

branchlines

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forestry
university of british columbia

dean's message



In August this year, forestry students from the UBC Faculty of Forestry, the University of Northern British Columbia, and Thompson Rivers University will jointly be hosting the annual International Forestry Students' Symposium. This is a tremendous opportunity for our students to meet other forestry students from around the world, and for those students to learn something about forestry and forestry education in British Columbia. Recently, I had the opportunity to meet some of the students who will be coming to BC in a few weeks' time, and I challenged them to think carefully about what the name of their association implied (the International Forestry Students' Association – IFSA). I'm not sure that anyone really understood what I was saying, so I repeat that challenge here.

'International'. What exactly do we mean by the term 'international'? Just because someone attends a conference in another country, does that make them 'international'? Does a 2-week placement in another country make a student 'international'? This applies as much to faculty members as it does to students. UBC's Faculty of Forestry is considered by many to be international – more than a quarter of undergraduate students come from outside Canada, as do more than half of our graduate students. Yet the curricula that we deliver do not adequately reflect this. Partly driven by the pressures of accreditation, and partly

because forestry is so regionalized (some might even say parochial), we face the same problem as forestry schools everywhere in that our students have been taught to meet local rather than international needs. We have recently introduced 4-week long field visits to both China and India, but we need to do more to encourage students, and faculty members, to develop a more comprehensive world view of forestry, and this needs to be integrated into their teaching. National and provincial forestry education and forester licensing systems need to take a careful look at how other professions are dealing with our increasingly globalized world. Which brings me to the next part of the title.

'Forestry'. It would be foolish to get into a potentially endless argument over the definition of the term 'forestry' – the discipline of geography has shown how pointlessly destructive such debates can be. However, the Association of University Forestry Schools of Canada (AUFSC) is seeking to have the definition of forestry broadened, which some members believe will help enrollment numbers. For most students, forestry can be directly related to the management of forests, but this excludes many students studying in forestry schools. For example, in the Faculty of Forestry, our Forest Sciences, Natural Resources Conservation and Wood Products Processing programs currently fall outside the remit of the forestry program accreditation scheme, so are these students 'forestry' students? I firmly believe that they are, and the Canadian Institute of Forestry agrees, awarding all our graduating students silver rings. But that doesn't necessarily mean that these programs should be accredited according to standards developed by professional forestry organizations. Instead, it is time for those professional organizations to think carefully about what they mean by a professional forester. The time of the general practitioner, who knows everything about every aspect of a forest is long gone, yet we persist in

believing that we can train individuals to do this within a few short years. This is impossible; we need to recognize that learning continues throughout a career, long after someone adds the initials RPF to their name. Which, in turn, brings me to the next word in the title.

'Student(s)'. At the UBC graduation ceremony, the President always exhorts those receiving degrees to become life-long learners – if we follow his advice, does that make us all life-long students? We could argue that the term student refers only to somebody receiving a formal education, yet even this is becoming an extremely blurred distinction, and will become even more so in the future as online learning increases in importance. Such learning has never been more important than today, driven by the pace of change in the science and technology advances underpinning our respective professions. We really all are life-long students. I guess this is good news for the membership officer of IFSA! It also implies that the community of learners in forestry is a lot larger than most people realize.

'Association'. The final word in IFSA's title implies a formal grouping of people, bound by regulations and practices, and this is certainly the case. It is perhaps the only part of the title that today is clear. What is not clear is why membership of IFSA in North America is so low. Why have so few North American student associations joined IFSA? Does this reflect the parochialism that I mentioned earlier, and which is viewed as so important globally that it received a mention at the recent (22nd) session of the Committee on Forestry of the Food and Agriculture Organization of the United Nations. Hopefully, this, and some of the other issues that I have mentioned above will be discussed during the course of the 2014 International Forestry Students' Symposium.

A handwritten signature in blue ink, which appears to read "John L. Innes".

John L Innes
Professor and Dean

forestrynews

Graduate student symposium

On February 18, UBC's Faculty of Forestry supported the 3rd Future Forestry Leader Symposium. Organized by the Forestry Graduate Student Association's Emily Murphy and Letitia Da Ros, along with Professors David Cohen, Chris Gaston and Ivan Eastin, this year's symposium showed excellent enthusiasm, both by the students and the invited guests.

As was the case in previous years, the event was kicked off the evening before by a networking night promoting professional careers in forestry. With over 80 in attendance, the night included presentations by 15 industry, government and Faculty representatives, all sharing their views on a bright future for graduating forestry students. Those that were not able to present at the symposium (due to an overwhelming response) had the opportunity to present a poster for the occasion, adding to the successful evening of networking.

The research symposium itself was made up of 3 sessions of student presentations, Forests and the Environment, Forest Products and Technology and Markets and Policy. As in previous years, students largely represented UBC and the University of Washington. However, this year also included invited presentations from the University of Victoria and the University of Northern BC.

Presentation topics included life cycle assessments of bioenergy options, environmental monitoring by Aboriginal communities, community forests in Kenya, eco-labeling wood products for the US construction industry, investigating the potential for bamboo-based fibre composites, ramifications of the US Lacey Act, wood product opportunities for the BC coastal Nuxalk First Nations, and many more.

The presentations were outstanding, evidenced by the excellent Q&A sessions that followed. Awards for best talks were given, as well as an invitation for all of the students to submit a paper for a special edition of the Forestry Chronicle this fall.

The symposium was closed by the Leslie L Schaffer Lectureship in Forest

Sciences. This year's presenter was Dr Colden Baxter, Associate Professor at the Stream and Ecology Center, Dept of Biological Science, Idaho State University. His talk was titled "Fire and ice: responses by stream-riparian ecosystems to shifting disturbance regimes and some consequences for forest management".

student research symposium 2014

future forestry leaders

A student research symposium and networking session with professionals.

This symposium will present research by students at the University of BC, the University of Washington and the other ten Universities in BC.

These future forestry leaders will share their work in forests/environment, products/technology, and markets/policy.

The networking session and symposium will take place in the Forest Sciences Centre at UBC on **February 17th and 18th 2014**. It will include presentations, posters, and networking with a wide variety of professionals from industry, government, NGOs and First Nations.

Abstracts submitted for consideration for either presentations or posters must be received by **November 29th**.

For more information contact:

Student co-organizers:
Emily Murphy (emily.ka.murphy@gmail.com) and Letitia Da Ros (lmdaros@hotmail.com)

Faculty sponsors:
David Cohen (david.cohen@ubc.ca), Chris Gaston (chris.gaston@ubc.ca) and Ivan Eastin (eastin@u.washington.edu)

UNIVERSITY of WASHINGTON

School of Forest Resources

UBC Forestry
University of British Columbia

New appointments



Dr Verena Griess is joining the Department of Forest Resources Management as an Assistant Professor in Forest Management. Verena comes to us from Technische Universität München (TUM), Germany, where she has been a faculty member since 2012. Verena holds a PhD in forest management and economics, an MSc in forest and wood science and a degree in forest engineering from TUM. Her research and teaching interests focus on multifunctional forest management and the integration of multiple objectives into optimization software. Much of Verena's work

promotes the utilization of ecological effects with economic consequences, such as mixing tree species or close-to-nature-forestry. Verena is interested in the economic and social potential of tropical agroforestry as well as economics of commercial plantations using native tree species and has carried out research in Panama, Colombia, China, Russia and the EU. She will be teaching in the forest resources management and wood products components of our undergraduate and graduate programs and involved in our growing research on forest management.



Dr Bianca Eskelson will be joining the Department of Forest Resources Management as an Assistant Professor in Forest Biometrics. Bianca received forestry degrees (BS and MS) from the University of Göttingen, Germany. She completed an MS in statistics and a PhD in forest biometrics at Oregon State University in Corvallis, Oregon, where she has worked as a research associate in the College of Forestry for the past 5 years. Bianca's research focuses on the application and extension of statistical theory and methods to inventory, monitor and model forest

resources and ecosystem services. She is excited about applying her research to forest management challenges in British Columbia by advancing her work on copula models and by quantifying natural disturbance effects. Her teaching interests lie in forest biometrics and modelling and the implementation of quantitative methods in statistical software packages. Bianca looks forward to contributing to the undergraduate and graduate-level forest biometrics curriculum at UBC.



Dr Julie Cool will be joining the Department of Wood Science as an Assistant Professor in Wood Machining. Julie, a mechanical engineer, received her Masters and PhD in wood science from Université Laval in 2011. Since then, she has worked closely with the forest industry while at FPInnovations and also as a research and development consultant in the private sector. Julie's research and teaching interests focus on wood machining and quality control (both in the primary and secondary manufacturing sectors) and how these affect the value chain.

Through her research, she aims to quantify and control wood recovery, surface quality, and wood adhesion, as well as productivity by developing the knowledge on wood-knife interactions. Julie will be teaching undergraduate classes in wood machining and sawmilling.



Dr Rajat Panwar will be joining the Faculty of Forestry as an Assistant Professor of Sustainable Business Management in a dual appointment between the departments of Wood Science and Forest Resources Management. Rajat comes to us from Northland College, Wisconsin, USA where he has been a faculty member in the areas of corporate social responsibility and business sustainability since 2008. Rajat received his PhD in wood science and engineering from Oregon State University and his MBA from the University of Lucknow in India. Rajat's

research examines adoption of sustainable practices from a strategy perspective in both established and new firms. His teaching interests include forest products business, entrepreneurship, and business sustainability. Rajat is excited about the opportunity to teach undergraduate forestry students at UBC and to train them as leading thinkers in the realm of business sustainability. He is looking forward to joining sustainability focused research groups in his home departments of Wood Science and Forest Resources Management.



Dr Scott Rennecker will be joining the Department of Wood Science as an Associate Professor in Advanced Renewable Materials. Prior to joining us, Scott has been a faculty member in the Department of Sustainable Biomaterials at Virginia Tech since 2005. He obtained his degrees in wood science from Virginia Tech (BS, 1997 and PhD, 2004) and the University of California, Berkeley (MS, 1999). Scott's research program focuses on creating advanced renewable materials through cutting-edge science that will catalyze a green economy. These sustainable

products sourced from nature are stronger, lighter, and more energy efficient than their petroleum analogs. He uses materials such as high performance fibers, transparent films and coatings, and nanocomposites in applications for automobile, aerospace, building, and the emerging additive manufacturing industries. Scott will also teach a course on wood adhesives and coatings in our undergraduate program applying his combined expertise in wood science and polymer chemistry.



