

BC

Forest PROFESSIONAL

FALL 2023

The Critical Role of Urban Forestry

A Practical Case for Utilizing
Low Value Fibre Derived from Logging

Predicting Forest Insect Outbreaks

UNBC Grad, ForesTrust Scholarship
Winner: One FIT's Journey

Strategies for Supporting Trainees



*"Coexisting with fire requires
everyone to play a role..."*

The Social Side of Forestry and Fire

Renew Your Registration by November 30, 2023

Failing to renew by November 30 will result in registration suspension.

The *Professional Governance Act* (PGA) and Forest Professionals British Columbia Bylaw 5 require all registrants to complete registration renewal requirements by November 30, 2023.

If you fail to meet the November 30 deadline, your registration will be suspended on December 1, 2023.

If you are a practising RPF or RFT, suspension of your registration means you are no longer legally allowed to practise professional forestry and your registration status with Forest Professionals British Columbia (FPBC) will be listed as “suspended – failure to renew” in the online directory of forest professionals.

- Registrants who fail to complete their registration renewal by November 30 can resume practice by paying a late fee and completing their registration renewal between December 1 and January 31.
- After January 31, anyone who has not completed their registration renewal will have their registration cancelled and must apply for reinstatement in order to resume practice.

Quickly and Easily Renew Online

FPBC is updating its online registration renewal website. This will require you to create a new password to access the site. You will receive an email mid-October with a link to the new renewal website and instructions on how to create a password.

Steps to Renew Your Registration

Step 1: Update your contact info

Ensure your contact information (email and mailing address) is correct. If you changed employers in the past year, be sure to update your employer information. Employer information is required under the *Professional Governance Act* and is displayed in the public registry of forest professionals.

Step 2: Identify your practice areas

Practising registrants must list their professional practice areas. This information is required under the *Professional Governance Act* and is displayed on the public registry of forest professionals.

Step 3: Complete your 2023 competence declaration

The competence declaration is mandatory for all registrants, except those who are on leave of absence, retired registrants, or trainees (ASFIT, FIT, ASTFT, TFT, TNRP).

Step 4: Submit your indictable offence declaration

All registrants are required to disclose if they have been convicted of an indictable offence.

Step 5: Pay your fees

Your registration will not be renewed until you have completed the above steps and paid all applicable fees. Note: if your employer pays your fees on your behalf, it is still your responsibility to ensure your fees are paid by the November 30 deadline.

Failure to complete all required steps to renew or change your status by November 30, 2023, will result in a late fee and your registration will be suspended, barring you from practising professional forestry in British Columbia. If you do not complete the steps by January 31, 2024, your registration will be cancelled.

Important Warning

Failure to renew your registration and continuing to practice professional forestry is an infringement of practice and title. It is an offence under the *Professional Governance Act* to undertake reserved forestry practice, or use a reserved title, if not registered with FPBC. Such offences carry a maximum fine of \$200,000 and/or a two-year prison sentence.

Do Not Let Your Registration Lapse

If you are planning to leave the profession of forestry or retire, you must apply to FPBC for a change of category “Resigned” or “Retired.” Letting your registration lapse by not renewing means your registration will be cancelled, your name will be published in a list of all registrants who failed to renew, and you will no longer be allowed to practise professional forestry in British Columbia. This leaves you vulnerable to practice infringement.



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Sunset views of Knox Mountain Park, the largest natural park in Kelowna.

Photo credit: City of Kelowna.

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Reprinting and copying of *BC Forest Professional* articles is encouraged. Please include a credit to both the author and *BC Forest Professional*.

Forest Professionals British Columbia recognizes that our business and the work of our registrants occurs on lands that Indigenous People have occupied and been responsible for since time immemorial.

We are committed to supporting reconciliation through inclusion, awareness, and providing ongoing education and training opportunities to our registrants on the culture, history, and rights of Indigenous People.

Save the Date: February 7-9

FPBC 2024 Conference

Delta Hotels Grand Okanagan Resort, Kelowna

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**FPBC 2024
Kelowna**

Write us!

The *BC Forest Professional* letters section is for readers responding to recent articles and for brief statements about current FPBC, professional, or forestry issues. The editor reserves the right to edit and condense letters. Letters must adhere to standards of fairness, accuracy, legality, and civility. Anonymous letters are not accepted. (Maximum word count: 300.)

For detailed submission guidelines, please visit fpbc.ca for more information.
Email letters to: editor@fpbc.ca

Code of Ethical and Professional Conduct: Further Guidance on Confidentiality Requested

The summer edition of *BC Forest Professional* has a two-page spread of our *Code of Ethical and Professional Conduct*. I am pleased to see that upholding public interest above employment demands and personal gain remains. A key change is our obligation to report to the FPBC practices that might harm the environment or health and safety.

Yet, I suggest Forest Professionals British Columbia provide further guidance on Standard 2(d): “not disclose confidential information without consent, except as required by law.”

Although seemingly obvious, what exactly constitutes ‘confidential information’? Clearly, financial information or notes on a professional employee’s reprimand or interpersonal conflict would be confidential. And also Indigenous Traditional Use Studies.

But what about stream watershed reports? Or visual impact assessments (VIA) for crown land? Or terrain stability reports? Or even timber VRI labels and inventories? Should these be allowed to be deemed confidential?

The confidentiality defense has successfully been used with FPBC for not providing VIAs, even though the Forest Practices Board had been critical of the specific visual outcomes. Improper terrain stability management can result in deleterious outcomes. The VRI labels on TFLs are not publicly available even though the land is public, crown land and AACs affect community and ecosystem health. Are these also suitable situations to be allowed as confidential?

Some situations for confidentiality are reasons all would agree on. Other situations are less straightforward. Which situations are suitable for confidentiality for why non-disclosure aren’t always clear? Opinions on what should be confidential certainly differ. Witness the numerous FOIs where the journalist is disappointed with the disclosure offered. Therefore, I suggest FPBC strike a non-partisan committee to provide additional guidance for this section of the Code.

Judy Thomas, RPF

Clarification from Forest Professionals British Columbia Re: Code of Ethical and Professional Conduct: Further Guidance on Confidentiality Requested

For additional clarification on Standards 1 through 9 of the *Code of Ethical and Professional Conduct*, please see the 2021 guidelines for interpretation. In regard to Standard 2d, the guideline states that “technical information and some professional work products (such as a prescription for a treatment) that are owned by the client/employer may not be used without consent of the client/employer.” However, in the event that a registrant’s practice is audited or investigated, other requirements apply.

In the case of a professional complaint, Bylaw 12-8(2) requires a respondent or any other registrant (including firm registrants) to “produce any information, including files, records or other documents, requested under subsection (1), even if that information is confidential.” The exceptions to this are given in 12-8(4) and include “information [that] is subject to solicitor-client privilege, or [where] disclosure of the information to an investigator, the registrar or the investigation committee is prohibited by law.”

Support Tomorrow's Forest Professionals Today

ForesTrust, FPBC's registered charity, funds scholarships and bursaries for students enrolled in post-secondary forestry programs across BC.

ForesTrust also provides funding for educational activities focused on how we care for and manage BC's forests.

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Paying Attention to 'Total Worker Health'

It's a challenging time for forest professionals, and we have to look after each other and ourselves.

Being responsible for managing the land base comes with pressures, from climate change to old growth and the public interest and new partnerships. Forest professionals are dealing with new legislation, and the expectations and criticisms that come with change.

Then there's the fires. So many fires.

I joined the BC Wildfire Service at the Kamloops provincial wildfire coordination centre in 2018, a year after the record-setting 2017 season, when more than 1.2 million hectares of land burned and 65,000 people were evacuated.

Another 1.35 million hectares burned in 2018, surpassing the record set the previous year. Almost all regions of the province were affected, and more evacuations were ordered. A Provincial State of Emergency was declared both years, and was again on August 18, 2023.

