her eggs contain adequate nutrients for the developing alevin to thrive? Will her fry grow big enough

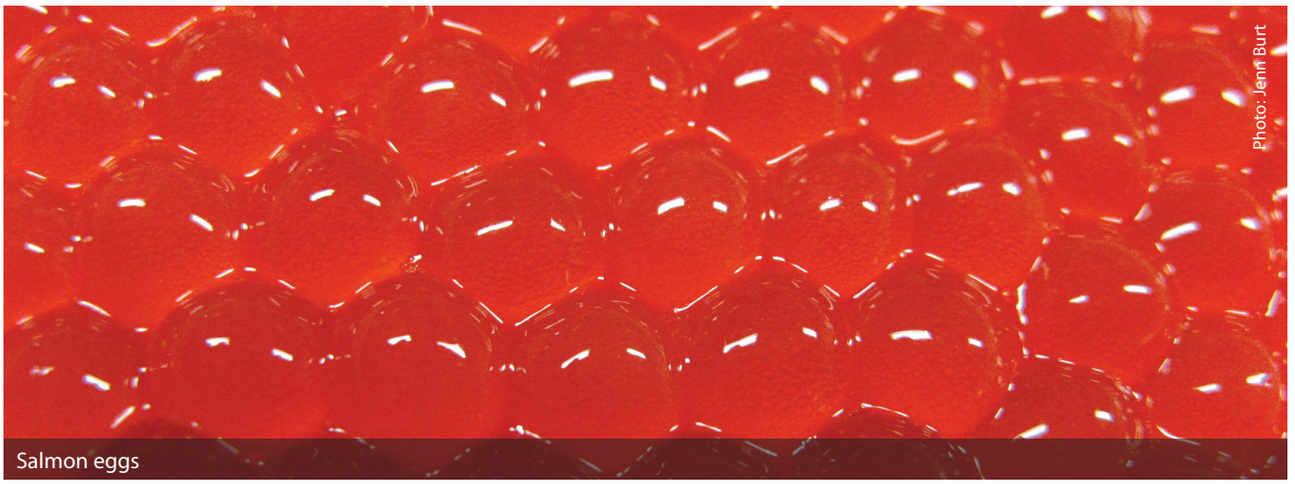


Photo: Jenn Burt

Salmon eggs

to feed on their own? When predators stalk her juvenile offspring, will they swim fast enough to escape their demise? What are the intergenerational effects of stress in sockeye salmon?

The picture is clear; exposure of sockeye salmon to thermal and fisheries related stressors impairs important physiological processes, alters behaviours and reduces survival. Less clear is how exposure of adults to such stressors influences reproduction, and ultimately offspring quality. My doctoral thesis examines how stress experienced by migrating adult sockeye salmon is impacting crucial behavioural and physiological traits in developing offspring. In a recent study, levels of stress experienced by parent fish were manipulated to assess the resonating effects of parental stress on offspring quality. Captured from the Harrison River (near Harrison Hot Springs) 6 weeks prior to spawning, maturing adult sockeye salmon were transported to and housed at the Department of Fisheries and Oceans Cultus Lake Salmon Research Laboratory in Chilliwack. To simulate a stressful migration captive fish were chased each day, while non-chased fish served as captive controls. When mature, eggs were collected, fertilized and incubated from chased and control sockeye salmon, as well as from salmon that naturally migrated to spawning grounds in the Harrison River.

With the help of Forestry undergraduate student Collin Middleton, eggs collected from sockeye salmon held in captivity (chased and control) were found to be smaller than those collected from females caught during peak spawning in the Harrison River. The implications of smaller eggs are not favourable for fish, as offspring tend to have lower survival, be smaller with slower growth rates, and swim slower increasing vulnerability to predators. Early survival of offspring from captive females was found to be 10-20% lower than that of embryos raised from eggs of spawning ground-caught females, suggesting that offspring incur a significant cost if their parents are chronically stressed. When measured at emergence (full absorption of the yolk sac), fry reared from eggs collected from captive females were smaller than eggs collected from females that migrated to spawning grounds in the wild. Expecting smaller fish to be poorer swimmers, surprisingly, fry from chased females demonstrated the greatest swim performance. These results demonstrate consequences of parental stress, as well as providing novel evidence that stressed sockeye salmon may prime their offspring with traits to survive a harsh environment. Ongoing studies will continue to disentangle the intergenerational effects of stress and aid in understanding the best strategies to manage stress experienced by migrating sockeye salmon.

Spring arrived and the cold of winter faded. Beneath the gravel eggs began to stir. Soon her alevin would hatch and emerge as fry. Did their mother's stress hinder or help? What will their story be?

For further information contact Natalie Sopinka at natsopinka@gmail.com.


Photo: Matt Casselman

Adult salmon

Working with Indigenous communities


José with salmon

The forests and rangelands of British Columbia generate a variety of resources for people, ranging from wood products to non-timber forest products to intangible benefits. For example, forests act as a filter, generating a supply of fresh water. At the same time, forests and the streams within them provide habitat for fish and wildlife and, by protecting species at risk, forests are important reserves of biodiversity. Additionally, they provide areas for recreation in all seasons, and are culturally and spiritually significant for Indigenous peoples, who have lived in what is now known as British Columbia and the surrounding areas since time immemorial, developing several distinctive and successful livelihoods using local resources and adapting to the landscapes and environments in which they have resided. As a consequence, Indigenous peoples have much to contribute, and teach us, about both documenting and understanding the effects of climate change, and about attempting to respond to, and cope with, climate change at both global and local levels. Indigenous knowledge can enhance Western society's appreciation of the cultures that hold this knowledge. The recording of such knowledge should also be seen as an important tool for social change and for maintaining the well-being of the people.

