



branchlines

Volume 31#1 Spring 2020



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dean's message



At the time of writing this, we are entering a time of very considerable uncertainty. The University has just announced that the last three weeks of courses will be delivered online, and is looking at ways to administer examinations remotely as many students are wishing to return to their homes. As a Faculty, we have been able to manage the transition to online learning well, but we have very regrettably had to cancel this spring's field courses. UBC has cancelled all international courses, and so we will not be sending students to China and Ecuador this spring. The situation is constantly changing and we are adapting rapidly as new information and restrictions arise.

The transition to online learning raises a number of questions about the future. While the value of face-to-face teaching is undoubted, not everyone can do this. For the past few years we have been developing a number of new online courses, adding to the courses that have long been available. Most of these were designed to be taken at the graduate level or by people already in jobs and unable to spare the time to attend a full university-based course. The current, temporary, move to online course delivery for all undergraduate courses is likely to have longer-term ramifications and ultimately may have impacts that extend long beyond the next few weeks. It is also an opportunity to rethink the balance between face-to-face and online course delivery, and to introduce new learning practices. Digital technologies are advancing rapidly, and we have the opportunity to take advantage of these in our teaching.

Concerns about the Coronavirus disease (COVID-19) virus are also having economic impacts – generally adverse. It comes at a time when the forest sector in British Columbia is already struggling. After a bumper year in 2018, when lumber

prices reached dizzying highs, 2019 saw prices fall to very low levels. The economic uncertainties in 2020 seem likely to see significant continuing difficulties for the forest sector. However, as within the Faculty, crises often provide opportunities for significant change and innovation. Such change generally only occurs when the crisis is sufficiently deep that entrenched interests realize that maintenance of the status quo is no longer an acceptable option. In British Columbia, that entrenchment is very evident in the government bureaucracy, and it is clear that if it is unwilling to engage with stakeholders and explore opportunities, little change is likely to happen.

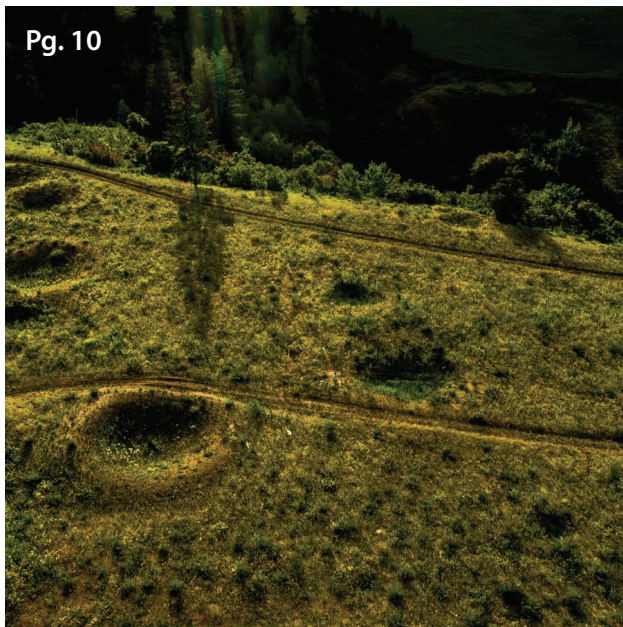
What is clear is that there is a substantial appetite for change in many quarters – and this is largely reflected in the future-oriented research and activities in this edition. On page 11, we provide a brief report of Forests Summit 2020, a meeting hosted by UBC Forestry last month. The summit brought together a large number of leading thinkers to discuss what the forest sector of British Columbia, broadly defined, might look like 50 years from now. The idea behind the meeting was to identify a broad-based vision for the sector, and to start thinking about potential ways that this vision might be achieved. The meeting was able to draw upon the experience of individuals who had advocated successfully for change in the past, including Royal Commissioner Peter Pearse, members of the Clayoquot Sound Scientific Panel, individuals involved in the Great Bear Rainforest agreement, and some of those involved in more recent discussions, such as the groups working on regional changes in the BC interior. A number of community interests were present and there was significant attendance from the Indigenous community.

While the rich material generated by the meeting is still being analyzed, one of the most surprising outcomes was the finding that the many disparate groups involved in the forests of BC actually have a very similar vision for the future. However, the challenge will lie in identifying possible pathways that could be taken to achieve this vision. We are now preparing the report from the meeting, and it is clear that this will only be a first step in the process. Many people who wanted to be at the summit were unable to attend, and we will be looking to ensure that their voices are included as we move to the next steps in the process.

John L Innes

Professor and Dean

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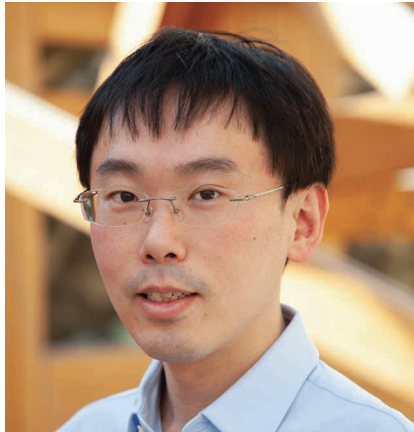
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NEW APPOINTMENTS



Dr Qingshi Tu recently joined Department of Wood Science as an Assistant Professor in Industrial Ecology. Prior to UBC, Qingshi is a Postdoctoral Associate at Center for Industrial Ecology at Yale University, conducting research for the nexus between Resource Efficiency and Climate Change (RECC). Qingshi received his PhD in Environmental Engineering from University of Cincinnati, OH, USA. His research at UBC will focus on combining industrial ecology principles with computational modeling to promote the sustainable development of bioeconomy. He can be contacted as Qingshi.tu@ubc.ca.



Dr Pia Smets recently joined the Faculty of Forestry as the research and awards development officer, a position shared by UBC Forestry and Support Programs to Advance Research Capacity (SPARC). She is ready to assist faculty members with extensive assistance including advising on and editing grant proposals; identifying and providing information about potential funding sources and competitions; identifying research awards that faculty members may be eligible for; and assisting in the preparation of nominations. She can be reached at pia.smets@ubc.ca



Sean McGuire recently joined the Faculty's Development and Alumni Engagement team in the role of development officer. Prior to UBC, Sean was the grants and partnerships manager for the Celtic Cross Charitable Foundation in Vancouver. Previous to that, Sean was in London, UK, working with Imperial College London and Operation Smile UK where he held a number of corporate partnerships, outreach, and engagement roles. Sean is originally from British Columbia and has a keen interest in science and education. He can be reached at sean.mcguire@ubc.ca.



Tara Lee joined the Department of Wood Science in July as an Instructor of Communications Strategies. Previously, she taught for thirteen years in the Department of English Language and Literatures, specializing in academic writing, critical race theory, Canadian studies, as well as British, dystopian, and children's literature. In addition to completing a PhD in Asian Canadian Literature and a BComm in Accounting, Tara has worked as an ESL teacher, editor, journalist, broadcaster, copywriter, and blogger. She can be reached at tara.lee@ubc.ca.

AWARDS AND RECOGNITION

FACULTY TEACHING ASSISTANTS RECEIVE JORDAN L. BURKE MEMORIAL AWARD

The first two graduate teaching assistant award winners of the Faculty of Forestry's newly established Jordan L. Burke Memorial Award in Forestry were recently announced. Kathleen Coupland (PhD, Griess) was named the award's first place winner for her teaching assistance with three undergraduate courses, (ENVR 200, FRST 232 and FRET 452), and three graduate courses, (FRST 555, FRST 557 and FRST 558), with the Master of Sustainable Forest Management (MSFM) program 2019/2020 cohort. Her nomination was supported by several course instructors, undergraduate

and graduate students as well as fellow teaching assistants. Stefanie Lane (MSc, Richardson) was named second place winner for her work with four undergraduate courses, (FRST 200, FRST 399, UFOR 495, and CONS 330). Her nomination was also supported by several course instructors and 13 undergraduate students.

