While the Faculty of Forestry is relatively young, having celebrated its 50th anniversary less than 20 years ago, the teaching of forestry at UBC goes back much further. An intensive course in forestry was provided, with federal funding, for veterans returning from the First World War, but it was not until 1920 that authorization to set up a Department of Forestry was finally given. This led to the appointment of the first forestry professor, Herbert Read Christie, in 1921.

Forestry had a fairly shaky start at UBC. Although the original plans for the Point Grey campus included a large experimental forest, a forest reserve and a building that was intended for a ‘Faculty of Forestry’, there was considerable resistance from the provincial government, despite the intense early lobbying by the Province’s first Chief Forester, H.R. MacMillan. The primary issue was funding, and it took until 1920 to secure the necessary financial commitment from the province.

Christie encountered many problems, not least of which were budget cuts in 1920–1921 in the Faculty of Applied Sciences that meant that he remained the sole member of the Department of Forestry. This was compounded by his own doubts about his teaching, and he submitted his resignation in June 1921. Fortunately for forestry at UBC, Dean Reginald Brock refused to accept the resignation, and insisted he fulfil his contract. Christie was still keen to leave, and accepted a position offered to him at the University of Toronto. He agreed to stay until a replacement was found, but it seems that the university was not particularly diligent in searching for a replacement. Without a replacement, and with provincial funding cuts deepening, there was a real risk that if he left, the Department would be closed, leading to his decision to stay. His position was helped by the appointment of F. Malcolm Knapp in October 1922 and his promotion to full professor in spring 1923. And the rest, as they say, is history.

100 years on, the Faculty of Forestry is one of the strongest in the world. We have grown substantially, and continue to grow. This year, however, we face a number of changes, some of which are already underway. Dr. Sarah Gergel has stepped down as Associate Dean for Equity, Diversity and Inclusion, after doing a marvelous job raising the profile of this area within the Faculty. The success of her work is described in this issue, as is the work being done by her successor, Dr. Hisham Zerriffi. Between them, they are ensuring that UBC Forestry is a fairer and more equitable place to work, and we deeply appreciate what they have done and are continuing to do.

This year, we also see another important event. We will be hosting the 20th Commonwealth Forestry Congress in August this year and, for the first time ever, the event will be entirely online. Being online should not only make it easier for delegates from the many Commonwealth countries around the world to attend, but will also enable us to take a much more global approach. Details are available at https://cfc2021.ubc.ca
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PEOPLE ON THE MOVE

**Malcolm Knapp Research Forest Assistant Manager Retires**

After 30 years of dedicating herself to the University of British Columbia's Faculty of Forestry research forests, Cheryl Power is retiring. She came to Malcolm Knapp Research Forest as a young forestry student in the late 1970s and immediately fell in love. When the opportunity came to stay on after graduation, she pounced. Being mentored by people like Hamish Kimmins and Karel Klinka was a dream come true for Cheryl, as she became a consummate professional – influencing two generations of forestry students with her dedication to conservation, silviculture, and integrated resource management. She rose to become assistant manager at Malcolm Knapp, and, along the way, led community organizations such as the Girl Guides and Sea Cadets and became vice-president of the Alouette River Management Society.

**Stephanie Ewen** is excited to return from a one-year maternity leave to the Alex Fraser Research Forest where she is currently wrapping up the last of fire salvage from the 2017 fires, getting ready to start one of AFRF's largest-ever planting programs, and re-envisioning the future of the AFRF at their new location on Fox Mountain.

**Rob Van Buskirk** is excited to be the new Assistant Manager at Malcolm Knapp Research Forest where he is responsible for supervising daily forestry activities and providing resources and assistance to UBC and educational institutions. His plans for the spring season include developing educational videos, planting, and silviculture treatment supervision. Previously, Rob was acting manager at the Alex Fraser Research Forest.

**Dr Sarah Benson-Amram** recently joined the Faculty as an assistant professor in the Forest and Conservation Sciences department. She is a behavioral and cognitive ecologist with a focus on urban wildlife. Her current research program focuses on the behaviour, ecology, and cognition of urban carnivores to understand how cognition is facilitating the adaptation of these species to urban environments.

**Dr Sheri Andrews-Key** recently joined the Faculty of Forestry as an adjunct professor of teaching. She is chief scientist and founder of Innovative Climate Strategies and has a diverse and extensive background in various facets of the application of science-management-policy interface in environmental and resource-based sectors and governments across Canada.

**Dr Nicholas Coops** is looking after supporting and mentoring faculty and new FRM hires, ensuring they are settling in comfortably. He continues in his role as Canada Research Chair in Remote Sensing (I) and all related research activities.

**In autumn 2020, Dr Cecil Konijnendijk** started to dedicate most of his time to a new consultancy organisation called the Nature Based Solutions Institute. Cecil and his colleagues are working with governments and other partners across the globe in their efforts to build greener cities with strong urban forestry programs. However, Cecil remains with the UBC Faculty of Forestry as well, as he continues in his role as program director for the new Master of Urban Forestry Leadership.
AWARDS AND RECOGNITION

UBC Faculty of Forestry wood science professors Dr. Shawn Mansfield and Dr. Scott Renneckar were both recently honoured by the International Academy of Wood Science (IAWS).

A long-time Fellow of IAWS, Dr. Mansfield was elected to their Board, and will be serving the next six-year term. An award-winning molecular biologist and Fellow of the Royal Society of Canada, Dr. Mansfield was chosen for his many contributions to the IAWS and his award-winning career achievements. He is Professor of Wood Biotechnology and Fibre Quality with the Wood Science Department and runs the Faculty’s Tree Molecular Biology Research. Dr. Mansfield’s areas of research include tree biotechnology, plant and tree cell wall biochemistry, cellulose and lignin biosynthesis, lignocellulosic chemistry and ultrastructure as it relates to wood quality, fibre morphology and chemistry as related to the formation and properties of paper and enzyme applications in the pulp and paper industry.