More than 2.1 million hectares have burned this season so far. Active fire seasons and record setting areas burned are becoming a way of life.

Historically, forest professionals may have been seen as 'tough.' They absorbed pressure. But the stress is growing and taking a toll on all of us. We're starting to see folks really have to be aware of their own well-being in dealing with all this.

The work done by BC Wildfire Service field staff is dangerous, so there's a strong emphasis on physical safety. The organization also makes mental safety a priority.

After 2017, there was anxiety about what the next season would be like. And it was another big season, and people were experiencing symptoms of Post Traumatic Stress Disorder (PTSD).

I started in July 2018 and the coordination centre was teaming with people. Calls were flooding in, people looking for information and needing help. I saw the effects wildfires had on communities, on people. Some lost their homes. Being evacuated was a traumatic experience for some. They were prepared, but when told to leave had no idea where to go. They ended up at evacuation centers, standing in lines to sleep side-by-side on cots laid out on the concrete floors of local arenas as the fires burned. I listened to their stories and thought, "How can we do things differently?"

Looking at forest professionals, more and more are getting involved in the fire suppression efforts. Some as consultants and licensees are also now getting more involved in fire suppression efforts. While fire benefits ecosystems, it damages timber. And to forest professionals, that's the economy. Jobs are at stake. This past year has been challenging for the economy, with mills closing and the annual allowable cut declining. And now another season with significant impacts from an active fire season.

All of these pressures add up.

So we've got to look after ourselves, because we can only do so much and we can only wear so much of that pressure. Whether you work as a consultant, or for a licensee, or for the government, we need to support each other.

Talking to other people, like peers, co-workers and friends about what's on your mind is a big part of critical incident stress management, as is listening.

Leaders of organizations need to continue to prioritize physical safety but also have to prioritize mental health and safety, be aware of total worker health and make it priority No. 1. They need to provide opportunities for people to take training on personal resilience and build mental well-being into everyday part of life where people feel safe to talk through things, safe workplaces where you're not ashamed to say, "Hey, I'm having a rough day." You don't have to hide it.

Awareness and recognition are key in coping with stress, for yourself and others. It's the same idea as putting your own oxygen mask on first, then helping others put their masks on. Don't be ashamed of recognizing that.

There's a lot of pressures on all of us right now, whether that's from society, or Mother Nature, from each other, from your employer, from the economy.

There's a lot of pressure on forest professionals, forest management, and the forest industry as a whole. It's real and we can't carry that burden on our own shoulders alone. We have to be there to help each other through it.

So as forest professionals continue to work through the challenges of managing today's forests differently and focus on improving forest health as we work to build resilient forests, we also need to remember our own personal health and to build our personal resilience. ✕



Time for a Proactive Approach to Wildfire

Wildfires are part of the natural ecosystem; they have been for thousands of years, and they will continue to be in the future. And while the scale and impact of wildfire appears to be increasing exponentially, there are steps we can take before a wildfire starts that will not only protect our communities and the forest, but also improve our ability to respond and minimize their negative impacts. That however, requires support from all levels of government and a willingness to build partnerships that include Indigenous communities, land owners, and natural resource professionals.

The concept of preventing and mitigating the effects of wildfire goes back decades. Many homeowners and communities nestled in forested areas have first hand experience with

wildfire prevention programs such as FireSmart, the Community Resiliency Investment Program, and others.

In 2021, when the Tremont wildfire threatened the town of Logan Lake, the work prescribed by a team of forest professionals over the years to reduce the forest fuel load in the adjacent community forest, along with the efforts of firefighters, was largely credited with saving the community.

An ounce of prevention is worth a pound of cure is a cliché but it's applicable when we consider the devastation to our forests and property, not to mention the financial costs, impacts on human health, and the emotional toll resulting from the massive blazes experienced in BC over the past six years.

Doing more to limit and prevent wildfire damage and learning to co-exist with fire is not easy or simple. It takes cooperation between the public, land owners, forest professionals, First Nations, firefighters, emergency responders, and most importantly, elected government representatives. Preventing and managing in anticipation of wildfires must be done in concert at multiple levels: the homeowner, community, forest stand, and landscape. It requires leadership supported by people with a variety of forms of expertise and practical know-how. And it takes a lot of money.

We have the core ingredients to make these shifts here in BC if government(s) are ready to make the investment and drive the required policy changes for a new vision and approach to wildfire. Good ideas abound; media coverage of this year's wildfire season is filled with specific proposals and suggestions for change from fire and forestry experts and researchers. The BC government has a pair of excellent reports featuring more than 160 recommendations

on steps we could take: the 2017 wildfire and flood review led by George Abbott and Chief Maureen Chapman, and the 2003 firestorm report from Gary Filmon. And earlier this year, the BC Forest Practices Board released a special report urging the provincial government to align policies and programs across all levels of government to enable landscape-level fire management.

While the provincial government has actioned some of the recommendations, mostly those related to wildfire response, others remain in limbo despite being considered by experts to be valuable and critical to helping the province adapt to the increased presence of wildfires.

Then there's the issue of money. Who pays and how much? The province has spent billions of dollars, most of it unbudgeted, on fighting wildfires. But what if government planned to make big investments in wildfire in advance? In 2022, the Vancouver Sun reported that provincial spending on fighting fire was \$4.16 billion since 2008 while only \$224 million was spent on wildfire prevention.

Dr. Mike Flannigan of Thompson Rivers University, an expert on wildfire behaviour and landscape fire modelling, estimates that every dollar spent on prevention and mitigation saves \$5 to \$15 spent on fighting wildfires. And that doesn't factor in what governments may spend in response to flooding and landslides resulting from the inability of burned slopes to absorb rainfall and snowmelt.

The time for waiting and conducting more studies is over. In many communities, the planning is completed and solutions have been tabled. Now they need to be implemented via policy and government funding at a scale comparable to the efforts devoted to wildfire emergency response.

BC has skilled and competent people who can help move wildfire prevention and mitigation activities forward; people who work in our forests, who are part of the communities threatened by wildfire, and who understand the full range of values at stake. Many of these people are registered forest professionals working in provincial and municipal governments, for First Nation governments, for forest companies, for forest and environmental consulting firms, or teaching and researching at our universities and colleges. They have the knowledge, passion and experience to support and implement the changes urgently needed in forest management planning that will help make our forested landscapes more resilient to wildfire and protect the communities in which people live as well as the beautiful forests British Columbians so dearly care for and rely upon.

We know the solutions. We have the expertise. Now we just need the will to act. ✕



Save the Date: FPBC 2024 Forestry Conference and AGM, February 7-9

The FPBC forestry conference and AGM is scheduled for February 7-9, 2024 at the Delta Hotels Grand Okanagan Resort in Kelowna. Be sure to save this date in your calendar.

As we did this year, the 2024 conference will be a hybrid event with both in-person attendance and virtual participation available. A volunteer group of forest professionals, chaired by Matt Scott, RPF, is currently hard at work creating a program that will challenge and engage forest professionals from across BC.

Program and registration details will be available soon. Keep an eye on *The Increment* and fpbc.ca for more updates.

Garnet Mierau, RPF, Joins FPBC as Director of Practice

Garnet Mierau, RPF, is FPBC's new director of practice.

Garnet, past-chair of the FPBC Board, takes over from Mike Larock, RPF, who is moving to a special consulting role with FPBC until the end of the fiscal year.

Garnet has practised professional forestry at a provincial scale since 2003, serving in an executive capacity with the Consulting Foresters of BC, then most recently with Forsite Consultants. Garnet previously served three years on FPBC's Discipline Committee, and is the Kamloops-North Thompson regional coordinator for the National Forest Week-BC Coalition.