This is the inaugural year for this award, made available through an endowment established in memory of Jordan L. Burke (1982-2019) for graduate students in the Faculty who have demonstrated a passion for teaching in their roles as teaching assistants.

Jordan (BSc, MSc, PhD 2016) was a postdoctoral research and teaching fellow with the Forest Insect Disturbance Ecology Laboratory in the Faculty. His research focused on the mountain pine beetle's range expansion in British Columbia and Alberta. This award was established in recognition of Jordan's legacy as an enthusiastic and encouraging instructor.

Anyone interested in learning more about Dr Jordan Burke's legacy or contributing a donation to the memorial fund please visit memorial.support.ubc.ca/jordan-burke/.

CHERYL POWER, RFP, IS RECOGNIZED FOR OUTSTANDING WORK IN CARING FOR BC'S FORESTS

Cheryl Power, the Faculty of Forestry's Malcom Knapp Research Forest assistant manager, received the Association of BC Forest Professionals' Distinguished Forest Professional Award for an RFP at the association's annual conference in Nanaimo in February.

Cheryl was one of five recipients of the award, which is peer-nominated by other BC forestry professionals. It is the Association's highest honour for a member in recognition for work that furthers the association's principles and significantly contributes to the betterment of forestry.

Cheryl is a BC Registered Professional Forester and graduated with her Bachelor of Science in Forestry from the University of British Columbia's Faculty of Forestry (1984). For 30 years she has been a leader in the Faculty's field schools, involved in the training of thousands of new professional foresters. At the Malcolm Knapp Research Forest, she has extended scientific knowledge about forestry and BC's forests, to countless members of the public and the thousands of international visitors to BC.



UBC FORESTRY STUDENTS AWARDED SCHOLARSHIPS AT TRUCK LOGGERS ASSOCIATION CONVENTION



Six University of British Columbia students were part of the esteemed forestry education scholarship winners recognized at this year's 77th Annual Truck Loggers Association (TLA) Convention & Trade Show held in Vancouver this past January.

Among them was second-year forest operations student Kyle Bishop, who received the Bert Welch TLA scholarship award. Bert Welch of Olympic Logging in Qualicum, BC was one of the founding members of the TLA. Bishop says he plans to graduate with a RPF designation and a professional engineering license.

Second-year forest operations student Charlie Richards was also awarded with a Bert Welch TLA scholarship. Like

Kyle, he hopes to graduate with an RPF designation and professional engineering license.

Matthew Bavis received the TLA David Husby Memorial Award in forest operations. The award is presented to an individual who embodies what David became known for within the industry – an innovative entrepreneur who grew his independent forest company into the largest of its kind on BC's coast. Matthew, who is also majoring in forest operations, says he plans to become a forest manager who looks for innovative ways to harvest and transport forest products using the most sustainable methods possible.

The three TLA scholarship award winners were Jelena Radovanovic, Antonio Pamintuan, and Ian Harris.

Jelena is currently in her first year of studies. She says she plans to obtain a professional engineering license and use it in a job where she can explore her love of biology.

Antonio is a forest resources management student who says he is already planning to return to UBC for the Master of Sustainable Forest Management program once he has completed his undergraduate degree and a few years of working in the industry.

Ian indicates he too is after his RPF designation and hopes to gain as much industry exposure as he can upon graduation.

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.

Team of scientists takes aim at source of BC's catastrophic fires

January 31 2020, published in *The Province*, Dr Lori Daniels

If the catastrophic fire seasons of 2017 and 2018 are the new normal, it won't matter what BC electrifies in its battle for carbon neutrality. In each of those years, wild-fires in this province unleashed almost 200 million tonnes of CO₂-equivalent greenhouse gases, or three times the amount of carbon dioxide from all human activities, according to Werner Kurz, a senior scientist at the Pacific Forestry Centre in Victoria. To reverse that trend, our forests will need a serious design overhaul. A team of scientists from the United States and Canada is undertaking a four-year partnership to find ways to achieve emission reductions from wildfires through landscape management, fuel load reduction and the creation of a bio-economy that makes use of forest waste.

To read the full article and Dr Lori Daniels' comments, visit [theprovince.com/news/local-news/designing-a-more-resilient-forest-team-of-scientists-takes-aim-at-source-of-b-c-s-catastrophic-fires/wcm/4d5fe5c6-8124-4453-904a-a18c945f03dc](https://www.theprovince.com/news/local-news/designing-a-more-resilient-forest-team-of-scientists-takes-aim-at-source-of-b-c-s-catastrophic-fires/wcm/4d5fe5c6-8124-4453-904a-a18c945f03dc)



Forest mapping project aims to protect Gulf Islands' endangered ecosystems

January 19, 2020, published on *CBC.ca*, Dr Peter Arcese



The federation of local governments that serves British Columbia's Gulf Islands wants to map forests within its boundaries as part of its efforts to conserve sensitive ecosystems and mitigate climate change. Islands Trust recently issued a request for proposals to map connected forests of the 13 major islands and more than 450 smaller ones between the Lower Mainland and southern Vancouver Island. Kathryn Martell, an ecosystem protection specialist with Islands Trust, says the federation is working to protect the sensitive Coastal Douglas-fir zone – one of the most threatened in BC, which includes the endangered Garry Oak ecosystem – as part of its conservation plan. "We know that one of our best ways of mitigating the effects of climate change is to protect intact forest ecosystems," Martell said. "With more accurate mapping and data, that enables the Islands Trust to better protect sensitive areas and also to better understand what areas are more suitable for development."

To read the full article and Dr Peter Arcese's comments, visit cbc.ca/news/canada/british-columbia/gulf-islands-mapping-project-1.5432391

Searching for the Yukon River's missing Chinook

December 19, 2019, published in *The Narwhal*, Dr Scott Hinch



In the beginning, freshly hatched from the luminous prison of their eggs, the Chinook appear in the river as minnow-sized fingerlings, barely recognizable as fish. Ravenous with the needs of their rapidly growing bodies, they eat insects, phytoplankton, nymphs: anything that will fit into their mouths. Should these thumb-sized gluttons manage to avoid becoming an hors d'oeuvre for a legion of would-be predators – gulls, pike, trout, kingfishers – the fry will eventually make their way some 3,000 kilometres down the Yukon River to the Bering Sea. Once there, they will enter the salt water, spending between four and six years in the ocean and growing to a tremendous size. The largest and most reproductive fish can push 14 kilograms, although much larger fish have been recorded.

To read the full article and Dr. Scott Hinch's comments, visit thenarwhal.ca/searching-for-the-yukon-rivers-missing-chinook/

UBC study finds caribou habitat restoration may be ineffective in the short term

November 28, 2019, published on CTV.ca, Dr Cole Burton



A new study done in northeastern Alberta suggests habitat restoration may not be enough to save threatened woodland caribou, at least in the short term, and researchers at the University of British Columbia say their results make the case for a more rigorous analysis of conservation methods. Much of the caribou habitat in western Canada has already been degraded by industrial activities, such as oil and gas exploration, so one of the key tools being used to protect caribou is habitat restoration, said Cole Burton, the senior author of the study and a forestry professor who leads the wildlife coexistence lab at the university. But wildlife responses to habitat restoration are often assumed rather than verified, the study says. The researchers set out to monitor caribou and their predators, such as black bears and wolves, as well as other prey like moose and white-tailed deer in both restored and unrestored habitat areas between 2015 and 2018.