Dr. Scott Renneckar was appointed as a Fellow of the IAWS. Recognized for his many contributions to the field of wood science, Dr Renneckar was selected by a committee of researchers from around the world and can now be counted among a select group of UBC wood science IAWS fellows. He is the Canada Research Chair and Professor of Advanced Renewable Materials and the Faculty’s Forest Bio-economy Sciences and Technology Program Director in the Wood Science Department. His research group’s goal is to study the chemistry of natural materials for the design, manufacturing, and engineering of the built environment. It provides increased value to the forest products and agricultural industries through differentiation of biomass into new products, like bioplastics, films, and high performance carbon fibers, while reducing dependence on fossil-based carbon for materials.

The International Academy of Wood Science is a non-profit assembly of wood scientists, recognizing all fields of wood science and technology.

RESEARCH IN THE MEDIA

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.

After the fire: the long road to recovery
January 20, 2021, published by The Narwhal, thenarwhal.ca, Lori Daniels

“For the last 100 years or so, people look at fires as something that’s destructive,” Ignace said. “But fire and water are two sides of the same coin. Water can be equally destructive as fire, or both can be very constructive.”

It’s just a question of knowing how to use them.

Lori Daniels, a professor at the University of British Columbia in the department of forest and conservation sciences, said the dramatic decrease in cultural burning since the 1860s has led to more intense wildfires.

“In absence of these fires, trees have increased in abundance and burnable fuels accumulated. Decades later, there is much more biomass and the fires are more severe,” she said.

To read the full article and Lori Daniels comments visit https://thenarwhal.ca/bc-forest-fires-restoration-secwepemc/
RESEARCH IN THE MEDIA

New mangrove forest mapping tool puts conservation in the reach of coastal communities

Jan 14, 2021, published by canadiangeographic.ca, Trevor Gareth Jones

Mangroves are salt-tolerant plants found in intertidal areas throughout much of the world’s tropical and subtropical coastlines. Mangrove ecosystems are highly variable, ranging from sparse, stunted shrubs to dense stands of thick-stemmed tall trees.

These ecosystems provide habitat for an incredibly diverse range of species including fish (from snapper to shark), invertebrates (such as shrimp and crab), reptiles (from snakes to crocodiles), birds (from kingfishers to hawks), primates (such as macaques and lemurs) and even Bengal tigers.

Mangroves also provide essential goods and services to millions living in coastal communities — they prevent shoreline erosion, provide protection from storms, supply food, cooking and building materials, and contain places of cultural and spiritual significance. They are also incredibly carbon dense storing as much or more carbon than their terrestrial forest peers — the majority of this carbon is stored in incredibly deep soils.

My colleagues and I use satellite imagery and field measurements to study mangrove ecosystems in several countries. We’ve developed an accessible and intuitive tool that provides coastal managers with the accurate, reliable, up-to-date and locally relevant information they need for effective community-based conservation of these critical blue (marine) forests.

Until now, information from satellite imagery on mangrove extent and change was either global in coverage and not intended for the smaller areas typically covered by community-based conservation efforts, or — if focused on a local scale — required substantial and costly technical expertise.

Our new tool — the Google Earth Engine Mangrove Mapping Methodology (GEE/MM) makes this information freely available to coastal managers and covers the smaller areas they’re concerned with.

To read the full article and Trevor Jones comments, visit https://www.canadiangeographic.ca/article/new-mangrove-forest-mapping-tool-puts-conservation-reach-coastal-communities

SISŒNEM (Halibut Island) transfers to WSÁNEĆ Leadership Council under historic agreement

Feb 26, 2021, published by Global BC, Dr. Tara Martin

The Land Conservancy of B.C. (TLC) and the WSÁNEĆ Leadership Council have announced a landmark partnership agreement that will transfer title of SISŒNEM, also known as Halibut Island to the WSÁNEĆ First Nation.

The Island was recently purchased by TLC for $1.55 million. The transfer is significant as it’s the first of its kind between a land trust and an Indigenous community in Canada. TLC will work together with the WSÁNEĆ Leadership Council to draft and register a conservation covenant and develop a co-management plan that will incorporate Indigenous land management principles that will provide access for cultural, education, research, and monitoring purposes.

Dr. Tara Martin, Department of Forest and Conservation Sciences Professor at UBC says an eco-cultural restoration plan for the island will be developed.

To read the full article and Dr. Tara Martin’s comments visit https://globalnews.ca/video/7667383/land-conservancy-gives-island-back-to-b-c-first-nation/
ALEX FRASER CELEBRATES ONE-YEAR IN NEW HOME

Stephanie Ewen

The Alex Fraser Research Forest (AFRF) is excited to be celebrating their one-year anniversary of moving to their new home on Fox Mountain in Williams Lake. While our first year has been relatively quiet with no visitors, work is underway to ensure we have infrastructure in place to support research and education into the future. Ki Communications has been working closely with AFRF’s manager to develop a strategic plan for the future of AFRF, given the new opportunities available with this property. Community excitement is slowly beginning to build, and there are endless possibilities with the space. AFRF Operations Supervisor, Don Skea, has been working towards improving site access and site capacity for large vehicles, considering a broad range of potential uses. We look forward to the day when we can welcome you to stay in our new facility while you engage in field research, or bring student groups back to the field for learning.

Stephanie Ewen, RPF is the manager of the Alex Fraser Research Forest, and can be reached at Stephanie.ewen@ubc.ca.
CALL FOR ABSTRACTS: The Initial Step in First-Ever Entirely Virtual Commonwealth Forestry Conference

Online Event Will Take Place August 16-18 2021

The call for abstract submissions for the 20th Commonwealth Forestry Conference (CFC) is now officially open.

Hosted by the Faculty of Forestry at the University of British Columbia, Canada, the global call for abstracts is open to any of the following conference topics: new markets; education and careers; communication; climate change; technology and innovation; conservation versus consumption; and urban forests.

“For this Conference, we are inviting submissions from professionals, scientists and others working and studying these aspects of forests and forestry all over the world, both within and outside of the Commonwealth,” says Dr. John Innes, Commonwealth Forestry association (CFA) President and UBC Faculty of Forestry Dean.