Mike has practised professional forestry in BC for more than 30 years as a silviculturist, woodlot licensee, and private forest land-owner. He is not retiring from practising forestry and will support Garnet and FPBC during this transition.

Join us in welcoming Garnet to his new position. Also, a special thanks to Mike for his time with FPBC.

New Roles for FPBC Staff

Two FPBC staff members have moved into new roles.

Conrad Malilay is taking over as FPBC compliance manager within the registration and compliance department where he oversees processes related to disciplinary complaints against registrants and other matters of compliance with FPBC's Bylaws and the *Professional Governance Act*. Conrad was FPBC's manager of registration since 2007.

Sydney Kucera has been promoted to certifications lead where she will be responsible for advising and managing reviews of registrants' academic credentials, skills, or experience against criteria for independent or specialized professional forestry practice, including the Credential Assessment Process (CAP). Sydney was previously FPBC's registration co-ordinator.

New Standing Non-practising Registrant Category Now Available

A new registrant category, Standing Non-practising, is open to RPFs and RFTs who want to maintain their registration and are working but not practising professional forestry. Examples could include registrants who are working as mill managers, in sales, or human resources. The Standing Non-practising registrant category is an alternative to the Non-practising - Leave of Absence (LOA) or Retired registrant categories.

Registrants in the Standing Non-practising category are eligible to vote and run for the FPBC Board, they are able to reinstate to full practising category, and they are exempt from annual continuing professional development requirements but they must submit an annual competence declaration when renewing their registration. Under Bylaw 5-17 (15), a Standing Non-practising registrant may use the abbreviation RPF or RFT but it must be accompanied by:

- the term "Non-practising" immediately preceding the title or abbreviation, or
- the term "Non-practising" immediately following the title or abbreviation.

Fees for Standing Non-practising registration are the same as practising RPF and RFT registration. Contact the FPBC registration department at admissions@fpbc.ca if you have any questions about this registrant category.

Never Too Late to Celebrate National Forest Week

September 17 - 23 was National Forest Week and while the event has passed, the BC National Forest Week Coalition can always use volunteers to help spread the word about the value of our forests.

Volunteers are needed to help with school field trips in the fall, particularly in Metro Vancouver. Submit a request form or contact Bill Bourgeois, RPF(Ret), NFW-BC Coalition executive director. Visit www.bcnfw.ca for more information.



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On November 25, 2021, the BC Legislature enacted Bill 23 — the Forest Statutes Amendment Act, 2021. While Bill 23 will make a variety of amendments to BC's forestry legislation, its primary focus relates to the operational planning and approval process under the *Forest and Range Practices Act* (FRPA). The changes made to this process are not yet in force, but will come into effect by order of the provincial cabinet.

Bill 23 introduces forest landscape plans (FLP) into the planning process, and authorizes the chief forester to establish FLPs by order. FLPs must identify a forest landscape area. A forest landscape area could correspond to a management unit (TSA or TFL, for example), though there is nothing that requires this. An FLP must also include outcomes in relation to various objectives specified in the legislation. An FLP may also include planning guidelines for forest operations plans (FOP) in relation to the location of cutblocks and roads, limitations on the size and configuration of cutblocks, and other requirements related to forest practices, silviculture systems and stocking standards.

The FLP will, over time, replace the forest stewardship plan (FSP) under FRPA as the chief forester continues to establish forest landscape areas under FLPs. Under Bill 23, an FSP is required only where there is no forest landscape area established under an FLP. Once a forest landscape area takes effect in a forest development unit under an FSP, the holder of the FSP is exempt from new FLP planning process for one year.

When a forest landscape area comes into effect, the holder of a forest tenure (subject to various exemptions) cannot harvest timber or construct roads in the forest landscape area unless the tenure holder has an FOP approved by the Minister of Forests. An FOP must meet various content requirements, including the identification of a forest operations area, and requirements for operations under the FOP in respect of forest practices, silviculture systems and stocking standards.

If these requirements do not incorporate any of the planning guidelines included in the applicable FLP, the FOP must include a statement that justifies the omission, or a substitute requirement with a state-

ment that justifies the substitution in terms of the outcome related to the planning guideline. Approval of an FOP also requires the tenure holder to satisfy engagement requirements with the public generally and specifically with Indigenous Nations affected by the FOP.

Engagement of Indigenous Nations in the operational planning and approval process under FRPA is a central objective of Bill 23. One of the five objectives the chief forester must consider when establishing outcomes in an FLP is “*managing the values placed on forest ecosystems by Indigenous peoples.*” Bill 23 provides for mandatory consultation and cooperation with Indigenous governing bodies whose rights are potentially effected under a FLP. The process requires the chief forester to provide the Indigenous government body with the information relied upon in the preparation of the FLP and the proposed FLP upon completion. If an Indigenous governing body does not give consent to the proposed FLP, Bill 23 provides a dispute resolution mechanism (though the conclusion of the dispute resolution process does not limit the authority of the chief forester in relation to the matter in dispute, or the right of the Indigenous governing body to seek a remedy in court based upon its constitutional rights).

Bill 23 also adopts decision-making agreements as contemplated under the *Declaration on the Rights of Indigenous Peoples Act* (DRIPA) of BC. One feature of DRIPA is the legislative authorization of government to negotiate and enter into an agreement for the exercise of a statutory power of decision jointly among a government decision maker and the Indigenous governing body, or that requires the consent of an Indigenous governing body before government exercises a statutory power of decision. The Bill 23 amendments to FRPA contemplate potential decision-making agreements with respect to numerous statutory-powers of decision related to operational planning and approval, including establishing a FLP or approving a FOP.

Before joint decision-making under FRPA can become effective, cabinet must first authorize the minister to negotiate and enter into a decision-making agreement with an Indigenous governing body, and then the minister and Indigenous governing body must actually negotiate and enter into an agreement. But if a decision-making agreement is concluded among government and an Indigenous governing body, then the statutory power(s) of decision subject to the agreement must be exercised in accordance with the terms and conditions of the agreement. ❖

Jeff Waatainen has served as an adjunct professor of law at UBC, practised law in the forest sector for over 25 years, and works with the Forestry Law Practice Group of DLA Piper (Canada) LLP's Vancouver offices. This column is in the nature of general commentary only, and is not in the nature of legal advice or opinion.



The Challenges Facing Urban Forests

My first exposure to urban forestry was

in the summer of 2007, hired as a summer student by Dr. Stephen Mitchell, RPF(Ret) to do a complete vegetation inventory of Stanley Park in downtown Vancouver. The park had been decimated in several areas by a windstorm in the winter of 2006 and there was new urgency to develop a forest management plan for its maintenance. Coming out of several seasons in the field and a couple years of forestry at UBC, it was the first time I had ever viewed forest within a city as a resource needing management. Through a summer of crawling into every hectare of that park, I started to get a different sense of what it meant for the users and greater community. We know the obvious value in wildlife habitat, recreation, and ecosystem function and service. But there was also the intangible, and the way people sought to escape the built environment and connect with the natural world. As forest professionals, we often take for granted regular connection with the forest, but it is something that others must seek out, and it's the urban foresters' responsibility (and gift) to provide that opportunity.

Now the Urban Forestry Supervisor with the City of Kelowna, I often think back to that summer and how, in the time since, urban forestry has grown significantly as a professional practice area in BC and across Canada. Increased societal pressure for access to and en-

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urban-rural fringe."

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along with related resources in and

around cities as well as communities for

economic, environmental, social, and

public health benefits for people."

(Tree Canada, 2019-2024 Canadian Urban Forest Strategy: <https://treecanada.ca/wp-content/uploads/2018/10/TC-CUFS-2019-2024-Eng-1.pdf>)

joyment of green space, increasingly complex and heightened challenges posed by climate change, and ever-expanding wildland urban interface (WUI) areas require urban foresters to hold a unique set of skills and knowledge that draws on traditional aspects of forestry, but that are applied under a microscope.

