

# branchlines

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# dean's message



Some parts of the forest sector face stormy times. In particular the softwood lumber dispute seems set for a long, drawn-out and very expensive fight that will likely cause casualties and further uncertainty amongst lumber producers. While the outlook is dire for some parties, forestry today is more diverse than it has ever been, and not all aspects of forestry will be affected equally.

Both the federal and the provincial governments (particularly that of British Columbia) have been promoting alternative markets to the USA. This saw a phenomenal rise in lumber exports to China, although other Asian markets have been less responsive. There have been worries that the Chinese market has slipped, but it is worth remembering that the annual growth in GDP in China remains far higher than it is has ever been in Canada or the USA. Chinese property markets are complex and while 2016 has seen a drop in the land purchased for real estate development, investment in real estate rose, with investment in homes accounting for 67% of all real estate development investment. Large numbers of concrete apartment block shells still exist – fitting these out as homes will require lumber and it seems that there is a huge potential market for the appropriate products. Other markets, including Japan, the

Republic of Korea and Southeast and South Asia will likely offer opportunities for those willing to explore them.

However, forestry today is about much more than the production of lumber. The ecosystem services provided by forests are of growing importance. We are seeing growing demand for services such as biodiversity, recreation and eco-tourism, but it is carbon that is stealing the limelight. The importance of the contribution that forests can make to the mitigation of climate change is now widely recognized, and many forestry actions, particularly re-forestation and afforestation, are now seen as climate mitigation actions. However, globally, we continue to lose forest area to deforestation and forest degradation, and foresters have a major role to play in halting this.

This issue of *Branchlines* contains 2 articles about invasive organisms, a topic that is of increasing concern for both urban and rural forestry. Detecting and monitoring invasive species is important and a requirement of sustainable forest management. Controlling and eradicating invasive species is much more difficult, and forest managers must often instead find ways to mitigate the impacts of such species. With global trade patterns, climate change and the increasing movement of exotic species (both deliberately and inadvertently) by individuals, this is an area that will continue to provide us with many significant challenges.

The global community's Sustainable Development Goal 15 is to "protect, restore and promote sustainable use

of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss". As our Faculty of Forestry expands, we will be increasing our capacity to undertake research and conduct teaching to support this goal. It covers all aspects of the Faculty, from forest science, through forest management and conservation to the sustainable use of forest products. While we will continue to support the more traditional aspects of forestry, it is these new aspects that are attracting not only global attention, but also research funding. As a Faculty, we are well-positioned to take advantage of these changes.

My previous editorial focused on Indigenous issues, and I am pleased to say that our relationships with British Columbia's First Nations continue to grow. This was recently celebrated by the hanging of Bill Reid's *Looplex X* canoe in our atrium. This spectacular canoe was restored with the help of Haida Hereditary Chief and Master Carver Jim Hart, with the woodwork being restored by Lawrence Günther and staff from our Centre for Advanced Wood Processing. It is a wonderful and symbolic addition to our Faculty.

**John L Innes**  
Professor and Dean

# forestrynews

## Queen Elizabeth II Diamond Jubilee Scholarship provides unique opportunities to students



### **Nicole Bernardi – my story**

Every year since 2006, UBC's Global Health Initiative (GHI) has sent a team of students to north India's Himalayas to assist in projects to promote the health of students of Munsel-Ling boarding school. This past summer, I had the pleasure of accompanying the GHI cohort to complete the internship component of my Master of International Forestry (MIF) degree.

I was drawn to GHI given its holistic definition of health and offerings of hands-on opportunities to enhance global health. The India Spiti Health Project was particularly attractive

because I was fascinated by the numerous challenges facing the school, but more importantly, the Spitian community's resilience and innovation in the face of these challenges. Spiti is known for water shortages, limited road accessibility and unfavourable growing conditions. I performed *E coli* and coliform level tests on the campus' drinking water. I helped devise next year's seed selection and intercropping strategies. I also drafted menus for the school's kitchen catering to its unique and limited financial, seasonal and logistical resources.

Thanks to the Queen Elizabeth

Scholars program, I was able to spend 4 months in India this summer, 2 at Munsel-Ling school. This experience dovetailed beautifully with the discussions, readings and assignments of the course-based portion of the MIF program.

### **Riley Finn – my story**

Over this past summer, I had the pleasure of working with fellow Queen Elizabeth Scholar, Libin TL on his project examining biodiversity in the rice paddies of Kerala State. We were working out of the College of Forestry at Kerala Agricultural University, which offered the opportunity of interacting with many of the students. Through speaking with the students, I gained insight into their motivations for studying forestry and how their graduation goals differ, both from myself, and my peers back in Canada. Libin was quick to explain that doing fieldwork in India was going to be different than in Canada. Dealing with sporadic monsoon rains, and tracking down local farmers through winding roads by word of mouth were just 2 of the challenges we faced on a daily basis. On top of learning about the local biodiversity and understanding the differences in research between my home country and India, I got a unique taste of life in Kerala. The nature of our work took us to often-overlooked rural areas of the state, many very beautiful and filled with generous people curious about our study. Having never travelled outside of North America before, the Queen Elizabeth Scholarship has allowed me to place my studies in a global context, and has reformed my career trajectory.

# Indigenous Community -based Research Workshop emphasizes reciprocity



The Faculty of Forestry held a day-long workshop on November 4 highlighting the importance of forming and sustaining reciprocal relationships and proper research methods between Indigenous communities and researchers. The event was attended by over 70 people, including community partners, professors, graduate and undergraduate students, and staff.

The day commenced with a Musqueam welcome by Elder Larry Grant, who shared his insights on historical and existing relationships between Musqueam, UBC, and the forest industry. This was followed by further reflections on what it means to be studying and working on the unceded, traditional, and ancestral territory of the

Musqueam Nation.

The morning panel consisted of José Arias Bustamante, Ellen Simmons, and Matt Wealick, who spoke in conversation about the topic: 'Framing Research with Indigenous Peoples and Communities' and their experiences as a researcher and as community members bridging the relationships between researchers and First Nations. The afternoon panel included keynote speaker, Bob Joseph, who held an informational session and Q&A about how to build meaningful relationships and work efficiently with Indigenous communities. The last panel, consisting of Janette Bulkan, Lennard Joe, and Jim Munroe, spoke to the topic of current and future directions of Indigenous research at the

Faculty. Speakers throughout the day emphasized the need to recognize that each Indigenous community is unique and different; therefore, it takes time to build and maintain relationships and to frame the research in partnership with Indigenous peoples early in its design. Dr. Janette Bulkan also stressed the need to understand the roles that privilege and power play in conducting academic and scientific research with Indigenous communities.

The day ended with group brainstorm conversations that focused on ways in which the Faculty could best support communities, faculty members and students who work indirectly with Indigenous communities.

## Urban Forestry networking

On September 21, our new Bachelor of Urban Forestry (BUF) program hosted its first networking event. The event brought together students and faculty from the program with industry leaders from municipalities, arboricultural firms, and consultancies. Students came from different years, but with a large group of first-year students eager to hear about job opportunities at the start of their studies. Peiyang Leo Lee, a third year student, thought that the occasion "was a good event for me to have a

chance to get in touch with a number of outstanding people in this industry. It helped me get a wider perspective of the world and understand the meaning of urban forestry."

Urban forestry is a relatively new industry in Canada, so it's important for the BUF to have close connections to practice and ensure that the education matches employer demands. Nadia Chan, Park Operations Coordinator - Natural Areas for the City of Surrey attended the event. She commented "the evening was a great opportunity

to connect with students and faculty, and to learn more about the new BUF program. The students were enthusiastic about their studies and interested in learning more about the industry. I'm looking forward to seeing the program develop further, and to work with students during coop or summer work terms."

The networking event had a very positive vibe, with about 40-45 students and 17 industry representative attending. We look forward to more successful networking events in the future!

# Restored Bill Reid canoe now on display

By Sean King



After years of planning and preparation, and with permission from the First Nations House of Learning, the Musqueam people, and the Haida people, Bill Reid's Looplex X has finally found a home in the Forest Sciences Centre. At 53 feet in length, the canoe is slightly longer than a humpback whale.