To read the full article and Dr Cole Burton's comments, visit bc.ctvnews.ca/ubc-study-finds-caribou-habitat-restoration-may-be-ineffective-in-the-short-term-1.4706460

Bad fire seasons can come in bunches but so can quiet ones

January 13, 2020, published in *The Vancouver Sun*, Dr John Innes



BC has rarely seen a decade of wildfire damage like the one we have just lived through, with losses fuelled by record-shattering fire seasons in 2017 and 2018, with more than a 2.5 million hectares burned in just two summers. That is more than any decade in the past 100 years. You have to look back to 1958 to find a year even close to being so catastrophic and to the 1920s for decade that rivals the 2010s.

"Each year is a single case, but overall we've got to expect that our fire risk is increasing," said associate professor David Scott, research chair in watershed management at UBC Okanagan. "We should expect larger areas to burn and that's the big picture." The smaller picture is a bit more complex. Although the general trend is toward hotter, dryer forests, clusters of bad fire seasons have historically been interrupted by cool, quiet periods that sometimes last four or five years at a time, according to data from the Ministry of Lands, Natural Resource Operations & Rural Development. The summer of 2019 was a very quiet fire season, with less than 10 per cent of the area burned compared to the current 10-year rolling average. The Earth's temperature has been climbing since the 1850s, the end of a 500-year "little ice age." Greenhouse gas emissions have recently accelerated that rise, said John Innes, dean of UBC's faculty of forestry.

To read the full article and Dr John Innes' comments, visit vancouver.sun.com/news/local-news/a-long-view-of-wildfire-losses-in-bc

Star on the Rise: The UBC Forestry Program

January 9, 2020, published in *City Trees Magazine*, Dr Susan Day and Dr Cecil Konijnendijk

In January 2019, Dr Susan Day joined forces with Dr Cecil Konijnendijk in the Department of Forest Resources Management of the University of British Columbia in Vancouver BC. Konijnendijk came to UBC in 2016 to teach urban forestry courses, develop the Master of Urban Forestry Leadership (MUFL) program and lead the UFORIA (Urban Forestry Research in Action) lab at UBC. Day teaches urban forestry courses, including Arboriculture Principles and Practice and Ecology of Urban Green Infrastructure; she directs the urban forestry undergraduate program and she is developing her research lab, tentatively called the Urban Forest Ecosystems Lab.

To read the full article visit read.dmtmag.com/i/1198176-january-february-2020/21?m4=

NEW FORESTRY MENTORSHIP TEAM PROVIDES STUDENT EXTRA SUPPORT

Joris Jun and Yuhan Kang



Part of the Inclusive Forestry Peer Mentor Team (From top left - Xinyu Zhu, Zhengyang Ye, Yating Yang, Haiwen Zhang, Yuhan Kang, Yu Luo, Boxuan Hu, Ziqi Zhou, Jiayi Song, Siwei Chen, and Sitong He. The others are Bingqian Li, Jiaqi Li, Yangqian Qi, Shixin Zhao, & Yaying Zhou)

Orientation in the first few months after arriving at UBC is now much easier for some transfer students, thanks to the new Inclusive Forestry Peer Monitoring Program (IFPMP).

For the past 11 years, students from China have arrived to study in undergraduate transfer programs, also referred to as “2+2/3+2” programs. Students begin their academic career at one of the Faculty’s partner universities in China and transfer to UBC for the final two years of their degree program.

Joris Jun, transfer program coordinator, introduced the IFPMP to welcome and orient the transfer students to the social, academic, and physical environments of UBC. Previous transfer students serve as mentors to provide students with guidance and first-hand experience.

“With the help of the IFPMP, new transfer students can build and shape their student experience in a safer and more comprehensive way, and the Faculty will be able to take initiative to help them,” said Jun. “It also provides opportunities to engage with their peers, student leaders, staff, and faculty members in impactful ways that lead to the development of positive social networks, friendships, and sense of belonging.”

After arrival students participate in a three-week orientation and one-week bootcamp including life adaptation, academic

integrity, communication skills, bridging courses, and comprehensive field trips. A new three-day orientation, is also offered for students who are unable take the longer orientation.

This year’s cohort is made up of 78 students and 16 mentors, all senior undergraduate and graduate students from previous years’ transfer programs. Mentors receive training and are then paired with four to five students for bi-weekly meetings during the first term of winter session.

Participating Chinese universities include:

- Beijing Forestry University
- Nanjing Forestry University
- Fujian Agriculture and Forestry University
- Zhejiang Agriculture and Forestry University, and
- Northwest Agriculture and Forestry University (NWAUFU)

For more information about the program and how to apply visit afrc.forestry.ubc.ca/asia-forest-research-centre/programs-and-services/educational-programs/transfer-program-student-mobility/transfer-program/.

Joris Jun is the Transfer Program Coordinator for UBC Forestry’s Asia Forest Research Centre. She can be reached xuan.jun@ubc.ca.

Yuhan Kang is the Transfer Program Assistant for UBC Forestry’s Asia Forest Research Centre. She can be reached kay.9516@yahoo.com.

UBC RESEARCH FOREST PARTNERS WITH WILLIAMS LAKE INDIAN BAND ON LiDAR PROJECT

Brittany Cleminson and Rob Van Buskirk



Photo: Mitch Cheek (Solos Productions)

Aerial view towards a cultural depression (house pit) site near the Fraser River, in BC Interior

Recently Staff from Alex Fraser Reach Forest (AFRF) reached out to the Williams Lake Indian Band, to see if they would be interested in analyzing the Light Detection and Ranging (LiDAR) imagery the Faculty of Forestry had collected from the AFRF boundaries over the past few years. The band was receptive and assigned archaeologist Brittany Cleminson with the task of analyzing the data through a culturally significant lens.

While the use of LiDAR in archaeology has been popularized by the discoveries of ancient Mayan cities in Central and South America, it has a practical at-home application in BC's Interior Plateau region, where AFRF is located. Airborne LiDAR measures the height of ground surface and any features on it, and provides accurate, high-definition models of the landscape. Multi-frequency LiDAR data can be processed to remove ground cover and create a bare earth model. Such models are valuable to archaeologists because they provide comprehensive ground surface details over broad areas of land. Through an analysis of LiDAR bare-earth data, archaeologically important terrain features may be identified.

Beyond its use for in-office evaluation of natural terrain features conducive to archaeological potential, LiDAR bare earth data is also used to locate well-defined archaeological components and features. Historically, the Interior Plateau region has been populated by Indigenous Nations including the Secwépemc, the T̓silhqot'in, the Nlaka'pamux, the Stl'atl'imx, and the Dene peoples. During the pre-contact and early historic periods, Indigenous winter residences along the Fraser River were focused around semi-permanent pithouse villages in an archaeological tradition known as the Plateau Pithouse Tradition (PPT), dating from c. 4000 BP to c. 200 BP. Within the PPT, the Shuswap Horizon (4000 to 2000 BP) is characterized by large (7.5 to 16 metre diameter) pits, the Plateau Horizon (2400 to 1200 BP) by smaller (4-8.3 metre diameter) pits, and the Kamloops Horizon (1200 to 200 BP) by pits of variable diameter (5-20 metre diameters). House pits may be identified through a visual examination of the bare-earth LiDAR data where they often appear as individual and/or tight clusters of circular depressions on the ground surface.

The ability to identify natural

terrain features and well-defined archaeological features through LiDAR has several benefits and implications for archaeological practice. First, LiDAR provides additional comprehensive geospatial and terrain data for use by archaeologists conducting office-based Archaeological Overview Assessments and Office Reviews of proposed development projects. Identifying terrain features associated with high archaeological potential allows archaeologists to focus their field surveys on pre-identified potential zones, possibly saving industry proponents money that would otherwise be spent on having ground crews survey low potential areas. This, however, should be cautiously considered as bare earth LiDAR data does not account for the dispersal and distribution patterns of physical cultural material and features, including lithic and faunal artifacts, and culturally modified trees.