The Conference, held every four or five years, was originally slated to occur in-person on the University of British Columbia Point Grey Campus in Vancouver, Canada. However, due to on-going uncertainty with the Coronavirus-19 pandemic, the decision was made to hold the 3-day event online. Over the past year, there have been a number conferences traditionally held in person that have been held online successfully. While still in their relative infancy, virtual conferences have a number of obvious benefits. Perhaps the two most obvious are the huge reduction in carbon footprint and the increase in accessibility for those who would not otherwise be able to participate in person. Of course, a major benefit is that it will cost much less to attend a virtual conference than an in-person conference.

“The elimination of travel by delegates who come from the far reaches of the globe to attend conferences will mean a significant reduction in carbon emissions. Further, participating in the conference will be easier and more affordable for many. In this way, the exchange of information during the conference has the potential to be much greater and could contribute to greater efficiency in how we deal with the many wicked problems associated with forestry and forest policy.”

Since their inception in 1920, these conferences have brought widespread awareness of forest resources around the globe and have introduced strategies for their long-term sustainable use. They have enabled the sharing of knowledge and expertise about the management of forests and forest products. With renewed global emphasis on a green recovery following the pandemic, it is now more important than ever to share knowledge about our forests. This year’s Conference will also coincide with the 100-year anniversary of the teaching of forestry at the University of British Columbia.

As in more traditional conferences, there are several ways that you can present your work at the conference. These include oral and poster presentations and, for students, a three-minute talk competition. However, unlike past conferences, you have two options for submitting your ideas for a presentation at the conference: you can submit either a written abstract, with a maximum of 300 words, or you can submit a video (mp4 format, maximum 30 seconds) summarizing your proposed paper. To submit either, please visit the abstract submission page on the conference website (https://cfc2021.ubc.ca/).

We are restricting to the number of abstracts/videos submitted to one for each lead author. However, you can be a co-author on more than one abstract. The deadline to submit your abstract is April 30, 2021. Authors will be notified about their abstract acceptance by May 17, 2021.

Online Event Will Take Place August 16-18 2021
FOSTERING EQUITY, DIVERSITY, AND INCLUSION WITHIN THE FACULTY

University of British Columbia’s Faculty of Forestry is committed to fostering equity, diversity, inclusion, and fighting racism. Recognizing this as a work in progress, we continually strive to improve how everyone in our community is supported and connected. As our efforts span a range of initiatives, we thought it would be a good time to let our wider community know more about the eDi landscape in the faculty and some key achievements in the last year.

The Associate Dean of Equity, Diversity and Inclusion is Professor Hisham Zerriffi (he/him). The Associate Dean provides strategic advice to the Dean and senior leadership in forestry; lobbies for financial support; facilitates our various diversity initiatives and teams; handles disciplinary matters; and provides training for search committees. He previously held the position of chair of the Equity, Diversity and Inclusion Council. He works with a dynamic group of graduate academic assistants – Arial Eatherton, Estefanía Milla-Moreno, Mia White, Jaylen Bastos, and Georgina Preston – to organize workshops, trainings and related educational materials for faculty, students, and staff.

The Equity, Diversity, and Inclusion Council is a newly appointed team of faculty, staff, and students, chaired by Associate Professor Janette Bulkan. The EDI Council examines systemic and structural issues facing the Faculty and how they can be best understood, assessed, improved, and dismantled. The Council’s mandate includes making policy suggestions to the Faculty.

The Diversity Crew is an autonomous, enthusiastic team of (mostly student) volunteers – first organized in March 2016 – who host a range of creative events designed to educate and support our community, as well as celebrate diversity, interculturality, and LGBTQ2S+ people and initiatives. The Diversity Crew welcomes all members of the Faculty to join.

A highlight from the past year was the Forest(Reads) talk by Professor Robin Wall Kimmerer, author of the book *Braiding Sweetgrass: Indigenous Wisdom, Scientific Knowledge and the Teachings of Plants*. Co-sponsored by the Faculty, UBC Library, and the Simon K. Y. Lee Global Lounge – with special thanks to Xwi7xwa Library and Alumni@UBC – the webinar attracted nearly 3,000 people live, and another 7,000 people requesting a link to download the talk afterwards.

The Virtual Lunch in the Forest webinars and Tuning into the Forest podcast are now launching the second edition. These initiatives are hosted by Estefanía Milla-Moreno as part of the office of the Associate Dean Initiatives. These series have included topics such as environmental justice, gender diversity, mental health related to exposure to green spaces, Black Scholars and Indigenous Scholars representation, and experiences of reduced mobility users in parks, to name some.

In collaboration between the Associate Dean, EDI, Associate Dean, Academic, and the Diversity Crew, the Faculty implemented a survey that focused on equity, diversity, and inclusion within the Faculty. Respondents were asked to provide input on what the Faculty could be doing to improve, what it was doing well that needed to be strengthened, and how it could better support members of the Faculty during the pandemic.

Finally, a special note of thanks to Professor Sarah Gergel. In December of 2020, Dr Gergel completed her five-year term as the inaugural Associate Dean, EDI. During that time, she worked tirelessly to build up the EDI activities of the Faculty and put in place procedures to improve our processes. She built a solid foundation for the ongoing change that the Faculty envisions for itself and we thank her for her dedication and work.

Hisham Zerriffi is an Associate Professor in the Department of Forest Resources Management at the Faculty of Forestry. He was previously an Assistant Professor and the Ivan Head South/North Research Chair in the Liu Institute for Global Issues at UBC. He can be reached at hisham.zerriffi@ubc.ca.
It is no secret that many organizations, big and small, are committed to taking climate action here in B.C. However, how often do these organizations come together to co-ordinate their efforts towards meeting community climate targets through collective action?