The Looplex X is a replica of the "Lootas", a cedar canoe carved and painted by Bill Reid for the 1986 Vancouver Expo. The original canoe was carved from a single cedar log using traditional Haida methods and was the first of its kind built in the 20th century.

The Looplex X was gifted to UBC in 2011 by Martine Reid and Don Martin. Unfortunately, while sitting exposed to the elements, the canoe had fallen into disrepair. Debra Martel, from UBC's First Nations House of Learning, suddenly became the trustee of a rather large boat that needed extensive, and culturally sensitive, restoration.

Associate Dean Rob Kozak agreed to house the canoe at UBC's Centre for Advanced Wood Processing (CAWP), during the restoration process. Haida Hereditary Chief and master carver Jim Hart oversaw the repainting and Haida artists Mary Hart (Jim's daughter, pictured above), Carl Hart (Jim's son), Brandon Brown, and John Brent Bennet spent several weeks diligently recreating the beautiful painting that was almost lost. Once the artwork was restored,

Lawrence Günther and staff from CAWP, began restoring the wood components.

Now, what do you do with a several ton, whale-sized piece of art? Why you hang it in a large atrium, of course. With the help of Forestry's Dean John Innes, and UBC Building

Services, the fully restored canoe is now suspended above inquisitive minds passing through the Forest Sciences Centre. The effect is truly breathtaking. From the flawlessly painted artwork to the immaculate woodwork, the experience and passion with which the canoe was revitalized is evident. The Looplex X was unveiled at a ceremony on November 23 attended by Martine Reid, Don Martin, Jim Hart, and others involved in the restoration. Our hope is that this collective effort will symbolize a renewed understanding and strengthening relationships between UBC and First Nations communities.

*Sean King, a recent graduate from UBC, documented the restoration of the canoe while a student in our Natural Resources Conservation program.*



View of the Looplex X's stern hanging in the Forest Sciences Centre atrium

# Dealing with invasive alien species: A new challenge for decision support systems



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Decision-making processes in forest management have always been characterized by an enormous diversity of options and goals within a complex environment. Growing public interest in the management of natural resources has led to an additional challenge: tools are needed that not only support our understanding of environmental issues, but also allow us to enhance and evaluate the many alternative management options available. The reason for this

desire for knowledge is rooted in the biological basis of human behaviour, where risk sensitivity can be considered an evolutionary adaptation.

For forest management this translates into a desire to reduce risks associated with decision making by projecting the consequences of different courses of action into the future. In other words, if possible, we would like to open a window into the future, take a look through it, and based on what

we see, make our decisions ensuring that we don't make any "mistakes" or decisions leading to unfavourable outcomes. What sounds like a fantastic wish is a challenge researchers can address today by using computer aided decision support systems (DSS).

Currently, the most basic DSS can streamline access to data needed to make decisions. Examples include growth modelling tools, which allow easy access to information on stand



**...we would like to open a window into the future, take a look through it, and based on what we see, make our decisions ensuring that we don't make any 'mistakes'.."**

development based on a number of stand characteristics. More complex DSS can help decision making by integrating database management systems with analytical and operational research models, enabling a variety of outputs. Accordingly, DSS can – in the context of forest management planning – be seen as an interface between many of the sub-topics of relevance, helping to deliver the economic-, social- and ecosystem-services society requires. Over the past decades, tools and methods have been developed that bring together findings from various areas of relevance to, ideally simultaneously, help decision makers to achieve multiple goals.

The application of these plans is, of course, another story, and often falls victim to the surrounding policy frameworks. Either way though, these tools have shaped the nature of forest management in the 21st century and continue to do so. However, while the tools to help with the most straightforward questions related to the management of natural resources (in the wider sense) have become more sophisticated, new challenges have also arisen...

The increasing occurrence of forest invasive alien species (FIAS) can cause irreversible damage to the environment, threatening Canada's capacity to provide long-term timber supply and ecosystem services. Damages may also include reduced real-estate and visual values, and impacts to both forest and public health. The problems associated with FIAS are likely to worsen in the future, partly because expanding world trade and travel transport organisms widely and rapidly, but also because of

climatic changes that promote species migrations.

Managing FIAS is becoming more challenging every day. New knowledge is crucial if we are to make the best management decisions that allow us to keep pace with the new invasion threats. The traditional approach of gathering, processing and disseminating information related to invasive alien species is no longer adequate in dealing with the magnitude of the problem. Critical and accurate information on FIAS, as well as quick processing and fast delivery, are needed to make decisions and implement effective measures.

Under the guidance of Dr Verena Griess, researchers at FRESH, the Forest Resources and Environmental Services Hub at UBC's Faculty of Forestry are developing a spatially explicit decision support system (DSS) to help make decisions regarding the mitigation of forest invasive alien species. A complex task such as this requires a comprehensive collection of underlying data and information from a variety of sources and developing a series of support tools that will be linked in a system. An example of such a tool is described below:

Assume that a landscape is represented by a map. Homogenous areas are displayed on this map as polygons (eg forests of a specific age and structure, a lake, or a road system). Each polygon is linked to information that is relevant to forest management, such as growth and yield curves for the current stand type in the area, or the age, or harvesting costs, as needed for use in forest management planning software (eg Woodstock or others). Additionally, a dataset that contains information about possible FIAS that may invade the landscape is available. It may be known that a suitable host for one of these invasive species is deciduous stands, that this FIAS has a high spread potential displayed by its flight capacity and is going to have a specific chance (expressed as likelihood) to damage or entirely destroy a stand of a specific tree species should it invade and be left to itself for a given number of years. Also known are locations of camp grounds

to which people may accidentally bring firewood carrying a FIAS. The locations of these spots can be marked on the map. A third dataset contains information about possible mitigation treatments of this invasive species, their chance of success as well as the costs to employ them. All these data can be combined in a database and made easily accessible.

To simulate what the future will bring, we are moving forward in time in discrete 10 year steps. In each decadal period, a forest stand has a given probability of being assaulted by a FIAS. This probability differs with location, species and other input factors. Let's imagine it is 10 percent. Now in each period a random number is drawn between 1 and 100. If the drawn number is between 1 and 10, the stand will be invaded. If the drawn number is between 11 and 100, the stand will remain unharmed. If an invasion occurs, the invasion will keep spreading, based on FIAS characteristics, and possibly reach additional stands. The outcome of this simulation is a risk map which can be used as such.

It is also possible to derive economic consequences of invasions. If a stand is invaded, managers have a number of management choices. These include (1) to do nothing, (2) to fell infested trees, or (3) - (x) to use a number of other mitigation strategies. Based on the intensity, the location and the possible development of the invasion, these management treatments will lead to different rates of success and come at various costs.

Such a decision support system will integrate a user-friendly interface with a pest risk analysis based on complex models, risk and distribution maps, data bases and expert systems. Although recognizing the critical importance of prevention programs, the platform will also provide management analyses of forest invasive alien species that have already been introduced and established in Canada. This system will open a window into the future and provide help with making the best economic and ecological choices regarding mitigation of forest invasive alien species.

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# Big Tree Walk – TED Experience, Vancouver



In February of this year, Professor Suzanne Simard (UBC Department of Forest and Conservation Sciences) was invited to host a TED Experience event prior to the TED Talks that took place in Vancouver. Suzanne invited Post-doctoral Fellow Dr Teresa Ryan (Tsimshian) to join her to give an unprecedented experience of combining science and Aboriginal knowledge of forest ecosystems to participating members of TED. The event was titled “Big Tree Walk” and consisted of a 2-hour tour through Vancouver’s Stanley Park. By conducting a couple of reconnaissance trips in advance of the event, Suzanne and Teresa identified 18 stops along trails that would serve to profile characteristics of forest growth and explain ecosystem linkages. The forest journey started near a Hollow Tree monument where both Suzanne and Teresa (also a member of the UBC Department of Forest and Conservation Sciences) introduced themselves and briefly described their backgrounds and interests in forest research. Like weaving 2-strands of weft in a basket, 2

forms of knowledge were entwined in a provocative exposition along the trails.

