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This will be the last “Dean’s Message” that you’ll see from me. In a couple of months, I will be handing over the reins to Dr. Rob Kozak, and I’ll be moving back into my role as FRBC Chair of Forest Management, following a period of administrative leave. The last 11 years have been eventful, and we have seen many positive changes. I’ve taken the opportunity later in this edition to review some of the changes in the Faculty during this period; the Faculty has diversified and grown significantly. It has developed its international connections and is increasingly recognized as one of the leading faculties of forestry worldwide.

So could we be considered the leading Faculty? Perhaps so, but that honour may be more appropriate for a certain European university, which I won’t give the satisfaction of naming. We have more professors, and a lot more students, and we probably exceed them in terms of overall research publications (although they win in terms of strictly forestry publications). Where they beat us hands down is in the area of government and industry research funding, and in the extent to which they are supported by the government. Annually, they receive more than four times as much research funding as we do, and their basic government support is almost 10 times greater than ours.

While we have made great strides in some areas over the past 11 years, our inability to engage with government and industry has created some significant set-backs. It is not through lack of trying. Industry has, for the large part, consistently directed its research funding to non-university partners that have minimal interest in tertiary level training. This has had an interesting consequence: the lack of industry funding coming to us and other forestry faculties in Canada has resulted in a lack of training of Master’s and PhD students in areas most relevant to industry, and it almost resulted in the termination of our Forest Operations program, perhaps the most industry-relevant of all our undergraduate programs. Now, there is a shortage of highly skilled workers in silviculture (at a time when there are calls for a paradigm shift in forest management), forest engineering and other important areas.

The Faculty has done increasingly well with federal tri-council funding but provincial research funding, with a few exceptions (such as genomics), has remained almost non-existent. The provincially-funded Forest Sciences Program was terminated before I started as Dean, and has not been replaced. This continues to astound me, given that the Province is ultimately responsible for the management of the BC forest estate. In this case, it is not a matter of the funding being directed elsewhere, as the Province’s own research capacity has also been hard hit. The lack of investment in research, inventory and monitoring is now becoming evident, as shown by the inability of the province to give an accurate figure for the area of the Timber Harvesting Land Base, let alone more subtle numbers, such as the areas of different types of old growth forest remaining.

There are numerous areas where our Faculty could help with pressing forest-related and other environmental problems within British Columbia. While traditionally we have been associated only with forestry, our expertise now spans many different habitats and deals with areas such as carbon sequestration and storage, conservation prioritization, application of remote sensing technologies and many other topical areas. In addition, our Wood Sciences department contains expertise in the new products associated with the bioeconomy, mass timber, and other areas related to the utilization of forest products.

Given the challenges facing the forest sector in British Columbia and Canada along with the ability and capacity of the Faculty to contribute to solutions, my hope is that the coming years will see much greater cooperation between our Faculty, government, and those involved in the management of forests and other lands in the province.
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PEOPLE ON THE MOVE

Dr Hamish van der Ven recently joined the Department of Wood Science as assistant professor of sustainable business management. His research focuses on sustainable supply chain governance and the impacts of online activism on business behaviour. Prior to joining the University of British Columbia, he held positions at McGill University and Yale University. He is thrilled to return to his hometown and alma mater.

Dr Danielle Ignace is excited to join the Faculty of Forestry as an assistant professor in the Forest and Conservation Science department in July 2021. She is an Indigenous (Coeur d’Alene) ecophysiologist studying the impacts of climate change and invasive species on forest ecosystem processes. Her new projects involve amplifying Indigenous voices and knowledge in ecology and finding community-driven solutions to environmental hazards impacting marginalized and underrepresented communities.

The Faculty of Forestry congratulates Dr Cole Burton for his excellent work in the Department of Forest Resources Management and for his recent promotion to tenured position as associate professor, effective July 1, 2021. Dr. Burton also serves as the Canada Research Chair in Terrestrial Mammal Conservation. His Wildlife Coexistence Lab researches human-wildlife coexistence across multiple species and scales, with a particular emphasis on large-bodied terrestrial mammals.

UBC Forestry congratulates Dr Dominik Roesser for his excellent work in the Department of Forest Resources Management, rewarding his effort with a promotion to a tenured position is his role as associate professor. Dr. Roesser has more than 20 years of experience in forest research and innovation and has been working with industry, academia and all levels of government to develop solutions that support the emerging bioeconomy.

The UBC Faculty of Forestry would like to extend congratulations to Dr Julie Cool for her outstanding work in the Department of Wood Science and for her recent promotion to a tenured position as associate professor. Dr Cool’s research focuses primarily on wood machining and process optimization for the wood manufacturing sector. She focuses on wood-tool interaction with the goal of improving surface quality and product durability, all while reducing waste and eliminating unnecessary manufacturing operations.

UBC Forestry would like to offer sincere congratulations to Dr Patrick Culbert for his excellent work in the Department of Forest and Conservation Sciences, and for his recent promotion to a tenured position as associate professor of teaching. Dr Culbert’s professional interest in learning and instructional theory have made him a well-respected teacher at UBC, and we look forward to seeing what he has to offer in the years to come.

UBC Forestry congratulates Dr Chris Gaston for his outstanding work in the Department of Wood Science, for which he has recently been recognized with a promotion to associate professor with tenure. Dr. Gaston’s area of research focuses on markets, economics and their application for the development of Canadian wood products. His work also encompasses a product and market focus which includes engagement with Aboriginal communities, small businesses and value-added products.
The past six months have marked a transition for the Faculty with regards to leadership in academic and research management. Terms have expired, others are due to soon expire, and other terms have just begun. While a new, permanent leadership team will soon be announced by the incoming Dean an interim team has now been established to ensure a smooth transition.

For our Associate Deans, Rob Kozak completed his tenure as Associate Dean, Academic and Peter Marshall has accepted a temporary six month appointment for this role. Yousry El-Kassaby will continue his term for six additional months as Associate Dean of Graduate Studies. Sally Aitken and Guangyu Wang will continue in their roles for the duration of their terms as Associate Dean of Research and Associate Dean of Asian Strategies respectively. We are extremely grateful to Rob Kozak for his leadership within the Faculty, most recently in the role of Associate Dean, Academic and we look forward to having him lead as our next Dean this fall.

As mentioned in the Spring 2021 Branchlines, Hisham Zerriffi replaced Sarah Gergel as Associate Dean of Equity, Diversity and Inclusion. The Faculty would like to thank Sarah once more for her meaningful contributions and years of service to this important department, working to ensure that educational programming to students. Dr Kozak has held a number of leadership positions in the Faculty, including Head of the Department of Wood Science, and, most recently, as Associate Dean, Academic when he administered all aspects of the six undergraduate degree programs and guided the transition to online teaching and learning during the pandemic.

We look forward to welcoming Dr Kozak in his new capacity in September.

For full details of the appointment, please visit https://academic.ubc.ca/dean-faculty-forestry

UBC Forestry is a fair and equitable place to work.

For our Department Heads, Stavros Avramidis will continue his tenure as Head of the Department of Wood Science for six additional months. Nicholas Coops has also accepted a temporary appointment during the transition period to serve as Department Head of Forest Resources Management as Gary Bull completed his term this spring. Rob Guy completed his tenure as Department Head of Forest and Conservation Sciences this spring and Richard Hamelin has taken on the role for a one year term. The Faculty would like to thank Gary Bull and Rob Guy for providing such strong leadership while serving their terms. In his tenure, Gary led the Department of Forest Resources Management to achieve its vision to deliver education that is internationally-focused and experiential. Under Rob Guy's leadership, the Department of Conservation and Forest Sciences has been able to provide a well-respected and comprehensive curriculum that factors in the many different forest values that societies share.