José Arias-Bustamante is a Chilean forest engineer currently working on his MSc degree in the Sustainable Forest Management Laboratory in the Faculty of Forestry. Through the implementation of an Indigenous research framework, José is examining and characterizing the potential impacts of climate change in the lands of the Nisga'a Nation (Northwestern British Columbia). The objectives of his study are: a) to identify the main concerns of the Nisga'a related to the effects of climate change on forest ecosystems in general, and traditional practices in particular; and b) to discover Indigenous knowledge-based management guidelines for the forests of the Nisga'a Nation, based on how the Nisga'a people have adapted to the changing climate over the time. José's research framework, developed in cooperation with the Nisga'a Nation, uses a methodology that is respectful of and integrates Indigenous protocols, values, and beliefs that are important to the specific community. This has involved submitting the proposed work to both the Wilp Wilxo'oskwhl Nisga'a Institute (WWNI-Nisga'a University College) and the UBC Behavioral Research Ethics Board, in order to get the required approval to undertake the research. In fact, the WWNI is one of the main collaborators through its president and CEO Ms Deanna Nyce, who is guiding José's work in the community and helping him to build rapport with community members.

The fieldwork for this research was done in the summer of 2012 in the Nass Valley, located 100 kilometers north of the City of Terrace in British Columbia. Participatory interviews were used to gather the stories of participants, giving José the opportunity to talk to a range of community members from elders to community leaders and some politicians within the Nisga'a Lisims Government. On the very first day of the fieldwork, José had the chance to talk with his host, Irene, in Gitwinksihlkw Village, also known as Canyon City, one of the four Nisga'a Villages. These talks with Irene helped him to understand more about the Nisga'a culture and their traditional practices. Irene explained how salmon, the most important food for the summer season, are prepared for smoking in what she called the smokehouse. To be effective, the smokehouse must be made from western red-cedar. However, the small poles used to hang the salmon strips are made

Salmon strips drying on small poles in the smokehouse

from western hemlock or western red-cedar, which are used because of their antibacterial properties. The tree species used as fuel varies depending on the intensity of the fire needed to smoke the salmon. During summer, when less heat is needed in the smokehouse, cottonwood is used as firewood. However, smoking of oolichan fish, another important source of food for Nisg̲a'a people, is done in winter using green alder with its higher calorific power and greater ability to generate heat.

Irene had several comments that related to climate change. She talked of more than one metre of snow during March when they were smoking oolichan. She also remembered the river freezing when she was young, around 30 years ago. She explained that it had to be -20ºC for more than 2 weeks in order to get ice thick enough for people to walk on the river. Finally, she mentioned the mountain pine beetle that continues to impact the forests since cold periods have become shorter and less intense than in the past. Such changes may or may not be related to climate change. She also mentioned that the number of salmon coming back from the ocean is considerably lower than in the past.

With such a wealth of information, José's research got off to a great start. Other individuals that he interviewed more formally provided large amounts of information, illustrating the benefits that can be gained when such research is done cooperatively. This information is now being examined and summarised, and later this year José will return to the Nass Valley to present his findings at a community workshop to ensure that the findings can be validated. Finally, as an act of reciprocity and involvement towards the research participants, José will offer his final paper as a report to the community at the end of the study. As Deanna Nyce has pointed out, the Nisg̲a'a are happy to help him discover what they know, but this has to be done in a way that respects their knowledge, their people and their land.

For further information on this project, contact José Arias-Bustamante at joarias.uchile@gmail.com. José has recently won a Kloshe Tillicum Aboriginal Health Research Award for his research in the Nass Valley.

The smokehouse

Is beauty always in the eye of the beholder?

Most practicing foresters in British Columbia are well aware of the need to maintain the quality of viewscapes. In fact, visual quality is one of the forest values listed by the Forest and Range Practices Act, and requires that visual quality objectives be established. The visual impact of forestry activities is extremely important, as it plays an important part in maintaining the social license of forestry. As a result, visual quality management has become an integral of part of sustainable forest management, yet aesthetic indicators are curiously absent from many of the international criteria and indicator initiatives adopted around the world. Why is this?

Sang Seop Lim has been trying to find out. Initial investigations identified several reasons why there was no criterion on the maintenance of visual quality. One of the most frequently stated reasons was that because "beauty is in the eye of the beholder", it is impossible to lay down any formal guidelines for aesthetic indicators. While there is a lot evidence that different cultural groups view particular scenes differently, part of Sang Seop's research has been to evaluate whether or not the public thinks that aesthetics are important, and whether or not there are cultural differences in this belief.

To do this, he approached different groups in China, Japan, Canada and the Republic of Korea. Rather surprisingly, there were no differences in the importance attached to aesthetics by members of the public in the different countries. Although the sample size was rather limited (there were 431 individual responses), the results suggest that the general public generally rated aesthetic values as less important than values such as freshwater, climate regulation, timber production and soil protection. A possible limitation of the sample was that it mostly consisted of students. However, to check whether this affected the results, Korean students were compared with two other groups: Korean office workers and Koreans living in Canada. No differences were found between the three groups.

The study was then extended to those who had received some level of forestry education. These individuals generally rated aesthetic values higher, and the analysis revealed that the level of forestry education was actually more important than the country of origin in influencing how important people considered aesthetics to be. The effect increased with the extent of the forestry education: those with a post-graduate forestry education attached more importance to aesthetics and other social values than those with only an undergraduate education.