Desktop analysis of bare earth LiDAR data is beneficial to archaeologists in that it allows them to identify sites in remote areas - something that will undoubtedly have significant implications for archaeologists, cultural resource management companies, and First Nations. Already, independent archaeologists and First Nations are conducting case studies to test the efficiency and methodology of site recording and registration through LiDAR.

Brittany Cleminson is an archaeologist/ natural resource officer for the Williams Lake Indian Band (WLIB). She can be reached at brittany.cleminson@williamslakeband.ca. Rob van Buskirk is the resident forester at Malcolm Knapp Research Forest in Maple Ridge and Alex Fraser Research Forest in Williams Lake where he is also acting manager. He can be reached at rob.vanbuskirk@ubc.ca.

UBC FORESTRY HOSTS FORESTS SUMMIT 2020



Summit participants in facilitated workshop

UBC Forestry is proud to announce that a promising step toward a bright future for British Columbia's forests has been achieved.

With the monumental challenges facing BC's broad forest sector today, the foundations of a shared vision generated at the recently held Forests Summit 2020 at UBC have the potential to pave the way for a single, comprehensive and long term plan for our forests. The summit's discussion centred around the necessity of a holistic approach anchored on the many values of our forests, First Nations knowledge, and the role that the broad forest sector can play in mitigating the effects of climate change.

Forests Summit 2020 was unique from similar discussions and fora previously held in that it brought together numerous, highly diverse and influential voices from all parts of B.C. in one room for one highly engaged day that focused on building on strengths and commonalities. Further, the Faculty of Forestry provided a neutral, third party forum

with a carefully designed and closely facilitated agenda to ensure the summit's success.

Roughly 80 participants representing voices from communities, government including First Nations, industry, environmental groups, academia, and unions gathered for Forests Summit 2020. Dr. David Brand, UBC Alumnus and CEO of Australian company, New Forests, opened the summit with a compelling talk that offered valuable insight into the transformative forces on the world's forestry sector and potential implications for the future of BC. The day long workshop that followed utilized groundbreaking methods in facilitation to crystallize the perspectives of the group into the elements of the vision.

Dr. John Innes, Dean of the Faculty, concluded the summit by remarking on the key importance of next steps if BC's broad forest sector is to address the effects of climate change and economic and social pressures in the next 50 years successfully.

UBC FORESTRY PART OF NORTH AMERICAN RESEARCH PROJECT COMBATTING CLIMATE CHANGE

University of British Columbia Forestry professors Dr Lori Daniels and Dr Dominik Roeser have been named co-principal investigators of a North American research team who are working together to de-escalate the impact of forest wildfires that are more frequently occurring due to climate change. Simultaneously, the group, which includes scientists from the Faculty of Forestry, the Canadian Forest Service, and the USDA Forest Service, is working collaboratively to strengthen development of a forest-based bio-economy in BC.

The BC-based, university-directed Pacific Institute for Climate Solutions (PICS), recently announced \$1-million, four-year theme partnership project entitled Wildfire and Carbon: Increasing the resilience of BC's forests to climate change.

Daniels describes the project as "aiming for transformative change.

"We envisage a future where the goals of fire risk reduction, bio-economy, emissions reduction and increased resilience of the forests to climate change can be quantified, evaluated, managed, and achieved. Being able to share our Canadian and US expertise, analytical tools and data is incredibly important for ensuring the resilience of our Pacific Northwest forests, including the coastal, mountain and boreal forest landscapes."

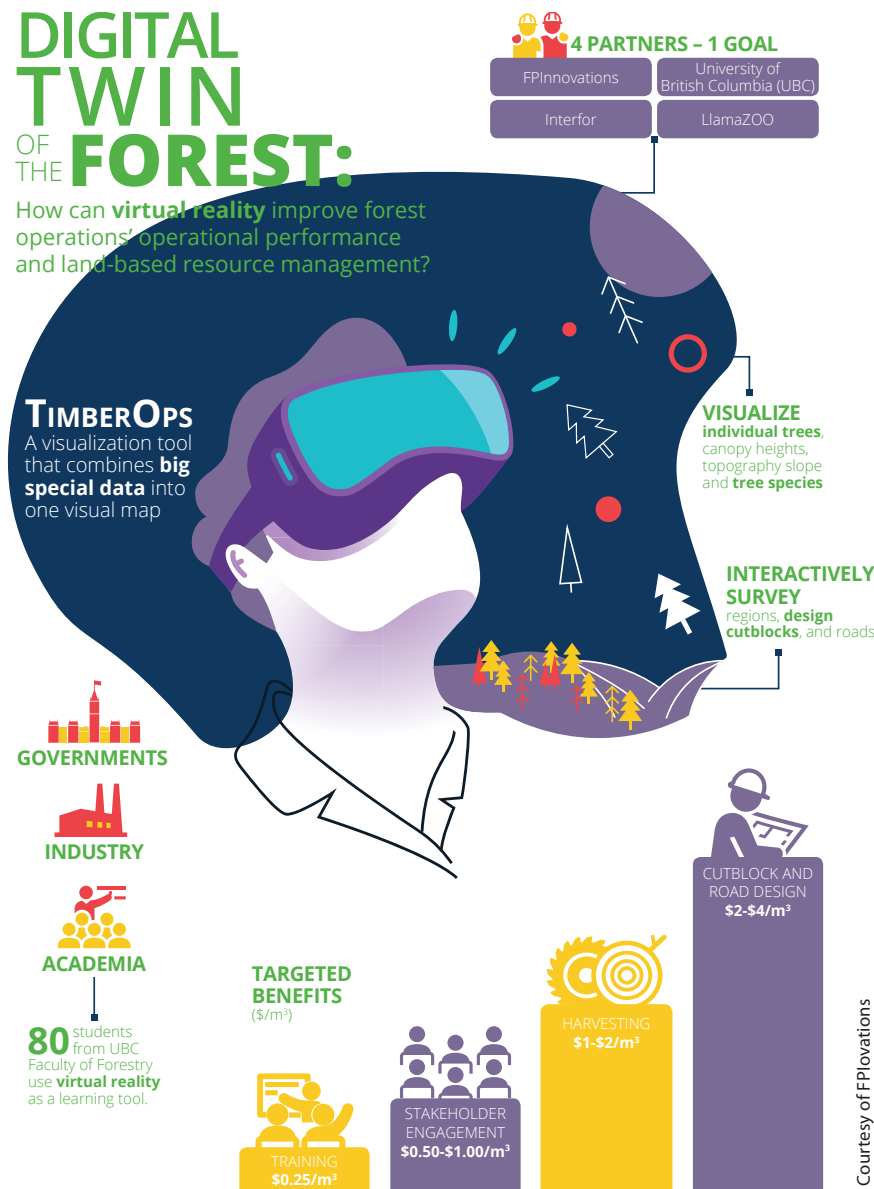
To learn more about the project, visit pics.uvic.ca/media-release/wildfire-and-carbon-increasing-resilience-bcs-forests-climate-change.

HOW VIRTUAL REALITY CAN AID LAND-BASED RESOURCE MANAGEMENT AND OPERATIONAL PLANNING

Dominik Roeser, Li Ji & Tim Caldecott

DIGITAL TWIN OF THE FOREST:

How can **virtual reality** improve forest operations' operational performance and land-based resource management?



Interfor, and FPIinnovations to develop TimberOps, an immersive visual analytics platform to improve operational planning and decision making in forest resource management.

To date, the ability to make optimal decisions is constrained primarily by access to timely, accurate, contextual information that can be quickly accessed and easily understood. The development of a digital twin of the forest represents a modern solution towards aligning the varying interests for how forest landscapes are planned, utilized, and managed. TimberOps enables users to integrate diverse forestry datasets in a vast, virtual landscape, and delivers immersive analytics experiences through the state-of-the-art Virtual and Augmented Reality (VR/AR) Head-Mounted Displays (HMDs).