The Faculty appreciates the dedication of these individuals and their ongoing commitment to excellence in research and educational programming. We look forward to future leadership announcements and updates in the months ahead.

UBC Forestry is pleased to announce that Dr Robert Kozak has been appointed as the Faculty’s next Dean. Dr Kozak will be serving a five-year term beginning on September 1, 2021, taking over the role from Dr John Innes who has held the position for the past 11 years.

Dr Kozak has led a remarkable career to-date at the Faculty. He has earned international recognition for his research which is focused on sustainable development, forestry, wood products, and the emerging conservation economy. He is an award-winning professor dedicated to providing high-quality educational programming to students. Dr Kozak has held a number of leadership positions in the Faculty, including Head of the Department of Wood Science, and, most recently, as Associate Dean, Academic when he administered all aspects of the six undergraduate degree programs and guided the transition to online teaching and learning during the pandemic.

We look forward to welcoming Dr Kozak in his new capacity in September.

For full details of the appointment, please visit https://academic.ubc.ca/dean-faculty-forestry
It has been a privilege to lead the Faculty over the past 11 years. I am pleased to leave the Faculty in good financial and academic standing, both fiscally and academically, and am sure this will continue as my successor, Rob Kozak, takes the leadership in September. I wanted to use this opportunity to look back at a few of the Faculty's achievements over the past 11 years. In doing so, I would like to acknowledge that some of what we achieved as a team was initiated by my predecessor Dr. Jack Saddler, who also left the Faculty with a very positive balance sheet. Most of all, I want to acknowledge that everything we have achieved has been the result of a team effort. Without the support of an enthusiastic and dedicated group of faculty, staff and students, this would not have been possible.

Looking back, the Faculty has come a long way since 2010. Back then, we had 589 undergraduate students: in 2020/21 we had 1173. I was informed by one of the three Provosts that I have worked under that I should not expect my position to be replaced in 2021. Fortunately, we are now sufficiently strong as a Faculty that there was no question of such a replacement. We have done this through a number of steps, including the introduction of new undergraduate and graduate course-based programs, some exciting new initiatives, and an overall increase in the number of students in our programs, particularly our international programs.

Urban forestry was the first of the new undergraduate programs to be introduced. This addressed an obvious educational gap in Canada given the increasing urbanization of our population, and the greater recognition that trees and forests can have a very positive impact of the well-being of people. The program was initially led by Cecil Konijnendijk, who initiated it to an incredibly successful start. It is now in the very capable hands of another new faculty member, Susan Day. The second program, Forests Bioeconomy Sciences and Technology, was developed in anticipation of the future demand for graduates in this area. The bioeconomy is much further advanced in Europe than it is in Canada, and the need for expertise is strong. Scott Renneckar took the lead in developing this program, which was launched in September 2020, despite the restrictions imposed by COVID-19.

Our student numbers have been augmented by a growing number of international students. Students are now coming to UBC Forestry from all over the world. In particular, we have seen a particular increase in our “2+2” and “3+2” students from China. In these programs, students spend their first two or three years in China and then transfer to UBC to complete their degrees. Only a limited number of universities take part in this program, including Beijing Forestry University, Nanjing Forestry University, Fujian Agriculture and Forestry University and Zhejiang Agriculture and Forestry University. Guangyu Wang successfully established these partnerships, and further links are under development to support some of our new programs.

At the graduate level, we decided that there was a market for very intensive one-year programs that would impart a skill set to individuals that were missing the knowledge needed to develop their career in a chosen subject. The first of these was a program in sustainable forest management, developed by Steve Mitchell and Deborah DeLong, which was quick to gain accreditation in both Canada and the USA. This was followed by programs in international forestry, now under the leadership of Intu Boedhijartono, and geomatics for environmental management, under the leadership of Nicholas Coops. The most recent program, starting this year, is in urban forestry.
leadership, with the indefatigable Cecil Konijnendijk in charge. These programs have all gained momentum after a couple of years. Consequently, more are under consideration.

A number of other options have been introduced, primarily through the efforts of Rob Kozak. Land One was initiated in collaboration with the Faculty of Land and Food Systems in a successful attempt to introduce first year students to complex issues such as food security, sustainability, climate change and land-use change. The students still learn the basic principles taught to all first year students taking science subjects at UBC, but they do so in a much more contextual way. In addition, dual degrees have been introduced in business and education. The latter means that there are now teachers being trained who have an understanding of forestry, conservation and natural resources. Another major change has been the growth of our co-op opportunities, something that is particularly valuable for our students.

A major initiative was the creation of the Haida Gwaii Institute. Growing out of the Haida Gwaii Higher Education Society, the Institute was formed in 2016 to secure the future of the Haida Gwaii semesters. Working closely with both the Haida Nation and the entire Haida Gwaii community, the teaching is deeply experiential, and students from across Canada come to Haida Gwaii to learn about local knowledge and expertise along with natural resource science, natural resource studies, social-ecological change, community resilience and marine conservation. Under the leadership of Carlos Ormond, the Institute is moving into new areas, including professional development in areas such as co-management. It is also exploring how it can serve as a hub for research on the Haida Gwaii.

In line with improving the experience of undergraduates, we have introduced international field courses. For a number of years, Suzie Lavallee led field trips to India, working closely with the Wildlife Institute of India. A plan to launch a field course in Ecuador in 2020 had to be put on hold due to travel restrictions imposed by COVID-19. Guangyu Wang has led a series of field trips to China, which has exposed students to both forestry and conservation in this complex country. We have also been closely involved with international training programs, including a major effort with the Indian Forest Service, ably coordinated by Jorma Neuvonen.

While there has been a lot of focus on the internationalization of the faculty over the past 11 years, we have not forgotten our Research Forests here in B.C. The renovation of Loon Lake Camp was completed with the construction of the Bentley Family Dining Hall, created with the help of a very generous donation by Peter Bentley. At the Alex Fraser Research Forest, we completed the purchase of a new property just outside Williams Lake, and this is now the headquarters for the forest. This infrastructure at this site will be developed to accommodate a range of enhanced research and extension opportunities.

Under the leadership of Cindy Prescott, Nicholas Coops and Sally Aitken, our research enterprise has seen significant growth. The Faculty has always been strong in research, but it is now more diversified than ever. Research funding in Canada is quite variable and British Columbia invests relatively little in university-based forest research, so there is less research done on B.C.'s forests than is warranted. The result is uncertainty, as amply demonstrated by the debate of the nature and extent of old growth forest remaining in the province.

There are some things that we didn’t get done, but we will continue working on them. One of them is a new Indigenous Land Stewardship Centre of Excellence that we intend to establish at Westbank in the Okanagan. This is a partnership with Westbank First Nation, and will include, we hope, the delivery of an undergraduate program in Indigenous Land Stewardship. The program has been co-designed by the faculty and a group of Indigenous foresters and land managers.

While I have singled out a few people responsible for particular developments within the Faculty, it is worth repeating that the progress that we have made over the past 11 years was made possible by the collective efforts of everyone. It has been a pleasure trying to corral and focus the enthusiasm and energy that exists within the Faculty, and I wish Rob Kozak, all the best for his time as Dean.
AWARDS AND RECOGNITION

SHANNON HAGERMAN RECEIVES INAUGURAL FACULTY OF FORESTRY RESEARCH AWARD

UBC Forestry wishes to congratulate Dr Shannon Hagerman, Associate Professor in the Department of Forest Resources Management, for winning the Faculty’s inaugural Research Award.