Sang Seop went on to examine why aesthetic criteria and aesthetic indicators are missing from the reports of the Working Group on Criteria and Indicators for the Conservation and Sustainable Management of Temperate and Boreal Forests (known as the Montreal Process). The Montreal Process is guided by a Technical Advisory Committee, consisting of experts nominated by the 12 member countries. This Committee manages the criteria and indicators

that define sustainable forest management for much of the world's temperate and boreal forests, including the USA, Canada, Russia, China, Korea, Japan, Australia and New Zealand. He approached the members of the Working Group, asking them why aesthetic indicators had been omitted. Using a Delphi Process, which involves asking the group a set of questions and then going back and progressively refining those questions based on the answers received, he was able to determine that aesthetics had been omitted because none of the experts who defined the criteria and indicators were familiar with forest aesthetics. Another frequently cited reason was that aesthetics were considered to be too imprecise for use in national reporting.

The lack of expertise in aesthetics is not really a surprise. Ever since the Montreal Process started, indicators related to the natural sciences have been strongly encouraged. Social indicators have been much more difficult, and have been mired in controversy. The 2 criteria that deal with social and economic indicators have not been fully reported on by countries such as Canada, partly because the required information simply isn't available. However, there have also been problems with the design of the indicators, and the final phase of the project involved the identification of potential indicators related to forest aesthetics.

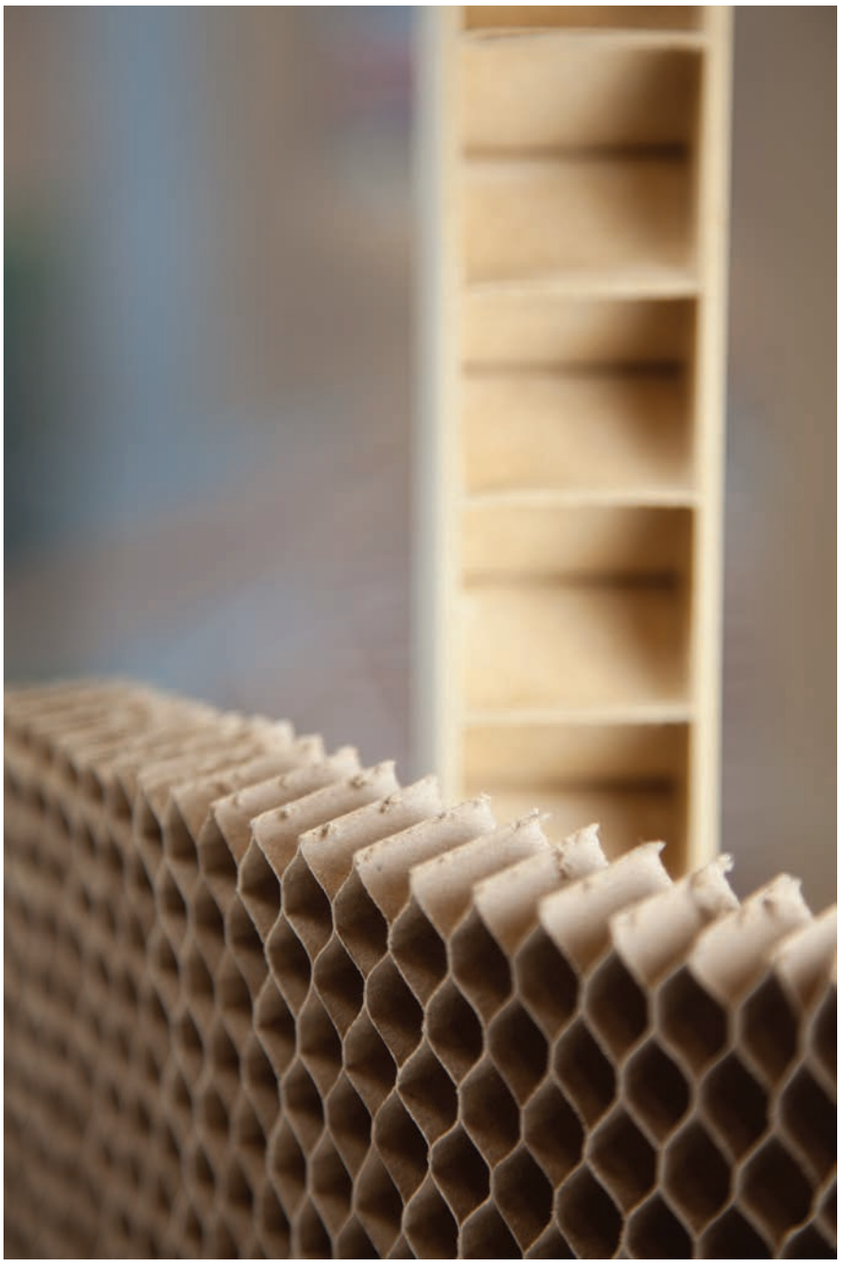
"...aesthetics had been omitted because none of the experts who defined the criteria and indicators were familiar with forest aesthetics."

This involved input from both the members of the Working Group and experts in forest aesthetics. Ten potential indicators were identified, of which 1 was related to the existence of forest aesthetic considerations in forestry activities, 1 related to public satisfaction, and 8 were quantitative indicators reporting on, for example, the extent of visually sensitive forest land being protected.

It remains to be seen whether the new indicators will be incorporated into the Montreal Process criteria and indicators. There is very limited enthusiasm at the moment for the use of criteria and indicators in national forestry reporting, primarily because cutbacks in federal and provincial budgets mean that less monitoring is being done. However, such monitoring is essential if we are to base forest policy on sound information, and any jurisdiction that is unable to report on its indicators runs the risk of being accused of poor management of its forest resources.

Sang Seop Lim recently obtained his PhD in the Sustainable Forest Management Laboratory in the Faculty of Forestry. He is now director of the Timber Utilization & Product Division of the Korea Forest Service. For further information on this project contact Dr John Innes at john.innes@ubc.ca.

Lightweight and looks great!