Kelowna could be a poster child for pressures facing the urban forest: it is currently the fastest growing community in Canada, with significant wildfire risk and drought conditions, and is one of the busiest tourist destinations in BC. Historically, this area experienced frequent low-intensity fires to maintain open dryland forest and grassland ecosystems. Years of wildfire suppression have resulted in overstocked Ponderosa pine and Douglas-fir forest in the suburban and rural areas of the municipality, while the urban area is a bit of an oasis, almost fully irrigated to sustain a diversity of native and horticultural species. Prompted by

the Okanagan Mountain Park fire in 2003, and several significant wildfire seasons since, Kelowna has drastically changed both our wildfire forest planning practices as well as urban tree management — recognizing the vulnerabilities that exist by nature of where we're situated. In the context of our community, I'll look at three of the most pressing challenges facing urban forests, and urban foresters: maintenance, development, and climate change — along with some of the ways we are working to address them.

and Urban Foresters Today



Gallagher's Canyon community with the south slopes and Myra-Bellevue Provincial Park in background. Photo credit: City of Kelowna.

Maintenance and Urban Forest Management

Maintenance is arguably the biggest challenge in urban forest management today. From protection of existing canopy to operational considerations, maintenance capacity and provisions impact a substantial number of urban forest outcomes. To be accurate, planting trees is still a necessary part of successional planning and growth of the urban forest. But maintaining existing canopy is critical to ensuring healthy diversification of age and species, particularly in communities that face challenging development and climate pressures. In Kelowna, recent updates to bylaw protection for municipal trees has clarified the application of fines and compensation for harmed or illegally removed trees, as well as provided a standard for tree protection barriers during any nearby activity. My team, which includes arborists and natural resource staff, work regularly with other City of Kelowna departments to ensure trees are protected through projects wherever possible, particularly in areas identified as low-canopied. Operationally, urban trees face innumerable obstacles, from establishment to pollution, soil compaction, soil volume restrictions, irregular watering regimes, urban heat effects, vandalism, and other biotic and abiotic disturbances — all of which lead to premature loss.

It's important to recognize too that typically most of a municipality is privately owned. Approximately 75 per cent of Kelowna is private land, which means the majority portion of our

urban forest is managed directly by the public and only indirectly influenced by the city. Maintenance challenges we face as urban foresters must be tackled through regulatory and operational mechanisms on city-owned land, but also in various ways on privately-owned land. Each jurisdiction will decide whether regulatory enforcement is appropriate for private properties, i.e. through application of private tree protection bylaws, but it is always the urban foresters' role to educate the general public, as well as the business community, colleagues, and elected officials on best management practices and good stewardship of the forest. Developing and implementing an urban forest strategy can also assist with determining best practices and policy to address these issues that reflect the resourcing opportunities of your community.

Development and the Urban Forest

The second major challenge for many communities is the rapid pace of development. Adequate and sufficient housing is a major issue in BC right now, with solutions focusing on rezoning and densification, particularly in the most urban areas. Unfortunately, building lots afford finite horizontal space and as building permits seek to maximize square footage, if forethought is not given to including landscaping and soil volume requirements, then trees of any measurable size are very quickly relegated to adjacent boulevards. Boulevards and road rights-of-way face their own set of challenges with densification, by shrinking to allow for wider active transportation corridors, above and below ground utilities, and compacted soils. The result in these most urbanized areas is smaller and less robust canopy cover, which increases vulnerability to the

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A Practical Case for Utilizing Low Value Fibre Derived from Logging

The future of the BC forest industry has been debated, examined, and re-examined many times in the last 50 years. Today, discussions are underway at the forest landscape planning tables around the values we share, the health of our communities, and the resilience of our forests. It is more important now than ever to look at the full complement of products our forests can provide, including those derived from low value fibre, harvest residues, or biomass. Today, a large percentage of the waste and low value fibre, including tops and limbs (biomass), is burned. Utilizing this fibre can offer a host of benefits that should add depth to any conversation involving our future.

Discussions aimed at increasing utilization started at least 20 years ago with various fibre working groups, where consensus revolved

around two key issues: the burning of slash piles and the optimal utilization of fibre that is incidental to regular logging. The shared belief is that by effectively utilizing more solid wood from logging operations, we can create smaller slash piles which will reduce smoke and greenhouse gas (GHG) emissions into the atmosphere.

Utilizing more fibre becomes even more relevant when we consider that by 2026 the provincial allowable annual cut is projected to decline by approximately 6.8 million cubic meters (m³) to 56 million m³, down significantly from the current rate of 62.8 million m³(¹). What is the impact to the environment from slash pile burning? Today, we estimate that in BC alone, slash pile burning releases approximately 4.6 million tonnes of greenhouse gas emissions (CO₂e)² into the atmosphere annually. The Environmental Protection Agency estimates this is equivalent to the emissions attributed to the annual energy use of 580,000 homes³.

We must be mindful; utilizing more fibre from our forests sounds easy but depending on where you are in BC, it can be constrained simply by fibre supply balances and economic factors. Operators who are close to a pulp mill, energy facility, cant mill,

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West Chilcotin Forest Products project with logs being loaded onto a barge to be shipped to pulp companies.

Photo credit: FESBC.

IMAGE LEFT. A bio-log recovery project in the Skeena Region of BC.

Photo credit: Pinnacle Renewable Energy Inc.

or a fence post facility have a higher chance of success utilizing biomass than one that is remote where the economics of utilizing this fibre are negatively impacted by high transportation costs. Growing a healthy, secondary forest products sector is critical to address the demand function of this equation.

The Government of British Columbia recognizes the need for change, and captured this when it authored Modernizing Forest Policy in BC¹, an intentions paper seeking to create a stable forestry sector for the future by addressing the issues we face today. The authors suggest that policy reform is required to reduce the burning of slash piles to reduce our GHG emissions and to provide fibre for manufacturers, including emerging businesses associated with the bioeconomy.

As the industry pivots, there have been a series of initiatives to help the transition we envision. The Office of the Chief Forester (OCF) and the Forest Tenures branch have been leading the way on this; working with FPInnovations researchers, staff have created inventories of economic and uneconomic biomass available to potential investors and current operators in 23 timber supply areas⁴. They have also created the BiOS App Model — software to enable companies to plan in advance where, when, and how much biomass will be available to secondary facilities. This should assist in merging/coordinating/harmonizing the secondary fibre supply chain with the primary or sawlog/solid wood product fibre supply chain, thereby reducing logistical challenges and costs. Additionally, a series of trials have been initiated, where post-harvest residuals are being ground in the cutblock to facilitate transportation and then weight scaled to validate the assumptions made in both the inventories and the BiOS App.

One such trial was completed in Topley, BC⁵ on a 31.1 hectare (ha) mountain pine beetle (MPB) impacted cutblock located in the sub-boreal spruce (SBS) biogeoclimatic zone. The BiOS App predicted

4,300 m³ of biomass would be available at roadside following harvest. The trial measured 4,410 m³ (56 m³ per ha) of biomass at the roadside⁶. In 2021, 47,973 ha — 28 per cent of the total harvested area in BC — was classified as SBS. From this biogeoclimatic zone alone (assuming all stands harvested in the SBS in 2021 were the same as the trial block), we can suggest that approximately 2.7 million m³ of biomass was physically available for secondary fibre users. While the trials completed to date have had varying results, and the above scenario does not consider stand level variability (a switch to greener harvest profiles and harvesting type), we can start to imagine how this research can assist investment or policy decisions that would bolster investments in the secondary industry and ultimately increasing demand for this fibre.