Dr Hagerman’s ground-breaking research focuses on interconnected conservation and social-ecological change, with implications for governance. Her many recent publications in high-impact journals include a novel resistance-resilience-transformation framework for understanding conservation approaches in response to climate change, and a series of papers focussing on values, perceptions, and policies around biotechnology and assisted migration in a forest management context.

EIGHT FORESTRY PROJECTS RECEIVE GRANTS AS PART OF MAJOR, NATION-WIDE INVESTMENT IN RESEARCH

Congratulations to all our faculty members who have been awarded grants from highly competitive federal research funding programs. Their grants are part of a major funding announcement of more than $635 million from the Government of Canada for science, research, and engineering projects across the country that push big ideas, discoveries, and innovations forward.

The funds awarded to professors Boedhiharono, Chan, Day, Konijnendijk, Montwé, Nelson, Nesbitt, Tu and Wilson will advance scientific understanding in areas ranging from urban forestry to effects of climate change on forests and land use impacts on migratory bird species.

The full list of recipients and more about their research projects can be found at https://forestry.ubc.ca/research-awards/eight-forestry-projects-receive-research-grants/
FENG JIANG & PARTNERS AWARDED NEW FRONTIERS IN RESEARCH FUNDING

UBC Forestry is pleased to announce that Feng Jiang and his project partners were awarded funding through the federal New Frontiers in Research Fund (NFRF) 2020 Exploration Stream.

Jiang and his team were awarded $250,000 in funding for their visionary project, Developing Artificial Trees for Extreme Weather-Resilient Cities. The project aims to address issues that rapid urbanization are causing in already densely populated cities, estimated to be home to half of the world’s population.

MAJA KRZIC RECEIVES CANADIAN NETWORK FOR INNOVATION IN EDUCATION AWARD

The UBC Faculty of Forestry congratulates Dr Maja Krzic with an Award of Merit for Excellence and Innovation in the Integration of Technology from the Canadian Network for Innovation in Education (CNIE).

Maja helped develop an online educational resource focused on forest soils of the Cape Provinces, South Africa, in collaboration with colleagues from the Stellenbosch University, South Africa, Food and Agriculture Organization (FAO) of the United Nations, Rome, Italy and UBC Studios and Emerging Media Lab.

LORI DANIELS RECEIVES KILLAM TEACHING PRIZE

The Faculty is pleased to announce Dr Lori Daniels is the recipient of the Killam Teaching Prize in Forestry for the 2019-2020 academic year. The forestry teaching prize announcement for this past academic year was delayed due to the pandemic.

Dr Daniels’ teaching interests focus on forest fire management, starting with the basics of fire physics that leads into understanding fire prevention, fire ecology and the important role that fire has played in First Nations land management.

NICHOLAS COOPS RECEIVES UBC KILLAM RESEARCH PRIZE

UBC Forestry is thrilled to announce Dr Nicholas Coops is a recipient of the 2020 UBC Killam Research Prizes in the Applied Science, Medicine and Sciences senior category. Nicholas Coops is internationally recognized as a world leader in remote sensing - assessing the Earth from space. He has developed new ways to characterize the dynamics of forests and their responses to climate change. His innovations span simulation modelling, using lasers for tracking forest health, and new instruments for tracking ecosystem function.

JEANINE RHEMTULLA RECEIVES KILLAM ACCELERATOR RESEARCH FELLOWSHIP

UBC Forestry is pleased to announce Jeanine Rhemtulla as a recipient of the inaugural Killam Accelerator Research Fellowship. Dr Rhemtulla’s research examines potential solutions to global ecological challenges including deforestation and climate change that will increase biodiversity, ecosystem function, and benefits to local people. She currently leads a large, interdisciplinary project, Whole Earth Conservation, which investigates how ambitious new forest restoration initiatives can meet both ecological and social goals.
Here are a few excerpts taken straight from some of the stories coming out of the Faculty of Forestry. Visit the Faculty in the News section of our website to read more.

Vancouver Island First Nations call for deferral of old-growth logging at protest sites


Three B.C. First Nations want forestry workers to temporarily stop cutting old-growth trees on southern Vancouver Island while they create their own forestry management plan and have submitted the request to the B.C. government.

On Saturday, the Ditidaht, Huu-ay-aht, and Pacheedaht First Nations formally gave notice to the province of their decision to defer old-growth logging for two years in the Fairy Creek and the Central Walbran areas.

The provincial government will need to grant the request before the logging stops.

John Innes, dean of forestry at the University of British Columbia, said it’s likely the government will grant the deferral.

“If they did decide not to grant it, they would actually be going contrary to the wishes of the First Nations, and that would be inconsistent with reconciliation principles and with the United Nations Declaration on Rights of Indigenous Peoples, which the government has said that they will uphold,” he said.

To read the full article and John Innes’ comments visit https://www.cbc.ca/news/canada/british-columbia/old-growth-deferral-1.6056278

Dry spring could create wildfire trouble for Western Canada: experts


Wildfire conditions are cause for concern this year as parts of Saskatchewan, Manitoba and British Columbia report either significant drought or record low rainfall between January and April. However, experts also say, severity of the wildfire season will depend on what kind of weather the next few months bring.

Lori Daniels, a faculty of forestry professor at the University of British Columbia, said the fire season in B.C. will depend on how much rain falls in June and July.

“So it’s really kind of the canary in the coal mine, the weather between now and the end of June.”

To read the full article and Lori Daniels comments visit https://www.cbc.ca/news/canada/british-columbia/dry-spring-fire-risk-1.6037599
What are those annoying swarms of insects you walk through in Vancouver?


Vancouver sees a great deal of rain throughout the year, but it enjoys relatively dry, warm summers without insufferable heat (generally). People smile more and there are a variety of activities to enjoy outdoors. And while there aren’t many horrible bugs to contend with, a couple of insects are dangerous.

Allan L. Carroll, Professor of Forest Entomology, University of British Columbia, Faculty of Forestry, tells Vancouver Is Awesome that the insects in question are most likely midges.

Midges will not bite you, Carroll says, and it won’t hurt you if you happen to swallow one or two.

“The big swarms that you see is actually a behaviour that, interestingly enough, also occurs in all other kinds of animals like grouse and deer for example -- even some fish do it,” he said.

To read the full article and Allan Carroll’s comments visit https://www.vancouverisawesome.com/vancouver-news/what-are-those-annoying-swarms-of-insects-you-walk-through-in-vancouver-3802627

Why experts say tackling deforestation could be key to stopping future pandemics


Experts studying how diseases make their way from animals to humans say we need to rethink the way we use and manage land if we want to prevent future pandemics. Large swaths of the country’s forest areas are being cleared to make way for producing palm oil, says Terry Sunderland, a forestry professor at the University of British Columbia, and that can contribute to the spread of disease.

“Our whole food system is reliant on a very few commodities which require large amounts of land,” he told The Current, citing goods like palm oil, soy, chocolate and coffee. “And the transformation of land into agriculture is directly related to deforestation.”

Sunderland said it’s possible we need to reflect on our diets, and whether we really need items that contribute to deforestation. “We need to be proactive instead of reactive as a society and start looking at what we can do to avoid these situations in the future.”

To read the full article and Terry Sunderland’s comments visit https://www.cbc.ca/radio/thecurrent/the-current-for-april-12-2021-1.5983766/why-experts-say-tackling-deforestation-could-be-key-to-stopping-future-pandemics-1.5984093

This is your brain on trees: Why is urban nature so good for our minds, and what happens when a pandemic isolates us from it?