Ultra-light, high strength honeycomb core sandwich panels have been a mainstay of the ship and aircraft building industries for almost a century, and wood composite-paper based honeycomb panels have been a staple for the furniture industry in Europe for almost half a century. Did you know that one of the factors that made the CEO of IKEA (Sweden) one of the world's wealthiest people has been the ability to sell air? The air is trapped inside a core of expanded Kraft paper honeycomb cells lined with two thin layers of commodity wood particle or fiber board hidden beneath a paper or plastic laminate covering. A strong, solid looking, sleek, self-assembly coffee table will sell for $20 instead of $200. For the first time, built-in-obsolescence extended beyond kitchen appliances and electronics to furniture, but with the bonus of being renewable and biodegradable. This super profit-making ability has attracted attention in North America in recent years. Honeycomb core panels allow modern, solid-looking furniture and shelving to be produced at minimal material and assembly cost, are light weight, formaldehyde free and use fully renewable and recyclable materials.

This article describes one of the larger projects completed earlier this year in the Wood Composite Group (Prof Greg Smith) at UBC's Faculty of Forestry. The project was funded through the NRCan Value to Wood Program which aims to further enhance the competitiveness of Canadian-based wood products companies through product innovation and quality control. The project involved an industry partnership with Quebec-based Panolite Inc, Canada's only and steadily growing manufacturer of commercial hollow core sandwich panels for the furniture industry. The scientific research partner was FPInnovations (Eastern Division) located in Quebec City where two UBC researchers, Dr Kate Semple and Ms Solace Sam-Brew, spent 5 months undertaking the short and long term (creep) properties testing for the project. The third partner was the University of Toronto which tested inter-laminear shear and produced a Finite Element Model for the creep and behaviour of honeycomb sandwich panels.

Project investigators worked with Panolite to produce the most comprehensive assessment to date of the short term physical and mechanical properties and creep behavior of a range of commercially-produced Kraft paper honeycomb stock panels used in the manufacture of tables and shelving. This work follows several years of laboratory-based studies investigating the effects of changing variables such as shelling ratio (ratio of facing to core thickness), honeycomb cell size and type, facing type (different wood-based composites) and edge banding. The primary objective was to measure the creep loading performance of different kinds of commercial hollow core stock panels and relate this to the short term loading capacity and stiffness of the panels. Another objective was to assess how the load bearing capacity and creep of these lightweight paper and fiberboard-based structures would change when exposed to high humidity conditions found in many parts of North America, including Vancouver. Five replicate stock panels measuring 4' x 8' x 1 ¾" of 5 different sandwich types were fabricated by Panolite. Three facing types, 3 facing thicknesses and 3 honeycomb core heights were assessed. The facing types were medium density fibreboard (MDF), particleboard (PB) and custom veneered hardboard (HB). Facing thicknesses were 3.2 mm-veneered HB, 6.3 mm MDF and PB, and 9.5 mm MDF and PB. Honeycomb core heights were 25.4 mm, 31.75 mm and 38.1 mm to provide a constant sandwich thickness of 44.45 mm. Short term facing properties thought to affect sandwich properties included flexural strength, linear expansion from 65% to 95% RH, and vertical density profile. Sandwich properties measured included flexural strength (peak load, facing stress, core shear ultimate stress, flexural stiffness), compressive strength (peak load, compression modulus, ultimate strength), internal bond strength (facing-to-core bond interface), inter laminar shear (ultimate strength, shear modulus), linear expansion (%) from 65% to 95% RH, and creep deformation under sustained 11 kg design loading (10% of failure load) over 57 days. Over 2500 sandwich test specimens were destructively assessed for properties.

The lightest, strongest, best looking and most effective type of facing to fabricate sandwich panels was the 3.2 mm thick veneered hardboard (used with the 38.1 mm high honeycomb core) as long as the veneer ran parallel to the long axis of the specimen. The only drawback was that this type of facing and the sandwich structure made from it, was significantly weaker if the veneer ran perpendicular to the long axis of the shelf or loading specimen, which paradoxically is the look that is preferred by customers. In the case of the particleboard and MDF facings, sandwiches were stronger and stiffer if they were made from thicker facing material (9.5 mm), which further adds to the cost and weight of the structure. For a given thickness, MDF was a stronger facing material for sandwiches than particleboard. Sandwiches

made from MDF and particleboard were slightly stronger and more resistant to creep if the honeycomb ribbons were oriented parallel to the long axis of the panel/test specimen since the core itself is more resistant to deformation in this direction. Despite this, core stiffness is not accounted for in the standard method used to calculate sandwich flexural stiffness.