The unique Coastal Pacific Rainforest of North America contains some of the last remaining old growth forests in the world. It stretches from the redwoods in northern California to the Sitka spruce forests in Alaska, hugging the coastline from the outermost hypermaritime islands, including Vancouver Island, Haida Gwaii and insular islands to about 163 km (100 miles) inland; from sea-level to 1000 m elevation in the southern region, up to 400 m elevation in the north, and transitioning into Mountain Hemlock forests, then alpine tundra. Because of their great productivity and longevity, these old-growth rainforests are among the greatest carbon storehouses in the world. Stanley Park is a forest enclave of more than 400 hectares amidst the bustling city of Vancouver in the Coastal Western Hemlock zone. The cool mesothermal climate supports this zone with a mean annual temperature of 5°C and 2,200 mm of rain (5,000 mm in the north). The climax forests are

dominated by western hemlock and western red cedar, with a myriad other species interspersed along the coast. In the region containing Stanley Park, these species, and Douglas-fir, reach some of their greatest sizes. The biggest trees are 100 metres tall and 5 metres in girth, growing for a very long time – western red cedar lives over 1000 years. Their roots go out as far as the trees are tall, 20 or so metres, joining the neighboring trees together in their network. Through secondary connections, where one tree is connected to the next, etc, the entire forest in Stanley Park is connected together belowground.

Forestry science advances have demonstrated the importance of old growth forests for maintaining species diversity, carbon and water cycles, and life on earth. By using a hands on approach, Suzanne and Teresa were able to show characteristics of forest ecosystems during the 2-hour tour to show the connections in forests, how trees communicate through these connections, and how understanding maintenance of connections is vital to the resilience of forests. Examples of the mechanisms of succession following disturbance events from wind storms, or senescence of old trees giving life to new seedlings, abound along the trails. Clusters of young trees in twins or triplets provided the opportunity to profile competition and mutualisms. A large toppled tree with roots exposed provided the metaphor of a tree’s brain, the focal conduit of nutrient exchange. The gap opened in the canopy after it fell allows sunlight to penetrate to the forest floor triggering new forest growth. The monumental big trees, biggest and the oldest in the forest, are simply mesmerizing in their massive





size with extensive root systems penetrating the soils and transporting nutrients in symbiosis with mycorrhizal fungi. These are the Mother Trees, hubs in the centre forming below ground networks of communication, a concept that resonates with an Aboriginal worldview that all things are connected. The role of mother is ubiquitous in all cultures, and the concept of Mother Tree makes understanding these complex forest ecosystems more familiar to non-scientists.

Pacific Northwest Aboriginal people capitalized on the massive size of cedar trees, the Tree of Life, for building canoes and making cedar planks for houses. The abundance of very large trees was much higher in the past. Cedar is known for its rot-resistant properties and even-grained wood. The trees are part of a community in complex relationships with each other and things they support and protect like a family. We are a part of these relationships in a reciprocal spiral of life and death. We rely on the forests to provide us with O<sub>2</sub> and to regulate hydrologic cycles and nutrient exchange. The way that Aboriginal people know about forests and landscapes is based on thousands of years of stewardship interaction with them. Aboriginal knowledge has a different epistemology (how things are known) and ontology (what is known), and is applied to generously maintain habitat integrity while sustainably harvesting resources.

The Big Tree Walk included stops along the trails to demonstrate elements of knowledge about these complex adaptive systems. Water transport by the forest was explained near a small trickle of a stream, and the symbiotic relationships of salmon to these ecosystems. Aboriginal observations about salmonberry blossoms near the stream were also conveyed along the trail. A common practice in the north coast of BC is to pinch off the new growth of salmonberry bushes to eat as

a snack. These clippings are known as “oylth” in the Tsimshian language. The plant will respond by spending more energy in producing the fruit, making these delicious berries more robust. Healthy riparian plants attract more insects that are prey items for emerging juvenile salmon in the streams, which means that young salmon will prey on insects instead of smaller larvae of fish such as eulachon. Salmonberry patches also provide another set of observations about bears in the forest. Typically bears will traverse the riparian areas leaving trails in the salmonberry bushes. This concept was conveyed to Suzanne by Teresa during a reconnaissance trip, suggesting the ‘bear path’ encountered in Stanley Park is not likely a real bear path because of the city but the central and north coast is full of these bear paths! Bears and other hungry animals take salmon from the stream into the riparian area to enjoy their meal peacefully. They may leave parts of the fish to decay into the soil, infusing marine nutrients into mycorrhizal fungi networks.

Suzanne and Teresa were able to demonstrate different silviculture applications throughout the trail journey, and show different structural components of healthy and distressed forest systems. The Big Tree Walk concluded by going through areas of the forest that had recently experienced wind throw. The terminus of the trail had an opening to a city view of Vancouver where Teresa described the emerging field of Urban Forestry and a new program at UBC Forestry. The participants thoroughly enjoyed the 2-hour experience. As a result of the success of this event, Suzanne was invited to give a talk at TEDSummit2016 in Banff, AB (June 26-30, 2016). Her talk “How trees talk to each other” is available online and has had more than 1.9 million views so far!

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# Letters from Africa

*By Abigail Dan*

The sun has dipped behind the clouds that shroud the heads of the mountains, and a coolness has settled over the landscape. Swaths of the valley glow in escaping beams of light or bask in the shadows. I'm watching the red dust of the road puff silently over my sandals, peeping out from under the hem of my tightly wrapped chitenge—the traditional sarong—as we slowly return to the main road after a long day in the field. The air is thick with woodsmoke from cooking fires, and all we can hear besides our own rustle of gear, footsteps and hushed voices is a chorus of crickets and calling doves.

This is a stunning landscape—a rugged mosaic of bare rock and scattered copses of trees, riparian ravines and dry fields of wildflowers, banana plantations and farmland, dotted with red brick huts. The topography climbs steeply to the Zomba Plateau at eighteen hundred meters elevation in the west, and slopes down to the Lake Chilwa basin in the east. A two-lane highway, plied by bicycles burdened with wares, lurching minibuses, aid trucks and passenger vehicles dissects the valley like a glittering thread. Between the clusters of houses clinging to the side of the rocky hills and the

sprawling settlements near the lake lie the nine villages in our research site. They are accessed by dirt tracks from the highway, stitched together with overgrown footpaths that wind precipitously up the side of the plateau.

It's a temperate July in the Southern Hemisphere, and we are working roughly 20 miles north of the town of Zomba in Malawi. Our research team, with the assistance of 2 local translators, has collectively completed 146 household surveys to understand livelihood portfolios and dependence on forest resources across the poverty spectrum in these villages. Though a dozen surveys remain, one team is already working on the next stage of the project: following volunteers from the survey pool to where they collect their fuelwood resources and sampling the vegetation biodiversity of those sites. Another team is evaluating the ecological and social success of past and present tree planting projects.

## **Growing pains**

We have found Malawi to be a country full of hope and potential. The locals are quick to tell us that this is a third world country, and among the 10 poorest in the world at that, as if to apologize for our experience here. But

where they see backwardness, we see a clean slate. The fallowed agricultural fields are overflowing with species, native and cultivated, that provide a cornucopia for pollinators. Small-scale polycultures are the rule, and local fruits and vegetables are nearly all you'll find at the open market and on the roadsides.

It's true that deforestation is a major challenge; the landscape has radically changed since the sunset of British colonialism here 52 years ago, largely due to the burst of entrepreneurial energy and population that erupted in the wake of democratization. The forest has been encroached on by people trying to sustain their families from the land: building houses, cooking food, selling forest products, and carving useful implements. Non-native timber stands have been planted by the government and by tobacco plantations, contributing to increasing biotic homogenization where once the rich diversity of Miombo woodland cloaked these hills and lowlands, and wildlife roamed in large numbers. Quite simply, Malawi is a nation with growing pains.

The HIV infection rate remains at around 10.3% of the national population, down from 15% just a few years

ago, and the shadow of death can be seen in the decaying houses that dot the villages, left behind by those who pass without next of kin. Many of the heads of households are elderly women, caring for up to 7 children and young adults. Most commonly, these are her grandchildren, though other relatives occasionally appear in the list as well. We see far fewer men than women in the villages, though it is possible that some are in South Africa or another neighbouring country, seeking paid labour to support their families until the next major crop can be planted with the onset of the rains.