Dr Jeanine Rhemtulla will join the Department of Forest and Conservation Sciences as an Assistant Professor in Landscape Ecology. Jeanine comes to us from the Department of Geography and School of Environment at McGill University, where she has been a faculty member since 2009. Jeanine received her PhD in landscape ecology from the University of Wisconsin-Madison and her Masters in forest ecology from the University of Alberta. Her interests focus on the long-term effects of human land-use on ecosystems, and on understanding how to manage landscapes to increase human well-being while

maintaining ecosystem functioning, especially in tropical regions, where conservation and development goals frequently collide. Her work combines a broad range of methods, including ecological fieldwork, remote sensing, analysis of archival records and household surveys. She has field research sites in the lowland forests of the Peruvian Amazon, in the agroforested landscapes of Kerala, in southern India, and the mixed agricultural region of southern Quebec. Jeanine will provide a valuable asset to our Faculty's research and teaching expertise in international forestry.

New student engagement officer



Ileana Costrut has joined the student services team in Forestry as our new student engagement officer. Ileana comes to us with 9 years of experience in the student engagement field and has an MA in sustainability education, curriculum and pedagogy. She will be responsible for developing, delivering, and evaluating programs and services to support and enrich undergraduate

student learning and personal and professional development. In collaboration with students and university partners, Ileana will help new students to become successful university learners, who are well prepared to engage in the university community and achieve their personal and career goals. She can be reached at Ileana.costrut@ubc.ca.

Co-op graduate becomes “Lean Champion”

In 1989, Wolf Nickel began Pacific Closet Works Ltd (now STOR-X® Organizing Systems) with the goal of providing versatile, economical, and custom-fitted organizing units for homeowners. During the recent economic downturn, STOR-X® made drastic changes to the company in order to stay on par with the decrease in the demand for organizing units. Their journey in “Lean Manufacturing” was aimed at delivering product more efficiently, with higher quality, and minimal waste. In effect, the goal of STOR-X® was to become a lean, green, machine. Along with this, STOR-X® developed a franchise business model to expand the company rapidly throughout Canada.

Much of this journey was done in consultation with industry advisors from

FPIInnovations, who recommended sending job postings to the Faculty of Forestry’s Wood Products Processing Co-op Coordinator. This resulted in the hiring of their current “Lean Champion” and 2010 Wood Products Processing graduate, **Luke Opacic**. Luke is also a graduate of the Co-op program, and strongly recommended the program to STOR-X®. “The Co-op program is well-suited to companies such as STOR-X® because it can help a company complete projects without deviating from their corporate plans,” said Luke Opacic. “I would encourage any company that wants to participate in a Co-op program to do so.” As a result of the recommendation, STOR-X® employed a Forestry Co-op student in 2013 who completed projects involving new product devel-

opment and implemented an extensive quality program.

In February, 3 delegates from Okayama University in Japan toured STOR-X® with the intent of creating their own co-op and exchange programs with the Wood Products Processing program at UBC. The delegates were very impressed by the co-op system, including the partnerships made with industry-leading companies, and the benefits to the company and the students. Also part of the tour were Sudeh Jahan, Co-op Coordinator for UBC’s Wood Products Processing program, and Dr Robert Kozak, head of the Department of Wood Science. For further information on UBC’s Co-op Program in Wood Products Processing, contact Sudeh Jahan at sudeh.jahan@ubc.ca.

Recent awards

The Canadian Forest Service (CFS) has recognized the Lidar Best Practices Team for their work in producing a go-to handbook describing all of the steps necessary for understanding and implementing and airborne laser scanning project. **Dr Nicholas Coops** (Forest Resources Management) and **Dr Andrés Varhola** (recent graduate from UBC Forestry) are members of this team. The document “A best practices guide for generating forest inventory attributes from airborne laser scanning data using an area-based approach”, was the most downloaded document from the CFS bookstore in 2013. Congratulations

Nicholas and Andrés.

Dr Scott Hinch has been awarded the annual Certificate of Achievement from the Washington-British Columbia Chapter of the American Fisheries Society. This certificate is given out annually to someone who has demonstrated significant professional achievement. The American Fisheries Society was established in 1870 and is the oldest professional fisheries organization in North America with over 10,000 members. Congratulations Scott.

Dr Michael Meitner and his team have received an award from the Planning Institute of British Columbia

for their work with the Regional District of North Okanagan (RDNO) titled Are We There Yet? Regional Growth Strategy Monitoring & Evaluation Program. This work was selected as the winner of a Gold Award in the category of Planning Practice – Small Town & Rural Areas. Dr Meitner received this award along with his students (**Julian Gonzalez** and **Lorien Nesbitt**), William Trousdale from EcoPlan International and Anthony Kittel from the RDNO at the 2014 BC Land Summit held in Vancouver. Congratulations to Mike and his team.

Imbalances of power: Reflecting on our relationship with forests

By Andrea Vasquez, Hollie Carr, and Ana Elia Ramon Hidalgo

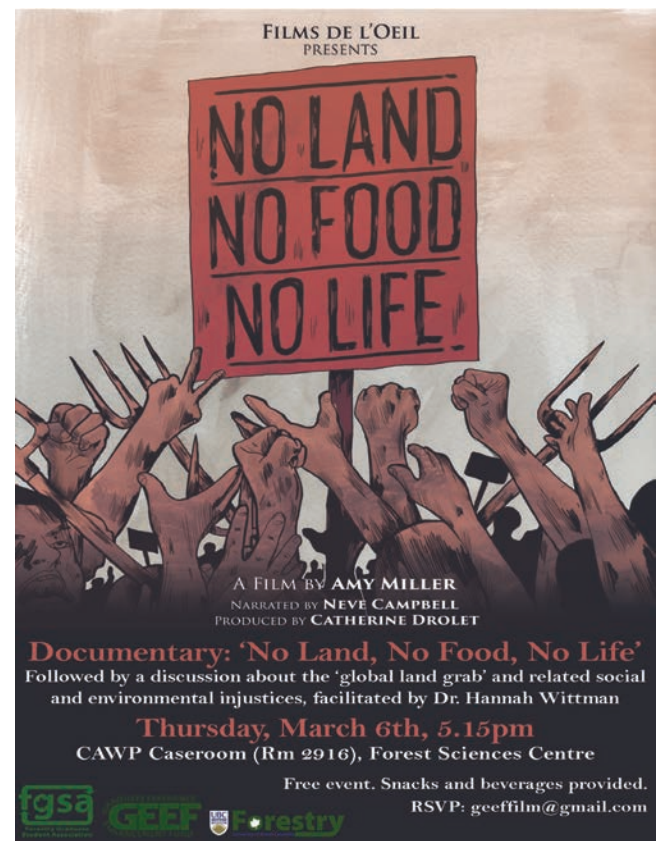
"It's my pleasure to invite you to join me in organizing a documentary screening and discussion in our Faculty to raise awareness about socio-environmental issues of forest-related practices globally." This was the opening line of an email sent by Maria Jose Ruiz-Esquide (MSc student) to engage other forestry graduate students in her idea. Maria Jose's vision materialized into a successful documentary series, held over the winter semesters.

The first documentary, "Taking Root: The Vision of Wangari Maathai" presented the courageous story of the Kenyan Nobel Peace Prize Laureate Wangari Maathai, whose perseverance in planting trees grew into a nation-wide movement to safeguard the environment and protect human rights. The film chronicled the difficulties involved in challenging gender roles and power dynamics in a deeply entrenched patriarchal society, and showcased the outcomes of a life of perseverance and co-operation toward reducing deforestation and empowering women. Dr Leila Harris (Institute for Resources Environment and Sustainability and at the Institute for Gender, Race, Sexuality and Social Justice) facilitated a discussion on the ways that systems of inequality (colonialism, gender, race, sexuality) impact our relationship with the environment and invited us to explore different ways that we, as students, can challenge these systems of inequality.

The second film, "No Land, No Food, No Life", documented several communities' plights in Cambodia and Uganda fighting against corporate land grabs, forced evictions and the destruction of forests and small-scale farms. Dr Hannah Wittman (Associate Professor at the Institute for Resources Environment and Sustainability and at the Faculty of Land and Food Systems), drawing on her research, facilitated a discussion on how the loss of land often leads to a shift towards food insecurity, due to a rise in crop prices and shift towards cash crops. Participants agreed on the need for the regulation of foreign investment and emphasized the importance of Canadians' obligation to be conscientious consumers, questioning the conditions of production of our food and its impacts on deforestation.

"Gold Fever", shown in the last session, portrayed social and environmental abuses perpetrated by Canadian mining companies against local forest-dependent Guatemalan communities. The ensuing discussion was led by panellists Oscar Morales, from the Guatemalan community of San Rafael las Flores, affected by Canadian mining operations; Rafael Maldonado, a Guatemalan lawyer; Don Wright, from Amnesty International; and Samuel Stime, a UBC MASc student in engineering. Questions were

raised about the role that the recently launched Canadian International Institute for Extractive Industries and Development (hosted at UBC) will play in perpetuating the status quo. Maldonado encouraged the attendees to reflect on our moral responsibilities, as Canadians and world citizens, in advocating for global environmental and social justice. He suggested starting at home: "now that you've heard all this information, you need to bring it to students and develop critical consciousness about the relationship between UBC and these [Canadian-based mining] corporations."



This series has been a very rewarding journey creating a welcoming space to explore the often overlooked imbalances of power over forest resources and between forest stakeholders. We hope to see another series coming up next year! To those who collaborated, we express our deepest gratitude. In particular we would like to thank Christie Lee, a Musqueam ambassador who welcomed us to their territory and shared reflections on human-forest relationships, to Mariko Molander (MSc student) for her insightful reminders of what it means to host this event on unceded traditional territories, to the facilitators, and to Maria Jose for leading this project.

Extending research to practice over generations



Michaela Waterhouse describes mule deer winter habitat ecology to students

A research project spanning 3 decades at the Alex Fraser Research Forest (AFRF) is poised to once again inform forest policy and management practice. Since the 1980s, the AFRF has been a primary site for researching methods for timber harvesting in dry Douglas-fir forests while maintaining mule deer winter habitat. Now involving generations of foresters this project emphasizes the value of research forests as repositories of knowledge and places in which to apply adaptive management.

Research was initiated by the BC Forest Service in the early 1980s due to concerns that harvesting practices of the day were detrimental to mule deer winter habitat. The project was led by Harold Armleder, Rick Dawson and Rob Thompson and resulted in practice guidance first published in 1986. Throughout their careers, Harold and Rick (together with Michaela Waterhouse) continued to carry out habitat ecology research. Research Forest Manager Ken Day helped to refine the silvicultural strategy through his graduate research in the mid 1990s. The practice guidance has been consolidated for implementation

through the Cariboo-Chilcotin Land Use Plan, the Forest Practices Code, and most recently Government Actions Regulation (GAR) Orders.