Green space helps people feel less depressed and fatigued, and science is still exploring all the other ways it lifts our spirits. People who see trees, flowers and grass recover from surgery faster (and take fewer narcotic painkillers), than those with views of brick or concrete. They also do better in school and are generally happier.

As the evidence grows, health care professionals and policy makers are looking for ways to develop health interventions that incorporate nature.

But not everyone likes a rough trail or an English garden. “We really have diverse relationships with nature,” says Lorien Nesbitt, a University of British Columbia professor studying urban forestry and environmental justice.

To read Lorien Nesbitt’s full article visit https://www.theglobeandmail.com/canada/article-this-is-your-brain-on-trees-why-is-urban-nature-so-good-for-our-minds/
Female salmon are dying at higher rates than male salmon

Female adult sockeye from the Fraser River are dying at significantly higher rates than their male counterparts on the journey back to their spawning grounds, finds new UBC research. For every male salmon that doesn’t make it to their natal stream, at least two, sometimes three female salmon die.

“This is causing skewed sex ratios in their spawning grounds, something that has been observed in recent years,” says lead researcher Dr. Scott Hinch, a professor in the faculty of forestry and head of the Pacific Salmon Ecology and Conservation Laboratory at UBC. “The implications on the health of Fraser River stocks are concerning, particularly as Pacific salmon populations in British Columbia have been declining over the past several decades.”

“A combination of environmental stressors could have triggered the shift,” he explains. “More females die relative to males when migration conditions are challenging. This happens when the water is too warm, or there is too much turbulence, or when the fish have been handled or released from capture. Stressful events have a larger impact on females.”

To read the full article and Scott Hinch’s comments visit https://www.vancouverisawesome.com/vancouver-news/female-salmon-dying-at-more-than-twice-the-rate-of-males-ubc-researchers-find-3571922

Where Does Vancouver’s Urban Forest Need to Grow Next?

Over the last decade, the City of Vancouver has focused on growing the urban forest to combat tree loss and foster climate resiliency. But if that’s going to happen, the key will be promoting more trees on private land. It’s an urgent priority for the city. Fewer trees means more exposure to air pollution, heat waves, flooding and other climate impacts.

Stephen Sheppard, a professor in the faculty of forestry at the University of British Columbia, calls for a “multi-pronged strategy” that involves everyone, “not just on the public lands, but on the private lands with both the developers and the residents.”

“We’ve got nine years left to meet the climate change targets, and we’ve got to get more people involved in preparing for climate change impact.”

To read the full article and Stephen Sheppard’s comments visit https://thetyee.ca/News/2021/05/05/Vancouver-Urban-Forest-Grows-Next/
The 20th Commonwealth Forestry Conference will bring together more than 110 expert presenters from 31 countries from around the globe and 17 different time zones.

Hosted by the Faculty of Forestry at the University of British Columbia from August 16-18th, 2021 in collaboration with the Commonwealth Forestry Association, the Conference is expected to foster one of the most unique dialogue experiences to date by bringing together worldviews on everything from changing politics and an unprecedented global pandemic to global market shifts and climate change challenges.

Keynote speakers and presenters will address the most pressing issues facing the forest sector globally including: climate change, conservation, urban forests, social issues, forest policy and economics, new markets, communication and education as well as careers. A keynote speaker will address each of these topics.

Among the keynote speakers confirmed as of June is Dr Savita, head of the Himachal Pradesh Forest Force in India. She will be sharing her aspirations for the future of forest management as well as recommendations from the 19th Commonwealth Forestry Conference, which she chaired in 2017.

The Conference is organized with the generous support of the Governments of Canada and British Columbia, Forestry Innovation Investment, Association of BC Forest Professionals and Forest Products Association of Canada. Active collaborators are IUFRO Divisions 6 and 9 (Social Aspects, Forestry Policy and Economics) and the International Forestry Students Association.

This will be the fourth time Canada has welcomed the heads of forestry from throughout the Commonwealth. This year’s Commonwealth Forestry Conference will mark the fourth time in history Canada has welcomed the heads of forestry from throughout the Commonwealth.
DEVELOPING ARTIFICIAL TREES FOR CITIES OF THE FUTURE

Feng Jiang

Trees are cities’ natural air conditioners. They provide shade to block the sun and help to cool the city by transpiration. Through the transpiration process, groundwater is absorbed by the roots and transported to the leaves, where over 95% eventually evaporates into the atmosphere. This helps cool the plant as well as the neighboring environment. Transpiration is also an efficient means to purify the groundwater, which benefits regions where fresh water is scarce.

In the Sustainable Functional Biomaterials (SBF) Lab at the University of British Columbia’s Faculty of Forestry, the team has been working on developing artificial trees for water treatment, including purification and desalination.

Trees contain different levels of pores within their three-dimensional trunks. These pores include millimeter to centimeter-sized lumen, micrometer-sized stomata on the leaves, all the way down to those nanometer-sized porosities on the pit membranes. These pores are responsible for water and nutrient transport, as well as balancing the pressure within the cells. Water is constantly conducted through the cell lumen from roots to leaves, eventually evaporating into air, through the transpiration process.

Inspired by this transpiration process, the SFB lab utilizes nanotechnology and additive manufacturing techniques to develop layered structures that can mimic tree transpiration for water treatment. Very thin cellulose nanofibrils (3-5 nanometers in diameter; the diameter of a human hair is about 100,000 nanometers) can be isolated from forest and/or agricultural wastes - such as saw dust, shavings, hemp fibers and straws - and used as the building blocks of the artificial trees.

The CNFs can be further processed into three-dimensional structures using 3D printing technologies, which can create similar hierarchically porous structures (from millimeter to nanometer) as observed from the trees. The 3D printed monolith is covered with a black layer (which can also be derived from biomass by carbonization) to serve as solar energy absorbing layer. The bilayer structure contains pores for water absorption and transportation and the coated solar-absorbing layer converts solar energy to thermal energy, which can effectively evaporate the absorbed water. The SFB lab is equipped with a solar simulator that can simulate the solar illumination, and fresh water can be generated from either wastewater or sea water.

Recently, the SFB lab, together with other UBC researchers, was awarded funding through the federal New Frontiers in Research Fund (NFRF) 2020 Exploration Stream, to explore developing artificial trees for extreme weather-resilient cities. The project aims to address issues that rapid urbanization is causing in already densely populated cities, which are home to half of the world’s population.

This interdisciplinary team is developing a triple-layered film that will mimic the ability of real trees to provide cooling and flood control. By attaching itself to building walls and roofs, this film is expected to transform cities into virtual forests of giant artificial trees by mimicking the natural transpiration process. Turning city buildings into giant tree-simulating evaporators can help to better control floods, by rapidly removing stormwater, and provide evaporative cooling effects for extreme weather conditions. The film will be constructed out of bio-based polymers, such as nanocellulose, from trees to minimize the environmental impact.

Feng Jiang is an Assistant Professor at the Faculty Department of Wood Science, and a Canada Research Chair in Sustainable Functional Biomaterials. He also leads the Sustainable Functional Biomaterials lab at UBC. He can be reached at feng.jiang@ubc.ca
NEW CLIMATE-PROOF SMART BAT HITS IT OUT OF THE PARK

Sadegh Mazloomi

How are artificial intelligence, climate change and baseball connected? More than you might think.

Ash is the most popular wood species for making bats, prized for its flexibility which players believe gives more “whip”; its grain which gives a larger sweet spot; and its lightness combined with toughness and durability.