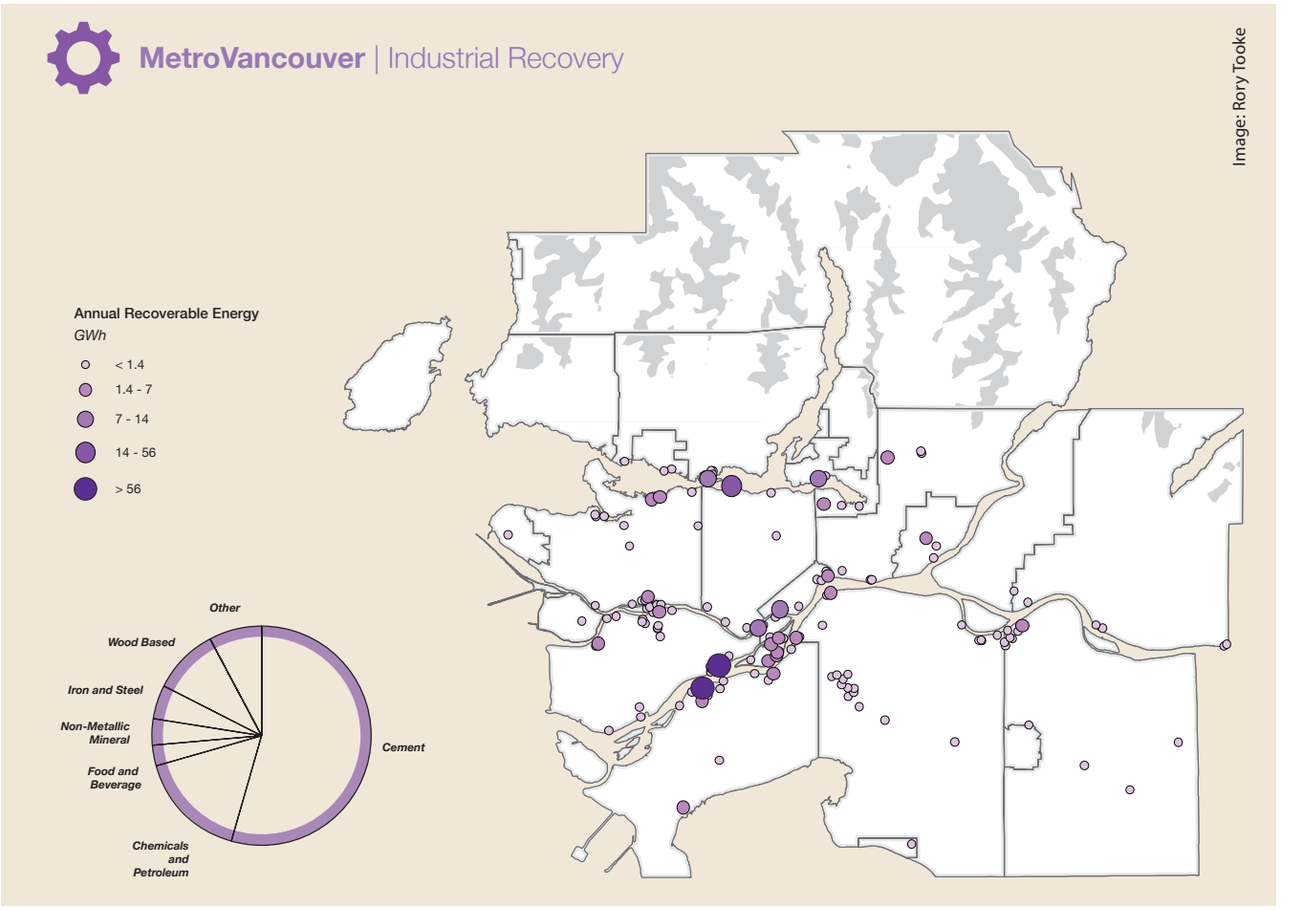
Conditioning facing materials and sandwich specimens to 95% relative humidity (RH) over 45 days caused a loss of strength properties of up to 50%. Thicker facings had greater strength and stiffness loss with exposure to high humidity, although the 6.3 mm MDF stood out as being more susceptible to moisture uptake and loss of strength of both the facing itself and the sandwiches made from it. Despite this, sandwiches stood up surprisingly well to sustained creep loading at 10% of rupture load, deflecting less than 0.5 mm at 65% RH and mostly less than 1 mm at 95% RH. At 65% RH, deflection after initial load application remained stable for the entire loading period, indicating minimal creep. However, deformation increased linearly with time at 95% RH. As long as the loading is not so high that it buckles the honeycomb, expanded honeycomb provides excellent reinforcement of the sandwich structure under sustained loading.

Our research provides Panolite, their customers, and other users of hollow core panels and the furniture industry with much needed technical data and information on the mechanical properties and performance of commercial grade paper honeycomb panels.

For further information contact Drs Greg Smith at greg.smith@ubc.ca or Kate Semple at ksemple9@yahoo.com.

development & alumninews

Urban futures research project receives foundation support



When you drop a pebble in a pond, you can see the ripple effect immediately. But when you install triple glazing in your home or plant a tree in your yard, how do you measure the impact on your carbon footprint? And how do you figure out if it's better for the climate to encourage similar behaviours in your neighbours, or get your municipality to switch out the bulbs in the streetlights?

Professor Stephen Sheppard and his team at the Collaborative for Landscape Planning in the Department of Forest Resources Management, are seeking the answers to these and other important questions in a multi-year research project supported in part by the Neptis Foundation and the Vancouver Foundation.

"Carbon dioxide and energy are largely invisible, and the prevailing imagery of climate change is often remote, such as ice floes melting, or abstract and scientific," says Stephen Sheppard. "In this project we want to produce compelling graphics and interactive tools – we call them digital stories in data – that help people see the implications of local energy use for climate change, and explore new community options for land use, energy supply and energy demand."

The key objective of the tools is to help local decision-makers and citizens visualize alternative low-carbon future scenarios, examine the relative merits of different strategies for urban development at regional and neighbourhood scales, to inform better decisions about things like densification, neighbourhood retrofits, and renewable energy production.