Thirty years later we are planning a re-entry into the 3 replicated research blocks originally harvested under the research project. In 2013 we re-measured the original cruise plots, re-established the original transects for monitoring mule deer use and avoidance, and re-mapped the original skid trails. Pre-harvest winter track transects were monitored last winter. We have drafted site plans and developed marking guidance, and are marking the stands for cutting this July.

The silvicultural strategy for mule deer winter range in the dry Douglas-fir forests of the Cariboo Region is described as “clumpy single tree selection.” The Knife Creek Block of the Research Forest is managed entirely under this strategy. Uneven-aged stands are maintained in a structure that provides snow interception and forage for deer by maintaining a continuous supply of large, wide-crowned trees, while removing groups of trees to ensure regeneration, plus thinning to allow the growth of younger trees.

A 30-year re-entry period is stipulated in the GAR Order.

As it happens, 30 years is also the approximate length of a career, and only 1 of the original researchers has not yet retired. We are fortunate that Michaela is still willing to help us return to the original trial and continue the learning.

Much of the expertise and craft required to manage uneven-aged forests has been lost while local forest companies have been focused on logging lodgepole pine. At a time when allowable cuts are declining and the green wood in this region is primarily in the uneven-aged forests of Douglas-fir, there is an important extension role for the Research Forest. Planners and silviculturists will need to visit the sites, look at the logged and unlogged conditions, and understand the costs and benefits of this particular silvicultural strategy. Likewise, provincial compliance and enforcement staff will need to understand the intent of the General Wildlife Measures published in the GAR Order. Finally, the lessons learned on the Forest will be important information as regulators review the GAR Order, to ensure that the regulation does in fact achieve the intent of the guidance – the co-ordination of timber and mule deer management.

It is familiar territory for a research forest: learn the science, understand the vision, implement a treatment, review the results, adapt and repeat. However, when the treatment cycle spans careers the adaptation cycle needs to be passed on. The Alex Fraser Research Forest has a pivotal role to play in realizing the vision established back in the early 1980s, and passing along the lessons learned through implementation.

For further information contact Ken Day at ken.day@ubc.ca.

Underwater logging in Panama

By Arnaud De Grave

I have to admit I knew nothing about underwater logging before my photo trip to Panama. However, I had done some homework before stepping onto a barge on Lake Bayano with a group of divers/loggers and their massive chainsaws. My experience tells me that it is better to arrive with a fresh and open mind rather than with pre-conceived expectations. The project required 2 trips to Panama. In March 2013 I spent 2 weeks taking photographs and 6 months later I returned to present my work in a photo exhibition at the Alliance Française du Panama.

Lake (Lago) Bayano was created over 75 years ago during the construction of a hydro-electric dam. The 353 km² lake became the second largest artificial lake in the world, second only to Lago Gatun, famous for the Panama canal. Although submerged trees die, some of the hardwood species are preserved and can be harvested. Underwater logging is done in various parts of the world including Canada, Ghana (with the largest reservoir by surface area in the world), and Panama, the focus of my photo project.

Following my usual *modus operandi* (see BranchLines 23#4 2012 for an account of my previous forestry-based photography project) I was introduced to Alana Husby, president of Coast Eco Timber the company operating on the lake. There are many species of trees that can be salvaged. The locals spoke of one type of tree that they were quite fond of. They call it "espavé" (actually wild cashew *Anacardium excelsum*, an evergreen that can grow up to 45 metres tall with trunks as large as 3 metres in diameter). The legend is that during the Spanish conquest, locals or invaders would climb these tall trees to look around: "Es para ver" (it is to see, in Spanish), hence the name.

Coast Eco Timber is FSC controlled. All of the workers are locals living in a nearby village. Many of them are indigenous Kunas from Panama and Colombia famous for their attire and textile making activities. Alana arranged for me to live with the workers and I commuted with them to the lake every day, where we would load the barges with the equipment necessary for the day: scuba-diving gear, compressed-air operated chainsaws, lunch boxes, and plenty of cold drinkable water. During my first trip, every barge had an engine and was manned by 4 workers able to harvest 6 or 8 trees every day. Later, the company evolved its operation by using air lines, rather than free-diving equipment and tow boats to separate the cutting of trees from the process of bringing them back to the beach. The new barges are non-motorized and towed to the site. The work is very physical and involves teams of 2 divers and 2 people on the barge taking care of the equipment. Once a tree is selected (by species and then by measuring the depth of the water as an estimate of length) plastic barrels filled with compressed air



are attached to the trunk. Divers use air-driven chainsaws to cut the tree which is then pulled up, sometimes quite dramatically, rather like a humpback whale jumping out of water. It can take a long time to manage the finalized cut because of extremely low visibility below the lake surface. Once the trees are towed back they are sorted in preparation for a long drying period before going to the mill. Interestingly, Coast Eco Timber is working in collaboration with UBC's Faculty of Forestry on determining the best drying techniques. The company owns a mill in Chepo, a nearby town, and has a showroom displaying large planks and high end furniture in Panama City. The wood is quite beautiful, full of knots and character.

One thing that struck me is that there are complete ecosystems living on the submerged parts of the trunks. As a tree is brought out of the water there is an exodus of large cockroaches, bats, water-walking lizards (one nicknamed the Jesus lizard for its abilities) and a myriad of other beasts unknown to me. At one time I had a bat clinging for its life to my head. The bat managed to dry and then take off, only to be snatched in mid-air by a vulture-like bird. Such is life in the jungle. Each time I was in the water taking pictures with a Nikonos underwater camera (designed by scuba-diving pioneer Commandant Jacques-Yves Cousteau) I became lunch for fish which nibbled on me when I stopped swimming in order to frame a shot.

The exhibition consisted of 20 hand-made fibre prints (11"x14"), 16 (8"x10") RC based prints and 2 large professional prints. The work covered documentary pictures of the workers in action as well as scenes of the daily lives of the workers. I also presented a slide show of over 100 digital colour pictures during the opening event of the exhibition. The exhibition (www.coastecotimber.com/en/press/item/145-fotos.html) was produced in collaboration with the Association Bricolages Ondulatoires et Particulaires (www.bop-photolab.org), Coast Eco Timber, EAS the dam company, the Alliance Française du Panama, UBC's Faculty of Forestry and the Canadian Embassy. I am grateful to everyone for their help. One thing that made me happy was when the director of the Alliance Française told me that the cleaning ladies had spent a lot of time looking at my pictures and that this was the first time he had seen them paying attention to an exhibition. Maybe the pictures talked to them, made them proud of the work of these people, their people. This is all I hoped to achieve.

Arnaud De Grave has recently completed his MSc degree at UBC. The Faculty of Forestry is a strong supporter of enabling students to gain "enhanced educational experiences", and particularly encourages students to gain field experience whenever they can. Arnaud can be reached at arnaud.de.grave@gmail.com.



Rivers of light: Do streetlights influence stream communities?

Artificial lights, such as streetlights, are a valuable piece of urban infrastructure that few of us have thought about in an ecological context. This is largely because most of us do our research in the day and often fail to consider what the night environment means for most organisms, especially if they are not night active. However, most animals, whether nocturnal or diurnal, have evolved with a regular light-dark cycle that changes only with the moon phase, or seasons, in temperate latitudes. The introduction of artificial lights has changed that pattern, with potentially damaging effects for some organisms and ecosystems.

For example, multiple studies have found that migrating birds are disoriented by skyscraper lights and this disorientation can cause them to fly into windows and die. Rather than just singing a brief dawn chorus as their country cousins do, urban songbirds sing all night in the artificial dawn created by streetlights. Perhaps most famously, lights from resorts along beaches cause sea turtle hatchlings to become disoriented. Throughout their evolutionary history, the brightest point on the horizon was the moon reflecting on the ocean; hatchlings that oriented to the brightest spot on the horizon were selected for, but now that preference is causing them to navigate towards bright artificial lights rather than the ocean.

One ecosystem type that has possibly received the least attention from artificial light researchers is streams. This is despite the fact that people preferentially settle near aquatic habitats and roads (and therefore light systems) often run parallel to streams. Because of this, Elizabeth Perkin, a current post-doctoral fellow supervised by Dr John Richardson, based her PhD and now her post-doc on studying the effects of artificial light on stream ecosystems. It might be difficult to imagine how stream organisms would be affected by artificial light at first, but there are many possibilities. For instance, insects such as caddisflies, mayflies, and stoneflies spend most of their lives under water in streams. They emerge to mate as flying adults and die after a few days. While living in the stream as larvae, they move by drifting in the water column, but generally only at night when visually-foraging fish cannot see them well. Elizabeth was curious as to how streetlights might change this drifting behaviour, as well as the behaviour of the adult flying stage of the aquatic insects and cutthroat trout that are common in British Columbia streams.

To better understand these potential changes, Elizabeth ran a month-long experiment in the Malcolm Knapp Research Forest during her doctoral studies, installing streetlights next

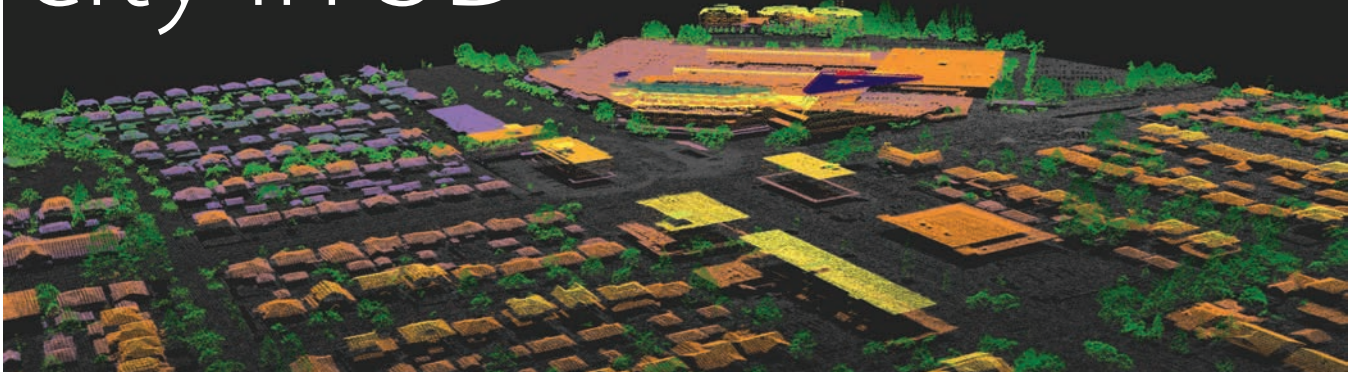
to otherwise natural streams. She found that the density of larval aquatic insects in the drift was indeed lower in the lit reaches than in paired control reaches of the same stream. However, she did not find evidence that the lights changed the growth rates of cutthroat trout, the density of terrestrial insects falling into the streams, the decomposition rate of leaves, or the density or diversity of the aquatic insects living on the stream bottom. It seemed odd that there wouldn't be any change in fish growth rates, since there was a decrease in the density of drifting invertebrates and no increase in the number of terrestrial inputs to the stream, both of which are important food sources for cutthroat trout.