Even for the households that escape AIDS, commoner maladies like cholera still stalk rural roads and fields. USAID and other organizations have partnered to deliver piped water to many communities in this region and to install chlorine dispensers that are maintained by the local hospital. Yet households at some distance from a tap or living in housing clusters excluded from the project for political reasons often guide us to creeks and shallow wells when we ask to see where they draw their water. These are the same places they scrub clothes and soiled diapers, wash dishes, and trench diversions to their crop fields.

### Understanding the past

Our time here has run by like sand from an hourglass; moment flowing into moment, day into day, week into week. We just launched a series of focus groups to better understand the challenges that forest restoration projects face in Malawi, and to identify the conditions that set them up for success. The series includes groups of citizens who volunteered during the household surveys, government forestry and agriculture experts, and academics.

We carefully sorted the citizens along lines of age so that we can explore the possibility of generational differences in views about the obstacles to forest restoration. Since Nyasaland only ceased to be a British Protectorate half a century ago, the elderly have watched an arc of history and change

unfold on the landscape. During the focus group, participants are asked to pull out just one thing from the discussion that future restoration efforts will have to “get right” in order to have beneficial outcomes. The facilitation team then works with them to construct a Bayesian Belief Network, so that we can understand what opportunities they see for effective solutions, and how critical they think these interventions are to solving the problem. So far, every group has agreed: poverty alleviation is the grand challenge of the present.

### Looking ahead

Dusk is falling as my team reaches the highway and hails a crowded minibus that smells of stale sweat and dried fish, blasting reggae from a crackling speaker on the dashboard. I know that, back in Vancouver, I'll miss this. As we trundle towards Zomba Town, I think about how unprepared I was for the incredible dignity, strength and zeal for life that we have encountered as we meet village leaders under gathering trees, interview survey participants on their porches, and draw pictures with giggling children. I have carried my camera in my rucksack since arriving in the country, always looking for glimpses of the unscripted—the heart of the place. I had probably steered myself for the gut-wrenching scenes of an aid commercial. But even my sombre images of a prayer etched into the wall of a decaying house were punctuated by one of our little friends clambering into the frame with a beaming smile as if to say, “Look at me! This is the past, but I'm the future of Malawi.”

*Abigail Dan integrates field ecology and development economics in her PhD research in the Landscapes and Livelihoods Lab (L3) at UBC's Faculty of Forestry. Raised in rural northern California, she has spent over a decade working in conservation, environmental services, commodities research, and finance. Learn more about her work at [abigailrdan.wordpress.com](http://abigailrdan.wordpress.com), or follow L3 on Twitter (@landandlives) and Instagram (#landandlives).*



# Mapping plant invasions in an urban area using remote sensing



The occurrence of invasive plants is increasing in all types of ecosystems, producing both positive and negative changes on the landscape. Many land managers aim to decrease the negative effects that plant invasions bring, which may require curbing their spread through proactive management. This is particularly the case in urban areas which often act as the centres of plant invasions. Traditional methods of controlling plant invasions in cities involve sending field crews to survey municipal lands and develop maps of the invasions. While this procedure provides detailed information of plant invasions in some areas across a city, it does not produce a contiguous map as the surveys are often limited to accessible pockets of land in public areas. Municipalities are looking for new tools to map invasions.

Remote sensing technologies provide novel opportunities to detect plant invasions over large, spatially contiguous areas at fine spatial resolutions. Two detailed remote sensing technologies are hyperspectral imagery and light detection and ranging (LiDAR) sensing. Hyperspectral imagery records objects' responses to sunlight in a small part of the electromagnetic spectrum. The detail provided allows for individual

plant species to be distinguished from each other. Additionally, hyperspectral imagery with very high spatial resolutions (for example, 1 m) allows individual plants to be detected. A LiDAR sensor mounted on an airplane can send laser pulses to the earth's surface and detect the distances to objects. Multiple returns can come from each laser pulse, resulting in detailed 3-dimensional structure of an area. LiDAR data is often used to create digital elevation models, which describe the elevation of an area, and to quantify forest structural characteristics, such as the mean height or standard deviation of height. In previous studies, this information has been used to create ecological models for predicting plant distributions.

In Surrey, British Columbia, the municipal government is concerned with, among others, 2 invasive plant species, Himalayan blackberry (*Rubus armeniacus*) and English ivy (*Hedera helix*). Both of these plants take over the understories of forests and open areas, reducing native biodiversity and posing a nuisance to residents of Surrey and managers of Surrey's parks and natural areas system. Over the past decade, the local government has surveyed its parks and natural areas

and recorded locations of Himalayan blackberry, English ivy, and other invasive species, providing presence and absence records of invasions. The municipality collected hyperspectral imagery and LiDAR data in 2013 over its entire 316 km<sup>2</sup> area. The hyperspectral imagery was collected at a 1 m pixel resolution and LiDAR data contained 25 points per m<sup>2</sup>, allowing for detailed structural analyses. Master of Science graduate student Curtis Chance (now completed) and his thesis supervisor, Dr Nicholas Coops (Department of Forest Resources Management), utilized these data to map the distributions of Himalayan blackberry and English ivy, and test the accuracy of the maps produced. The City of Surrey provided funding and data for this project.

The first step to create maps of Himalayan blackberry and English ivy was to separate the city into forested and non-forested areas. Each 1 m pixel of the city with a cover greater than 20% over 2.5 m in height (as determined by the LiDAR data) was considered a closed forested area for the purposes of the 2 plant species. Each pixel with less than 20% cover above 2.5 m was considered to be an open, non-forested area.

The next step was to produce the



various LiDAR layers and perform a hyperspectral analysis. In this research, LiDAR was used to quantify the ground characteristics using a digital elevation model, and surface slope and aspect models. LiDAR data were also used to quantify forest structural characteristics including skewness and coefficient of variation of height, cover, and height percentiles describing the distribution of LiDAR points along a vertical profile. An irradiance model, describing the direct and diffuse radiation, was also created as invasive plant distributions may be influenced by light availability. A hyperspectral analysis provided likely locations of Himalayan blackberry and English ivy in open, non-forested areas across the city.

After the model inputs were created, the species distributions were modelled. In open areas, a likelihood map from the hyperspectral imagery and LiDAR-derived surface variables were used as inputs in a complex decision tree model that classified each point as absence or presence of Himalayan blackberry/English ivy. In closed, forested areas all LiDAR-derived variables were used in the model, but

hyperspectral information was not. For all of these models, the invasive species points collected by the municipality in 2012 and 2013 were used as training and validation data.

The output maps of Himalayan blackberry were classified with 78.8% accuracy in forested areas and 87.8% accuracy in open areas. English ivy was classified with 81.9% in forested areas and 82.1% in open areas. These outputs maps showed ecological relationships, providing important information to land managers about where to target managed invasions. For example, Himalayan blackberry preferred deciduous forests more than coniferous forests whereas English ivy preferred coniferous. English ivy preferred areas with higher slopes than Himalayan blackberry and absence plots across the city. Both Himalayan blackberry and English ivy in forested areas preferred southern-facing slopes more so than Himalayan blackberry and English ivy in open areas. The opposite was true of northern-facing slopes. English ivy in open areas frequently occurred in darker areas according to the irradiance models, whereas

Himalayan blackberry in open areas did not show such a strong preference. This is consistent with previous studies about habitat preferences of English ivy, which indicated that English ivy preferred more forested areas, which tend to be darker than open areas. The modelling process also provided an indication of how environmental factors are driving species distribution. For example, slope and aspect were important for Himalayan blackberry in open areas and convexity and radiation were most important for English ivy in open areas.

This research highlights the applicability of remotely sensed data for modelling the distributions of plant species and for informing managers of urban forests about the state of the land. Additionally, the number of ecological relationships that can be quantified using remote sensing data is extremely valuable to managers targeting single species across large and complex areas such as cities.

*For further information please contact Curtis Chance at [curtis.chance@alumni.ubc.ca](mailto:curtis.chance@alumni.ubc.ca) or Dr Nicholas Coops at [nicholas.coops@ubc.ca](mailto:nicholas.coops@ubc.ca).*

# The best things our students learned at DEMO 2016



DEMO International 2016 was held this year at the UBC Malcolm Knapp Research Forest. The 3 day “in-the-woods” show was attended by over 7,000 guests from around the world. What they saw was an overwhelming array of forestry technology at work brought in by 130 exhibitors, as well as an interpretive display of the many aspects of research, sustainable forest management and wood utilization spread out over the 3.5 kilometer long DEMO loop.