Modellers, foresters, and economists within the OCF have developed tools and other materials to help educate us about the benefits, costs, and impacts of fibre utilization; explaining in simple terms how the atmosphere benefits over time. For instance, the Utilization Tool (UTÖL) was developed to estimate the carbon benefit of utilizing wood versus burning it, at the cubic meter level. With simple inputs, it tells us that a 50 m³ truckload of top logs used for pulp rather than burned in a debris pile, avoids 22 tonnes of CO₂e from entering the atmosphere, equivalent to removing 4.9 mid-sized vehicles off the road for one year³. OCF Researchers can also tell the story of the substitution benefits of using mass timber over steel and cement.

Through the Incremental Haul Program, FESBC allocated \$63.4 million to assist in the transportation of 4.8 million m³ of stranded low-value fibre or biomass that would have otherwise been burned. In doing so, this program avoided approximately 1.4 million tonnes of CO₂e emissions⁷. This fibre was shipped to pulp mills, energy

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PREDICTING FOREST INSECT OUTBREAKS: Insights for Proactive Forest Management

The world's climate and weather are changing, and British

Columbia is already experiencing significant impacts. These changes are increasingly affecting forest ecosystems by enhancing and changing insect disturbances. Forest professionals must make decisions today that will foster healthy and resilient future forests in a disrupted climate. This is a challenging task.

The effects of climate change are already apparent for insect pests in BC's forests. Over the past three decades, western Canada experienced multiple, large outbreaks of native bark beetles. The mountain pine beetle outbreak affected approximately 20 million hectares of forests in BC between 2000 and 2020. More recent trends show widespread and concerning surges in bark beetle populations for spruce beetle, Douglas-fir beetle, and western balsam bark beetle. In addition to bark beetles, insect defoliators like western spruce budworm, western hemlock looper, two-year cycle budworm, and Douglas-fir tussock moth impact hundreds of thousands of hectares of forest ecosystems each year in BC.

To effectively manage insect pest dynamics driven by a rapidly changing climate in forests, forest professionals need science-based predictive tools. The Future Forest Ecosystems Centre (FFEC) is a new scientific team within the Ministry of Forests, Office of the Chief Forester, focused on providing research, data, tools, and guidance for climate change adaptation. The FFEC aims to help forest professionals anticipate and proactively manage for changes in biotic disturbance regimes. In this article, we describe our forward-looking models for the western spruce budworm and mountain pine beetle. These models were developed using species distribution models and multiple climate prediction models to identify new ranges and high-risk areas for future forest insect outbreaks.

Study 1: Dynamic Outbreak Distribution Models for Western Spruce Budworm (WSB)¹

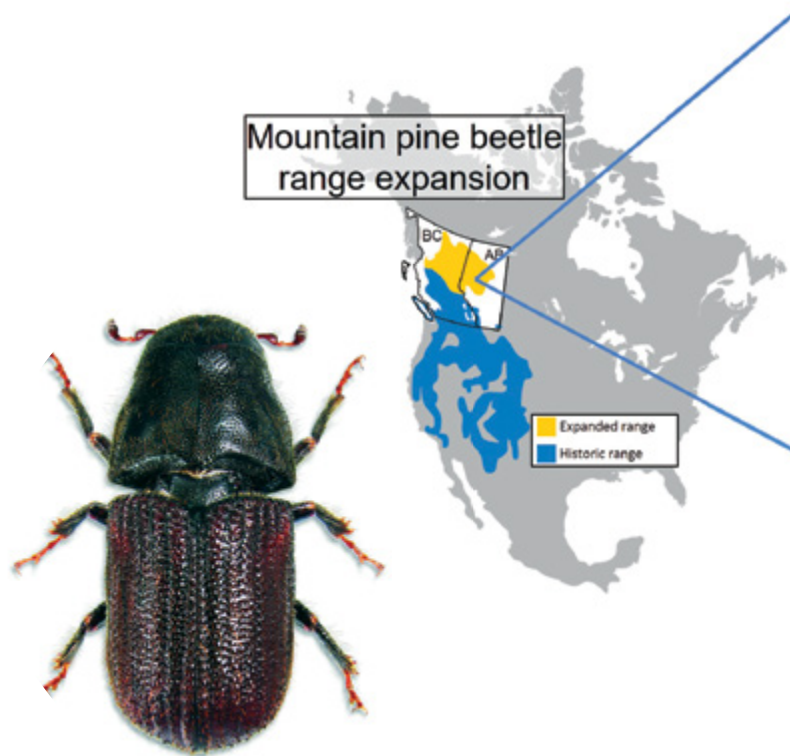
Species distribution models (SDMs) are a set of analytical tools used to determine suitable environ-

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Vivek Srivastava, PhD is a Data Scientist at the Ministry of Forests and a Postdoctoral Research Fellow at UBC. Vivek studies forest pests and develops spatial-temporal pest risk mathematical models to help detect and mitigate the spread of forest pests. Invasion ecology, pest risk modelling, mapping, and forecasting future range shifts and impacts are central to his research program.

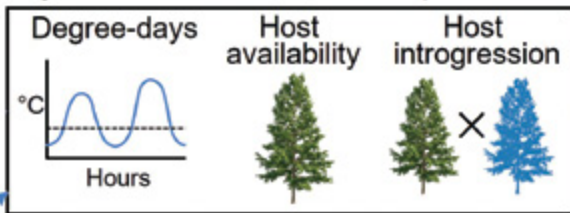
FIGURE 1.

Modelling flow used to create DSDMs to predict the potential distribution of invasive mountain pine beetle (MPB) populations in the western boreal forest.

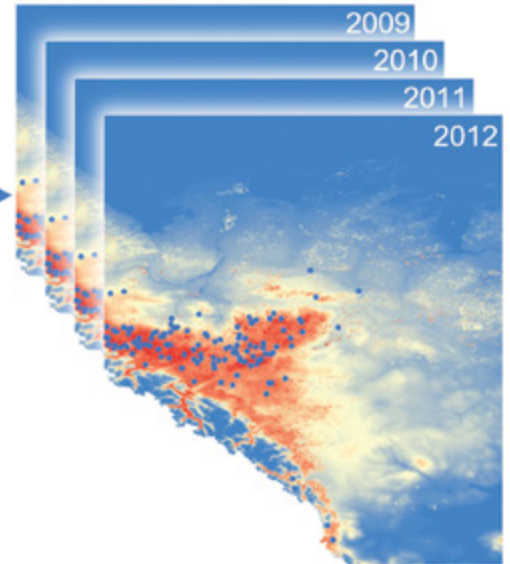


mental conditions for the establishment of a species by identifying areas with the same environmental conditions as those where species occur naturally. SDMs can be categorized into two groups, static and dynamic, depending upon how they consider both environment and the ecological niche of the species. Static SDMs treat the environment and ecological niche of the species as essentially invariant, such as using occurrence and climatic data averaged over long reference periods. Dynamic SDMs acknowledge dynamics of environment and species' ecological niches and facilitate niche modelling by matching species observational data relative to environmental data. Static SDMs assume constant environmental data and may not account for temporal and spatial variability. Such an SDM approach may lead to inaccurate predictions and ineffective management strategies if important ecological relationships are not considered.

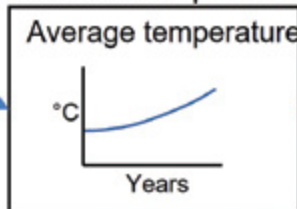
Dynamic abiotic and biotic predictors



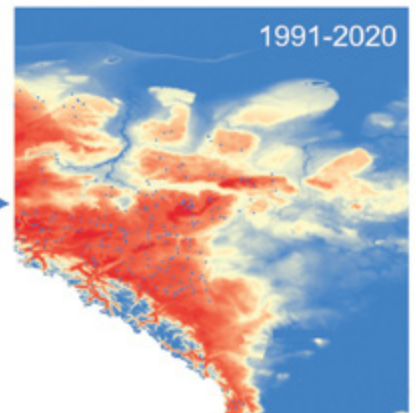
Dynamic species distribution



Static abiotic predictors



Static species distribution



Forest health surveys provide valuable spatiotemporal data regarding both the true presences and absences of irruptive insect populations that have reached outbreak densities - an ideal opportunity for the application of dynamic SDMs. In the following, we refer to DSDMs as DODMs since we used them to predict outbreak distributions and monitor endemic areas for proactive management.