Elizabeth decided to follow-up on this study in her current position by observing the night-time behaviour of the trout under both lit and dark conditions. Returning to the same streams she studied earlier, she used under-water infrared cameras to record fish behaviour at night. She also took stomach content samples from fish. In this recent study, Elizabeth found that trout do forage more from the surface of the water in lit reaches than in the dark, but that there was no difference in stomach fullness between fish foraging on lit versus dark nights. It could be that because both studies were done during the summer when nights are short in Vancouver, that night-time foraging simply doesn't play an important role in trout growth rates. Future research could focus on similar studies but at different times of the year to determine if this is the case. Also, the studies Elizabeth carried out used high pressure sodium lights, which are currently the most commonly used streetlight. However, many cities are changing their lights over to more efficient LEDs, which often emit light from the blue-end of the color spectra. Because water more readily absorbs the red and orange light commonly emitted by high pressure sodium lamps, but much less blue light, we might expect LEDs to have a greater influence on stream organisms.

Elizabeth looks forward to continuing her research on artificial light and stream ecosystems. She is particularly interested in developing a better understanding of how different light spectra change the behaviour of stream organisms so she can help advise city planners on how to best design appropriate lighting infrastructure near water bodies.

For more information contact Dr Elizabeth Perkin at eperkin@mail.ubc.ca or Dr John Richardson at john.richardson@ubc.ca.

Measuring the city in 3D



Over 5 million LiDAR-generated points make up this 3 dimensional representation of the area around Oakridge Mall in Vancouver

If you were in Vancouver in February 2013 and happened to look up in the sky, you may have noticed an airplane flying back and forth over the city. However, what you would not have seen were the millions of infrared laser signals blanketing the city surface. For any given second, a scanner mounted beneath that aircraft was shooting over 350,000 laser pulses towards the ground while measuring the time every pulse took to hit an object and return to the aircraft. After 3 days and a total of 7 hours flying time, a dense cloud of 3 billion points was collected, each point providing a highly accurate measure of height and location in space.

This technology, known as Light Detection and Ranging, or LiDAR for short, while long used in the natural resource sector, is becoming an increasingly popular tool for urban planners and civil engineers. Since beginning his master's degree in Forestry in 2007, Rory Tooke, now a recent PhD graduate, has been researching the use of LiDAR to better understand urban environments.

Recognizing that local governments in British Columbia have a mandate to address energy and emissions, Rory's graduate research has been primarily focused on questions related to energy supply and demand in the city. On the supply side, his research has focused on techniques to better map the solar energy available on building rooftops. The dense cloud of LiDAR

returns provides a highly accurate representation of urban form that Rory analyzed to determine the influence of obstructions that cast shadows on a rooftop, such as another building or a tree, and the geometry of the roof itself. Combining this information with the location of the sun in the sky and the influence of clouds in the atmosphere, Rory generated detailed estimates of the changes in solar energy across the Metro Vancouver region.

In an effort to inform homeowners and decision makers of the potential for generating electricity and hot water using the sun's energy, Rory teamed-up with staff at the District of North Vancouver and applied his research to help develop the interactive Solar Calculator App (www.geoweb.dnv.org/applications/solarapp/). The award-winning online tool shows residents how much sunlight reaches different areas of their roof, how much money they could save on their energy bills and how much carbon dioxide emission they can avoid compared to conventional gas heaters.

Rory has also focused his research on estimating the demand for thermal energy services in the residential building sector. These thermal services include hot water and space heating, which together are responsible for the vast majority of building energy use. Using LiDAR to derive the shape and size of individual buildings and

incorporating supplementary statistics on building energy performance, Rory was able to provide predictions of energy demand that closely match the results from much more laborious and time consuming simulation software. The application of this research offers insights into the specific energy efficiency strategies that are contextually appropriate for individual homes.

While elements of Rory's research have focused on developing techniques to extract features from the LiDAR, such as buildings and trees, he sees the broader value of LiDAR as a tool that can be used to improve our understanding of a range of topics unique to urban settings.

"Because cities are such complex environments we need new and improved ways of measuring and representing them" says Rory. Like aerial photography a century ago, the ultimate utility of LiDAR as a planning tool has yet to emerge, but as digital technology diffuses into the urban planning process, LiDAR will undoubtedly play a critical role.

Dr Rory Tooke completed his graduate degrees under the supervision of Dr Nicholas Coops (director of the Integrated Remote Sensing Studio in the Faculty of Forestry). Rory continues to investigate the role of technology in understanding energy in the urban environment at UBC's Centre for Interactive Research on Sustainability and can be reached at rory.tooke@ubc.ca.

Forest-based solutions for the Kingdom of Lesotho

In the spring of 2012 Lesotho's High Commissioner to Canada, Her Excellency Mathabo Tsepa, visited UBC Forestry with an official request for assistance regarding land change and forest management in Lesotho. The Kingdom of Lesotho is a tiny landlocked country entirely surrounded by South Africa. It is afflicted with serious soil erosion and land degradation challenges, is losing woodlots due to cattle browsing and illegal harvesting for fuelwood, and has ongoing land use conflicts with the large numbers of herders who roam the foothills and mountains. At the same time, there is chronic unemployment and poverty in the rural communities, high rates of HIV infection, and declining employment prospects for Lesotho adults in neighbouring South Africa. There are viable opportunities to mitigate these challenges through broad-based forestry-related initiatives. However, this will require significant research, institutional capacity building, training, and business mentoring over several years. Having heard about the successful work that our Centre for Advanced Wood Processing (CAWP) had done in South Africa, and herself

an alumna of UBC, Dr Tsepa appealed to UBC Forestry to apply our multidisciplinary expertise to the problem.

After securing some initial seed funding through CIDA's University Partnerships Program and Lucara Diamond Corporation, a delegation consisting of Iain Macdonald from CAWP, Joleen Timko from AFRICAD (UBC's Africa Forests Research Initiative on Conservation and Development) and 3 South Africa-based team members from Stellenbosch University and Furntech (a business incubation organization) traveled to Lesotho in November 2013. The group first toured various woodlots, agroforestry sites, indigenous forest areas, and a wood processing operation, as well as meeting with high-level decision makers in government and the education sector. The group then participated in a 3-day planning forum at which Lesotho stakeholders and the visiting delegation exchanged ideas on forestry-related strategies and activities that would be suitable for application in the Lesotho context. The ultimate goal was to develop an action plan based on the input of all present, and draw from local and international



“ There is a critical need for educational alternatives that focus on locally relevant forestry and forest management practices.”

experiences and knowledge.

The meeting identified a huge need for education and training capacity in forestry and wood processing. There are virtually no forestry-specific courses offered at Lesotho’s only university. Forestry officers in the Ministry of Forestry and Land Reclamation typically come from the Soil Science program at the National University of Lesotho or from Lesotho Agricultural College, or have obtained advanced degrees overseas. There is a critical need for educational alternatives that focus on locally relevant forestry and forest management practices. At the same time, Lesotho is almost devoid of wood processing infrastructure. Only one portable sawmill exists in the entire country – itself a pilot project by the Ministry – and there are no permanent mills. Timber for furniture, roof trusses and other industrial needs is sourced exclusively from South Africa.

From an environmental standpoint Lesotho is in great need of sustainable, effective forest management strategies. Erosion gullies (known as “dongas”) are a common sight around the country, and topsoil is being lost at the alarming rate of around 2% each year – indeed, the UN has estimated that if current erosion rates continue there will be no farmable soil left by 2040. Lesotho is a mountainous country whose steep slopes and poor soils do not lend themselves to productive agriculture, and with most of the viable land in the western lowlands already fully utilized, farming has been established on slopes and thin volcanic soils in areas of higher elevation that can quickly wash away in heavy rains. The problem is exacerbated by the digging of irrigation furrows that allow the soil to wash downhill more easily, and by widespread felling of trees



Portable sawmill in operation in the Leribe District

and shrubs for fuelwood.

Lesotho’s people (Basotho) rely heavily on biomass (wood, shrubs, animal dung and agricultural residues) to supply nearly three-quarters of their energy needs – the average for the rural population is closer to 95%. Several hundred woodlots were established 40-45 years ago, but the need for firewood has meant that many have fallen prey to widespread unauthorized felling. Tree plantations have been viewed as land use competition for the range lands that herders have used to graze their cattle, and animals have been allowed to browse the unfenced woodlots, resulting in the further loss of significant numbers of young trees. Of the pine woodlots that have survived, many are now mature, and if they are not harvested soon the trees will begin to decay and emit CO₂.

The output of our 2013 forum was a holistic plan for forest-related development centered on the 4 themes of agroforestry, sustainable forest management, community participation and business and livelihoods. Each is intrinsically linked to the other, and the plan as a whole is focused on managing and growing forest lands to sustainably produce outputs that can help the environment and the poor. The third pillar – community participation – is a critical cross-cutting issue. Lesotho’s government has recognized that for forestry to succeed it must

have the buy-in and participation of rural communities. It has adopted a policy of decentralizing control and management of woodlots so that communities located close to them will feel greater ownership of the resource, ideally resulting in better stewardship and protection of the woodlots. This is a promising strategy but it will require significant training and mentoring of community members in order to succeed. That is why the first priority of the UBC-African team in 2014 has been to propose a community research and training program in 9 pilot communities. As well as gathering information on the attitudes and knowledge that community members have related to forests and their benefits, it will attempt to engage some of those communities in pilot projects to help manage woodlots, extract timber, grow mushrooms, make honey and other non-timber products, and engage in microbusiness enterprises that can alleviate rural unemployment. The knowledge and results gained from this initial project will help to inform a broad range of intervention and assistance strategies, including the creation of a business incubator for the production of furniture and other wood products.

If you would like to know more about UBC Forestry’s work in Lesotho, contact Iain Macdonald or Joleen Timko at iain.macdonald@ubc.ca or joleen.timko@ubc.ca.