On December 14, 2020, the University of British Columbia Faculty of Forestry’s Collaborative for Advanced Landscape Planning (CALP) hosted the second annual ‘Now or Never’ workshop for leading climate engagement practitioners across the province and internationally. This online workshop convened almost 50 representatives from NGOs, local government, consulting firms, and researchers in a call for collective action.

The goal was to collaborate in developing a road map for mobilizing citizens in order to help meet urgent government targets (we have less than ten years left to cut our carbon footprints in half by 2030) and build community resilience to tackle growing climate emergencies. Participants networked with other practitioners in the region, discussed innovative pilot projects and barriers they faced, and shared key lessons learnt in the past year. Featured projects included CALP’s Cool ‘Hood Champs training program, UBC’s Mapping Climate Mitigation Initiatives, Evergreen’s Green Bloc program, Climate Access’ Climate Community Leaders campaign, One Earth’s One Planet Saanich project, and SPEC’s Master Recycler certificate program.

A consensus emerged on many pressing issues. These include the need for stronger collaborative frameworks amongst the many active climate practitioners in B.C., and engagement across a wider diversity of community groups (especially under-represented voices such as the less affluent in more climate-vulnerable neighbourhoods). The group also agreed on the need for better-tailored messages to reach stakeholders under-engaged in the climate conversation, more mechanisms for citizens to support bold moves by councils, and more place-based methods to deepen community engagement.

Another key takeaway was that B.C. engagement practitioners and researchers represent a rich testbed for social innovation on climate engagement, and that new ways to collaborate have already begun, through such workshops and new grant programs like the federal Climate Action and Awareness Fund.

The majority of attendees committed to collaborating through future sessions, and to promoting the need for social mobilization strategies through their own networks and social media. Many attendees committed to finding more partners to implement collaborative frameworks, such as the Resilience through Education, Action & Capacity-building in the ‘Hood’ (R.E.A.C.H) program, which uses a ‘hub-to-hood’ model to empower neighbourhood champions through community centres and schools. Some organizations expressed interest in collaborating on future funding proposals.

This meeting was part of the ‘Now or Never’ annual workshop series, which brings together the SSHRC-funded Cool Tools research cluster hosted at UBC, practitioners, and policymakers to share best practices and foster stronger collaboration on social mobilization. The final workshop of this series will engage elected officials and community leaders, and is set to take place in early spring 2021. Any enquiries can be directed to Cheryl Ng at cheryl.ng@ubc.ca.

Cheryl Ng is the Engagement Coordinator at CALP. Stephen Sheppard is CALP director, program director for the Faculty’s Bachelor of Urban Forestry and a professor with the Department of Forest Resources Management. He can be reached at stephen.sheppard@ubc.ca.
Springtime was Cody’s favourite time of year. As a summer camp dog, he loved people, and springtime meant that people were back – back from their winter hibernacula of blankets and TV, back outside, and back at camp. And the first big springtime event for Cody was sugar maple sappin’ season.

For a few weeks in late February and early March – when the snow, temperature and sunlight are just right – sugar maple sap, which is rich in delicious sugars, flows up into the branches to help buds grow. This is when the trees can be tapped, and the sole ingredient of a beloved breakfast staple is gathered: sugar maple sap for maple syrup. Cody, his people D’arcy and CP, and their friends gathered at RKY camp near Kingston Ontario during this time to shake off winter’s cobwebs and make maple syrup together around a warm fire. Cody loved it.

But sappin’ has been harder in recent years. I did my master’s research at Queen’s University in Kingston, Ontario. In 2016, during the early days of my master’s, a study out of State University of New York caught my eye – sugar maple trees in Adirondack State Park were in decline. Growing up in Ontario, sugar maples were ubiquitous in one of my favourite camping spots, Algonquin Provincial Park. This made me wonder, if sugar maple growth declined in the Adirondacks – a large, protected area where one would expect forests to be relatively healthy – could growth be declining in Algonquin too? And what about in the unprotected forests between the two big parks?

Using increment cores from the base of sugar maple trunks, I put together a century-long chronology of sugar maple ring widths. Annual growth rings are an easy measure of the health of a tree – the wider a ring the more a tree grew and, presumably, the healthier it is. I found a pattern of narrower rings in recent decades, which indicated a recent decline in sugar maple growth in Algonquin Park. Growth slowed in the 1970s and declined steeply in the early 1990s. The declines I saw in Algonquin were troublingly similar to those in the Adirondacks.

Climate change has shrunk the length of the sugar maple harvest season, and some researchers speculate that it might be a driver of sugar maple decline. I tested the relationship between climate and ring widths, but I didn’t find a link between climate and ring width decline for temperature, precipitation, or drought, so it appears that climate didn’t drive the decline observed in Algonquin or the Adirondacks.

Interestingly, when I looked at sugar maple growth rings on the Frontenac Arch, the region which connects Algonquin and the Adirondacks, I found that sugar maple growth had remained steady. Whatever the cause of sugar maple decline, it doesn’t seem to have affected trees on the Frontenac Arch. Maybe the key to understanding resilience to sugar maple decline can be found in the forests of Frontenac. Declining sugar maple growth is troubling, and hopefully with more work we can figure out the cause.

After a long and happy life, Cody died since my last time sappin’ with him. D’Arcy and CP now bring their two young daughters out to help with making syrup, which they give out as gifts to RKY camp donors and volunteers in Cody’s memory.

Mike Stefanuk is a PhD student with the Tree Ring Lab. He can be reached at stefanuk@student.ubc.ca. Donations to support youth outdoor programming can be made at www.rkycamp.org.
Every now and then something magical happens. As I landed on shore and walked up the beach into the meadow, I knew this island was everything I had imagined and more. Months earlier I had learned that an island I had passed hundreds of times throughout my childhood growing up on the Salish Sea, had come up for sale. I quickly sought permission to access the island and undertake a flora and fauna survey. This is where I spent much of the early days of COVID lockdown – camped on the island with my children, meticulously documenting the flora and fauna of this extraordinary place.