Most importantly, over 200 of our UBC Forestry undergraduate and graduate students attended as guests and volunteers. Forestry students from Selkirk College, BCIT, Vancouver Island University, and College of New Caledonia also attended.

The K-12 school program, sponsored by the Canadian Woodlands Forum (the show’s owner), with industry support also hosted over 350 students from around the lower mainland.

The main reason for the Faculty of Forestry and the Research Forests to support this event was to provide an

opportunity for the students to see the latest in forestry equipment and technology working in the woods.

For each of the students and instructors attending, DEMO 2016 was a distinct personal experience that will not be forgotten. Here are some descriptions of their experiences and memories:

- 1 DEMO International satisfied every aspect of a young forester’s desire to understand how forests are being harvested. With such a diverse array of machinery and an abundance of educational company representatives for each product, we were given a unique opportunity to see the full extent of forestry operations first hand.
- 2 I found DEMO was most valuable because it allowed us to both see the machines involved in harvesting and talk to industry professionals which helped to understand limitations and challenges associated with different logging methods. It was very beneficial to provide a visual reference of how harvesting activities work which is





valuable as we develop harvesting plans for our silviculture courses.

- 3 Being able to see so many different machines in action really allowed us to visualize and understand how certain types of equipment perform in various conditions. It turned our visions of how things work into real understanding.
- 4 The stump houses were outstanding!
- 5 DEMO was set up to convey information. We didn't have to beg or interrupt anyone to find out what was going on. There were expert people there from all over the world who were dedicated to answering our questions.
- 6 The automation and simulation that was on display was truly state of the art and very impressive. I could practise loading a log truck or running a processor without

risking getting hurt or damaging a machine.

- 7 The misting fire suppression display was very cool.
- 8 It was great to see that forestry is about a lot more than just cutting down trees, although still a big part of it. The story told throughout the site captured the history and the values that management of the forest protects.
- 9 The fourth year forest machines class said the great thing about DEMO is that they could see the machines working combined with live commentators describing what was being done.
- 10 From my perspective as an educator I can only dream of having video of machines working with a voice over giving operational and technical information. At DEMO this was all done live. Wish we



could have it every year.

What fascinated many of our students was the active demonstration of 7 steep slope tethered harvesting systems – a relatively new technology that is attracting a lot of interest and shows promise to reduce accident risk for workers on steep slopes. This was the largest display of this technology to date in North America. The varied and challenging terrain of the Malcolm Knapp Forest was the ideal venue for this demonstration.

DEMO 2016 was a once in a lifetime experience for the staff at the Research Forest. Anthony Robinson, recent MSc graduate from UBC Forestry, and graduate intern, acted as the Planner, Coordinator, Supervisor and Safety Marshall for the event: a 2 year journey that devoured his time for days and weeks on end. The pitch of activity increased throughout the lead up period, and Anthony found himself working 28 straight days to get things ready for DEMO. After a short respite, he now describes it as, “an amazing event, a huge challenge with a lot of moving parts, but without doubt the most exciting and rewarding role of my career so far”.

There is no question that DEMO contributed to the development of many of our valued students. The Research Forests are proud to have served in this role as hosts of the event.

*Paul Lawson is the Director of the UBC Research Forests. He can be reached at [paul.lawson@ubc.ca](mailto:paul.lawson@ubc.ca).*



# research lab profiles

## The Social-Ecological Systems Research Group



The SES research group is housed in the Faculty of Forestry at the University of British Columbia. We conduct problem-focussed research that is motivated by the perspective that social science insights provide essential contributions for understanding and developing solutions for challenges such as adapting to climate change, minimizing biodiversity and forest loss, and fostering sustainable, self-determined livelihoods. Research in the SES lab covers a wide-range of topics including: assessing the social acceptability of novel forest management interventions in response to climate change; identifying behavioral and institutional barriers to fire preparedness, tracing the impacts of globally-defined conservation regimes on local livelihoods, and examining values-based aspects of rapidly changing and contested conservation mandates in a human-dominated – Anthropocene – world.

The SES research group is led by Shannon Hagerman, an assistant professor in the department of Forest Resources Management [@SES\\_UBC](https://twitter.com/SES_UBC). Shannon is an interdisciplinary, social

scientist whose research interests center on the science-policy interface, and a curiosity to understand the social processes by which different forms of knowledge are incorporated into conservation and resource management decisions. Recently, this work has focussed on: i) the production and use of targets in global environmental governance (e.g. within the Convention on Biological Diversity), and ii) regional efforts to adapt forest management to the impacts of climate change. Shannon teaches Foundations of Conservation in the Faculty of Forestry's undergraduate program, as well as a graduate seminar on Qualitative Methods and Research Design.

Progress towards addressing contemporary environmental challenges, like adaptation to climate change, requires collaborations between social and natural scientists. Within the Faculty of Forestry, the SES lab provides social science leadership and expertise on projects with the Tree Ring Lab, the Centre for Forest Conservation Genetics, the FACT lab, the Zerriffi Research Group, and the Landscape

Ecology Lab. Outside of UBC, our collaborations extend to universities (eg Charles Darwin University, University of Central Asia, Duke), First Nations communities (the Yunesit'in Government), and non-governmental organizations (e.g. Northern Rangelands Trust, Natura Foundation Bolivia and RECOFTC-The Center for People and Forests).

### Who works in the SES research group?

The SES research group is comprised of a diverse, interdisciplinary, and highly talented group of undergraduate (co-op, work-learn) and graduate students as well as visiting scholars and post-doctoral fellows. Currently there are 3 PhD students, 3 MSc students and 1 undergraduate student. A number of students are co-supervised by faculty in other departments or from different disciplines to reflect a commitment to interdisciplinary research and to create rich learning opportunities. Four of the 7 lab members are international students from countries including Bolivia, Nigeria, the UK and the US. Three students are from Canada.



### What does the work entail?

We conduct empirical, problem-focussed research at local, regional and global scales using qualitative and mixed-methods inquiry (eg interviews, document analysis, surveys). Depending on the problem being investigated, students in the SES lab pursue collaborative, and researcher-driven designs. The former entails close consultation with community partners to co-develop the research to ensure respectful engagement and produce meaningful outcomes. Current field sites include domestic (British Columbia, Canada) and international (Bolivia, Cambodia, Kenya, Central Asia, US) contexts. Our work is published in top ranked environmental studies and conservation journals including *Global Environmental Change*, *Conservation Letters*, *Ecology & Society* and *Land Use Policy*.

### What is currently going on in the SES research group?

Here is a summary of the research that students in the SES lab are currently working on:

**Yemi Adeyeye** (PhD student) is UBC Public Scholar and Liu Scholar working with Natura Foundation Bolivia to study the politics of different knowledge systems in the development of an indigenous-driven, alternative REDD+ program in Bolivia. [@yemi\\_adeyeye](#)

**Kasmira Cockerill** (MSc student) is building on her 4 years of experience with conservation conservancies in Kenya to examine plural views about conservation in the conservancies of the Northern Rangelands Trust, so as to better understand successes and dilemmas in practice. [@Kasmira\\_C](#).