Transforming findings into policies and practice

The “proof of the pudding is in the eating” is a very old proverb with the Oxford Dictionary of Quotations dating it back to the early 14th century, and it is widely attributed to Cervantes in The History of Don Quixote. However, what if the “pudding” never gets eaten, or if that which the chef cooks up is inedible? This perversion of the old adage provides some analogy to the fact that much research has no application in real life, or is simply not communicated to the right audience. Although not all research could directly impact policy making or management decisions, the sphere of resource governance research is one area which should not

be allowed to disappear or remain obscure.

Suzi Malan is a doctoral candidate working under the supervision of Dr John Innes in the Department of Forest Resources Management at UBC. Her PhD research is focussing on the decision-making processes of southern African transboundary conservation areas as models of natural resource governance among multinational governments. With the African continent’s natural resources facing increasing demands not only by its growing human populations, but also from large emerging economies on the continent as well as abroad, the

need for innovative policies that will put environmental governance on a sustainable path has become crucial. Since the southern region of Africa is home to a diverse array of fauna and flora, much of which is facing the threat of extinction, conservation policies are particularly critical to halt this trajectory. The dilemma is finding the balance between protection and development, since this region also supports large populations of impoverished rural communities, who often bear the costs of environmental protection through diminished access to natural resources or through forced removal, but have little share in the direct benefits of these



A community athletics day in Gonarezhou National Park’s buffer zone, under a massive baobab tree



Nguni cattle in Parque Nacional do Limpopo, Mozambique

protected ecosystem services.

It was therefore one of Suzi's main objectives to not only identify and understand the decision-making processes behind establishing and managing such cross-border conservation areas, but to also translate any potential recommendations to the policy and decision makers driving the initiative behind these mega parks. To this end, she saw an opportunity to create a platform for discussion when one high-level politician invited her after an interview to return towards the end of her studies and present her findings.

The overall objective of the research project had been to consult with all layers of decision and policy makers involved to synthesize the current state of knowledge, identify the range of potential land management options and adaptation actions at various scales, and determine the range of values that drive decision-making pro-

cesses. The research involved conducting 102 semi-structured interviews with community members, park officials and managers at various levels, local government officials, national policy makers and NGOs involved in the trans-frontier conservation areas, as well as an in-depth scrutiny of relevant policies and treaty documents. A value system framework was developed as a result, and each of the ecosystem, socio-economic and governance dimensions received a cumulative score for the 2 case study areas which were being investigated. The findings particularly in the governance and decision-making sphere were analysed using Capability Maturity Model theory and the NATO Network Enabling Capability model theory.

Armed with an arsenal of resource governance findings and recommendations, Suzi invited a group of key policy and decision makers directly involved in the planning and management of the 2 case studies to a policy feedback session. In addition to her own findings, she also invited another PhD and a post-doc student, both from Zimbabwe to co-present their own recommendations on related issues in the areas of tourism and eco-agriculture within these "peace parks". An important outcome from this policy session was that 2 major recommendations from her research both strengthened

current directions being taken, and are presently being developed – these include: the need to establish some form of park management forums among the bordering national parks; and the need to build communities of practice that would strengthen communication networks and improve collaboration at the operational level among neighbouring conservation areas.

One further development which ensued from the governance interviews during the research, was that Suzi was invited to become part of a transboundary conservation "think tank" that meets from time to time to discuss challenges and issues pertinent to transboundary resource governance. The objective of these discussions is to advise policy makers on ways of addressing these challenges either through appropriate policies, or through alternative management practices. The invitation to be part of such a distinguished group was the ultimate reward for a long and arduous journey, and has resulted in forging strong ties with people driven by the same passion – to find practical solutions to managing Africa's rich natural resources without compromising their future existence.

For further information on this research project, contact Suzi Malan at suzimalan@gmail.com.

“With the African continent’s natural resources facing increasing demands... the need for innovative policies that will put environmental governance on a sustainable path has become crucial.”

Matching market signals to the Canadian wood products value chain



Canada's solid wood products industry has a strong history of being commodity driven, which on the solid wood side, has predominately served the low-cost North American residential construction market. Over a decade of North American housing growth (with over 2 million annual single and multi-family housing starts) has created clear economic signals for high volume/low cost manufacturing. The resulting products that have dominated have been - and largely remain - dimension lumber, wood-based panels and wood chips as a manufacturing co-product.

In this commodity world, research and industry has understandably been focused on technologies and processes that minimize cost, rather than maximize value. This has led to decades of supply chain optimization, creating tremendous efficiencies in harvesting, manufacture and distribution. Indeed, the 'platform-frame' housing system evolved in North America to be amongst the most efficient in the world, delivering attributes demanded in the marketplace including a highly competitive price.

In the manufacture of any commodity, however, at some point declining real prices and the diminishing returns to cost-reduction combine to challenge the sustainability of the industry. Add in the housing collapse in the US, a strong Canadian dollar, structural changes in the pulp and paper sector (affecting co-product wood chip demand), and supply constraints (including the Mountain Pine Beetle epidemic in BC), and one might conclude that the need for industry diversification has never been stronger.

These underlying supply and demand challenges have strongly contributed to the evolution of supply chain into value chain optimization. By adding the focus on value, the

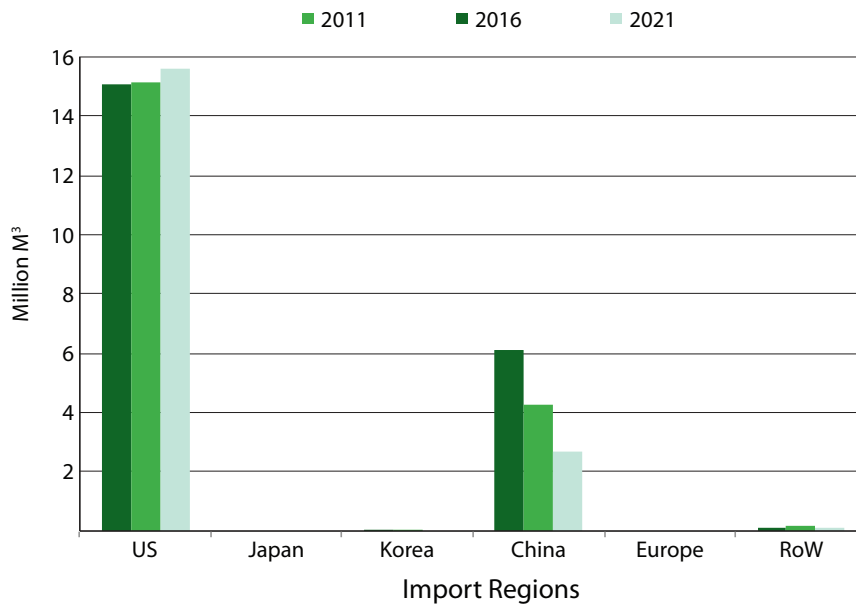
optimization problem became getting the right log to the right manufacturing facility for the right end-use application. Resource allocation considers all product-manufacturing alternatives, including lumber in various grades, co-product chips and residues (and whole log chipping) for pulp, wood composites, bio-chemicals, bio-energy, etc. The return-to-log is maximized by considering all possible "bio-pathways" or "value-pathways", both for meeting potential domestic and export demands (see www.fpac.ca/index.php/en/page/value-pathways, for a discussion of these concepts).

NSERC Strategic Research Network on Value Chain Optimization (VCO)

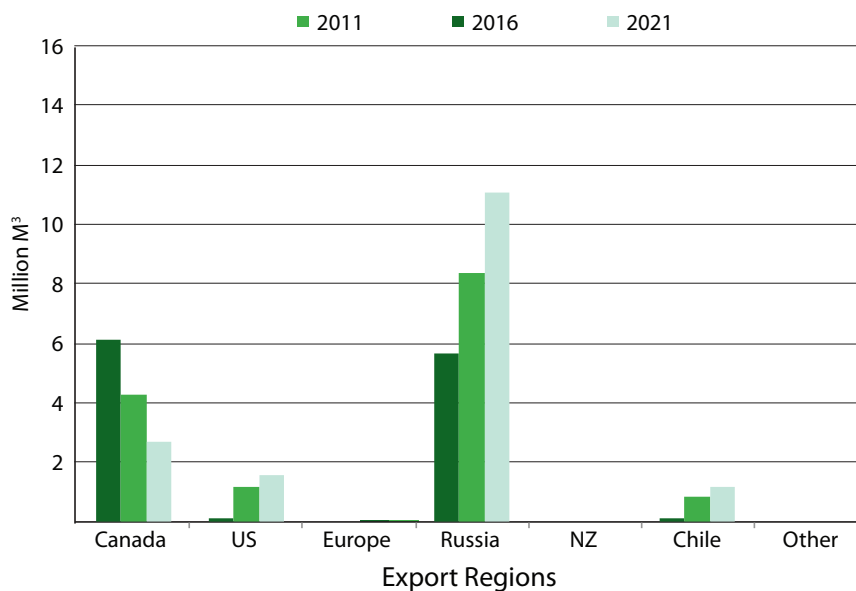
In partial response to a growing emphasis on value-chains, the NSERC VCO Network was established as 1 of 8 networks for Canada's Forest Innovation by Research & Education (FIBRE) program. These are federally funded strategic research & development networks "in support of the priorities of Canada's vital forest sector innovation system" (www.fibrenetwork.org).

Officially launched in February of 2010, the VCO Network's stated mission is "to improve the Canadian forest industry competitiveness through forest and business innovation by training the best highly qualified personnel in the emerging field of value chain modelling and by providing analysis tools and decision support for optimization of the modern forest bioeconomy networks [being] the entire network of activities and processes from the tree through to the consumers of conventional forest products, new value-added products, new fibre products and new biochemical and biofuel products."

VCO has the inherent objective of adding value to the Canadian forest resource. By definition, 'value' adding will



Canada exports of softwood lumber, combined North American construction and economy/utility grade categories



China imports of softwood lumber, combined North American construction and economy/utility grade categories

come from a deeper understanding of the needs and desires of the market place (ie 'value' to whom?). While one of these values will continue to be low cost commodities for home construction by builders and developers, there are opportunities to expand products and markets in more complete building systems, offering increased speed of construction, lower on-site labour needs, increased environmental attributes (such as cellulose based insulation), and a growing focus on appearance products. All of these end-uses require unique optimization processes right back to the forests.

Dr Chris Gaston is an associate professor in the Faculty of Forestry and a senior

research scientist with FPInnovations. To help with the needed linkage of market signals back through manufacturing, log allocation (and, therefore, forest policy) Chris and his colleagues have been investigating supply and global trade modelling techniques that allow for greater product flexibility. The models being developed allow us to forecast the effects of changing the balance of log and lumber grades among possible end-uses and geographic markets, along with the ability to run "what-if" scenarios. This work is further developing a trade model initially developed by Chris and coworkers over 15 years ago. With the 2013 improvements, the researchers can run supply and demand scenarios

for 3 categories of lumber (representing appearance, construction and economy grades), 3 categories of logs (high and low grade sawlogs, and pulpwood), and 'bio-mass' (represented by wood chips and wood pellets). Concurrently, a supply model is being developed using BC as a case study, incorporating cross-price effects of the 3 log categories.