"There's a critical gap in public awareness of how community energy strategies can impact local neigh-

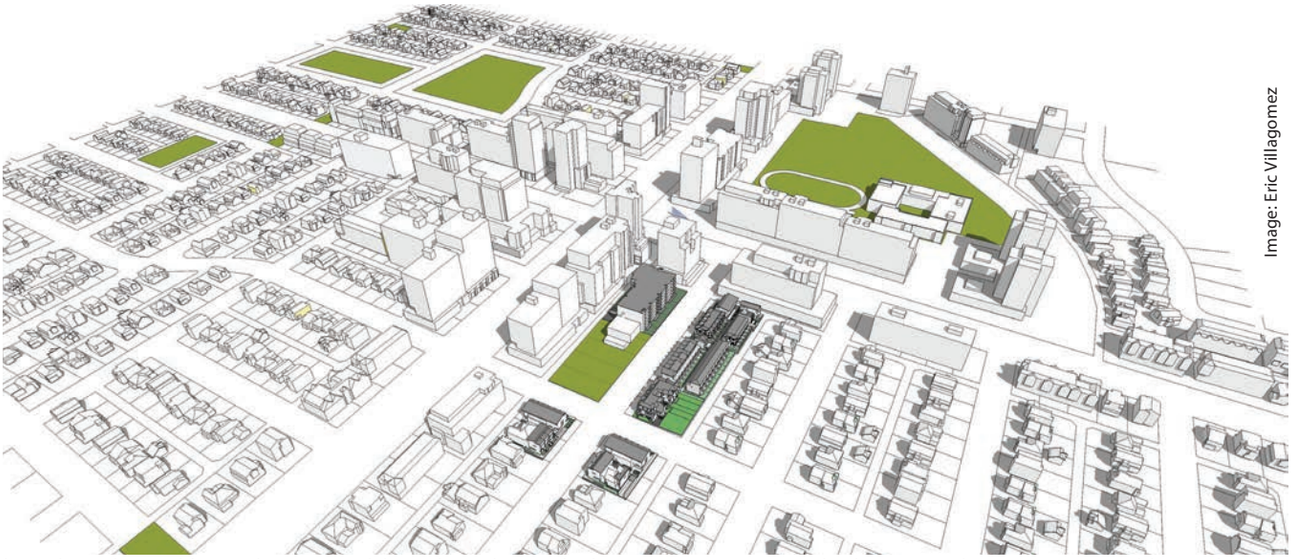


Image: Eric Villagomez

bourhoods, and how those neighbourhoods can help mitigate climate change," says Stephen Sheppard. "We want to put user-friendly tools, backed by sound data, in the hands of a broader audience."

The cities of Richmond and Surrey, along with Metro Vancouver, are partnering in this project, with representatives acting as advisors and co-developers in the process. Richmond and Surrey represent a spectrum of city centre to rural/suburban communities, all facing the twin challenges of continuing growth while meeting targets of reducing greenhouse gases by 80% by 2050.

The project was launched in 2011, and to date team members have completed an extensive literature review, developed active relationships with partners, and conducted both regional and neighbourhood case studies involving energy modelling, web-mapping and 3D urban form visualization. The end product will be a digital Primer on Community Energy that practitioners and communities can use to build understanding of unfamiliar local energy options, ahead of sometimes controversial planning decisions in tackling climate change.

Funding support for the project has been provided by GEOIDE Network of Centres of Excellence, Neptis Foundation, Vancouver Foundation, and Metro Vancouver, with in-kind support from the cities of Richmond and Surrey.

"This project aligns strongly with our aim of supporting informed public decisions and fostering understanding of regional issues," says Marcy Burchfield of the Neptis Foundation. "We are excited about the potential of using technology to deliver research to people in a meaningful and actionable way."

For more information about this project and additional opportunities for support, please contact Emma Tully, Director of Development, at emma.tully@ubc.ca or phone 604.822.8716.

Paul Heller Fellowship – 25 years of support continues

In 1987 Edwina Heller and her 2 daughters established the Paul Heller Fellowship in Forestry to commemorate her husband, Paul Heller's, 75th birthday and recognize his career in the forestry industry. Now, in the 25th year of the Fellowship, and shortly after Mr Heller's 100th birthday, he has increased the amount of the Fellowship and committed to funding it for the next 5 years.

Paul and Edwina arrived in Canada over 70 years ago after fleeing Warsaw during World War II. In November 1941, they settled in Vancouver and Paul and his brother Sam established their lumber business, Pacific Pine and Company. Paul and Edwina were both very active within UBC over the years and in addition to the Paul Heller Fellowship in Forestry created the Edwina Heller Scholarship in Music. Edwina was a concert pianist, who performed with the VSO and taught at UBC in the 1950s.

To date, the Paul Heller Fellowship has helped 16 Forestry PhD students and 9 Masters students pursue their forestry education by providing financial support, recognition and encouragement. It is awarded to an outstanding graduate student planning a career related to forest products.

The Faculty of Forestry is grateful to the Heller family for their on-going support and encouragement of forestry students!

If you are interested in hearing about how you can support a student, please contact Emma Tully, Director of Development, at emma.tully@ubc.ca or 604.822.8716.

Creating an exciting new nexus for Indigenous forestry

Participant at the Squamish Nation Powwow

Jesse Grigg received a BSc in Natural Resources Conservation in 2012. His academic career began in Forest Operations, but 6 years of working on the BC coast changed his perspective. "I spent a lot of time in small coastal communities: some were doing well, but others were not. For a guy like me, with an interest in the wilderness, this is an exciting time for First Nations to have a role in the future of the coast."

As we move into an era where Aboriginal and Indigenous people are exercising substantially more authority over the land, including forests and their resources, alumni like Jesse, students, faculty members and researchers are seeing the potential in partnerships with First Nations and other Aboriginal groups.

That's why the Faculty is taking the next step – a great leap, really – to strengthen and deepen our commitment to Aboriginal and Indigenous peoples' forestry with the creation of the Centre for Indigenous Forestry.

The Centre for Indigenous Forestry (a centre of expertise, not a new physical building) will:

- Convene important discussions among Canadian and international forestry experts.
- Conduct research on community forestry and public policy that embraces both Aboriginal and scientific approaches.
- Develop and implement undergraduate curricula.
- Recruit and support Aboriginal students in the Faculty.
- Be an important and impartial source of information and advice on Aboriginal and Indigenous forestry.
- Create solutions that will have economic, social, cultural and environmental benefits.