**Alice Henry** (MSc student, co-supervised with Rob Kozak) is studying how different actors involved in the Great Bear Rainforest negotiations perceive the role of informal institutions (eg bridging organizations) in fostering or eroding the legitimacy of the agreement. [@AliceRoseHenry](#)

**Sophie Lewis** (PhD student) is building on her 4 years' experience working with RECOFTC – The Center for People and Forests on community forestry in Cambodia, to examine the impacts of internationally-driven forest conservation and EU Timber Regulation on local livelihoods. [@SophieRoseLewis](#)

**Ricardo Pelai** (past co-op, and current undergraduate work-learn student) has been centrally involved in a number of projects within the SES lab including a recently published analysis of the implementation of the Aichi Biodiversity Targets in Canada. He is currently working on a systematic review of recommendations for forest management given climate change. [@rapazx](#)

**Angeline Robertson** (PhD student co-supervised with Rob Kozak) comes to the SES lab with years of international experience in forest certification and compliance with the Forest Stewardship Council and Accreditation Services International. Angeline is developing equitable and 'climate-smart' approaches to protecting species and ecosystems. [@forest\\_angeline](#)

**Natalie Swift** (MSc student co-supervised with Janette Bulkan) is working through Ecotrust Canada for and with the Tsilhqot'in community of Yunesit'in to develop forest-

based livelihood initiatives that are informed by the local culture, that empower women and youth, and that support the community's vision for financial independence. [@Natalie\\_A\\_Swift](#)

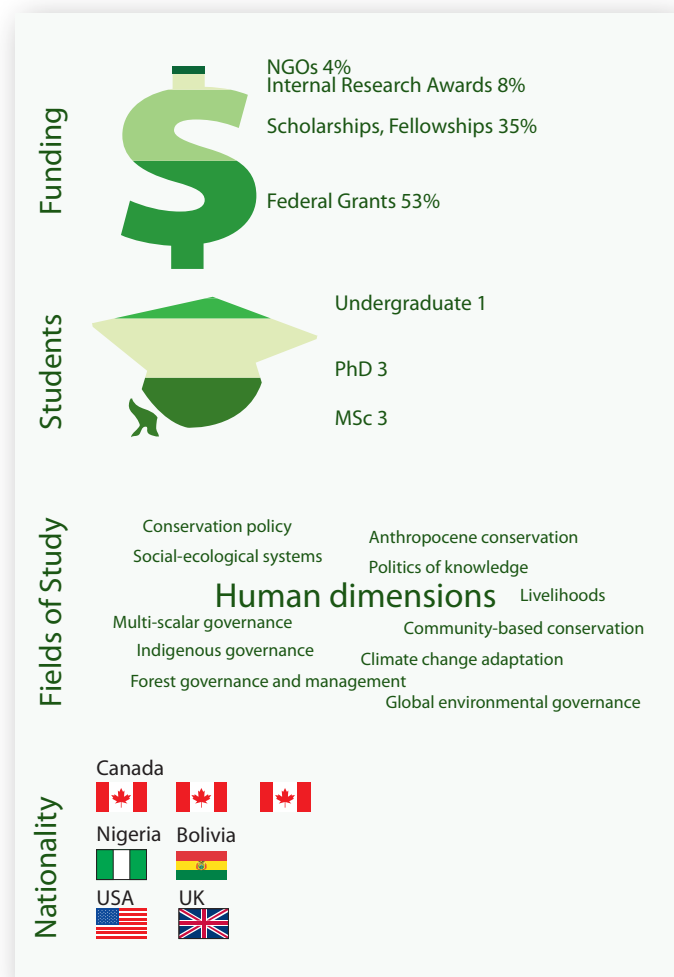
### Who funds the work in the SES research group?

Research in the SES group is funded by 4 main sources. Federal sources, including from the Social Sciences and Humanities Research Council, and Genome Canada's GE3LS program, comprise the majority of funding for our past and current work. Owing to the calibre of talent in our lab, many students are funded by Scholarships and Fellowships (eg UBC Four Year Fellowships), as well as the highly prestigious UBC Public Scholars and Liu Scholars awards. Our lab also attracts Internal UBC Research Funds (eg UBC Hampton Fund) which has supported exceptional opportunities for student field-work. Finally, we work with Non-Governmental Organizations, most recently the Northern Rangelands Trust, and the Dr Leigh Munro Trust, who generously support student research.

### How can you contact the SES RG?

The SES research group is committed to making both scholarly and societal contributions. We aim to foster a positive space to grapple with, and foster solutions for addressing dilemmas relating to biodiversity conservation and resource management. Online, you can find us on twitter (see individual profiles above), as well as at our website: <http://ses.forestry.ubc.ca>.

*Shannon Hagerman can be reached at [shannon.hagerman@ubc.ca](mailto:shannon.hagerman@ubc.ca).*



# MIF students complete international internships



Our first cohort of Master of International Forestry (MIF) students has completed their degrees, culminating in internships aligned with their individual career ambitions. The 2015/16 cohort undertook internships in Nicaragua, Thailand, Italy, Malawi, Kenya, India, and British Columbia. Students applied knowledge and skills gained from the MIF program; being able to think critically and draw parallels between theory and practice is vital in enabling them to adapt to changes and contribute effectively in a working environment. Here is brief summary of some of the MIF internships:

- **Lin Chen** assisted a consultant with developing the Asia-Pacific Regional Strategy on Forest and Landscape Restoration while working with the UN FAO's Bangkok office (she also attended the 23rd Session of the Committee on Forestry [COFO])

- **Priscilla Boadi** worked at the UN FAO headquarters in Rome to develop a report on the impacts of climate initiatives on the tenure arrangements, rights and livelihoods of forest dependent people. (Priscilla also attended COFO.)
- **Robyn Clark** was project manager on a UBC-affiliated research project, using her team building and leadership skills developed through the MIF program to guide a team of 5 researchers while managing the challenges of fieldwork in Malawi (see article on page 10).
- **Nicole Bernardi** assisted in the project management and organization of health screens, while analyzing the ecological context of a remote school in the Spiti Valley, India (see Nicole's write up on page 3 of this newsletter)
- **Jasmine Lum** completed 2 intern-

ships: with Taking Root, a Canadian NGO that develops social reforestation projects in collaboration with small-scale farmers in Nicaragua, and with The World Agroforestry Centre (ICRAF) contributing to an asset assessment of agro-pastoral communities in the Kenyan countryside (see photo top right).

- **Jaya Ashely** (see photo top left) interned at Wellspring Forest Farm in New York State where she immersed herself in the intricacies of running a small forest enterprise agroforestry venture.

*Our current MIF students are looking for internships, so if you can offer an opportunity to one of our students, please contact us. We are also now open for registration for new students to begin in September 2017 – visit our website for further information [www.forestry.ubc.ca/mif](http://www.forestry.ubc.ca/mif).*

# development & alumni news

## New Kuka robot takes free-form timber designs from drawing board to production



A new robot milling cell with the capability of machining wood panels up to seven metres long, working in eight axes of motion, is helping the Centre for Advanced Wood Processing (CAWP) research and develop complex free-form wood structures that previously existed only in virtual environments. The robot comes from Kuka Roboter GmbH, one of the world's largest robot manufacturers, and is the first of its kind in Canada.

Transforming timber into complex forms is challenging since it can't be molded or welded, and these constraints have restricted the structural expression of timber design, particularly in non-residential projects. CAD and CNC fabrication technologies can model new and complex structures, but they need to be translated into end products using digital fabrication tools like robots.

Thanks to the new Kuka robot, UBC aims to take free-form complex designs from the drawing board to production. Ongoing collaborations among the Department of Wood Science, the School of Architecture and Landscape Architecture, and the Department of Civil Engineering are researching, developing

and prototyping new building systems. The Kuka robot now provides a platform for validation of these new concepts.

The robot is on a 5.5 metre track, which gives it the range of motion to machine extremely large panels or objects. A rotary positioning table in front of the track offers 360-degree movement of the workpiece itself, enabling the robot to function in eight axes of motion.

The Kuka robot arrived at CAWP in April 2016, and since then has been used in a major workshop in September, led by doctoral candidates David Correa and Oliver David Krieg of the Institute for Computational Design (ICD) at the University of Stuttgart, which is world-renowned for its expertise in robot-assisted design and fabrication.

The workshop was filled to capacity with a mixture of students, researchers and industry practitioners from Canada and the United States, who spent 5 days moving from understanding how to use the robot to the development and construction of a full-scale fabrication project.

"This workshop was where we really saw what a game-changer this robot

is, especially in terms of its work envelope size," says Jorn Dettmer, Technical Operations Manager for CAWP. "Once participants learned to safely operate the robot, there was a lot of excitement in seeing how fast and precisely it turned their complex designs into reality."

The Kuka robot will break new and imaginative free-form timber structures out of their virtual confinement through prototyping and fabrication, leading to new applications and markets for Canadian wood products. Timber has the potential to become known as a value-added, high-tech material selected for its aesthetic, environmental and structural performance qualities.

Already, CAWP has received requests to use the Kuka robot in a collaborative design-build project with a prominent BC architectural firm, as well as in a product development project with a noted BC designer and artist. A collaborative project with a BC First Nation is also in the works.