As an example of a scenario analysis, the graphs show simulated trade (Canada exports and China imports) of 2 combined lumber categories, being that represented by North American construction grade and economy/utility grade. The scenario run included: 1) decreased supply over time due to the BC Mountain Pine Beetle and harvest reductions in Ontario and Quebec; 2) increase in US importer demand due to rising housing starts, and an increase in China's demand. It is interesting to see that in this forecast scenario that Canada exports to China decreased, with the growing demand being met by the Russian Federation. It is also interesting to see that Canada does not export any of this category of lumber to any of the listed import regions other than to the US, China, or the small amount to 'Rest of World' (RoW).

These are the types of questions that are investigated in market-driven value chain optimization.

- How would increased demand for glue-laminated timber in North America play out in terms of capital investments in manufacture, grade of lumber demand and log allocation in eastern versus western Canada?
- Who would 'win the fibre auction' with further increases in the demand for bio-energy; a pellet plant or low-grade lumber producer?
- What will be the after-effects of the Mountain Pine Beetle epidemic?
- What are the effects on factors such as exchange rates and oil prices on optimal fibre allocations?
- What are the policy implications of these scenarios?

For further information on this research contact Dr Chris Gaston at chris.gaston@ubc.ca.

Community-based tenures: A step in the right direction for First Nations?



In British Columbia, community-based forest tenures – ie Community Forest Agreements (CFAs) and, most recently, First Nations Woodland Licenses (FNWLs) – have been held up as progressive, empowering mechanisms through which First Nations might successfully obtain control over local forest resources while exercising some degree of self-determination by managing forestlands for a variety of locally defined values and goals. Though an arguably negligible allocation of Annual Allowable Cut and area has thus far been distributed to First Nations, these small-scale area-based licenses are generally perceived as positive, forward-thinking steps towards the long-awaited repossession, control, and management of local resources by rurally-based Indigenous communities. Not only is tenure itself thought to increase the extent to which First Nations might exercise their Aboriginal

rights on traditional territories, but community-based tenures also purport to enhance the diversification and viability of local economies, thereby providing increased opportunities for First Nations participation in the forest sector and developing capacity for Indigenous communities to manage businesses and forestlands according to some culturally and socially directed imperatives.

In both academic and mainstream discourse, these tenures have also been characterized as timely responses to a variety of overlapping factors including changing global economic and environmental conditions, increased local and international pressures for decentralization, and – importantly – active demands and legal challenges by First Nations for rights to use and access forest resources located on their traditional territories. In some ways, these tenures also stand for the

reconciliation of “past” injustices stemming from colonization, providing development opportunities for First Nations in a landscape wherein very few meaningful spaces have historically been opened for First Nations’ benefit or interest. In this light, tenure reform has certainly been long overdue, and community-based tenures have been received, on the whole, with cautious but determined optimism: the general consensus in policy and governance circles tends towards the agreement that these tenures are indeed favourable developments in BC’s forestry setting that may also help to “close the gaps” – ie economic, social, and political gaps – between existing Aboriginal and Crown relationships.

One step forward, one step back

In the Faculty of Forestry’s Forests and Communities in Transition (FACT)

Lab, MSc student Mariko Molander has been examining these recent developments in tenure reform as part of her thesis research. Taking a step back to look at the bigger picture, her research questions whether CFAs and FNWLs are indeed “best fit” forms of tenure for First Nations in BC, particularly given the importance of tenure reform to produce meaningful spaces in forestry that are truly supportive of Indigenous worldviews and visions of self-determination.

As with any new development, numerous criticisms are directed towards community forest and woodland ventures. First Nations licensees in particular often face tremendous challenges related to partial accommodation, issues of economies of scale, ambiguous terms of representation and flexibility, a lack of support and capacity, low local awareness, and high operating costs. Current conversations regarding forest management in BC therefore tend to revolve around the identification and mitigation of these types of functional and operational problems – problems that are typically acknowledged as being “reasonable” and “practical” to address and resolve by stakeholders, policy makers, government, and academics alike. For instance, “sensible” solutions to the problems of representation and participation might include the creation of increased employment opportunities for First Nations in forestry, or general improvements to the overall functionality of tenure design to better suit the mutual interests of First Nations and the Crown; these types of solutions are typically commended and treated as boons to First Nations’ increased self-determination.

Such responses, however, tend to shy away from fully calling into question the broader structural barriers that exist to the operation of these tenures by First Nations. Moreover, they neglect to unpack the ideological intention and normalizing effects of institutionalizing community-based forest tenures; rarely – if indeed ever – do they meaningfully situate the emergence of these tenures within the context of historical and ongoing

settler colonialism here in BC. By treating these tenures as “groundbreaking” symbols of apparent recognition, reconciliation, and progress, current research fails to acknowledge the very real and powerful implications of tenure reforms that, in actuality, do very little to challenge the overall structure of either the provincial tenure system or Crown-Aboriginal relations, both of which implicitly consider the following to be “given,” or true:

- 1 that settler colonialism is an historical event – a “dark chapter in history” – rather than a structure and ongoing reality;
- 2 that market integration, participation, and neoliberalization are rational and logical end-goals of Indigenous self-determination;
- 3 that Western models of corporate organization are compatible with Indigenous systems of exchange and reciprocity; and,
- 4 that Crown sovereignty is both paramount and legitimate.

Critical engagement with the deeper assumptions underlying the institutionalization of such community-oriented projects is rare; rarer yet is the consideration of implications to the rich and varied range of First Nations’ expressions of self-determination and Indigenous nationhoods in BC. So, where might we go from here?

Tracing the genealogy of the present

Mariko’s research takes as its starting point a very basic premise: if we want to move forward with meaningful discussions of tenure reform – and this can be extended to both provincial and national levels – and truly uncover ways in which tenures may enable or hinder First Nations in exercising their self-determination, then a real effort needs to be made to unmask and understand the various ways through which colonial power continues to assert itself today. Moving beyond a surface analysis of recent issues and challenges, we need to first ask ourselves, how did we get here? What are the implications of these tenures to First Nations’ self-determination in a deeply problematic context?

To address these questions, this research constructs a “Foucauldian genealogy of the present”. This method involves tracing various “lines” of descent and power that are intimately linked to mainstream, dominant conceptions of reality, including an analysis of 2 intersecting but conflicting parts: (1) how certain institutions, practices, and discourses have been shaped and taken for granted over time as being the “rational” and “logical” organizing principles of the world; and (2) how Indigenous knowledge, ways of being, and acts of resistance may counter such rationalities. For instance, an important line of inquiry traces the parallel and conflicting sovereignties of the Crown and of Indigenous nations. How has Crown sovereignty come to be understood as unequivocally paramount and legitimate on lands that, for the vast part, have never been ceded either through historical conquest, passage of time, or treaty? What is the history and nature of Western sovereignty that actively seeks to displace Indigenous conceptualizations of nationhood? And finally, how is Crown sovereignty normalized and reinforced through tenure decentralization, which purports to empower communities without actually redressing the theft of lands that occurs through colonialism?

Some might view the consideration of these questions as being perhaps impractical, time-consuming, and a hindrance to “progress”; the value of genealogical research, however, is located precisely in the arousal of such responses: to give us glimpses into alternative pathways and futures, and to decolonize minds and assumptions that have been shaped by powerful forces, deeply rooted in colonial processes over time. This research maintains that an honest, just discussion of tenure reform – if that is what we truly seek – can only begin by first understanding the deeply complex, multi-faceted, *multi-voiced* context in which we find ourselves today.

Mariko Molander is currently completing her MSc thesis under the supervision of Dr Rob Kozak in the FACT Lab. For further information, please email Mariko at marikomolander@gmail.com.



Developing human well-being indicators for Haida Gwaii

By Hannah Kent

"I'm here to research human well-being – and how we could measure it on Haida Gwaii." I was on the ferry heading to a breathtaking archipelago off the northern coast of British Columbia, chatting with a man who had spent most of his life living on Haida Gwaii. He, like many of the people I would meet during my stay, was friendly and helpful. He didn't mind I was a young researcher from the University of British Columbia with limited experience coming to study one of the most complex topics today. Before parting ways he queried: "you mentioned human well-being... but what about animal well-being?"

Initially I didn't have a response. My inclination was to explain animal well-being was beyond the scope of my study as there were already ecological indicators for Haida Gwaii. They had been developed as part of the land-use planning process that led to a new government-to-government relationship between the Haida Nation and the Government of British Columbia, one based on mutual respect and the co-management of natural resources. The land-use planning process was guided by Haida values, as well as the principles

of ecosystem-based management, which includes human well-being. Although improving human well-being was an important part of the process, it was not clear how human well-being could be measured and that was what I was on Haida Gwaii to explore. However, as I met with more and more individuals to discuss my study, I began to understand there was no clear distinction between the health of the natural environment – the land, ocean and air – and human well-being.

Defining and describing human well-being or quality of life is a challenging endeavour. This challenge has been considered by some of the greatest minds across cultures: Aristotle explained the concept of eudaimonia, Emanuel Kant considered universal laws and eastern philosophers wrote of restraining individual desires. Human well-being indicators can be useful tools for enabling a community to identify what it values, holding individuals and groups accountable for achieving goals, encouraging democracy, and allowing a framework for decision-making. They have been used to inform government policies in a multitude of towns, cities, provinces and

countries. Bhutan's Gross National Happiness framework is an oft-cited national scale example. Recently, the United Nations encouraged all countries to develop and measure indicators for human well-being and happiness.

A notable shift has occurred in recent social indicator research, broadening from a focus on narrow social indicators to include complex, multidimensional indicators of human well-being. In forestry, early indicators were developed in an ad hoc fashion by experts and with limited involvement from communities. Over time there has been a transition to greater involvement of local people in indicator development and a focus on indicators that reflect a broader quality of life or community well-being, rather than indicators associated with forest dependence. Several key areas of research have emerged, widening the discussion of well-being in indigenous research, sociology, psychology, anthropology, ecology and natural resource management. New research points to the importance of a greater inclusion of people and their values and a broader consideration of the connection between ecological and human systems.