In Study 1, we developed novel dynamic outbreak distribution models (DODM) to predict the distribution of WSB outbreaks over time using presence and absence records of WSB outbreaks combined with environmental variables. The western spruce budworm (WSB) is a conifer defoliator characterized by landscape-scale outbreaks. This insect is a “native invasive” forest pest — a native in BC expanding its range into historically climatically unsuitable areas (*for further information, see reference #1*) WSB feeds primarily on Interior Douglas-fir needles. The impacts of WSB outbreaks on forest

ecosystems can be severe and long-lasting, resulting in reduced tree growth, increased tree mortality, and changes in forest composition.

The modeling results showed an excellent correlation with recent WSB outbreak distributions and generated predictions that indicate a northward shift in WSB outbreak populations (*for further information, see reference #1*). The most relevant variables that predicted accurate WSB outbreaks were May to September precipitation; degree-days below 0°C; beginning and ending of frost-free periods; precipitation as snow; and, crucially, phenological synchrony i.e. absolute difference in the dates between Douglas-fir budburst and budworm larval emergence. Using these variables, we identified high-risk areas for future WSB outbreaks and predicted the extent of range expansions under different climate scenarios.

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The Social Side

FIGURE 1. John Walker, RPF, leads a field tour with Williams Lake First Nation (WLFN) Elders, the WLFN FireSmart Coordinator, BC Wildfire Service, wildfire researchers, and a local artist to discuss forest and fire management in WLFN territory.

Photo credit: Kelsey Copes-Gerbitz, PhD.

As a forest professional, have you ever led a field tour, discussed your plans for a project at a conference or public meeting, or negotiated with people who have different values or perspectives? The relationships that professionals have, and the information and processes they use to make decisions, are all a part of the social side of forestry — an often overlooked, but increasingly important, component of today's forest management context (Figure 1).

Foresters typically choose their profession because they are happiest connecting with the trees, but it can be a little more challenging for some to see the value in connecting with people too. Yet the social side of forestry is an important part of continuing professional development, creating opportunities to learn from colleagues, contractors, communities,

and a constantly evolving professional practice. Increasingly, professionals are faced with the reality that managing the complex forest landscapes of BC requires collaboration and making socially informed decisions. These decisions are a product of training within institutions and communities of practice, place-based experiences (learning and developing a deep understanding of a particular landscape and/or community), personal and professional values, and the way professionals interact with others. Socially informed decisions therefore vary greatly from one person to the next, even when operating under similar legal frameworks such as the *Forest and Range Practices Act* and the *Professional Governance Act*. Understanding how and why the social side of forestry has changed through time, and the impacts of those changes, can help foresters and society more broadly identify appropriate approaches to address complex forest-based challenges.

One challenge that is increasingly uniting BC is wildfire. Wildfire is a natural part of BC's landscapes but at the same time continues to have devastating impacts on the things people value. The 2017, 2018, 2021 and 2023 seasons are profoundly shifting how wildfire is managed in BC, and each year adds urgency to the need for comprehensive management solutions. While wildfire is considered a biophysical process, how it is managed and why those management decisions are made are inherently socially informed

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Shannon Hagerman, PhD, is an Associate Professor in the Department of Forest Resources Management and principal investigator of the Social-Ecological Systems Research Group at UBC. Her research examines the science-policy-management interface in the context of adapting conservation and resource management to climate and other drivers of change.

Lori Daniels, PhD, is a Professor of Forest Ecology in the Forest and Conservation Sciences Department at UBC. Her research investigates fire regimes, forest dynamics, and forest and community resilience to climate change in BC.

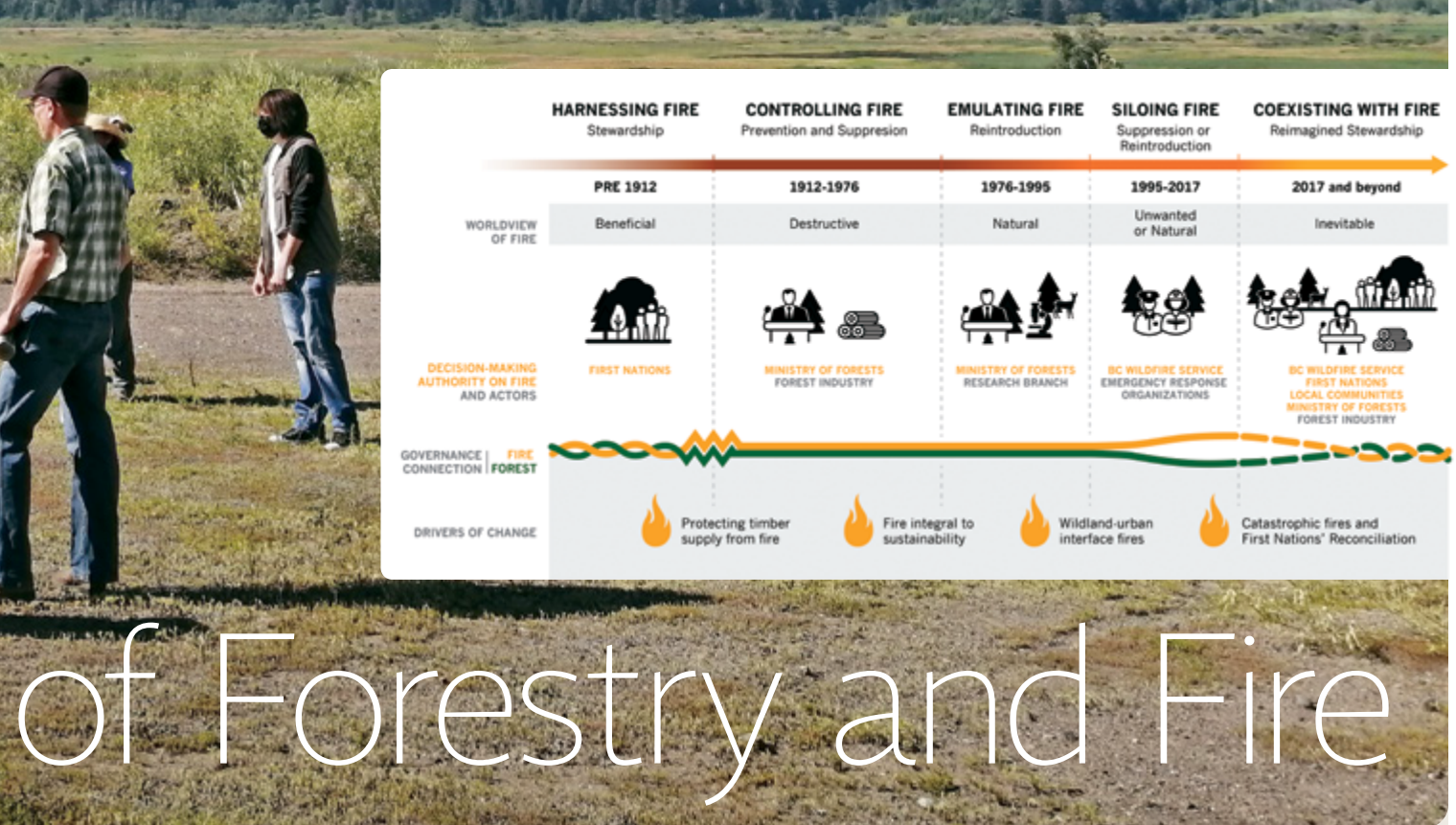


FIGURE 2. *Fire governance eras: Harnessing Fire (pre-1912), Controlling Fire (1912–1976), Emulating Fire (1976–1995), Siloing Fire (1995–2017), and Coexisting with Fire (2017+).*

decisions that have unsurprisingly changed through time based on different contexts. Understanding how and why wildfire management has changed requires tracking the long-term evolution of wildfire-based decision-making, including how it has (or has not) been connected to forest practices.