TimberOps is a high-fidelity visual analytics platform that represents forestry datasets with detailed landscape and individual tree renderings, supporting the latest augmented and virtual reality (AR/VR) displays. It can be used to substitute a significant portion of expensive in-person field trips. It is designed to integrate all available datasets into one intuitive common operating picture. This provides a centralized access point and a toolset with consistent interfaces for forestry analysts and stakeholders to examine and discuss forest management plans across various objectives.

Forest management today faces many diverse challenges and interests requiring a common operating

In order to advance decision making in operational planning, it is vital that forestry professionals use the most advanced tools and technologies. The lack of an intuitive and unified visual analytics platform prevents forestry

stakeholders from fully exploiting the potential of data-driven decision-making, and is a barrier to effective multi-objective forest planning across large landscapes. To address this challenge, the Faculty joined forces with LlamaZoo,

picture for optimal management. Rapidly changing historical timber supplies – particularly in the context of natural disturbances such as fire infestation – highlights the need for better closed-loop, supply-chain-centric, decision-making tools. Forest resources in BC are largely tied to publicly-owned lands requiring public consultation and engagement. Additionally, competing interests for resource extraction, animal habitat, conservation, and recreation position the varying end-use objectives of forest resources squarely under the lens of rigorous scrutiny.

The TimberOps VR forest and lands planning tool can play a facilitation.

It provides an objective, visual, conversational tool – bridging the varying, though often complementary, forest management interests shared between stakeholders, the public and government policy. By providing a common operating picture that unifies all available data, visualization, and analytical tools in a VR-enabled virtual environment, TimberOps maximizes the use of available data to support collaborative decision-making, which can be a powerful tool in stakeholder engagement. Furthermore, the tool aims at reducing costs and increasing productivity by minimizing reliance on field trips for forest management, as

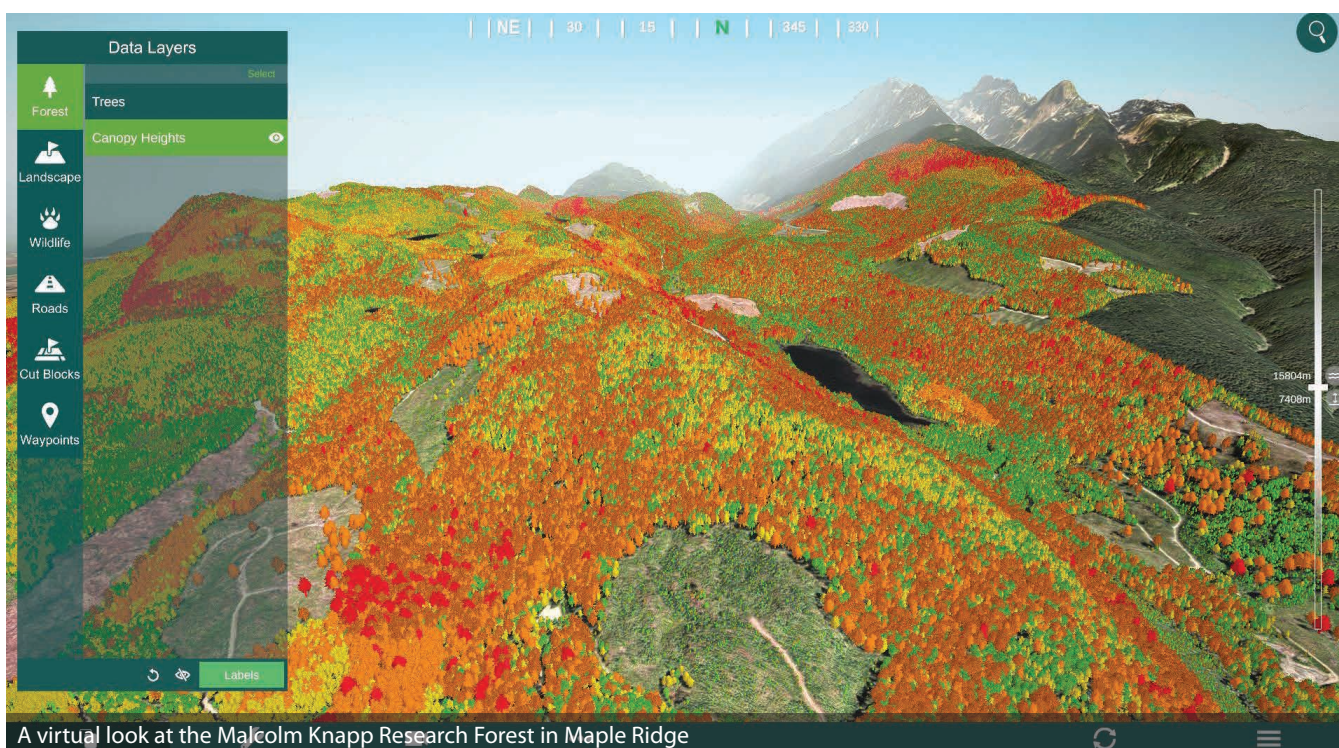
well as removing domain silos.

Projects to date include the development of a 500 ha proof of concept on Vancouver Island using Interfor's data. It was demonstrated in the fall of 2018, followed by a second phase of the project that focused on the full integration and compatibility of the tool with GIS and RoadEng. Subsequently, the UBC Malcom Knapp Research Forest in Maple Ridge (5,000 ha) was also integrated in to the platform to test, scale-up, and to validate TimberOps operational planning capabilities that can be used for teaching, research and stakeholder engagement. Future developments are focussing on the scalability of the tool, aimed at providing a fluid visualization and analytics experience for 300,000 ha when the software tool reaches commercialization. Further developments in the classroom will focus on incorporating TimberOps in the forest operations curriculum to improve the student experience in operational planning.

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Student demonstration of TimberOps in the Emerging Media Lab at UBC



A virtual look at the Malcolm Knapp Research Forest in Maple Ridge

RESEARCHING CONSERVATION CHALLENGES IN INDONESIA'S TROPICAL RAIN FORESTS

Laura María Arango Saavedra

Working on the conservation of tropical forests is my passion. Through the Faculty of Forestry's Master of International Forestry (MIF), I am able to further that passion through course work and field experience, including a recent two-month internship in Sumatra, the largest island of western Indonesia.

Sumatra is one of the world's richest biodiversity hotspots, containing some of the most biologically vibrant rainforests in the world. I interned with the Restorasi Ekosistem Riau (RER) Project, launched by the Asia Pacific Resources International Holding Company (APRIL). The project works to help offset envi-

ronmental and social damage resulting from deforestation and land use cover change, caused primarily by the replacement of original forest by palm oil, acacia, and rubber plantations. The focus of my internship was to evaluate and revise strategies to help with restoration and sustainable management plans.

Located on the Kampar Peninsula, the RER Project is committed to 1:1 conservation – one ha of natural peat forest conserved for every one ha allocated to plantation forestry. The project is one of the most successful landscape conservation operations in Sumatra. Using a "landscape approach" to ecosystem restoration, it aims to

balance the benefits forests bring to local people, while maintaining ecological integrity. Local communities strongly depend on both aspects of the project: they rely on the ecosystem services supported by the conserved peatland forests; and their prosperity is contingent on the lucrative jobs provided by APRIL, one of the biggest pulp and paper production companies in the Asia.