During 2013, I held interviews with 20 participants, asking what they thought were important measures for human well-being on Haida Gwaii. I contacted residents of Haida Gwaii who could offer insights from different professional and personal perspectives, allowing me to base the study on Haida and local knowledge. Interview transcripts and notes were analyzed using qualitative data techniques, listing all the indicators suggested by residents and identifying important categories and concepts. Three concepts that are important in explaining the results of this study are: 1) Relationship with the land, ocean and air, 2) Access to benefits from natural resource development, and 3) Building resilient communities and human capital.

Relationship with the land, ocean and air focuses on whether Haida and long-term residents have access to the forest and ocean resources they need for all aspects of their lives. It also includes a consideration of whether residents and governments are responsibly managing the land, ocean and air for current and future generations. Prominent indicators in this category were whether Haida and long-term residents have

access to traditional forest resources for food, art, medicine and construction and whether traditional foods are healthy and safe to eat. This access is directly connected to other areas of human well-being including Haida culture, the economy, health, and education. This concept was likely prominent due to Haida knowledge that recognizes the value of ecosystems to human well-being.

The second important concept is access to benefits from natural resource development. This concept includes measures for a range of benefits that residents feel they should receive from resource development. Access to jobs in resource development is an important concern for individuals and families, and small businesses, such as mills, need access to wood to create jobs. It is also important that governments reinvest resource royalties in local services and needs. Access to these benefits would lead to improvements in other areas of well-being including the economy, health, culture, community, and education.

Building resilient communities and human capital was important as many participants suggested ways of being more resilient on Haida Gwaii and investing in health and education. Whether it was growing more food and continuing to develop the already delicious farmer's markets, continuing to build educational programs, or developing renewable energy systems, participants described strategies to continue to make Haida Gwaii vibrant. Participants described the importance of Haida and other cultures, social connections and participating in community activities.

I hope these concepts and the associated indicators will be helpful tools for governments on Haida Gwaii and generate significant interest and meaningful discussion regarding how human well-being could be measured. On a personal level, somewhere between the coffee houses, the potluck dinners with friends, and quiet walks by the ocean, I learned many lessons about human well-being. Community matters and having a community that knows and supports you is one of the greatest sources of joy we can experience.

Hannah Kent recently completed this research as part of her MSc degree under the supervision of Dr John Innes. Hannah can be reached at hpkent@gmail.com.



Small-scale forestry in Ghana: Surviving reforms?



Globally, small and medium forest enterprises (SMFEs), including community-based forest enterprises, contribute significantly to local employment in forest-based economies, providing livelihoods and enhancing the well-being of many rural poor. In Ghana, SMFEs provide income for approximately 3 million people, accruing wealth locally and empowering local entrepreneurship. However, these SMFEs are a large part of the informal sector in Ghana, and face a number of challenges such as lack of tenure security, excessive bureaucracy, unfavourable policies and legislation, poor market access and information, lack of access to credit, and weak bargaining power.

Chainsaw milling, where logs are milled into boards with chainsaws onsite in the forest, is an important component of Ghana's SMFE sector. It supplies about 80% of lumber on domestic markets and contributes to the livelihoods of 650,000 people. Yet, due to its inefficiencies and lack of regu-

lation, it has been illegal since 1998. Despite this, it continues to receive strong support from local communities, who benefit from informal payments and supplies of milled timber, and enjoys tacit support of the government, which sources up to 60% of its timber from these illegal sources and turns a blind eye to local timber markets dealing mostly with illegal timber. An additional factor driving this illegal practice is the current tenure system, where the government owns the rights to all naturally occurring trees. Landowners and communities with trees or forests on their land get little to no benefits from formal concessionaires that harvest timber from their land, and in fact suffer damages to crops from machinery used. To prevent this, farmers tend to destroy timber trees on their property, or sell them illegally to chainsaw millers before they are given out as concessions by the government.

To address these illegalities and other unsustainable forest practices,

Ghana's forestry sector is undergoing reforms resulting from the country's involvement in 2 international mechanisms: a Voluntary Partnership Agreement (VPA) under the EU's Forest Law Enforcement, Governance and Trade Programme (FLEGT), which aims to promote legality verification of timber traded to the EU, as well as address the illegalities in the domestic market; and preparations for participating in a future mechanism to reduce carbon emissions from deforestation and forest degradation (REDD), in order to tackle deforestation caused mostly by agricultural encroachment and forest illegalities.

There is a worry that emphasizing legality with these reforms will negatively impact local livelihoods highly dependent on the informal sector, as informal SMFEs such as the chainsaw millers will be a target of reforms. But, if done properly, VPA and REDD reforms could help SMFEs overcome many of the challenges they face by bringing them into the formal sector. Additionally, sustainably managed SMFEs could help to achieve the goals of the VPA and REDD, in terms of reducing illegalities and deforestation and degradation, while also providing the co-benefit of improving rural livelihoods through increased employment and income.

As part of her postdoctoral fellowship, and in collaboration with the Forests and Communities in Transition (FACT) Lab at UBC and the Rights and Resources Initiative (a Washington-based NGO), Dr Reem Hajjar set out to investigate how REDD and FLEGT-related reforms would affect Ghana's SMFE sector. The main questions were: how are SMFEs being incorporated into

The tenure system has been a major bottleneck for promoting legal small-scale and community forestry, reducing illegal logging, and limiting deforestation.”

VPA and REDD plans? And, are the VPA and REDD addressing the right issues to regulate the sector and achieve their objectives while also benefiting SMFEs?

To get a better understanding of what would happen to the SMFEs with these new plans, Reem went to Ghana in early 2013 to interview various experts from stakeholder groups (government, timber trade associations, NGOs, academia), as well as a number of SMFE operators, in order to get more information on the changes in the sector and gather their opinions on its future.

Results indicate that the reforms would likely have a large impact on SMFEs, some of it positive and some of it not, but that fundamental tenure reforms that would help to considerably reduce deforestation and illegalities were still lacking.

The SMFE-related VPA reforms focus principally on reducing market demand for illegal wood through a government procurement policy, and legalizing the activities of some illegal chainsaw millers by training them to be “artisanal millers” using more efficient mobile mills. The fact that these new mobile mills are prohibitively expensive for most was seen as a positive thing by the government, as it would raise the bar for, and thus limit the number of, those participating in logging activities. The remainder, the government proposed, would be provided with alternative livelihoods. Needless to say there were mixed opinions on the feasibility of absorbing all those currently involved in chainsaw milling with this plan. In addition, among the drivers of illegalities that will not be addressed by these reforms is tenure: there are few plans to change a tenure system that currently provides no incentive

to farmers or communities to sustainably manage their timber trees. Without this incentive, farmers will likely continue to sell their trees and forests indiscriminately, contributing to deforestation and forest degradation, and perpetuating the informal supply chain.

Meanwhile, the country’s REDD documents state, among other things, the importance of reforming tenure and promoting SMFEs. However, at the time of this research, there was little evidence that SMFEs were being engaged in the process, or that the tenure issue was being tackled. As one interviewee put it:

“If you look at the VPA, this has been flagged. In REDD, it has been flagged. [...] people think that tenure has to be addressed. It’s the elephant in the room, everyone talks about it. And we think that there should be some pragmatic approach to addressing it, but at the moment I don’t see that [reform] happening.”

The tenure system has been a major bottleneck for promoting legal small-scale and community forestry, reducing illegal logging, and limiting deforestation, and various stakeholders have their opinions of why it has been so difficult to change. Despite broad agreement that reforms are necessary, can it happen? Reem has been working with Rights and Resources Initiative to figure out the next steps for action, including working with Ghanaian partner NGOs and timber trade associations to explore the most feasible options for tenure reform, including the possibility of setting up more community-based forest management pilot projects. These on-the-ground actors are the ones that can use this policy window to push for reforms favourable to a sustainable small-scale forestry sector, while also achieving the objectives of the VPA and REDD in Ghana.

Dr Reem Hajjar is a Banting Postdoctoral Fellow working with Dr Rob Kozak at UBC and the Rights and Resources Initiative. The work described here is part of a larger project she is conducting on promoting small-scale and community forestry in both Ghana and Mexico. She can be reached at reem.hajjar@gmail.com.



Untangling Christmas lights: Crafting a vision for BC's coastal forests

The Faculty of Forestry in collaboration with Arnie Bercov, President of the Pulp, Paper and Woodworkers of Canada (PPWC), convened a panel of eight individuals drawn from key constituency groups on 23 January 2014 to outline policy issues, potential solutions and their visions for BC's coastal forests. The event, which was the first in a planned series, attracted about 120 UBC students and alumni, faculty and staff from across campus, Union members and interested citizens. Linc Kesler, Senior Adviser to the President on Aboriginal Affairs, welcomed the participants on behalf of the host Musqueam First Nations community on whose traditional, ancestral and unceded territory UBC's campus is located. Dean John Innes chaired the event.

Over the course of 2 ½ hours, panellists engaged in a wide-ranging discussion with the audience and each other. Towards the end of the event, Stephanie Goodwin, BC Director and Senior Forest Campaigner for Greenpeace, described the challenge of reconciling divergent visions for BC's coastal forests as akin to untangling Christmas tree lights – an entirely do-able task but one that requires patience and good humour, made easier by collaboration.

Strands of the Christmas lights that were disentangled by panellists were the needs to –

- create conditions that maximize economic opportunities for First Nations;
- create regional resiliency plans for forests and forest-dependent communities in an era of climate change;
- strengthen forest monitoring to provide skilled jobs and to verify prescribed forest practices;
- nurture more value-added industries in the province to increase the number of jobs per thousand cubic metres of log;
- aim for both maximum social value and maximum environmental stewardship of BC's remaining old growth forests.

A number of the presenters maintained that the era of easy access to old growth forests had ended. They expressed concerns that the annual allowable cut (AAC) had been too high for too long and that over-cutting was partly responsible for the 'fall down' being experienced and the continuing evidence of forest degradation. Rick Jeffery, the President and CEO of Coast Forest Products Association (CFPA), an organization that represents 20 leading edge forestry companies, countered that their forest management practices

were constantly evolving and included managing for multiple forest values while collaborating with First Nations and other stakeholders.

Keith Atkinson, CEO of the First Nations Forestry Council, opined that the primary interest of the 203 First Nations (FNs) in BC was to see the restoration of much of their customary territories from their current degraded state. He also flagged the unresolved FN-government-to-provincial-government issues (G2G), including the security of customary land. Fifteen years of experience had accumulated since the launch of the Ministry's forest revitalization plan. In the assessment of First Nations, the G2G relationships were not yet meaningful. While new opportunities had opened up for Aboriginal communities in increased tenure awards (logging concessions), a common perception of FNs was that tenures were being allocated on an ad hoc basis, 'a snip here, another snip there.' In consequence, the 14 per cent of tenures held by FNs did not add up to areas that were economically viable for individual FN tenure holders to log on their own. That is, the logging areas were too distant or too poor in quality or too short in duration of non-replaceable AACs such that they could not justify investment in equipment or training by individual FNs. Thus, in terms of access and benefit sharing, many of the FNs were simply short-term rentiers, not building community skills or sustainable livelihoods for their young people.