But a green monster—and not the one at Fenway—is threatening the species used to produce bats like Rawlings and the iconic Louisville Slugger.

Emerald ash borers—a wood-boring beetle native to East Asia—have killed tens of millions of trees across North America. This destructive, invasive insect, first detected in Michigan and Ontario in 2002, has now spread to over 30 states and five provinces. Warmer winters and less extreme cold have meant that more beetles survive in North American climates, leading to faster and increased reproduction, and further spread. This threat is compounded in Europe by ash dieback, a fungus that has been devastating native species in the UK and across the continent.

In recent years, other species like maple have risen in popularity for the manufacture of bats. However, these bats too may be impacted by climate change. Maple, for example, is threatened by the invasive Asian longhorned beetle.

So, how do you climate proof the baseball bat?

Together with Dr Phil Evans, professor and BC Leadership Chair at the Faculty of Forestry’s Department of Wood Science, I have been researching how the geometry of the baseball bat can be optimized for other, more common or sustainably produced species in order to achieve similar performance.

Using a combination of ANSYS for computer modelling and MATLAB for evolutionary optimization techniques—and applying design specifications defined by MLB’s Official Baseball Rules—we were able to improve the bat’s performance by altering its shape.

Previous research on wooden baseball bats has shown that nodal points (points on the bat that do not vibrate) and centre of percussion influence performance. We deconstructed this by converging the nodal points and the centre of percussion to reveal new designs. Specifically, by minimizing the vibration and maximizing the rebound energy when the bat makes contact with a ball, a batter would be able to transfer the full power of their swing.

Interestingly, the resulting baseball bat design based on physics and machine learning resembles the best professional-grade bats available, which have been refined over nearly 150 years of trial and error and incremental innovation.

Our modelling approach could be used to optimize the baseball bat design for a stronger, more shock-resistant wood species, such as hickory, to improve performance. And it can be used for other wooden ball-and-bat sports. We used a similar modeling approach to optimize the cricket bat’s performance, and this research could be applied to sports such as hurling or table tennis.

Our research also revealed some new design features, which could further improve performance. Most notably, shifting the mass of the baseball bat closer to the sweet spot and making a small reduction in mass at the very end of the bat. This approach is potentially capable of being extended by adding additional criteria, for example, vibrational energy loss. Further research is needed to see if new designs would emerge from these approaches, which requires additional computational power.

Given the importance of the bat in baseball and other bat and ball sports, the fact that our research addresses supply as it pertains to climate change could result in great commercial potential. Now that would be a home run.

Sadegh Mazloomi is a researcher at the Department of Wood Science. He can be reached at Mohammad-sadegh.mazloomi@fpinnovations.ca
It’s a familiar story – climate change wreaking havoc on forests, including drought or susceptibility to pests, among other problems. And the solution? It appears to be in the mix. As single-species plantations are faring worse than their more biodiverse counterparts, researchers and managers are turning their attention to understand how tree species mixes can enhance ecological and economic benefits for adaptation. But often, the issue of focus has been maximizing yield. In reality, mixing forests can have different trade-offs – mix to maximize yield, and you might undermine other processes important for adaptation.

Here in B.C., we studied data from a long-term experiment to better understand the relationship between yield and tree density, species proportions, and morphology. Knowing more about these factors can inform management of species mixtures to enhance resistance to disturbances and impacts from climate change. We can design specific mixtures to economically match or outperform pure-species stands – but how?

Fortunately, we have the tools to begin to examine this question. Many long-term mixed-species experiments have been installed in B.C. since the 1980’s. Until recently, high-elevation sites in B.C. have been free of spruce terminal weevil (Pissodes strobi) but are now showing increased infection. Together with Bianca Eskelson and Grace Carsky (associate professor and alumna of UBC Forestry), we analysed data from an experimental plantation close to Vernon, at an elevation of 1560 m, to elucidate the effect of mixing hybrid spruce with faster-growing lodgepole pine – a common conifer mixture in interior B.C. We found that mixing spruce with overtopping pine reduced spruce weevil attack and thereby reduced the potential for spruce timber loss. However, pines in this type of mixture grew like pines at low density, with larger diameters and larger crowns, which can result in wood that is less marketable. The results of this study illustrate some of the trade-offs that we can expect to find in mixtures composed by species with differing growth dynamics.

Scaling hundreds of trees to measure their crown structure is a logistical nightmare and physical feat. Luckily, advances in remote-sensing in the last decade have revolutionized the measurement of individual trees, providing valuable data to complement decades of traditional biometric measurements. Terrestrial laser scanning or drones can provide high-resolution three-dimensional data that can be used to monitor tree vitality and quantify stem and crown attributes relevant for wood quality. Similarly, novel tools have enabled non-destructive sampling of wood properties in large numbers of trees that allow us to look beyond what the naked eye can see.

As mixed forests represent a large percent of B.C. forested land, it will be crucial to continue investigations into their resilience to global change. Larger questions remain: can we shift to silvicultural systems aimed at enhancing sustainable production of high-quality timber? Can mixed forests increase growth resilience to drought events which are becoming more frequent and severe? With management objectives that are more diverse than they were a few decades ago, these are all important areas for future research. As with species, the solution may be in the mix – using a novel combination of tools and modelling approaches will help us understand the uncertainty around defining future species mixtures.

Ignacio Barbeito will be joining the Faculty of Forestry’s Forest Resources Management Department in September. At this time, he can be reached at ignacio.barbeito@slu.se.
Across their range, great ape populations and their habitats have suffered dramatic declines in recent history. Surviving populations continue to be marginalized and fragmented by habitat loss and hunting. As such, all species and subspecies recognized by the International Union for Conservation of Nature (IUCN) as either Critically Endangered or Endangered.

Habitat loss is caused by the extraction of natural resources through commercial logging, mining, large-scale agricultural plantation establishment, such as oil palm, or other human development activities like roads and infrastructure. As we continue to exacerbate land-use change in response to the needs of a growing human population, our activities influence climate warming and as a result many areas of lowland forest are expected to become warmer and drier, which clearly has serious implications for many species including the future survival of our closest living relatives, the great apes.

Having spent a decade researching the Critically Endangered and poorly known Cross River gorilla population which straddles the international border between Cameroon and Nigeria, I have witnessed first-hand how these landscapes can be altered dramatically over a relatively short period of time, and planning conservation strategies must consider all future scenarios.

Together with other scientists and researchers across Africa, I contributed my great ape occurrence data to an important new study, which is the first to combine climate, land-use and human population changes to predict specific distributions of African apes by 2050. A warmer, drier climate will cause lowland areas to become uninhabitable by great apes. Lowland vegetation will shift to nearby highland areas and great apes and all other species reliant on those resources will also need to shift their range in response to these changing landscapes. Under a best-case scenario, we can expect a range decline of 85%, and worst case, we could see a decline of 94%, with the most serious losses found outside of protected areas.

While these predictions are dire, we still have time to mitigate losses and maximize gains. Some climate change-related range loss can be avoided if appropriate management measures are taken, and we take real strides to reach our climate goals. At the same time, if we increase the protected area network within great ape range states based on habitat suitability models and ensure that degraded habitats are utilized for development rather than pristine dense rainforest, then we could mitigate much of the predicted loss and expect some significant range gains. There is of course no guarantee that great apes will shift their range immediately due to their limited dispersal capacity and migration lag, but if new areas of suitable habitat are available and protected, then there is that real possibility.