Acquisition of the Kuka robot was made possible by a grant from NSERC (Natural Sciences and Engineering Research Council of Canada) and a generous gift from a private foundation. The Faculty is deeply grateful to NSERC and the private foundation for helping make this unique research technology available to our students and researchers, other UBC academic units, and industry partners.



# Sopron alumni celebrate 60th anniversary of arrival in Canada

As a consequence of the failed uprising in October of 1956, forestry students, professors and their families of the Sopron Forestry University of Hungary fled across the border into Austria to avoid advancing Soviet troops, then moved en masse halfway around the world to Vancouver to continue studying at UBC.

In early 1957, 240 students and 14 professors arrived in Canada at the invitation of the Canadian Government and the UBC Faculty of Forestry. They were housed in Powell River till the fall when they were moved to Vancouver and at UBC's invitation, became the Sopron Division of the Faculty of Forestry. The first academic year for the Sopron students began in the fall of 1957, and by May 1961 the last class had graduated; a total of 141 students. One third of them went on to receive a graduate degree.

Most of the Sopron Alumni stayed in Canada and found employment in forestry and forest engineering. Many of these alumni became industry leaders, worked in education and research, and influenced the course of the BC forestry

industry through their dedicated efforts and forward thinking.

"The Sopron Alumni represent a huge part of the history of UBC Forestry. Their contribution to forestry in BC has been enormous, and it is fascinating to see the next generation, such as Joe Nemeth Jr, who is President and CEO of Catalyst Paper; and Rob Kozak, our Faculty's Associate Dean, Academic, assuming leadership positions in the BC forest sector. This is a true sign of their lasting impact," says Dr John Innes, Dean of the Faculty of Forestry.

To mark the 60th anniversary of the Sopron students' arrival, a group of over 40 alumni returned to Powell River this past September. They toured the mill and the sites where they were housed courtesy of the Powell River Paper Company till the opening of the school year of 1957. During the commemorative celebration, Dean John Innes presented a gift and lapel pins to the Sopron Alumni, on behalf of the UBC Faculty of Forestry. Catalyst Paper, the current owners of the mill, also made a very significant contribution to the celebration.



"We are very proud to welcome the Sopron Alumni at this historic mill site," said Joe Nemeth, whose father Joseph Nemeth was one of the visiting Sopron Alumni. "We are proud of the significant contribution the Sopron forestry professionals made in establishing a healthy and vibrant forest sector, which in turn supported the economic backbone of the province of British Columbia."

## In memoriam

The Faculty of Forestry notes with sadness the passing of **Laszlo "Les" Jozsa**, a Sopron alumnus and well-known forest scientist and carver. He died October 5, 2016 after a brief battle with cancer. He was 78.

Les Jozsa's work as a research scientist for UBC began in the early 1970s, and the majority of his career was spent at FPIInnovations (formerly Forintek). He authored more than 150 academic papers that helped shape forestry practices across the world. He lectured in North America, Europe and South America, helping industry and governments ensure maximum quality and quantity in secondary wood products.

Les's legacy can also be viewed in the Faculty of Forestry itself. In 1992 he gifted the Faculty with a massive welcoming gate commemorating the

Sopron Alumni, which he carved from yellow cedar.

Les was unable to attend the recent Sopron Alumni reunion in Powell River due to his illness, but prior to the event he said, "This is a great opportunity to come together and remember those first few months in Canada. It was really the opportunity to live together at the Powell River mill that allowed the alumni to form a close family-like bond that has continued through the decades."

During Hungarian Cultural Week in BC October 23-29 Les posthumously received a lifetime achievement award from the Hungarian government for his work in forestry, art and promoting Hungarian culture. This is the highest civilian honour awarded to Hungarian nationals.



# Live auction at DEMO International® raises vital funds for field camp

The Faculty of Forestry would like to thank the companies who supported the live auction at DEMO International® to raise funds in support of students attending field camp. Special thanks to the Ritchie Bros. Auctioneers team that hosted this charity auction. Each year over 100 students gain an invaluable experiential learning opportunity through residential field camps at the Faculty's Malcolm Knapp (Maple Ridge) and Alex Fraser (Williams Lake) Research Forests. Participation and skills learned at camp provide a formative experience in a student's professional forestry training.

Thanks to our generous sponsors and bidders the auction raised just over \$30,000, which will be used to establish a fund to support students with the cost of field camp. The Faculty aims to build this fund over the coming years to ensure all students have the opportunity to take part in this experience without the added stress of the financial costs of participation. Field camp is mandatory in certain programs and students are required to pay fees in addition to tuition. *To find out more about this fund please contact Sarah Doran-Coelho at 604.822.0898 or sarah.dorancoelho@ubc.ca.*

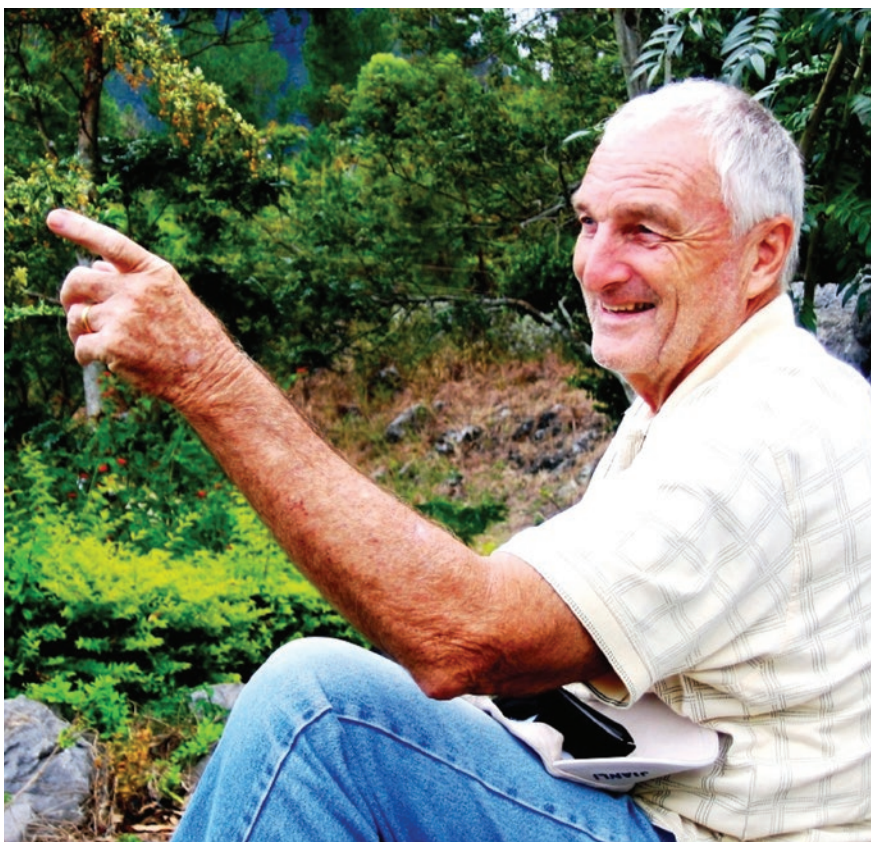
## Our sincere thanks goes to:

Bandit Industries Inc  
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Tigercat Industries Inc  
TREADCO  
Waratah Forestry Equipment  
Woodland Equipment Inc

## Alumni in action

Often our alumni ask "What happened to my classmates after graduation?" while our students wonder "What can I do with my degree?" To answer these questions, this column features stories from our alumni highlighting the various career paths they followed.

### Kelso Jay Blakeney, BSc (Forestry) '65



#### Where did you grow up?

I spent my early years in logging camps on Vancouver Island, including Port Renfrew (San Juan River Valley) and Nimpkish Lake, where my father Arthur Kelso Blakeney, (BASC, Forest Engineering, Class of '36) was a forest engineer on railway logging operations in the 1940s and '50s. In 1955 our family moved to North Vancouver where my father managed Vancouver's Watershed Forests in the Capilano, Seymour and Coquitlam river valleys for the Greater Vancouver Water Board.

#### Why did you choose UBC Forestry?

Having a father and uncles working in BC's forestry sector and a personal affinity for the outdoors – I was a member of my high-school hiking and mountaineering clubs and a volunteer ski patroller at Grouse Mountain – forestry was a natural career choice. This was also facilitated by scholarships

from the North Shore School Board and 2 BC forestry firms: MacMillan Bloedel and Canadian Forest Products.