Behind this list of bullet points is a group of talented and dedicated supporters of the Centre, many of whom have been involved in its development for years.

Garry Merkel, a forester and a member of the Tahltan Nation and member of the Faculty's Advisory Council, has been involved since the start. "When we first met to discuss the need and how to fill it, I was impressed with this group of powerful and busy people who took time to care about this issue," he says. "The Centre for Indigenous Forestry will be the only institution in Canada dedicated to realizing the potential of relationships with Aboriginal and Indigenous people in forestry and resources management."

Gordon Prest is Co-Chair of the Faculty's First Nations Council of Advisors, and a member of the Sto:lo nation. In his opinion, "The Centre would bring people together to discuss issues and common solutions; not an us-and-them approach, but us together, blending Indigenous and industrial perspectives."

"At the same time, the Centre will help Aboriginal students feel well-supported, and will help non-Aboriginal students become more aware of and involved in Aboriginal issues," says Janette Bulkan, assistant professor of Indigenous forestry. "They can take that knowledge with them wherever they go in their careers."

As a first step in building our resources in this area, we have appointed Andrea Lyall to the key position of First Nations Coordinator. She will work directly with Aboriginal communities, schools, students, faculty members and others across the University to coordinate the Faculty's activities under the umbrella of the Centre.

Forestry alumni and friends have an opportunity to play an important role in the development of the Centre for Indigenous Forestry. There are many opportunities available for your support, including research chairs, fellowships, undergraduate awards, field study, programming, public events and lectures.

As part of our start an evolution campaign we invite you to join with us to realize the potential of strong working relationships with Aboriginal and Indigenous people.

For more information, please contact Emma Tully, Director of Development, at 604.822.8716 or emma.tully@ubc.ca.

alumninews

At the end of August alumni gathered for the first ever UBC Forestry Alumni Reception in Nelson. Students of the new course-based Master of Sustainable Forest Management were there for a week-long field school and alumni had the pleasure of watching the students present on a topic that they had studied during the week. The presentations were followed by a reception hosted by Dean John Innes at Touchstones Art Gallery and Museum.

This past September the Forestry class of 1962 celebrated its 50th year since graduating. The group came back to campus for a talk by Professor and Department Head of Wood Science, Rob Kozak, BSc'88, PhD'96, a tour of the Forest Sciences Centre, a visit to both the Beaty Museum and the Museum of Anthropology and lunch at Sage Bistro. The group then headed out the Malcolm Knapp Research Forest the following day for lunch and a tour of the forest. Alumni travelled from as far away as Ottawa to attend and a special thank you goes out to Jack Newman, BSF'62 for organizing the reunion.

The class members of 1962 celebrating their 50th year since graduation

Reunions and events

Mark your calendars for the following events:

- November 13, 2012 – UBC Dialogues: Victoria, BC. "*Does BC's forest industry have an image problem?*" Join UBC Dean of Forestry, Dr John Innes and fellow alumni for a dialogue about how the forest industry can prove its value in a technologically-advanced and sustainability-focused society. Admission is free and guests are welcome, but advance registration is required. Please RSVP at www.alumni.ubc.ca/dialogues before Thursday, November 8, 2012. For more information, contact Nicola Wootton at nicola.wootton@ubc.ca or 1.800.883.3088.
- November 14, 2012 – UBC Alumni Achievement Awards: Vancouver, BC. The recipient of this year's Honorary Alumni Achievement award is our friend Garry Merkel.

For more information on these events contact Janna Kellett at janna.kellett@ubc.ca or 604.827.3082.

Don't get "lost in the woods"! Keep your contact information up-to-date with us. Send address, email or phone updates to janna.kellett@ubc.ca or call her at 604.827.3082.

Forestry alumnus, Norman Godfrey, BSF'53, got in touch with us after reading about past and upcoming reunions in the last issue. He, quite correctly, pointed out that calling a reunion its "50th" is incorrect in that while it is commonly used to describe a reunion taking place fifty years after graduating, it grammatically means the group has met fifty times since graduating. Norman's class of 1953 has met a total of 26 times since graduating from the faculty of forestry! We think that may be a record. How many times has your class met? Call or email Janna Kellett at janna.kellett@ubc.ca or 604.827.3082 to share your number.

Alumni in action

One of the common questions raised by alumni is "What happened to my classmates after graduation?" Our students wonder "What can I do with my degree?" To answer both of these questions, this column features stories from our alumni, highlighting the various career paths our graduates have followed.

Hauke Chrestin, MSc '04

What year did you graduate and from which program?

I graduated with the degree MSc in Wood Science in the spring of 2004.

Where did you grow up?

I grew up in Northern Germany in the state of Schleswig-Holstein, between the city of Hamburg to the south and the border with Denmark to the north.

Why did you choose UBC Forestry?

After high school, I became a joiner/cabinet maker apprentice and graduated as a journeyman. A back injury then forced me to abandon my plans to become a master craftsman and choose a less physically demanding career. I took up university studies in Wood Science and Forest Products Economics at the University of Hamburg in Germany. My graduation thesis was on physical properties of sawn wood from different regions in Sweden. During this thesis work I spent the first half of 1996 at the Technical Research Institute of Sweden. My supervisors there had very good contacts with Drs David Barrett and Frank Lam at UBC and since I already had a strong interest in moving to British Columbia, this presented the perfect opportunity for me to start making connections. So eventually I was accepted into the Masters' Program at UBC's Faculty of Forestry, Department of Wood Science where I started in May 1997 as a grad student under Dr Thomas Maness. Commencing graduate studies at an internationally distinguished school of wood science in one of the most livable cities of the world, UBC Forestry seemed to offer me the perfect entry for my international research career in wood products.