Few islands remain in the Salish Sea that retain their native flora and fauna. Most Gulf and San Juan islands have lost their extensive native wildflower meadows, and long gone are their rich forests with big ancient old trees and thick understories of berry-producing shrubs, orchids, trilliums, and more. Today, where forest remains, the big old trees have been replaced with dense stands of second- and third-growth firs, and their understories have been browsed away by introduced sheep and hyperabundant deer populations. The wildflower meadows have been replaced by agricultural fields, stages for grand residences, or if protected, they are dominated by invasive grasses, shrubs, and invading firs.

The vegetation of these islands co-evolved with the First Nations that lived here for millennia. Through their stewardship that included the use of low intensity fire, seed and bulb propagation, weeding, and hunting of herbivores, a diverse flora developed containing hundreds of species of flowering plants, native grasses, and sedges. These islands were their gardens, producing an abundance of nutritionally-rich plant foods and essential medicines. These islands were also their graveyards, where they buried and honoured their dead.

This island, called SISȻENEM (pronounced Sisquee-nem) is a small, 9.5 acre island that forms part of the traditional territory of the WSÁNEĆ First Nations (https://wsanec.com/). It is part of the Coastal Douglas Fir (CDF) Bioclimatic Zone, our most endangered zone in British Columbia with <1% old growth remaining. The majority of the CDF is privately owned and the WSÁNEĆ and Coast Salish Nations have been left with tiny postage stamps of their former territories.

There is much talk about reconciliation in Canada. But what does this really mean for us living and undertaking research on these unceded territories? Growing up on the Salish Sea I learned nothing about the people who had lived and thrived in these islands before me. There was no mention in school of the numerous Nations whose villages covered these islands, whose artefacts and signs of habitation I would come across in my explorations as a child, and later as a scientist. There was no mention of the residential school – located just a stone’s throw from my home on neighboring ‘Kuper’ Island (now called Penelakut) – that still operated as late as 1978. “Right from its founding by the Catholic church, the scale of suffering at Kuper Island was beyond the pale.” I was five at that time.

Three decades later I would find myself unravelling the deep connection of Coast Salish people to these lands through my research and through my relationships with elders and knowledge holders in these communities. I have come to understand that one of the greatest threats to these ecosystems has been the loss of the stewardship by the WSÁNEĆ and Coast Salish peoples.

Fast forward to the spring of 2020, upon setting foot on SISȻENEM, I knew I had to find a way to make sure this
island was protected in perpetuity through the stewardship of its rightful owners. Following the surveys, I reached out to the WSÁNEĆ Leadership Council and shared my findings with them. Simultaneously I began the search for a donor to provide the capital to purchase the island and began conversations with various conservation NGOs around their willingness to play a part in a historic conservation project—one that returns land to its rightful owners and works with nations to co-manage the land for ecological and cultural restoration in perpetuity.

By some miracle it all came together. Friends, David and Linda Archer Cornfield—devoted conservationists, filmmakers, and former Microsoft techs—donated the funds, and The Land Conservancy (TLC) jumped at the opportunity to work together with WSÁNEĆ and myself to develop an eco-cultural restoration plan for the island. The island is now protected and on February 26th 2021, an agreement was signed between TLC and WSÁNEĆ to transfer title.

“Everyone living in WSÁNEĆ Territory is a subject to the Douglas Treaties. WSÁNEĆ people have Douglas rights and Aboriginal rights and title, and settlers have obligations to protect and honour those rights. This means that reconciliation is everyone’s responsibility. The return of SISȻENEM to WSÁNEĆ people by The Land Conservancy—with the support of generous private donors and Dr. Tara Martin—is a meaningful step in that direction. It shows that reconciliation doesn’t have to wait for government’s lead and that we can all do our part to protect the environment and help heal the WSÁNEĆ people. The phrase “Land Back” is no longer a euphemism. It’s finally a reality.”

- Chief Don Tom, Tsartlip First Nation and WSÁNEĆ Leadership Council Chairman.

This is what reconciliation can look like.

Dr Tara Martin is Liber Ero UBC chair in Conservation and head of the Faculty of Forestry’s Conservation Decisions Lab. For more on the lab’s activities, visit https://www.taramartin.org.

Dr Tara Martin surveying the flora on SISȻENEM.
Photo: Alex Harris

Barestem biscuitroot (Lomatium nudicaule) and greater red paintbrush (Castilleja miniata) carpet the island attracting native pollinators. Photo: Tara Martin
Fifth generation technology for cellular networks (5G) has landed at the University of British Columbia through the Smart Campus Initiative. This network, introduced by Rogers Communications, is anticipated to accommodate greater bandwidth to support more devices, have higher upload and download speeds, and usher in a new era for the Internet of Things. But what does this have to do with managing our trees and forests as nature-based solutions?

Many people living in cities may take for granted the enormous value that urban and peri-urban forests provide. Trees, urban forests, parks, and other green-blue infrastructure provide a range of vital services that improve urban sustainability, resilience, and wellbeing.

Unfortunately, the management of natural assets is often fraught with challenges related to resource constraints, lack of capacity, and environmental change, often compounded by the effects of climate change. Meanwhile, with COVID-19, urban dwellers are increasingly seeking exposure to nature and interactive, vibrant public spaces to improve their wellbeing.

We see opportunity for innovation at the intersection of trees, technology, and the digitization of urban infrastructure planning. Not only is it vital for urban natural assets to be more effectively integrated into the planning of cities for the future, but technologies that are becoming ubiquitous could themselves facilitate this. With the introduction of 5G, UBC campus offers a space to create a living, responsive, and dynamic lab through the use of smarter technologies for the management of natural assets and other nature-based solutions. In short, we are trying to envision what urban ecosystems might look like ten, 20, or even 50 years down the line.

In partnership with Campus and Community Planning, and with support from the Rogers-UBC 5G partnership, Mitacs, and the Campus as a Living Lab initiative, we are piloting data-driven software and hardware-based solutions that address key challenges facing Canadian cities. Our interdisciplinary research team comprises faculty, students, and other highly-qualified personnel across the faculties of Forestry, Applied Science, and the Sauder School of Business.