**In what year did you graduate from UBC Forestry?**

I studied Forest Management and graduated with a BSc (Forestry) degree in 1965.

**What was your first job after graduation?**

I joined the forestry staff of British Columbia Forest Products. My first assignment was as a Forest Engineer and Contract Supervisor for 5 Timber Harvesting Operations: 2 in the Fraser Valley — at Stave Lake and Pitt Lake, and 3 on BC's Central Coast — at Princess Louisa Inlet, Frederic Arm and Phillips Arm (opposite Campbell River). I was based in Mission, in BC's Fraser Valley and commuted by chartered float plane from my small wooden field office on the Fraser River, to BC's central coast on a weekly basis. After several years, I was transferred to Port Renfrew in the San Juan River Valley of Vancouver Island's West Coast to work as a Forest Engineer in BCFP's Industrial Forestry Operations.

**What was your fondest memory of your time at UBC Forestry?**

During my studies at UBC Forestry, I had the good fortune to work as a student research assistant to Professor Malcolm Knapp (Forest Management & Dendrology) and as a summer field assistant to Professor Don Munro, who at that time was in charge of UBC Research Forest in Maple Ridge. These internships gave me invaluable practical experience to augment my theoretical classroom training.

**What are you doing now and what led you there?**

I am currently semi-retired and working as an associate consultant with a large Malaysian environmental engineering firm (Chemsain Konsult Sdn Bhd). I currently focus on issues related to Forest Land Use Change; some examples of which are: industrial tree crop plantations; hydro-electric reservoirs; powerline rights-of-way;

and agricultural and tourism developments. My home and work-base is the Malaysian state of Sarawak (North-West Borneo), where I settled 30 years ago.

Prior to settling in Malaysia, I provided international forestry consulting services for Canadian and European consulting firms and for World Bank in their Asia, Environment and Natural Resources Department. My forestry career has kept me active and healthy. Now in my mid-70s, I still undertake part-time forestry consulting assignments.

**If you weren't working as a Forester now, what would you most like to do?**

I would like to work in tourism development as a means of conserving forests. From 2000 to 2010 I was engaged by the United Nations World Tourism Agency to assist countries in restructuring their forestry sectors following decisions to scale down logging to conserve forests for provision of environmental services. As part of the restructuring process, alternative employment was needed for communities whose traditional livelihoods depended on forest harvesting, transport and wood processing. I worked with a number of local forest communities to develop eco-tourism, using their forests for a variety of enterprises, including: botanical and wildlife tours; coastal and riverine sports (fishing, kayaking, white-water rafting); jungle trekking; alpine and downhill skiing; and green agriculture (growing mushrooms, herbs, spices, etc under the forest canopy). During this period I worked with communities in Northern China, Mongolia, Tibet, Cambodia, East Timor and Punjab. I found it gratifying to assist rural communities to retrain and transition into eco-tourism to sustain their livelihoods through non-destructive forest use.

**What is the toughest forestry decision you had to make?**

While conducting field surveys for a feasibility study of a proposed forest industries project in Southern Chile (Tierra del Fuego) for a BC Timber

Company, we discovered that a large population of Guanaco (small members of the Llama family) depended on this forest for their habitat. I had to inform the investor that plans for logging and wood processing were not compatible with preserving habitat for these rare and endangered fauna.

A similar situation arose on the island of Borneo, where wildlife surveys undertaken as part of an Environmental Impact Assessment (EIA) for Oil Palm Plantation Development documented a sizeable Orangutan population in the forest that was earmarked for conversion to Oil Palm plantation. Our EIA report informed the plantation developer and government agencies that extensive areas should be excised from the proposed plantation to provide adequate Orangutan habitat. Fortunately, land was available elsewhere and the project was able to continue without impacting its technical and financial viability.

**Do you have advice for Forestry students or recent graduates?**

In today's world of expanding population and constrained natural resources there is increasing pressure to exploit forests for commercial products and to convert forests to other land use. However, there is a need to ensure preservation of forested areas for: clean dependable water supply; recreational activities; habitat for rare flora and fauna; and to protect steep slopes against soil-erosion, land-slides and associated siltation of water-ways, reservoirs, etc. Courses in mediation to strive for compromise between land users, special interest groups, etc and to structure "Payments for Environmental Services" etc would be invaluable skills for forestry students and recent graduates. This would strengthen their ability to negotiate workable land-use agreements in support of rational, sustainable natural resources policy, planning and decision making.

## Mark your calendars for the following Forestry alumni events



- **Alumni Social at the ABCFP Conference** in Prince George, BC – February 23, 2017
- **Loon Lake Alumni and Friends BBQ and Tour** in Maple Ridge, BC – April 27, 2017

For more information on these events visit <http://getinvolved.forestry.ubc.ca/alumni/events/> or contact Janna Kellett at [janna.kellett@ubc.ca](mailto:janna.kellett@ubc.ca) or 604.827.3082.

## Healthy Forests, Healthy Lives

On October 12, 2016, Dean John Innes moderated a panel of professors from UBC Forestry, UBC Medicine and the University of Northern BC exam-

ining the effects of trees and green spaces on health. The discussion took place in Prince George, BC and was live streamed. It was also recorded and can

be viewed by going to <http://getinvolved.forestry.ubc.ca/alumni/events/> and clicking on *Healthy Forests, Healthy Lives*, under "Past Events".

## Class of 1966 50th Reunion

The class of 1966 celebrated their 50th reunion at Sun Peaks Resort, near Kamloops, BC from September 7 to 9, 2016. Celebrations included a few trips down memory lane, one led by Professor Emeritus Don Munro, who joined the group.



## Class of 1976 40th Reunion

The BSF Class of '76 celebrated their 40th graduation anniversary with a gathering of classmates on October 14 – 16 in Ladner, BC. We met at a waterfront pub on Friday night, as a storm blew through and kept several classmates away. Those who attended from as far afield as Saskatchewan raised

their glasses to old times, and shared lots of stories and laughs. Saturday's tour of a greenhouse gave us a taste of high-tech agriculture, before we gathered again on Saturday night for a great meal and wine. We watched a slideshow of kids, grandkids, UBC high-lights, and some barely-recognizable

young foresters. Video "hello" messages from those who could not attend were well received. Those who stuck around for Sunday's brunch and walk at the local wildfowl refuge had a great time. Photo evidence is at [tinyurl.com/BSF76Photos](http://tinyurl.com/BSF76Photos)

*Submitted by the Class of '76*



## Class of 1961 55th Reunion

At the Sydney Pier Hotel, 22 class members and 18 spouses, primarily from Vancouver – Lower Mainland, Victoria – southern Vancouver Island, with several from the Okanagan - Kootenay region, Manitoba, and 1 travelling from Norway, gathered in the early evening of October 14 for an informal ‘happy hour’ before moving on to dinner in smaller groups, either at the hotel or restaurants around Sidney, BC.

The following day folks, individually or in small groups, enjoyed some of the many sights in and around Sidney and/or Victoria. On the evening of October 15, the group gathered once again

## Class of 1986 30th Reunion

On the weekend of October 15, members of the class of 1986 reunited to celebrate 30 years since they graduated from UBC Forestry. Classmates traveled from as far as London, England to meet at Harrison Hot Springs, BC. Reunion activities started off with a Friday night informal pub meetup, then the group split on Saturday with some members attempting a golf tournament

for a reception and more formal dinner with ample time for reminiscing and not a little storytelling. It was observed by some that much of the reminiscing was perhaps embellished, through fading memories, and in the case of storytelling, some outright fabrication prevailed!

Despite missing those members unable to be present, either through illness or premature deaths, the always close-knit members of the Class of ‘61, and even many of the spouses, agreed that the 55th Reunion was a thoroughly enjoyable occasion!

*Submitted by the Class of ‘61*

(ultimately it was canceled due to the storm) while others had a tour and lunch at the Loon Lake Camp in the Malcolm Knapp Research Forest. The highlight of the weekend was the Saturday night dinner where classmates caught up and shared stories and photos of their time at UBC Forestry. The festivities finished with a Sunday brunch before everyone readied for the travel back home.



### Newsletter production

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