Wildfire Governance in BC

Wildfire governance includes elements such as actors (agencies, organizations, professionals, communities), their worldviews (perspectives) and objectives, and their socially informed processes for decision-making, such as the types of information and expertise they use to make management decisions. Governance is dynamic — different elements change at different paces and spatial scales. In BC, wildfire governance is inherently embedded in forest and land governance more broadly, yet has sometimes evolved independently. The way wildfire is governed has tangible — although often slow to perceive — outcomes on the landbase that are realized through management decisions. A common example is the fire suppression paradox, whereby historical decisions to exclude fire are in part contributing to larger and more severe fires today. Despite the complexity and dynamism of wildfire governance, analyzing it through time reveals distinct eras of continuity, periods of rapid change, and some of the legacies we are still working to overcome as we grapple with the reality of modern-day wildfires.

The five governance eras delineated in *Figure 2* arise from research conducted from 2019 to early 2021¹ and are based on a review of 157 documents (including Ministry of Forests (MoF)² Annual Reports from 1912–2020, Forestry Commission Reports, provincial and federal wildfire strategies, independent wildfire reviews, MoF Research Branch reports, and provincial wildfire legislation) and interviews with 19 regional and provincial wildfire and forestry experts. Any quotes

provided are directly from either interviewees or documents analyzed. The history presented here is one characterization of fire governance in BC, derived from the specific datasets and approach described above; individual perspectives and experiences grounded in particular places and times may be different. Tracing key governance elements through time, specifically the dominant objectives and worldviews of fire, actors with decision-making authority, and connections between fire and forest governance revealed five eras: **Harnessing Fire** (pre-1912), **Controlling Fire** (1912–1976), **Emulating Fire** (1976–1995), **Siloing Fire** (1995–2017), and **Coexisting with Fire** (2017+).

In the **Harnessing Fire** era, First Nations stewarded fire and fire-dependent landscapes through intentional ignitions, management of lightning-ignited fires, and a responsibility of care.³ Colonial actors largely denied the benefits of fire stewardship, overtly implementing legislation prohibiting burning (such as the *Bush Fire Act* of 1874) while also largely stripping First Nations of their access to land. Colonial objectives negatively impacted First Nations' stewardship prior to 1912, yet it was the creation of the MoF and the *Forest Act* that shifted decision-making authority to the provincial government in the **Controlling Fire** era. The government primarily viewed fire as a destructive “common enemy”⁴ to the timber industry of the growing province, and the MoF built an organization equipped with the “boys and the toys”⁵ to suppress every fire. By the 1970s, however, research was demonstrating the important “historical relationship between fire and the major ecosystem types,”⁶ which brought about the **Emulating Fire** era. As such, in collaboration with the Ministry of Environment and forest industry, the MoF worked to reintroduce fire where possible (through ecosystem restoration burning) and emulate it otherwise (through specific silvicultural methods).

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The **Emulating Fire** era was cut short, however, when wildland-urban interface fires began to raise concern over the need to re-focus on wildfire control. Starting in 1995, the **Siloing Fire** era saw different objectives of fire (control or reintroduction) in different locations, as well as the “big divorce” when the BC Wildfire Service effectively separated from the MoF. Emergency management organizations also became important actors during this era. In 2017, the catastrophic wildfire season and a strengthening of reconciliation efforts with Indigenous Peoples drove the beginning of a transformative shift in wildfire governance. The **Coexisting with Fire** era is still emerging but is grounded in the reality that wildfire is inevitable. To address this inevitability, the primary objective has become to “*improve community resilience through proactive and collaborative hazard management*.”⁸ Because of this, more actors are required to share responsibility to address fire risk, and this era has set the stage for First Nations and local community involvement in all phases of wildfire management.

Within each of these eras, the connection between fire governance and forest governance remained relatively stable, yet there were significant changes between eras. In the **Harnessing Fire** era, fire and forest governance were intertwined through First Nations-led stewardship with decisions made at local and territorial scales.³ Local governance power was superseded during the **Controlling Fire** by the provincial government. As a result, the governance link was partly severed during the **Controlling** and **Emulating Fire** eras, when decisions about fire were mostly top-down, with primary consideration of how fire would affect forests and grasslands. During these eras, fire and forest decisions were made at provincial and regional (district) scales, so there was a wealth of place-based and connected expertise. Nevertheless, the expertise of First Nations and local communities was rarely trusted or incorporated into government-led decision-making. From a wildfire response standpoint, the reliance on connected expertise within a single organization created challenges because forestry would essentially stop during a busy fire season. Furthermore, because of the regional structure, borrowing resources from another region during a busy season was difficult. When the “big divorce” created the BC Wildfire Service as a provincial line-of-sight organization that worked alongside the MoF in the **Siloing Fire** era, the governance connection between fire and forests was further severed: “the forest sector went and did forestry and the fire people went and did fire.”⁹ The Filmon Report (2004) noted that the “big divorce” created silos where “decisions [were] made by one group without necessarily considering the implications for the other,” and highlighted the importance of overcoming these siloes to focus on proactive management. The Abbott Chapman Report (2018) reiterated this need, and further called for a governance shift in the **Coexisting with Fire** era in which “strategic partnerships and operational agreements with key community members, forest professionals, First Nations, [and] tenure holders” would provide a local and place-based form of expertise.

Coexisting with Fire — Together

While calls in the Filmon and Abbott Chapman Reports for connected and more diverse expertise are echoed by First Nations and local communities, the legacies of top-down and siloed decisions are proving challenging to overcome in the **Coexisting with Fire** era. If the **Coexisting with Fire** era is going to be collaborative, there needs to

be more opportunities to reconnect fire and forest expertise, and to empower marginalized forms of expertise such as First Nations and local knowledges. Collaboration is a socially-informed practice; we need to understand that *who* is making the decisions, *how* they do so, *what* expertise is included, and *who else* those decisions affect is just as important as the economic and ecological contexts. Luckily, much important work on incorporating the social side of forestry and fire has already begun with a resurgence and strengthening of community and regional decision-making processes, resulting from a critical reflection of what counts as expertise. This work has also helped create contexts within which fire and forest-based decision-making are being reconnected.

For example, BC Community Forests are implementing innovative forest practices to reduce wildfire risks around their communities, connecting their forestry and fire expertise to that of First Nations and local communities¹⁰. First Nations communities and organizations (such as the First Nations Emergency Services Society and Interior Salish Firekeepers) are leading the revitalization of cultural and prescribed burning all while planning for healthy territories and communities for future generations. Community Wildfire Roundtables in the Interior are bringing together a wide range of expertise to address place-based wildfire issues across multiple organizations through group meetings focused on strategic, tactical, and operational planning.¹¹ And, the Forest Landscape Planning process has the potential to support collaborative decision-making on the land, recognizing that landscape fire management is required for resilience moving forward.¹²

Practically, what can we learn from the history and evolution of wildfire governance in BC? **Coexisting with Fire** requires everyone to play a role in addressing wildfire risk through their professional and personal lives, and yet history demonstrates that certain worldviews, objectives, and values have dominated decision-making for at least 100 years. Rather than an emphasis on *outcomes* (such as controlling or emulating fire), the recent examples described above emphasize creating *processes* (such as networks, formalized groups, or knowledge exchange activities) that actively work to bring people with different forms of expertise together and navigate through complex decisions. These processes are longer-term and demand a commitment to socially informed practice. For many in the forest sector, socially informed practice is considered necessary for building social license, support, or buy-in. History also demonstrates that intentionally changing the way fire is governed is possible. At an individual level, consider the relationships you have, as well as the relationships you need to develop, to help foster more collaborative decision-making. As institutions and communities of practice, consider what additional supports (such as financial or educational) are needed to prioritize and value the work of creating collaborative processes. The commitment to socially informed practice is imperative given that the wildfire problem is increasingly a forest management problem (Figure 3).