Biodiversity conservation plans are essential to the restoration program. Effective management of flora and fauna, and their permanence, means conserving the ecosystem services provided by forests while



Peat swamp forest in the central eastern coast of Sumatra

enhancing the livelihoods of people who depend on them. Birds play an important role in the effective functioning of ecosystems; they are sensitive indicators of the state of biological richness, endemism patterns, and ecosystem health. And their trade is important to the livelihoods of local people in the landscape. The RER area of the Kampar peninsula is recognized as having the highest number of globally-threatened birds due to deforestation, habitat destruction, and illegal trade.

Local actions that seek to minimize bird poaching and illegal avifauna trade are a priority on the RER Project restoration plan. One of the objectives for my internship was to explore long-term potential solutions to minimize the environmental impact of the bird trade, currently a traditional activity. This led me to develop an economic model that prioritized effective resource management alongside nature conservation. To implement a conservation plan for the birds, all stakeholders directly involved in bird poaching and wildlife conservation were engaged in its development, ensuring all needs and perspectives were addressed. From this, I learned that long-term potential solutions would be based on the gradual incorporation of economic alternatives that surpassed the value of trading these birds – such as ecotourism and the development of agroforestry products.

Discussions with villagers, local officials, technical bureau officials of Forest Conservation, and professors from the University of Indonesia indicated that restoration approaches must also deliver the multiple values required for this dynamic and complex landscape. This would include traditional practices (e.g. honey production), and contemporary agricultural practices to help achieve sustainable food production, ecosystem services, and biodiversity conservation. However, more data is still needed to evaluate and determine the options best suited to meet the needs of all stakeholders.

Although the fieldwork experience was very enriching, one of the biggest challenges was to translate the interviews from the local language



Restorasi Ekosistem Riau project



Birds conservation workshop, Meranti Village, Sumatra

to English. Language barriers can be frustrating during fieldwork; in some cases, it makes connecting with the local community difficult. Despite constraints, I relished the challenge, and learned about the culture of locals and their links with nature.

My internship provided a great learning opportunity and greatly facilitated my professional development. I am grateful for having worked with wonderful people and for the warm welcome I received from the work team and Meranti Villagers. My supervisors' guidance and feedback on the tropical rainforest ecosystem structure, and composition, and plant

usages is much appreciated. The RER Project is a collaborative undertaking with communities living in the area – it was a pleasure working with researchers and conservation experts, but also with the local people, their land, and the ecological dynamics. My key learnings were the exchange of new ideas and perspectives to help increase the understanding and eventual effectiveness of landscape restoration.

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ENVISIONING THE BASICS OF FUTURE FOOD SECURITY

Meg Curtis and Saori Ogura



Imagine a utopia where all challenges related to the way you buy, sell, gather, grow, or hunt for food have dissolved.

During the Transforming Approaches to Forests and Forestry through Traditional and Local Knowledges conference, held at the University of British Columbia in August 2019, participants in a Future Workshop explored this question in a barrier-free environment. By setting aside pragmatic considerations, forgetting funding constraints, and disregarding the limitations in our current economic and political systems, participants facilitated a space for an open discussion to look at what was needed to reach a desired end-state rather than being distracted by present day constraints.

In the first phase of the workshop, participants were asked to identify problems or frustrations related to the economics of food from their lived experiences. When distilled, the following challenges were identified: transport (including packaging), oversimplification of food sourcing (agriculture as the only model), market distortions, (e.g. globalization, the pressure to grow monocultures), lack of healthy growing spaces (e.g. contamination of water and soil), and knowledge transmission/security (e.g. the loss of food sourcing/growing knowledge). Unfortunately, these challenges are not discrete, but instead are interrelated aspects within the complexity of a larger, dysfunctioning food system.

In the second phase of the workshop, participants entered the utopic phase where the freedom to fantasize revealed a longing for other freedoms: the freedom to have clean drinking water; the freedom to gather food from the forest; the freedom to subsist, the freedom to grow in urban



A knowledge holder and a teacher of the rich Eastern Himalayan forest

spaces; the freedom to distribute, and the freedom from regulations and policies that stop local food production and consumption.

In legal terms, we sometimes call freedoms “rights”. Indigenous participants reminded the group that they are still engaged in a longstanding struggle for rights on their ancestral lands (unceded or not). At the same time, non-Indigenous participants also indicated that the issue of rights was a topic of concern in their lives as well. For instance, on Vancouver Island, the private forest managed lands between Port Alberni and Courtney are often inaccessible to a population who used them previously for generations. This forested area is one in which citizens appear to have lost their recreational, food, fishing, and water rights. Overall, three themes ran through most utopias. First, greater freedom/accessibility/rights to water, forests, plants, animals and spaces. Second, greater localization seeing a contraction of economics and decision-making at the local level. And the third theme was significant value shifts where food becomes as valued as oil, gas, and commercial log species; where food becomes recognized as core to people’s culture, health, and identities; where social/cultural needs are negotiated on par with economic needs; and where global (macro) consequences of our local (micro) actions are accounted for.

In the last phase, participants were asked to consider how they could take small steps towards implementing ideas from this utopia. Education and building awareness were popular answers. Caution is warranted however as the solution of educating others can simply function to cognitively hoist the problem onto others and can place the self as knowledgeable and others, as ignorant. Other practical actions included adjusting regulations to increase the ability to access local food (e.g. allowing for buying seafood off the dock). These would require not just political participation, but knowledge of how the political process works in each

jurisdiction. It was suggested that further data needs to be gathered about the problems outlined to know how best to address them. Others suggested the creation of larger guiding documents – or Community Constitutions in the case of First Nations – to dictate the route towards larger seemingly utopic goals. Lastly, there was a feeling that the creation of communities which may solve our challenges can only be achieved after we first address how to better treat ourselves, friends, and families.

Participants in this workshop ranged from government employees, university students and staff, to community members. Evidently, utopic tendencies cannot be equated with naïveté. Rather, it appears that exercising this aspect of our minds is core to offering creative solutions to complex problems. Sometimes you have to work backwards and re-engineer a system that is malfunctioning. Beginning with what we’d like to see at the end, rather than conceding to present restrictions, means that the decisions we make may carry bias towards “practical” solutions. These so-called realistic solutions arguably may not in fact solve problems, but obscure them or lead to topical band-aid fixes. Given the time constraints imposed on us, and in light of the paradox we face – that future food security depends on food production rising while agricultural emissions lessen – it seems that entertaining utopic ideas, instead of negating them, may paradoxically have real merit in shifting our values and reaching our objectives.

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ASSESSING ECOLOGICAL AND SOCIAL IMPACTS OF URBAN FORESTS

Tahia Devisscher, Matthew Mitchell and Cecil Konijnendijk



Surveying a group of dedicated Maple Ridge neighbors who organize weekly walks in the peri-urban forests of the city



Dog-walkers are common users of urban forests in Maple Ridge. They usually look for a quiet place to destress and connect with nature.

Managing urban landscapes is one of the greatest challenges we face this century. Globally, 60% of the area expected to be urban by 2030 has yet to be built. The effects of this urbanization will undoubtedly reach far beyond the physical boundaries of cities. Accompanied by increased competition for land, unequal distribution of wealth, and often unplanned expansion of urban infrastructure and services, urbanization is also exposing more people to cumulative natural and human-made disturbances, such as floods, wildfires, and heat waves.

The state of urban ecosystems and the wellbeing of urban dwellers will greatly depend on the way cities anticipate and prepare for rapid change in the next decade. Urban forests have an important role to play, and considerable scientific effort has focused on their potential to maintain, and improve, urban quality of life. Studies found that urban trees improve air quality; reduce storm water runoff; cool the air and reduce the impacts of the urban heat island effect; sup-

port biodiversity; and provide cultural and social benefits such as improved public health. A bias in these studies, however, is that they tend to emphasize only one-way flows (i.e. services/disservices) from nature to people, and not the two-way flows which include human actions and values that contribute to forest health and ecosystem service provision. Furthermore, little focus has been given to the role of natural forest fragments in and around cities to make communities more livable and resilient.