This is a global issue and although many people don’t realise it, they are benefiting from natural resources extracted from ape range states. Everyday items we use such as our mobile phones contain materials from great ape habitats and many of the ingredients in the foods we eat today contain palm oil which has replaced forests previously inhabited by great apes. Ultimately protecting our remaining forests is a global responsibility and does not benefit great apes and other charismatic wildlife species alone. These irreplaceable forests are also critical for human health. Healthy forests equate to healthy animals and healthy people. We still have time to rewrite the future for great apes and our forests; now we need to make that a reality.

Jacqui Sunderland-Groves is a research scientist with the Faculty’s Wildlife Coexistence Lab run by Dr Cole Burton, the lab’s principal investigator. She can be reached at jacqui.sunderland-groves@ubc.ca.
The Fraser River was once Canada’s most productive salmon river. Today, Fraser salmon populations are at record lows. The reliance of Pacific salmon on both marine and freshwater habitat to complete their life cycle introduces them to a number of threats. Loss of freshwater habitat is one of these key threats, but questions remain about just how much has been lost and what this means for restoration.

Salmon rely on cool streams for spawning and the incubation of their eggs. For some species, including endangered populations of Chinook, juveniles rely on freshwater streams, side channels and floodplain for rearing habitat before they move to the ocean. The loss and alienation of freshwater spawning and rearing habitats lowers the capacity for our freshwater ecosystems to produce wild salmon that will eventually migrate to the ocean where they grow to the size that sustains our coastal ecosystems from orcas to forests, our culture and economy, as well as underpinning food security for many First Nations in British Columbia.

Loss and degradation of habitat happens over time which can lead to a shift in perceptions of what is “normal” for the ecosystem at both an individual and generational level. Without the transfer of knowledge on the historical state of the ecosystem, our shifting perceptions can alter our behaviour in terms of how we manage the current landscape and interpret trends in populations, coined shifting baselines by renowned fisheries scientist Daniel Pauly. Without incorporating historical information into our decision making, we risk facilitating a managed decline in the state of the ecosystems and the species we value, such as salmon.

Turning to the lower Fraser River, we documented the habitat loss and alienation of 14 populations of salmon across four species, using a number of datasets to understand the extent of salmon habitat connectivity and loss throughout this salmon hotspot. Our research involved the integration of multiple sources of information describing current freshwater barriers such as dams, culverts, and flood infrastructure with models that predict the location and extent of lost streams, and historical floodplain vegetation from the late 1800’s.

The resulting data identified over 1,200 in-stream barriers to fish passage. These barriers included road culverts, floodgates, dikes and dams. Across the region we estimate that approximately 64% of formally accessible stream length either exists upstream of a mapped fish barrier and is therefore not available to salmon or has been lost altogether. Likewise, we estimate that approximately 85% of seasonal floodplain habitat has been made inaccessible by dikes. These estimates vary depending on the specific population that is considered, however when we compared these accessibility estimates with the status of the population as assessed by the Committee on the Status of Endangered Wildlife in Canada, many of the most impacted populations have not been assessed. For species like Chinook and coho salmon, access to floodplain habitats are linked to improved growth rates through a wealth of invertebrate prey and protection from predators.

Through the combination of multiple sources of data, this study provides support for identifying specific priority areas for the restoration of habitat for wild Pacific salmon in the Lower Fraser. This will require the continued understanding of how restoring freshwater connectivity can relieve the limiting pressures of specific populations of salmon, and prioritizing sites for restoration based on site specific costs, expected habitat quantity and quality gained, and project feasibility. Finally, by considering habitat within an historical context, we gain a lens through which to interpret and evaluate current development project proposals. The cumulative effects of human actions need to be considered to both guide development policy in salmon watersheds moving forward and to successfully restore thriving salmon populations in the lower Fraser River.

Riley led this research while a Masters Student in the Martin Conservation Decisions Lab and is now a Research Technician in the lab.
PHOTOBOOK CELEBRATES FOOD WISDOM AND EXAMINES FOOD SECURITY

Meagan Curtis

Of the 83 Alberni residents recorded in the 1887 British Columbia Directory, 81 were listed as farmers. The other two remaining were a shoemaker and a schoolteacher. Clearly, growing food was a widespread and serious undertaking.

Before and during the early 20th century, the Island’s population was essentially 100% food self-sufficient. Food sufficiency dropped to around 80-90% in the 1950s and 60s (BC Ferries started its first service from Tsawwassen to Sidney in 1960), and eventually plummeted to today’s estimated rate of 8% or lower.

Nevertheless, research on Vancouver Island shows that this historical food production knowledge is not lost and that the Alberni Valley has retained significant expertise. To document this, I led a photovoice project in the Alberni-Clayoquot Regional District on the ancestral territories of the Nuu-chah-nulth First Nations. Running over the course of 2020, the project was done in collaboration with the People, Institutions, and Forests Lab at the University of British Columbia Faculty of Forestry and the Food Systems Lab at Simon Fraser University.

Funded by the Social Sciences and Humanities Research Council of Canada, the photovoice project typified what UBC’s Public Scholars Initiative research can look like. Done cooperatively with the community, a tangible result was produced which provides a public good. The resulting Alberni-Clayoquot Food Security Photobook is available free online and printed copies are provided by donation through the Alberni Farmers’ Institute.

Two virtual Photobook launches were held to celebrate the book and its photographers as well as to encourage conversation on food security. A range of concerns and topics were discussed. The role of technology in food production was debated; for example, gathering sea urchins at low tide by hand versus the ability to harvest many more with scuba gear.

The decline in forest foods around the Alberni Valley was noted, particularly the lack of Fireweed (Chamaenerion angustifolium). Its disappearance was anecdotally correlated with the disappearance of pollinators and the spraying of glyphosate over logging cutblocks. Multiple attendees felt this was a serious problem with food security implications.

Some lamented that the ecosystem services farmers provide, such as riparian and natural areas conservation, are not fully accounted for. In British Columbia, the Agriculture Land Reserve (ALR) restricts uses of private land in order serve the wider public good of protecting farmland, but farmers are not compensated for that protection. In fact, the compensation they were promised during the introduction of the ALR has since been removed. Moreover, as one participant noted, when claiming farm income for tax purposes, the government will only count cultivated crops, not foraged foods. Broccoli is an acceptable farm product, while huckleberries are not. This bias has real material consequences on our landscape and incentivises the eradication of native plants and ecosystems.

Also discussed was whether or not COVID-19 has helped people appreciate the value of food. It is not clear if the pandemic, which exposed the precariousness of our food supply chains, has caused a shift in attitudes or if most will simply revert to old, convenient patterns of sourcing food from undisclosed, faraway locations. No doubt, the government’s decision last year to impose criteria for sellers at Farmers’ Markets in B.C. while allowing multi-national box stores to remain open had an impact on where people believe essential food comes from.

The quagmire of farm economics was not solved by this Photobook - unaffordable insurance costs, regulatory hurdles and economic injustices continue. However, the Photobook demonstrates that despite our challenges, we have retained the knowledge to begin walking down a path towards greater food security.

Meagan Curtis is a doctoral candidate in the People, Institutions and Forests Lab, supervised by Dr Janette Bulkan, and a UBC public scholar. She can be reached at meagan.curtis@ubc.ca
The UBC Farm is a 24-hectare agricultural production and conservation area located on the unceded and ancestral territory of the Musqueam First Nation on the UBC Vancouver campus.

Juxtaposed with the agricultural area at the UBC Farm is a large area of second growth forest. This remnant forest, the largest contiguous forested area of campus, is composed of a variety of tree species common to the BC coastal zone, including western redcedar, coastal Douglas fir, western hemlock, big-leafed maple and red alder among others. While this forest is not currently actively managed, recent discussions between the Faculties of Forestry and Land and Food Systems have focused on the integration of agriculture and forestry at the UBC Farm in the form of agroforestry - agriculture incorporating the cultivation and conservation of trees. Indeed, a first start is the demarcation of the Agroforestry Trail that loops through the western section of the forest.