What was your first job after graduation (related or not to your degree)?

My first "real" employment was as Research Engineer for a large Swedish forest products industry group of which today only the sawmilling and building products divisions remain under the name Setra Group. This company hired me while I was still studying, leading to my leaving UBC and Vancouver in December 1999 without finalizing my Master's thesis. Getting the thesis in shape for graduation then turned into a rather tedious process and lasted another 3 years.

What are you doing now and how did you end up there?

Today, I work as Senior Product Development Engineer for IKEA, a large international home furnishing company. IKEA is frequently ranked as one of the most attractive employers in Sweden and internationally. The company offers a wide variety of fields to

"Embrace diversity in every respect; it will enrich both your career and your personal life."

work in and strongly supports their employees' personal growth through internal training programs, the possibility to try different jobs and opportunities to work abroad. This motivated me to search for employment with IKEA and in 2006 I started working as an engineer with IKEA's product development division at their main site in Sweden. When the product development division opened a branch office in Shanghai, China I relocated there in July 2011 to support the establishment of this site. This was greatly facilitated by the fact that my wife is Chinese (though not from Shanghai) and our 2 daughters at that time already spoke Chinese fluently.

What is your fondest memory of your time at UBC?

Something that I remember very fondly from my time at UBC is working as a teaching assistant with undergraduate students in courses such as Industrial Engineering, Basic Wood Processing, and Practical Wood Working Training with Rob Furst. I remember how impressed I was with all the great and innovative ideas that came from these young minds both daily during class and in the different assignments. This impression is lasting and today I still seek to work with younger people to help them grow and to also gain new insights myself. Here in China I am currently working with an intern who is an undergraduate student in the program of Wood and Civil Engineering at Bern University of Applied Sciences, a school that UBC's Centre for Advanced Wood Processing closely cooperates with. I also rather fondly remember quite a few lunches with my office mates at the Pit Pub (does it still exist?) from where we sometimes did not return until the pub closed late at night.

If you weren't working where you are now what profession would you most like to try?

By a lucky mix of coincidence and determination, and although my life has taken many unexpected turns over the years, I am right now very much in a profession and a position where I like being. I like the work I am doing and I like the people I am working with. Due to IKEA's way of developing people that I described earlier, I feel a great freedom in choosing the life that I and my family want to live and therefore I do not feel any need to be anywhere else but where I am right now.

What is the toughest business or professional decision you've had to make?

The decision that I still remember as the toughest was more than 20 years ago. From the early days of my apprenticeship, becoming a Master cabinet-maker and running my own company had been my only goal. When a back injury forced me to give up this dream, I didn't have a choice, of course, but I was devastated nevertheless. Later, giving up my academic career and focusing instead on my engineering and project management skills was almost as tough a decision to make, although it quickly turned out to be one of the smartest and best decisions I have ever made.

What do you aspire to 10 years from now? (personally and/or professionally)

Both on the personal as well as on the professional level it seems an almost inevitable future step that one day my family and I will try to find a new home in Vancouver or somewhere else in BC, though I am not sure whether that will be in 10 years. BC and especially Vancouver offer us the great outdoors and the care-about-each-other attitude of the Scandinavian countries where we have lived so long, enriched with a mix of both Western and Asian cultures that are both combined in our family. My background in wood products engineering should make such a step possible.

Do you have any advice for students considering enrolling in forestry?

I would like to mention 3 things here:

- Be broad in your selection of courses; being able to gain some insights in fields related to your area of expertise not only enables you later to select from a wider range of jobs but also it will greatly help you in your professional decision-making and in building consensus across groups.
- Embrace diversity in every respect; it will enrich both your career and your personal life.
- Finalize your thesis before you start working for a company; every employer will understand this and you will deliver better and quicker results.

New course-based masters is off to a great start

We are excited to announce the launch of our new Master of Sustainable Management (MSFM) Program. This one-year course-based program provides students with opportunities for advanced scholarship and professional growth in natural resources management. The program prepares students for careers as forestry professionals in temperate forests in North America and overseas, and sets the stage for life-long learning. The MSFM program is designed to meet the academic standards administered by the Canadian Forestry Accreditation Board as required for admission to provincial professional forestry associations such as the Association of BC Forest Professionals.

Our inaugural class of 14 students is diverse and includes individuals with backgrounds in engineering, landscape architecture, computer science and biology. This talented group is looking forward to applying their energy, knowledge and skills to challenges in contemporary forest land management.

For more information about the Master of Sustainable Forest Management Program (including profiles of participants), please contact the program coordinator, Deb DeLong, MSc RPF, at 604.822.0613 or visit www.cbm.forestry.ubc.ca. The application deadline for the 2013/14 academic year is February 28th, 2013.

Electronic versus paper?

BranchLines is currently mailed to over 4,000 forestry alumni, interested groups and individuals. We also post an electronic version of each issue on our Faculty website **www.forestry.ubc.ca/branchlines/**.

If you would prefer to stop receiving paper copies we can notify you by email when electronic versions are available online. To change your subscription from paper to electronic notification please send your request to jamie.myers@ubc.ca.

Newsletter production

branchlines is produced in-house by the Faculty of Forestry at the University of British Columbia.
Editor: Susan B Watts, PhD, RPF, susan.watts@ubc.ca
Designer: Jamie Myers, jamie.myers@ubc.ca

ISSN 1181-9936

Questions concerning **branch**lines or requests for mailing list updates, deletions or additions should be directed to sue.watts@ubc.ca.

Forestry
University of British Columbia
www.forestry.ubc.ca

Return undeliverable Canadian addresses to:
Faculty of Forestry
University of British Columbia
Forest Sciences Centre
2005 – 2424 Main Mall
Vancouver BC CANADA V6T 1Z4