Cities and human populations in Metro Vancouver have increased about 30% between 1996 and 2016, mainly driven by an enhanced regional economy and livability. Currently, the City of Vancouver is densifying while surrounding cities are sprawling, often encroaching on surrounding forests and agricultural land. Among the fastest growing is the City of Maple Ridge, its population increased 30% from 2001 to 2011, and is projected to increase a further 30% between 2016 to 2021. Maple Ridge

has committed to protecting the environment and responding to climate change impacts through enhancement of urban forests. However, it lacked information on the benefits provided by these forests to build a strong case for their conservation.

To address this, in 2018 we started a project with the City of Maple Ridge to generate information on the contribution of their urban forest to resilience and livability. We studied the multiple ecosystem services provided by urban forests as well as the views and contributions of people using, maintaining, and enhancing these forests (i.e. two-way, or reciprocal flows). We focused on public forest fragments, which may be more cost-effective to conserve and enhance compared to creating new urban greenspace. Finally, we assessed the effects of urbanization on these forest fragments working along an urban-rural gradient from the core of Maple Ridge to the UBC Malcolm Knapp Research Forest.

The project studied the social and



Urban parks were used by children, adults and elderly alike, and provided a space for social interaction and cohesion

ecological dynamics around urban forests by measuring trees, shrubs, and coarse woody debris in 21 forest plots set up along the urban-rural gradient in order to evaluate changes in forest structure, composition, and ecosystem services. We are now evaluating the influence of fragmentation and surrounding land cover on these results.

Recently, we started the social component of the project with a five-day field campaign to engage citizens along the gradient through on-site surveys and observations. The field campaign involved UBC Faculty of Forestry, postdocs, PhD and MSc students, as well as undergraduate students enrolled in the urban forestry program. The experience was rich in two ways. First, it helped us gain better understanding of the social valuation of greenspace in rapidly growing cities like Maple Ridge, in contrast to perceived risks that predominate around forest fragments such as waste, homelessness, lack of security, human-wildlife conflict, and wildfire risk. Second, the field campaign created a unique opportunity for reflection on urban forestry by providing meaningful exchange between faculty and students at different stages of their academic careers.

Moving forward, we are using our

data to identify synergies and trade-offs between different actual and perceived ecosystem services and risks associated to forest fragments along the gradient. We are going back to Maple Ridge this Spring to present the results and distill practical ways in which co-benefits provided by urban forests could be enhanced while reducing perceived risks. Participatory mapping, interviews and social network analysis will help us complement our results and inform urban forest stewardship strategies to build social-ecological resilience in the context of climate change.

Our study is a collaboration between the Faculty, the Institute of Resources

Environment and Sustainability and, the Planning Department of Maple Ridge. We are thankful for the significant help received from students from both the Faculty and the British Columbia Institute of Technology.

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Building an inclusive scholarly community and learning by doing were core to the positive fieldwork experience of this project

HOW MICRO-DOSES OF NATURE HELP OUR HEALTH AND CLIMATE

By Sara Barron and Kanchi Dave

Cities across the world are experiencing significant increases in chronic diseases, while climate change is altering everyday lives. To find a solution to address both, the Faculty of Forestry teamed up with the Fraser Health authority, the City of Surrey and nature therapy expert, Dr. Kathleen Wolf. Through an intensive literature review and drawing on our team's expertise, we found research that shows that – just as multiple short bursts of physical activity can have the same benefits as one long exercise session – microdoses of nature throughout the day can boost our physical and mental health, helping to prevent a wide range of diseases. This same urban green can also help reduce the impacts of climate change within our cities through reducing urban heat.

In order to maximize these health and climate adaptation benefits, our team has assembled a set of eight scalable, evidence-based urban greening guidelines that are designed to increase urban green exposure for residents during a typical day.

1 View from Within: Consider the view from within the building when implementing urban greening. Being able to view green through windows can reduce stress or increase focus. Greenery that shades windows will also reduce a building's energy use.

- 2** Plant Entrances: Does your building entrance have a welcoming frame? Greenery near entrances can increase social interactions, allow all building visitors to experience some nature in their day, and also clean and cool air before it enters a building.
- 3** Bring Nature Nearby: Are there spaces near your building where people can relax while surrounded by plants? Studies show more positive birth outcomes from homes close to nature. Nearby greenspaces provide opportunities for those with limited mobility or time to take a break near nature while also helping to manage rainwater where it lands.
- 4** Retain the Mature: When designing a landscape, it is important to keep older trees that provide aesthetic and emotional benefits. People have a heightened response to large, mature trees. Large trees, as compared to small trees, also provide exponentially higher ecosystem services like air filtering, cooling, and CO₂ removal.
- 5** Generate Diversity: Have you measured the diversity of your landscape plants? Diverse plantings are more resilient to potential climate impacts, and also provide aesthetic benefits. However, beware of high pollen producing trees that can affect people with allergies.
- 6** Create Refuge: It is important to ensure there is enough green shade in the form of large continuous canopy to protect everyone during an extreme heat event.
- 7** Connect Experiences: Can people walk continuously along a shaded pathway? Having a pleasant walking area can increase physical activity, as green routes can be inviting, thereby helping to promote physical and mental well-being.
- 8** Optimise Green Infrastructure: Our changing climate means there is increasing need for adequate green and permeable spaces to allow stormwater runoff to escape. Studies have found that 40% canopy cover contributes to urban cooling, further reducing stress.

Finding space for these necessary green spaces benefits everyone. We are currently developing a best practices guide and webinar for practitioners to implement our guidelines.

This article is based on the publication: Barron, S. et al. (2019). Greening Blocks: A Conceptual Typology of Practical Design Interventions to Integrate Health and Climate Resilience Co-Benefits. Int. J. Environ. Res. Public Health 16, 4241.

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TRANSITIONING COAL JOBS TO PROTECT FORESTS

Sandeep Pai

With a series of devastating climate disasters – including the wildfires recently ravaging the forests of Australia – there is more pressure than ever for the world to transition away from fossil fuels such as coal.

According to the 2018 Intergovernmental Panel on Climate Change (IPCC) Special Report, the impacts on biodiversity and ecosystems, including species loss and extinction, are projected to be much higher if the world fails to keep global warming below 1.5 °C. In particular, the high-latitude tundra and boreal forests are at high risk of degradation and loss.

Our Faculty of Forestry study, conducted in collaboration between the University of British Columbia and Chalmers University, and now published in *Environmental Research Letters*, sets out to answer the question: could coal miners in the world's top four coal-producing countries – Australia, China, India, and the US – find new solar or wind jobs locally?

If this much needed energy transition happens, what would this mean for coal industry workers? An important part of the global transition away from coal is ensuring current coal workers can find decent work in other industries such as new, local solar, or wind jobs. Coal workers are a formidable voting bloc in many nations. Without viable employment options, they may be inclined to support candidates who favor the coal industry, thereby reducing the opportunity to transition away from fossil fuels for greener alternatives.

Given the growing importance of this topic, we have recently seen media coverage and numerous reports by international organizations, such as the International Labor Organization and International Renewable Energy Agency, claiming that green energy jobs can replace fossil fuel industry jobs. For example, the International Labor Organization estimates that around 24 million green jobs, including renewable energy jobs, could be created

worldwide by 2030 if governments take action to limit warming to 2°C. This is enough job creation to offset fossil fuel industry job losses. And while it is true that renewable energy jobs might off-set fossil fuel jobs in terms of absolute numbers, what really matters is where such renewable jobs are created within a country. Historical evidence has shown that coal miners do not migrate when they are laid off, given their connection to place. This begs the question – can renewable jobs be created in areas that are traditionally coal mining regions, where miners historically and currently live and work?