Despite close collaboration between the Forestry and LFS over the years, the composition and structure of the farm forest was, until recently, largely unknown. Without such information, it is difficult to determine the most appropriate management strategy for the remnant woodland, understand how it might be best used for future agroforestry projects, or decide how it can be better integrated into the broader UBC curriculum. Such inventories represent an essential tool for the future sustainable management of the remaining forest on the UBC Farm: in short, if we do not know what is there, we cannot manage it!

With support from the UBC Farm Seed Funding for Research Fund, my lab group committed to undertake a 100% inventory of the entire 12ha area of the Farm categorised as conservation forest, basically the large contiguous block that surrounds the agricultural fields. Emerging from our basements and garrets during the first lockdown, the inventory allowed us to work in socially-distanced pairs, moving slowly and systematically through the forest, providing much-needed social and occupational interaction during a difficult time for everyone.

Each tree over 10cm in diameter (dbh) was identified, measured and permanently tagged. To maintain consistency with the protocol used for the on-going UBC campus tree inventory, other tree attributes measured included: status (e.g. alive, dead), tree height, height to crown base, crown width, percentage of canopy missing, and crown light exposure. Eleven months, four seasons and 4,914 trees later, the inventory was completed in early June.

The baseline dataset we have generated is now available for a wide array of further research. For example, taking the diameter and height measurements allows for an assessment of the carbon value of the farm forest, critical when UBC is focusing on green and sustainable growth and aspiring to be coming carbon neutral by 2050. Periodic measurements, (usually every five years), will provide information on recruitment and mortality, giving insights into the dynamics of this urban forest, including the long-term impacts of climate change in this area of BC. In addition, the inventory has provided the necessary baseline for further research on urban forestry, ecosystem services, biodiversity, climate change, potential sustainable timber production, and agroforestry, among others, to take place at UBC Farm. In short, it provides an unparalleled resource on campus for teaching and research.

Despite having so many other commitments and responsibilities, everyone who worked on the farm forest inventory did so on a voluntary basis and I would like to extend my gratitude to participating lab members and affiliates: Joli Borah, Alida O’Connor, Diling Liang, Winy Vasquez, Debbie Pierce, Abimbola Ilemobayo, Kate Sotolo, Maya Motyko, Jessy Hwang and Krystelle Saller. One day they might forgive me.

Terry Sunderland is a Professor in the Department of Forest and Conservation Science. He can be contacted at terry.sunderland@ubc.ca

Terry Sunderland

Urban Forestry at the UBC Farm: Uncovering the Potential

Terry Sunderland

Laying out a quadrat for tree inventory
While hiking during a Wild & Immersive program in the Malcolm Knapp Research Forest, kids notice all sorts of things: they point out which species might be invasive; they keep their eye out for snakes; they even try to identify which animals trekked ahead of them by examining any droppings. Particularly popular, says Christiane Smoroden, Programmer at Wild & Immersive, are the slugs.

“Many try to shelter slugs from others accidentally stepping on them, while others love to count them and notice their size. They notice their different colours and species name — some kids even know that the licorice slug is an invasive species,” Christane says.

This hands-on, curiosity driven learning is what Wild & Immersive (W&I), UBC Faculty of Forestry’s outdoor education program, is all about. The program hosts forest school, field trips, day camps, overnight camps, and more for youth from preschool to high school in UBC’s lush research forest. Every W&I program is filled with fun, interactive and educational activities in line with its mission to create environmentally curious and passionate individuals through inspiring nature-based experiences. More than 3,000 children in the Lower Mainland have had an inspiring encounter with nature through W&I programs since it started in 2017.

“At Wild and Immersive, we start with recreation and exploration that fosters curiosity. It’s only once kids are engaged that they can actually absorb information,” says Victoria Farahbakhchian, Education Coordinator at the Malcolm Knapp Research Forest and Director of W&I.

Research shows that a healthy engagement with nature aids healthy development in children. Nature builds confidence, promotes creativity, teaches responsibility, gets kids moving, and reduces stress and fatigue. All the while, introducing children to nature at a young age creates a generation of environmental stewards who care for the natural world.

“W&I is our attempt to make a difference in our community. We give children and youth the opportunity to have fun while learning to care for the space that they call home,” says Victoria.

“Another big part of our work is exposing children to nature, which might entice them to pursue careers in forestry or other ethical resource management,” she notes.

This year, the UBC Faculty of Forestry is prioritizing raising funds for W&I, recognizing its vital importance for children in the Lower Mainland. Money will support expanded programs; capital needs to create better facilities for cleanliness, warmth, and outdoor play; and scholarships for kids without the resources to attend.

Donations will also help relieve budget pressures that came from the COVID-19 pandemic, as W&I, which operates on a cost-recovery basis, had to significantly reduce the number of participants per visit to ensure the health and safety of all in 2020 and 2021.

In a world where very few kids get their daily recommended physical activity, and even less regularly spend time in nature, programs like W&I are essential for youth to remain healthy and cultivate a positive relationship with the environment.

We invite you to join UBC Forestry in helping children and youth access nature-based education experiences. For more information, contact Marie Labitte, Development Officer, at marie.labitte@ubc.ca or 604-827-2314.

Wild & Immersive website: wildlearnings.ca
From forest to fibre to fabric to fashion, Sophia Yang BSc (Nat Res Cons) 2019 has created a career where, as she says, “I have finally found my voice”.

As the Founder and Executive Director of Threading Change, a non-profit organization working to reduce the environmental and humanitarian impacts of fashion, Sophia is stitching together many of the issues that have energized her since her teen years.

Growing up in Calgary, Sophia started reading about climate change and environmental issues when she was just 11 years old. In junior high school she wrote and directed a play about climate change, and invited the mayor of Calgary to attend.

Once at UBC Forestry, Sophia was introduced to an interdisciplinary perspective that has shaped her ever since. “In the Natural Resources Conservation program I learned about the interconnectedness of our environment by studying a wide range of subjects,” she says.

Choosing the co-op option allowed Sophia to pursue her passion for the environment in a variety of settings. “In 2016 I worked as the National Communications Intern with the Nature Conservancy of Canada, and in 2017 I was a Forest Reclamation Intern for Natural Resources Canada,” she says. “Working with NCC in particular was enriching and challenging. I was able to use my conservation biology and wildlife management knowledge to communicate clearly to NCC’s large and diverse audience.”

In her second and third years at UBC, Sophia served first as the Events and Outreach Coordinator, then as the External Director of Common Energy UBC, the largest and most active student-run sustainability organization on campus.

In the summer of 2018 she worked with the Collaborative for Advanced Landscape Planning (CALP), led by Professor Stephen Sheppard. “I was involved in the second annual Citizen’s Coolkit workshop as well as in community engagement,” she says.

In 2018 and 2019 Sophia was a youth delegate to COP 24 and COP 25, the United Nations Climate Change conferences. “At the first conference, I felt that everyone was so accomplished and had already found their niche; it was a little intimidating,” she says. “But at the COP 25 conference I met a group of people discussing the sustainability and climate aspects of fashion and it really resonated for me. That’s when the seeds of Threading Change were planted.”

Sophia launched Threading Change (the name is a play on “spreading change”) in 2020, with the aim of involving more youth in taking action to mitigate the negative impacts of fashion. The organization’s mission is expressed as “The 6Fs: Feminist, Fossil-Fuel Free Fashion Future”.