Digital technologies – including ground-based sensors and unmanned aerial vehicles – will form a system that will allow green infrastructure on campus to directly engage the UBC community over the 5G network. This interactive approach will shed light on human-nature relationships, characterize human and ecological responses to environmental change, and play an instrumental role in supporting ethical, data-driven planning in the Lower Mainland. There is also potential for developing a broader, national standard for greener and more sustainable smart cities, along with industry collaboration and engagement.

This work will contribute to UBC’s sustainability initiatives and will inform current and future development on campus. The promotion of physical and psychological wellbeing, as well as equitable access to, and experiences of, green space, will figure heavily in data acquisition, analysis, and subsequent decision-making processes. As we move forward with this research, connecting with municipal, industry, and not-for-profit leaders to validate our technology solutions will also be integral in ensuring that these technologies are part of an integrated approach to natural ecosystem service management.

Natural asset and green-blue infrastructure management has been identified as a priority investment area by federal and municipal governments, and there is increasing recognition that combining both low- and high-tech solutions can address the varied and complex challenges that cities face. Our hope is that the development of this system at UBC will not only advance data and software systems at the university by leveraging 5G, but will also pave the way for innovative ecosystem management strategies across Canada.

Sophie Nitoslawski is a PhD Candidate in urban forestry (s.nitoslawski@ubc.ca). Dr. Angela Rout is a postdoctoral fellow, jointly working in the Faculty of Forestry and the Urban Data Lab (angela.rout@ubc.ca). Ibrahim El-Chami is a graduate researcher jointly appointed through the Faculty of Forestry and the Department of Electrical and Computer Engineering (Ibrahim.elchami@ubc.ca). Natasha Mattson is a research assistant affiliated with the Urban Data Lab (natasha.mattson@ubc.ca). Dr. Lorien Nesbitt is an Assistant Professor in the Faculty of Forestry and is the principal investigator on this project (lorien.nesbitt@ubc.ca).
Genomics in Society is a collaborative initiative to develop original multimedia online educational materials tailored to the British Columbia (BC) high school science curriculum on the topic of forestry genomics. Genomics in Society is centered on making connections between forestry, genomics and Indigenous communities—these three pillars have been integrated into all levels of the work done. The three pillars have been particularly central to the materials developed given that the overarching aim is to place current forestry genomics research in the context of Indigenous traditional knowledge, forest industry, and a changing climate. The resources we created are interactive, complex genomics content is distilled to a basic level, and navigating the content is simple. All of the educational materials developed will be made available for free in an online repository and portions will be made downloadable to enhance accessibility.

This work is interdisciplinary and shares primary research in the form of audio clips from current researchers in the field of forestry genomics. These researchers include graduate students, post-docs, and professors from the Faculty of Forestry and various Canada-wide research projects. The forestry genomics case studies covered share a common theme of improving forests to better adapt to climate change impacts and include topics such as host resistance to forest pathogens, assisted migration & assisted gene flow, and the genomic basis of drought tolerance in trees. Through their work with tree species such as Douglas-fir, lodgepole pine, western larch, and black cottonwood, the genomics researchers interviewed also explain how advancing genomics technology, such as high-throughput sequencing, and classical genomics field methods, such as gardens, are used to study these valuable tree species. In addition to the audio clips from interviews with current researchers, some of the main educational tools included in the content are interactive maps, animated videos, vocabulary lists, supporting resources, interview transcripts, and slideshows.

This project has faced several challenges, most notably the ongoing Covid-19 pandemic. Mirroring the need for tree species to adapt to climate change impacts, we adapted to Covid-19 impacts by shifting the original plan to create in-person classroom resources to creating virtual resources on an online-only platform. Another challenge faced, due to the pandemic, was a successful outreach with Indigenous communities. Forging meaningful relationships with Indigenous communities is a long-term process that cannot be constrained by institutional project timelines, and a shifted objective that came from that lesson is that this project should be creating resources that can be adapted and built upon in response to feedback and developing knowledge. The progress of this project has involved learning, unlearning, and understanding different ways of knowing, and a goal of the project is to reflect and acknowledge those teachings in the educational materials created.

The Genomics in Society initiative intended to connect Indigenous communities, BC high school students, educators, and any other interested individuals with educational materials on the topic of forestry genomics. The educational materials developed from this process will foster a greater community-level understanding of genomic-based applications in forestry in the context of Indigenous culture, forest industry and climate change. Genomics in Society’s resources are unlike other forestry genomics resources created to date and they will aid in furthering the field of forestry genomics by highlighting the importance of current research in response to a changing climate, making connections to Indigenous knowledge, and identifying knowledge gaps that require further research. A beta test of these educational materials will be made available at: genomics.forestry.ubc.ca by March 31st, 2021.

Priya Puri is a BSc graduate of the Forest Sciences Honours program. She can be reached at ppuri@mail.ubc.ca. Dr. Gary Bull is a professor with the Department of Forest Resources Management. He can be reached at gary.bull@ubc.ca
Mounting concerns and urgency over environmental pollution and fossil fuel depletion has led to a number of exciting innovations, including right here at the University of British Columbia. UBC researchers have developed a cellulose ink for 3D printing, with the potential to supplant plastics in various applications.

Cellulose is the most abundant polymer on earth, and for thousands of years it served as the primary source material, before the rise of petroleum-based plastics. Today its primary industrial application is pulp and paper. However, annual plant production of cellulose is much greater than plastics production. This lends support to the possibility that if cellulose performance and the number of applications can be expanded, it has the potential capacity to satisfy demand for plastics materials—and 3D printing could hold the key.

3D printing is an advanced manufacturing technology that can create objects with a high level of complexity and customization. The technology has been well adopted for various materials including polymers, metals, ceramics and cement. However, its application with bio-based polymers, especially cellulose, has been limited. This is due to the poor processability of cellulose—for example, it cannot be melt processed, or easily dissolved in green solvents.