On the topic of BC's unresolved land issues with First Nations, John Cathro, forest auditor, opined that there was much to learn from the Haida Gwaii Strategic Land Use Agreement (2007) on shared management between FNs and BC Government; although ultimate decision-making power remains with the provincial Ministries.

A number of panellists expressed regret that the social contract of appurtenancy is no longer being enforced on holders of Tree Farm Licences, even while the largest share of BC's forests has been concentrated in fewer and fewer hands. Appurtenancy was the concept that awards of long-term, large-scale tenures over forests on Crown land carried an obligation on the tenure holder to create economically sustainable and socially-viable rural townships and communities through industrial development. Valerie Langer of ForestEthics Solutions said that the ad hoc forest policy appears to be ever greater shifts of responsibility for forest management to large tenure holders who, in turn, have less

and less responsibility to forest-dependent communities. Among the perverse outcomes of these trends were a halving of royalties from stumpage in the past ten years, and the cutting of at least 1,000 Ministry of Forestry jobs. The reduction in royalties has been partly a consequence of the private sector negotiating reducing factors in formulae for offsets because of more difficult logging conditions. Smaller operators and holders of community tenures have not had the political clout or inside knowledge to secure such large benefits.

The progress achieved by multiple stakeholders in the Great Bear Rainforest (GBR) contrasted with this negative picture. The commitment of CAN \$120 million by environmental NGOs and government have permitted adherence to 2 key conditions: firstly, the agreement to use the best available science to determine the AAC, and to protect representative GBR ecosystems; secondly, the safeguarding of the wellbeing of the First Nations and other communities that reside within the GBR. Other participants opined that impressive though the gains were within the 3.2 million hectares (Mha) of the GBR, it – the Great Bear Rainforest – was only a small part of the 22 Mha classified as the Timber Harvesting Land Base out of 57 Mha of Crown forest land in BC.

Francois Dufresne, President & CEO of the Forest Stewardship Council (FSC) in Canada, outlined the ways in which that voluntary, independent, third party forest certification scheme worked and its emphasis on due diligence and risk assessment.

Proposals suggested towards a vision for BC’s coastal temperate rainforests:

John Innes suggested that the goal should be a grand vision for BC’s coastal forests rather than piecemeal visions. Arnie Bercov advocated that mills be helped to re-capitalize, thereby expanding equitable conditions for employment in forest-based communities. Keith Atkinson flagged that the capacity of FNs should be improved so that ‘we can proac-

tively participate in economic opportunities’. Several panelists urged the maximizing of economic opportunities while ensuring social stability and ecological functionality within the ecosystem-based management of BC’s forest resources.

While some panellists maintained that log exports were too high, Doug Konkin, former Deputy Minister of Forests, Lands and Natural Resource Operations held that forestry in BC had to be viewed within a global context, as global demand-pull determines local outcomes.

Rick Jeffery described the use of nanotechnologies for improved use of fibres. He decried the continuing practice of salt-water logging and rafting which led to problems in salt-clogged boilers in pulp mills. Jeffrey advocated use of trucks and barges instead.

Gary Bull asked about leverage for change, and Valerie Langer noted that it was important for stakeholders to see where the power to make decisions about the BC coastal forests was located. She urged more consideration of value propositions and of underlying moral and ethical issues in developing a vision. An important outcome of the panel discussion was a renewed commitment by the panellists to continue to seek common ground. After the event, a number of students said that Valerie Langer’s closing remarks had rung true for them: “here, in BC, we’ve conditioned ourselves to use the AAC as the only measure of forestry. We need to recall the precautionary principle and regulate for all ecosystem values in fulfilment of the social contract between concession awardees (tenure holders) and the provincial government as administrators of the Crown forests on behalf of the people”.

There is clearly a long way to go to merge these disparate views into a coherent vision. There must surely be a role for UBC’s Faculty of Forestry in this process.

If you would like to know more about the panel and future plans, please email Janette Bulkan, Assistant Professor of Indigenous Forestry, janette.bulkan@ubc.ca.



development & alumni news

Forestry undergraduate award honours UBC Alumni

The Faculty's most significant undergraduate student award has been established in honour of Phillip Tindle (ApSc 49) and his wife Katherine (BA 48).

"Please, call me Taddy," Katherine says. "I've gone by that nickname my whole life."

In their top-floor Vancouver apartment with gorgeous views of forests and mountains, Phillip and Taddy recently talked about their lives at UBC, Phillip's career in forestry, and the importance of this new student award.

"We met in grade 10 English at Lord Byng," Phillip says. "We both went to UBC, and dated all through first and second year. At the end of second year, we got engaged when I gave Taddy my fraternity pin. I couldn't afford a diamond, you see!"

Back then there was no Faculty of Forestry; it was a department within Applied Science. One of Phillip's professors was Malcolm Knapp, who taught courses in logging, wood technology and forest products. Knapp was also Taddy's father, so Phillip worked hard to stay on his good side.

Malcolm Knapp was instrumental in the negotiations that resulted in UBC acquiring a research forest in 1949. Two years prior, Phillip had assisted the BC Land Surveyor to outline the boundaries of this forest near Haney, which would later bear his father-in-law's name.

Immediately after graduation in 1949, Phillip and Taddy were married and Phillip began working for a small lumber company. He and Taddy began to build their family as well, welcoming Jan, Mark, Kim and Jill over the following decade.

Later, Phillip became a partner in Ralph S Plant Ltd, a lumber wholesaler, where he spent most of his career. He was responsible for selling lumber to every US state except Hawaii, and so spent about 6 weeks a year on the road, including in the then-segregated South. "I remember one time visiting a client first thing in the morning, and they started their day with a prayer meeting. All the white people were on one side of the room and all the black people were on the other.

"Our business was based on the spoken word," he says. "We didn't have the internet or even faxes, so the phone and face-to-face meetings were our main tools. We developed strong relationships with our customers this way, and I've been lucky to keep in touch with many former clients."



Nevertheless, it was pretty stressful work. "We would buy 30-40 railroad cars of lumber and send them out across the country," he says. "Then we would get on the phones and try to sell them all before they reached their destinations."

In 1980 Phillip was honoured as the first-ever Lumberman of the Year by the BC Wholesale Lumber Association.

The Phillip A and Katherine Tindle Forestry Award will provide over \$7,000 annually to support and recognize an academically strong student with demonstrated leadership skills and involvement in the community.

Phillip and Taddy support the emphasis on well-rounded students. "Leadership skills and community service are qualities we need as a nation in order to be successful. The world is highly competitive, and so we need expertise. But we also need leadership to make things happen," they say.

To learn more about this award or to discuss creating a student award of your own, please contact Emma Tully, phone 604.822.8716 or email emma.tully@ubc.ca.

Sarah Doran-Coelho – Development Officer

The Development and Alumni Engagement team in the Faculty of Forestry is pleased to welcome **Sarah Doran-Coelho** in the role of Development Officer.

Prior to joining the Faculty, Sarah was the Director of Development at the BC Sports Hall of Fame. Previously, Sarah led Sleep Country Canada’s community relations program, managing annual fundraising campaigns and special events in support of community

organizations and charities.

Sarah replaces Deepti Mathew Iype who has taken up a new opportunity in the Faculty of Forestry with Professor Stephen Sheppard’s group. Sarah very much looks forward to meeting the Faculty’s alumni, friends and donors. She can be reached at sarah.dorancoelho@ubc.ca or at 604.822.0898. Welcome Sarah.



Alumni & Friends BBQ & Tour

On Sunday, April 27, 2014 alumni, their families, friends, faculty, staff and students joined together at the Malcolm Knapp Research Forest for the annual Alumni & Friends BBQ & Tour. The day started with groups splitting into 2; the “grown-ups” heading for a bus tour around the forest to view the new demonstration project and hear from students about their thinning project. Meanwhile, families gathered for a nature tour which included a hunt for chocolate eggs. Following the tour, both groups mingled at a reception hosted by Dean John Innes and later at the BBQ. Thank you to all for joining us and we hope to see you at next year’s event.



Class of 1968 reunion

The class of 1968 celebrated their 46th reunion on Saturday, May 24, 2014 during Alumni Weekend on the UBC campus. Their day started with catching up over their class yearbook, a tour of the Forest Sciences Centre, a visit to the MacMillan Building (former home of the Faculty of Forestry) then a chat with Dean Innes. Afterwards everyone gathered for lunch at Mahony & Son’s. Thank you to the Class of 1968 for including us in your festivities!



Where has your degree taken you?

At the Faculty of Forestry, we are often asked by government and industry about the geographic mobility of our graduates, including where they find work upon graduation as well as throughout their careers. For those considering studying in the Faculty, one major question often asked is "what kind of career might a degree from the Faculty lead to?" To get an accurate picture of where our graduates end

up (both geographically and breadth of career paths), we invite you to take a couple of minutes to answer a few questions. Please go to the url below and help us to collect this important information.

<http://getinvolved.forestry.ubc.ca/outcomes/>

Thank you in advance for your help and support of the Faculty of Forestry.

Mark your calendars for the following forestry alumni events

- Friday, August 30, 2014 – **Alumni Reception** in Nelson, BC.
- Monday, September 29, 2014 – **Alumni Reception** at the Canadian Urban Forestry Conference in Victoria.
- Thursday, October 9, 2014 – **Alumni Reception** at the 24th International Union of Forest Research Organizations World Congress (IUFRO) in Salt Lake City, Utah.

Keep an eye out for more information in the monthly Alumni E-Newsletter, or contact Janna Kellett at janna.kellett@ubc.ca or 604.827.3082.

Class of 1989 Reunion:

We're spreading the word – the class of 1989 is celebrating their 25th reunion on the weekend of September 19th to 21st. They are looking for "lost in the woods" classmates, professors and others who were part of the faculty at that time to come and join them in Harrison Hot Springs to reconnect. Organized events include golf at the Sandpiper Golf Course and dinner at the Harrison Hot Springs Resort on Saturday evening. The deadline to reserve your room at the resort is August 5th. For more information, please contact Janna Kellett at janna.kellett@ubc.ca or 604.827.3082.

Are you celebrating a milestone reunion in 2014 or 2015? If so, contact Janna Kellett at janna.kellett@ubc.ca or 604.827.3082 to see how we can help you!

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