“Fashion and forestry are interconnected,” she says. “Millions of trees are harvested each year to make rayon, viscose, and lyocell, in processes that are chemically intensive. In addition, forests are being cleared around the world in order to plant organic cotton, a fibre that’s in high demand but is extremely resource-hungry.” Threading Change is working to raise awareness of more sustainable practices.

Threading Change is also concerned with the humanitarian impacts of the fashion industry. “Right now we are working with a foundation in India that is looking at how the fashion industry has negatively impacted the culture and livelihood of communities near the Nepal border,” she says.

Sophia’s experience at UBC Forestry has taught her to look at an issue from various perspectives. “You might just see a piece of clothing, but I see something with a travel history,” she says. “For example, wood is harvested in Bolivia and made into fabric, then shipped to Bangladesh or China to be sewn, then shipped to Spain to be modeled and photographed, then shipped to a retail store in Canada.

“It’s a greedy ideology. And as long as we keep consuming without thinking we keep harming people and the environment,” she says. “At the same time, Threading Change isn’t about making people come to us; it’s meeting them where they are. I want to find the commonalities among us and then extend the conversation.”

To find out more about Threading Change and how you can get involved visit threadingchange.org. If you have a story to share as an alumnus then please get in touch with Michelle Lindsay at michelle.lindsay@ubc.ca
DONATION GIVES STUDENTS ACCESS TO POWERFUL SOFTWARE

Thanks to a generous in-kind gift from Tom Moore, owner of Spatial Planning Systems, fourth-year Forestry students can learn forest resource analysis using the leading software program in the industry.

The program, called Patchworks, is currently the most commonly used forest management planning software in western Canada. It’s also in use in Ontario, Nova Scotia and throughout the US.

Typically licensed on a computer-by-computer basis, Tom’s gift to the Faculty has made Patchworks available to all Forestry students to use for free.

Greg Paradis is a Forest Resources Management assistant professor who came to UBC in 2017 from Université Laval. He uses Patchworks as the foundation for Mathematical Modelling in Forest Resource Analysis, a fourth-year course in the Forestry program. “Patchworks is a big problem-solving engine,” he says. “It’s one of the best and most powerful tools out there.”

On the surface, Patchworks is modeling software that facilitates determination of the Annual Allowable Cut (AAC) for any Timber Supply Area (TSA). Dig a little deeper, though, and the many strengths of this powerful program become clearer.

“The AAC is a way of saying, ‘This is what the future will look like;’ says Greg Paradis. “On paper the AAC looks 10 years ahead, but in practice it can affect the forest for decades or even hundreds of years. So the AAC is really important, and it rests largely on the skill of the technical analyst and the quality of the tool they are using.

“The role of the analyst is to ask the question: of all the possible things we could do in this particular TSA, what’s the best plan? The best plan is going to be the one that gets you the most of the stuff you want (such as a continuous supply of wood, jobs and income, biodiversity, sequestered carbon, wildlife habitat) in the most sustainable and stable way, with the least of the stuff you don’t want (such as carbon emissions, catastrophic events, disruptions of employment). Balancing all of those things across a very large landscape for many, many years is a tall order.”

Patchworks allows students to grapple with all these variables and develop optimal forest management plans. “Patchworks lets them define scenarios that could be possible futures for the forest, then explore multi-dimensional tradeoffs across many stakeholders and over long periods of time,” Greg says.

Tom Moore began developing software models over 25 years ago, as an analyst in the Canadian Forest Service. “Around the time that I started thinking about a system like this, people were using GIS to identify the best stands in a forest,” Tom says. “But after you do that, what’s next? I started to think that there should be more to it than that.”

Tom developed Patchworks over several years. “I had a vision of something that would be relatively easy to use and still have a rich feature list,” he says. “I wanted the software to be a process that helps you undertake different tradeoffs, and through that make better decisions. It’s about gaining insight, not getting a number.”

Based in Deep River, Ontario, Tom’s company Spatial Planning Systems licenses and supports Patchworks installations in corporate and government clients across North America. He also provides introductory and advanced training in the program, as well as extensive API documentation on the use of the software.

Tom is pleased that his in-kind donation is having a positive impact on students. “UBC has a really robust program that allows students to gain important analytical skills, and I’m really pleased that Greg is leading it,” he says.

For more information on how you can support Forestry students, please contact Emma Tully, emma.tully@ubc.ca.
UBC FORESTRY CELEBRATES DR GARRY MERKEL

UBC Faculty of Forestry extends a warm congratulations to Garry Merkel for receiving an honorary doctorate in recognition of the remarkable contributions he has made to advance the culturally relevant education and economic self-determination of Indigenous peoples.

Garry is a member of the Tahltan Nation and a Registered Professional Forester with the Association of BC Forest Professionals. His achievements and contributions are numerous and span decades. They include being instrumental in the formation of the Faculty of Forestry’s First Nations Council of Advisors (FNCOA) in 1994 in which he currently serves as co-chair. He also worked with the UBC First Nations House of Learning to establish an Aboriginal Forestry Initiative at UBC.

Garry has been involved in building First Nations governments for almost three decades. He has led numerous initiatives, including the Yukon Forest Policy, the BC First Nations Forest Policy Forum, the Hakai Recreation Area Co-management Agreement, the Canadian Aboriginal Forestry and Employment Training Strategy, the BC Aboriginal Housing Strategy, the BC Aboriginal Governance Initiative and Ktunaxa Strategic Engagement Agreement. He is the Executive Director of the BC First Nations Housing & Infrastructure Council, and has been the CEO of the Tahltan Nation Development Corporation. He was part of the 3-person team that negotiated the creation of the Columbia Basin Trust, was elected vice-chair of the Trust at its formation in 1995, and chaired the trust from 2005 to 2013.

He is a Co-Chair of the BC Minister of Forests Practices Advisory Council. Most recently, he co-authored A New Future for Old Forests, a report for the Province of British Columbia that includes recommendations on the management of old-growth forests in the province that the Provincial Government has committed to implement in full.

In his address to the 2021 graduating class, Garry accepted the degree by acknowledging that his achievements “were only possible because of those before him who also worked to build a new and better life for their people.”

He explained that he was inspired to work in the field of education in the late 1980s when he learned as Chair of the Aboriginal Forestry Education and Training Review that there were only 12 Aboriginal post-secondary graduates in the field of natural resources in Canada. He saw an urgent need to have a meaningful government-to-government working relationships and this required a change in the face of post-secondary education and training for Aboriginal students.

This prompted him to be a part of a pioneering effort that created an educational environment tailored to meet the unique needs of the Aboriginal learner. He supported the development and ongoing implementation of the Nicola Valley Institute of Technology (NVIT) as a board member, vice-chair, chair and acting president over a 24-year period. He conducted two independent reviews of the implementation of BC’s Aboriginal post-secondary education strategy for the BC Ministry of Advanced Education and supported the re-drafting of the strategy to accommodate the recommendations of the reviews.

These efforts resulted in Aboriginal students achieving a 90% graduation success rate. Today in BC, an Aboriginal post-secondary student has the same chance of success as a non-Aboriginal student with thousands today working in the area of natural resources, making important changes in the landscape.

Garry concluded his address to the graduates with inspiring words of wisdom – urging them to never be afraid to dream. It is we who are honoured at the Faculty of Forestry to have his involvement and support over the years. Garry Merkel is an honorary Doctor of Science, honoris causa and received an Honorary Alumnus Award in 2012.