To address these challenges, UBC researchers have developed a water-based cellulose ink that can be 3D printed into various shapes. Within a single cellulose fiber found in paper and tissue, there are millions of cellulose nanofibrils bundled together. These cellulose nanofibrils bundles can be separated chemically or mechanically, forming a paste that can be used for 3D printing. Using a commercial 3D printer, cellulose structures of various shapes and sizes can be created, including wood log piles, honeycomb, and human ears.

Researchers continue to explore how to finetune the properties of the 3D printed cellulose structures by manipulating the interaction between cellulose nanofibrils. For example, a 3D-printed, stiff and rigid cellulose structure can withstand over 15,000 times its own weight without collapsing. The honeycomb structure can be used as thermal insulation panels for buildings and construction.

In another example, a soft, flexible, and super-elastic structure was printed, which demonstrated fast recovery after being compressed—properties that had not been previously reported. Just like paper becomes soft when wet, the cellulose nanofibrils within the 3D printed structure also become flexible when surrounded by water molecules. In the presence of salt and water molecules, the 3D printed cellulose structure showed ionic conducting performance, responsive to the degree of compression. This can be used to fabricate pressure sensors for medical or industrial applications, for example, to monitor body movement or pulse during exercise.

Such 3D printed cellulose structures have potential applications in various fields, including flexible electronics, biomedical, building and construction, and food packaging. Their capabilities need to be explored by combining knowledge and skills in chemistry, nanotechnology, and advanced manufacturing. Cellulose has great potential for advanced materials design—it is the material of the future.

**Dr. Feng Jiang is an Assistant Professor in Wood Science at the Faculty of Forestry. He is also the Canada Research Chair (Tier II) in Sustainable Functional Biomaterials. He can be reached at feng.jiang@ubc.ca**
ALUMNUS WHO WORKED ALL OVER THE WORLD WANTS STUDENTS TO DO THE SAME

In his lengthy career Dr Patrick Duffy (BSF 1955) has worked in over 40 countries. From 1967, when he worked as a land classification specialist in Australia, to 2012, when he advised on the environmental impact assessment of fish farms in Cambodia, Patrick has worked on a wide range of international projects for governments, industry, and non-governmental organizations.

More than most, Patrick understands the value of international work experience. And so, he established the Patrick Duffy International Work Experience Grant to provide financial support to Forestry students doing co-op work terms outside of Canada.

“Forestry is a global discipline these days, and international organizations are looking for highly skilled students,” he says. “The challenge is that many excellent non-governmental organizations can’t offer wages, or can only cover living expenses but not the cost of travel. I don’t want students to miss out on these incredible opportunities for financial reasons alone.”

Alana Gonczar is a fourth-year student in Forest Sciences. As a Patrick Duffy Grant recipient, she spent a co-op work term at an 800-hectare nature reserve in central Ecuador. Alana wanted to learn more about tropical species and ecology, and how nature reserves operate.

Alana reports, “One of my favourite activities was making coffee and chocolate, working through the process from raw bean to the final product – and then getting to eat it,” she says. “I also learned a lot from constructing a seedling nursery and assisting with research on mushroom biodiversity.

“This co-op term allowed me to improve my communication skills, gain a new perspective on the many ways to reuse materials, and develop personal and professional connections in South America,” she says. “I would like to thank Patrick greatly for helping me go on this work term and have this amazing experience.”

Patrick received a Masters in Forestry from Yale University and a PhD in forest land productivity from the University of Minnesota. He chaired the 1972 Federal Task Force on the Canadian Environmental Impact Assessment Policy and Procedure. In 2004 he was the co-founder and coordinator of the Agriculture, Forestry and Fisheries section of the International Association for Impact Assessment (IAIA). For these he received the 2013 IAIA Outstanding Service Award.

With a passion for sharing his knowledge and experience with Forestry students, Patrick has been a mentor in the UBC Tri-Mentoring Program for 20 years. “I have mentored about 40 students so far, and as many at IAIA conferences. It’s a wonderful process,” he says. “I’m currently mentoring two very capable Forestry undergraduate students – one senior, one junior.”

Patrick encourages other alumni to support this International Work Experience Grant. “I consider this grant to be a pilot project so far; I have seeded it to get it off the ground,” he says. “But there are more students who deserve to have international work experiences than the Grant can support right now. Additional donations would make a huge difference to these students.”

For more information on how you can support Forestry students, please contact Emma Tully, emma.tully@ubc.ca.
Each year, alumni UBC recognizes outstanding alumni across all faculties who have enriched the lives of others and significantly contributed to the University. In 2020, one of the Alumni Builder awards went to Domenico Iannidinardo (BSF 2001) for his continuing support of Forestry students.

In his current role as chief forester and vice president of forest and logistics at Mosaic Forest Management, Domenico ensures that forest land is available for UBC researchers and Forestry student field trips. He serves as a Tri-Mentor to Forestry students, and participates in regular syllabus review processes.

In addition, he was instrumental in establishing a new UBC student award for Indigenous Forestry graduate students in 2018 through Mosaic. Seraphine Munroe, the first recipient of the award, said, “If forestry companies can help advance the education of Indigenous students, it shows they are making advances toward reconciliation.”

After graduating with a BSF in 2001, Domenico achieved concurrent registration as a professional forester (RPF), engineer (P.Eng.) and biologist (RPBio), the first person in B.C. to do so. He went on to receive an MBA from Royal Roads University.

He initially worked with Mosaic predecessor companies, Pacific Forest Products and TimberWest, where he was first appointed chief forester and vice president in 2013. Mosaic is the largest private land timber producer in Canada, and includes lands that were the first in Canada to become certified to the Sustainable Forestry Initiative in 2000.

In 2018, Mosaic Forest Management was created through the affiliation of Island Timberlands and TimberWest.

In September 2020, Mosaic became the only forestry company in B.C. to achieve Progressive Aboriginal Relations (PAR) Silver Level Certification, a signal that the company is a committed partner in achieving positive outcomes in Indigenous relationships. The PAR program is operated by the Canadian Council for Aboriginal Business, and was established in 2001.