Our study shows that in general, wind industry jobs are not a feasible replacement for local coal industry jobs in any of these countries. Simply, there is not enough wind. Solar industry jobs may be an option in Australian and Indian coal mining regions, and perhaps the US. However, there is not enough sun in most Chinese coal mining areas for this to be a viable option.

Although, we demonstrate that solar has more potential than wind for replacing local coal mining jobs in these countries, we conclude that realizing this potential will entail massively scaling up current solar capacity in these countries' coal mining regions – from three times in the US to 37 times in India. This scale of deployment of solar power may not be easy due to land constraints and grid issues.

Given these considerations, our study recommends that while solar jobs could be the answer in some coal mining areas, the solutions are complex. Policymakers must focus on both renewable and non-renewable industries to help transition jobs on a local scale in the effort to combat climate change and its effects on our forests.

Sandeep Pai is a Public Scholars Initiative scholar and a doctoral student supervised by UBC Faculty of Forestry associate professor Hisham Zerriffi. Sandeep can be reached at sandeep.erdel@alumni.ubc.ca/.



An open-cast coal mine in Jharkhand, India

NOT YOUR AVERAGE 'SMALL WORLD' STORY



In August 2019, alumna **Louise de Montigny (BSF 83, PhD 92)** experienced a full-circle moment so full of coincidence and chance it felt more like a movie than reality. If there hadn't been witnesses, you might even think she had made it up.

This moment took her back to the very beginning of her career in forestry – to the exact time and place when she decided that it was something she wanted to study. The year was 1979, and the place was Helsinki, Finland.

Louise had been attending Western Washington University in Bellingham. "I grew up in Chilliwack, and I liked the idea of a smaller campus and the opportunity to explore a range of subjects," she says. "I wanted to find out what I was really interested in." She discovered an affinity for biology, but "I couldn't see myself working in a lab or a hospital," she says.

Two years in, Louise took advantage of the opportunity to study French for a semester in Avignon, France. "After that, armed with a copy of the book *Europe on \$10 a Day* and a Eurail Pass, I set off to travel around Europe with a quest to discover my true calling," she says.

On a ferry from Stockholm to Helsinki, Louise met an American student on his way to meet a new friend for a brief holiday. The new friend, named Jyri, kindly invited Louise along. The next day they all met in the library of the university, Jyri attended as a forestry student, where some English-language

journals caught Louise's eye.

"The journals were about forest ecology and management, and suddenly this new window of possibility opened up," Louise says. "In that moment I decided a career in Forestry was for me, and applied to UBC as soon as I returned home."

Louise graduated with a BSF in 1983, in the midst of a recession in which forestry jobs were scarce. At the urging of Professor (now Emeritus) Gordon Weetman, she applied to a masters program at Yale University. Following completion of her MSF, Louise returned to UBC for doctoral studies, and received her PhD in 1992.

Louise had a long and interesting career as a silviculture researcher with the BC government. After she retired in early 2019, she was asked to lead a tour of one of her experiments – the most ambitious experiment of her career – near Campbell River on Vancouver Island, for a group of Finnish foresters in August 2019.

"The Silviculture Systems for Ecosystem Management in the Sayward, is a long-term silvicultural systems experiment I had established that will continue for decades more," she says. "I was pleased to tour the experiment again."

"I knew that many, many years had gone by, and the odds were slim, but I had written down Jyri's name on a slip of paper (I had come across it in an old address book) and I showed it to the Finnish tour leader in the hopes of discovering something about Jyri's career," she says. "His jaw dropped and he said, 'He's here!'"

Reunited with the person who had set her on her career path, Louise was thrilled but Jyri was confused. "At first he didn't remember me at all," Louise said. "So I told him the story, and it came back to him. It was such an uneventful chance meeting for him, but such a life-changing moment for me."

The Finnish group was delighted by this connection between Canada and Finland. The full-circle moment was completed with Louise ending her career by meeting the man who had unknowingly helped her start it.

Louise reflects on the coincidence of meeting Jyri again. "The Finnish foresters could have chosen a different country or province to visit, or Jyri could have changed careers or retired and not come to Canada at all. I had already retired, so I might not have been available on this particular day or someone else could have been asked to lead this tour. So many factors had to line up for this meeting to happen. It was just an amazing experience."

If you have a story about a life-changing moment in Forestry please contact Michelle Lindsay at michelle.lindsay@ubc.ca or 604.827.0297.

NATURALIST SOCIETY ESTABLISHES STUDENT AWARD IN URBAN FORESTRY



Left to right: Chuck Belotte, Audrey Belotte and Deborah Jack from the White Rock and Surrey Naturalists Society

A bequest from an avid birder and naturalist has established a new award for students in the Bachelor of Urban Forestry program, giving welcome surprises to its first two recipients.

John “Jack” Halliday McCrae had a career as a teacher, most notably at North Delta Secondary School. He and his wife Jean were longstanding members of the **White Rock and Surrey Naturalists Society**, and as volunteers they promoted conservation, stewardship, and citizen-science. Jack often led birdwatching walks and participated in annual bird counts.

Jack died in 2014, and with his wife predeceasing him and no children, he left the bulk of his estate to the White Rock and Surrey Naturalists Society. Deb Jack is Vice President and Conservation Chair of the Society. “It was quite an usual situation, because we received the bequest with no strings attached,” she says. “We struck a committee to set up some terms of reference for donations, and then figured out where and how much to give. It’s been really quite exciting.”

After deciding to prioritize the Surrey environment, post-secondary education, and ecological justice issues, the Society has made gifts to the City of Surrey, Simon Fraser University, BCIT, Ecojustice and West Coast Environmental Law, as well as the University of British Columbia.

The inaugural John Halliday McCrae Memorial Award in Urban Forestry went to Nick Nieuwenhuis and Shenae Borschneck. Nick is in the third year of the Urban Forestry program, and Shenae is in fourth year.

“I just checked my email one day and saw that I’d received this award,” says Nick. “I didn’t know what it meant because I’ve never received anything like this before.”

Nick entered the Urban Forestry program after doing general studies at Kwantlen University. “I was taking a wide variety of courses to see what most interested me,” He says. “I really like science and biology and I love to be in nature, so this program is a good fit.”

Shenae was surprised to learn she had received the

award, and surprised again to find out it came from an organization she was familiar with. “For the past couple of years I’ve been involved with Surrey Natural Areas Partnership (SNAP), a nonprofit organization that offers young people practical experience in environmental education and conservation. The White Rock and Surrey Naturalists Society is a partner in SNAP, so this award felt close to home,” she says.

Shenae came to UBC after completing a Bachelor of Commerce at the University of Alberta. She worked in the financial sector after graduation but, as she says, “I decided that I needed a career that made a difference overall, and the environment is an important issue to me.”

“As a mature student, I have paid for all my schooling myself, with no outside support. I have a job and I also have student loans,” she says. “This award takes off some of the pressure.”

Nick agrees. “This award gives me some breathing room. I really like the material in the Urban Forestry program and I’m working hard and learning more. It’s really nice to be recognized for doing well in school.”

Nick is keeping an open mind on his career prospects after graduation. “I still have another year, so I’m not sure if I want to work right away or do graduate work,” he says. In her final semester, Shenae is gaining clarity on her future. “I really enjoy working for a nonprofit organization, but I’m looking at the municipal sector as well,” she says.

Deb Jack is pleased with how the student award has been set up at UBC. “Making decisions about the donations has been hard work but it’s been interesting, and the committee has been really pleased with the choices we’ve made and the impact they have had already,” she says.

Your gift to the Faculty of Forestry can have an enduring impact on the lives of students, decades into the future. To find out more about establishing a student award, please contact Marie Labitté at marie.labitte@ubc.ca or 604.827.2314.

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