“I’m very proud to lead our PAR program,” Domenico says. “Working with our employees to achieve these high standards is part of our commitment to prosperity in Aboriginal communities and Indigenous timber supply.”

Also, through Mosaic, Domenico ensures that land is available to UBC researchers for studies and to students for field trips. "We usually host field trips for six or seven courses each year, and I participate whenever I can," he says.

In 2020 Domenico joined the UBC Forestry Tri-Mentoring program, which helps students explore their career ambitions, gain confidence, and learn how to market themselves. “I’m thoroughly enjoying mentoring the students I’ve been partnered with,” he says. “Everyone has mentors in their lives, and I am pleased to help students, especially during these unusual times through the global COVID-19 pandemic. At Mosaic, we had to cancel our summer student program in 2020 and freeze all hiring, which was an unfortunate setback. 2021 is looking much brighter so far.”

Domenico also serves as industry co-chair of the Forest Genetics Council, Chair of the Canadian Association of Forest Owners, and is the past president of the Association of Professional Biology, which represents over 1,000 biology professionals in western Canada.

Most recently, Domenico has joined the Forest Summit Task Force on Knowledge, Skills and High Quality Persons, led by Professor Sally Aitkin, associate dean, research and innovation. This task force is one of six charged with developing a recommended action plan to realize the shared vision that emerged from the Forest Summit in February 2020.

In 2016, Domenico was named one of B.C.’s Top Forty Under 40 by Business in Vancouver magazine. In 2014, Canadian Forest Industries named him one of the Top 10 Under 40.

The UBC Alumni Builder Award was created in 2017. Domenico becomes the sixth UBC Forestry alumnus to receive the award. The Faculty of Forestry congratulates him on this well-deserved honour.

If you have an alumni story, please contact Michelle Lindsay at michelle.lindsay@ubc.ca or 604.827.0297.
FROM DELHI TO DOUGLAS-FIR: AN ALUMNA’S JOURNEY

An education and years of work in India has led Monika Singh (PhD 2015) to a senior advisory role with First Nations Relations in the BC government. Not exactly a straight-line career, but the threads of policy analysis, rural development and community engagement run through all of Monika’s work.

Born and raised in New Delhi, Monika considered herself a city girl, although she cherished the time her family spent in their rural ancestral village. “I grew up listening to stories of bravery, compassion, and social justice; they formed my mindset,” she says.

Originally intending to become a doctor, by the end of middle school she realized chemistry wasn’t for her and had to let that dream go. Later, a social work course lit her spark for working with rural communities, but at that time social work wasn’t offered as an undergraduate degree.

“So I needed to find a subject that would suit my interests and give me a breadth of learning in university,” she says. “Geography gave me different perspectives for looking at the world and at the interactions between humans and nature.”

Monika received a BA in Geography from Delhi University in 1989, then went on to receive a MA in Social Work from the Tata Institute of Social Sciences in 1991. “After gradua-

tion I worked for a nonprofit organization that focused on joint forest management before I started a 2-year research program with the University of Edinburgh,” she says. “I had the opportunity to live and work in tribal communities. I became part of the family, and was even included in important ceremonies.”

Following that program, a brief stint as a faculty member at the Tata Institute, and a job in another nonprofit organization, Monika felt she needed new opportunities for professional growth. “I started attending international conferences and became a member of the Center for International Forestry Research’s Poverty and Environment Network. Then in 2003 I found out about UBC at a booth at the World Forestry Congress,” she says. “I picked up a brochure, thought about doing a PhD, and then contacted John Innes because his research was similar to my own interests.”

Monika came to UBC in 2007, and completed a PhD in Natural Resources Management in 2015. Her research focused primarily on the people-forest relationship, focusing on cultural and legal aspects of forest management. She carried out field work for her research working with the Tla’amin First Nation in British Columbia, Canada, and the Bhils in Gujarat, India.

“I expected to find a lot of differences between tribal communities in India and First Nations communities here. Instead, I found a lot of similarities. Every time it happened I was surprised! The similarities in belief systems, in culture, even in the ceremonies,” she says.

During her PhD research, Monika kept her options open. “I was unsure about staying in Canada or going back to India, and I even went back for eight or nine months at one point,” she says. Even after receiving permanent residence status in Canada, Monika was still open to staying or going. “But then I got a job in the BC public service, and it was so fantastic I decided to stay.”

Monika is now the Senior Advisor, First Nations Relations, in the Ministry of Forests, Lands and Natural Resources Operations. She leads a team in the District of 100 Mile House. “My role is to build bridges between indigenous communities and the government, removing inequalities and social barriers,” she says.

Monika sees her diverse background as an asset in her work. “I was brought up in the city, but also lived in rural communities. I was raised in Indian culture, then I adapted to Canadian culture. Even the way I was taught in India and in Canada was different. So much of my personal history allows me to see things from different perspectives.”

“What keeps me going and interests me most is knowing that I am making a difference, even if it’s small or a drop in the ocean. I feel that I make a positive contribution,” she says.
Save the Date! You’re Invited to:

The Faculty of Forestry Recognition Evening
Date: Thursday, April 29th, 2021
Time: 5:00pm – 6:00pm

Please join Dean John Innes, alumni, donors, students, faculty and friends for our first virtual evening of celebration and recognition. You will hear from some of today’s student award winners, help recognize this years Alumni Builder Award recipient, Mr. Domenico Iannidinardo (BSF’01), and take a walk down memory lane to celebrate 100 years of Forestry at UBC.

We are also delighted to welcome special guest, Professor Andrew Szeri, Provost and Vice-President Academic, who will help us acknowledge and celebrate some of the outstanding accomplishments that Dr. John Innes has presided over during the past 11 years. John will end his second and final term as Dean of the Faculty in 2021.

We hope you can join us from the comfort of your home with a glass in hand for this special occasion.

Please RSVP online at: https://forestry.ubc.ca/alumni/events/
or contact Debbie McPherson at debbie.mcpherson@ubc.ca or 604-731-3165 for more information