While there are many important examples to draw from, additional opportunities to grow and strengthen connected fire and forestry communities of practice are needed. Intentionally bridging gaps between our social contexts, such as different ways of knowing, forms of training, and place-based experiences, is imperative. **Coexisting with Fire** requires enabling *everyone* to work together towards more collaborative, respectful, and socially informed solutions that are as complex and dynamic as the landscapes we live with. ❖




FIGURE 3: A group of forest, fire, and community resilience professionals tour a multi-agency and community prescribed burn to learn about its benefits and challenges. Photo credit: Kelsey Copes-Gerbitz, PhD.

REFERENCES/FOOTNOTES

1. Copes-Gerbitz, K., Hagerman, S. M. and Daniels, L. D. 2022. Transforming fire governance in British Columbia, Canada: an emerging vision for coexisting with fire. *Regional Environmental Change*. 22:48.
2. The Ministry of Forests (MoF) and BC Wildfire Service are the names used in this article, though we recognize each have gone through multiple name changes and configurations through time.
3. Lake, F. and Cardinal Christianson, A. 2019. Indigenous fire stewardship. *Encyclopedia of Wildfires and Wildland-Urban Interface Fires*. 1-9.
4. Province of British Columbia, Department of Lands. 1914. Report of the Forest Branch. King's Printer, Victoria, Canada.
5. Interviewees from the BC Wildfire Service (#13) and a non-governmental organization (#11).
6. Province of British Columbia, Ministry of Forests. 1981. Forest Research Review. Ministry of Forests Information Services Branch, Victoria, Canada.
7. Interviewees from a non-governmental organization (#18) and the BC Wildfire Service (#12)
8. Province of British Columbia, Ministry of Forests, Lands, Natural Resource Operations and Rural Development. 2020. Annual Service Plan Report of the Ministry of Forests, Lands, Natural Resource Operations and Rural Developments. Ministry of Forests, Lands, Nat Res Oper Rural Dev, Victoria, Canada.
9. Interviewee from BC Wildfire Service (#10).
10. Copes-Gerbitz, K., S. Dickson-Hoyle, S.M. Hagerman, and L.D. Daniels. 2020. BC Community Forest Perspectives and Engagement in Wildfire Management. Report to the Union of BC Municipalities, First Nations' Emergency Services Society, BC Community Forest Association and BC Wildfire Service. September 2020. 49 pp. Also see article in BC Forest Professionals Magazine Winter 2021 issue.
11. https://www.fraserbasin.bc.ca/Community_Wildfire_Roundtables.html
12. BC Forest Practices Board. 2023. Forest and Fire Management in BC: Toward Landscape Resilience. Special Report 61.



Hiking trails on Dilworth Mountain. Photo credit: City of Kelowna

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urban heat island effect, among many other drawbacks. The urban heat island effect occurs when natural land cover is replaced with dense concentrations of surfaces that absorb and retain heat, such as buildings and pavement. Air pollution increases, as does energy costs and heat-related mortality and illnesses.

The Impacts of Our Changing Climate

Last, and perhaps the most universal challenge facing urban foresters, is climate and weather change. Atypical precipitation and prolonged drought are becoming prevalent in our region and increasing the need for permanent or semi-permanent irrigation. Severe and unusual weather like strong wind events and heat domes are causing damage to trees at a more frequent rate than in the past, which increases costs and impacts regular maintenance schedules. Looking to the WUI, climate change is influencing fire behaviour on the landscape, which increases risk to communities. Our natural areas and natural parks are often located within or adjacent to the WUI, providing connection and access to the greater natural environment for citizens; however, access to these areas can inadvertently translate to opportunity for ignitions. These areas must be managed to a higher intensity for fuel mitigation and wildfire risk reduction — supported through Community Wildfire Resiliency Plans — to ensure they are as resilient as possible.

Less talked about (but something I'm certainly seeing in the Okanagan), is shifting seasons. Warm temperatures lasting longer into the fall and cooler temperatures lasting into the spring are causing delayed dormancy and bud break timing issues for some species, which contribute to increased stress and lower resiliency. Urban forestry benefits from relative freedom with respect to assisted species migration, but research and shared knowledge are needed to support these efforts. In coming years, I hope stronger active collaboration and connection is pursued, within and across international borders, to learn from communities that are already facing similar or forthcoming climate challenges.

The Critical Role of Urban Forestry Now and in the Future

The Canadian Urban Forest Strategy states “as the geographic and social distinctions between urban and rural become less

clear, urbanization raises environmental and public health and safety concerns, thereby creating a need for educational and environmental links between urban people and nature. Urban forestry is multidisciplinary and multifaceted, comprised of many actors in research, policy, practice, and community engagement. Urban forestry includes the development of citizen involvement and support for investments in long-term on-going tree planting, protection, and care programs” (CUFS 2019 – citation as above). In practice, on any given day, this can look like assessing individual trees to writing fuel management prescriptions, presenting to council or responding to media, and supporting policy development to managing a team. It is professionally challenging, but very rewarding, to accommodate this scope of diversity. And as the practice of urban forestry continues to grow, it will be critical for professionals to adapt and advocate for change as well.

In Kelowna, we are continually exploring ways to innovate. My team, supported by other municipal departments and external collaborators, are currently working on several new initiatives aimed at addressing the discussed challenges and related issues. These include looking for new ways to use the urban forest to help mitigate and adapt to climate change, by expanding existing programs, like NeighbourWoods (a residential planting initiative encouraging citizens to grow and preserve the urban forest in Kelowna), to support planting more trees on private property. We're also improving collection and incorporation of data from our urban forest in order to quantify the value of the forest, allowing for direct comparison against the benefits and costs of grey infrastructure. This helps inform project development and priority of green infrastructure placement throughout the city. And new collaborations with BC Cattlemen's Association, the Ministry of Forests, and Environment and Climate Change Canada are allowing for innovation in wildfire fuel management projects through targeted grazing and habitat restoration initiatives. ✖

*Urban forestry continues to grow and expand as a professional practice. Look for our new column on urban forestry in upcoming editions of **BC Forest Professional**. We'll explore the successes and challenges of urban forestry, including best practices, guidelines, development, and more.*



A wood fibre utilization project of the Central Chilcote Rehabilitation Ltd. near Williams Lake, BC. Photo credit: FESBC.

Continued from Page 13 *A Practical Case for Utilizing Low Value Fibre Derived from Logging*

facilities, and family-owned cant mills at an average cost of \$45 for every tonne of avoided CO₂e.

This is clearly a measurable reduction in GHG emissions, but in an industry built on tight margins and at a time when society has many demands, does it make sense to make these investments?

One way to answer this question is by using what scientists and economists call, the social cost of carbon (SCC). The SCC provides an estimated cost (in dollars) of the damage caused globally by a tonne of GHG emissions released into the atmosphere. The SCC model incorporates various impacts, such as health outcomes, agriculture production, and property values, offering a comprehensive assessment of the true cost of emissions reduction. Currently, in Canada, total damages are estimated at \$54 per tonne of CO₂e⁸.

SCC also serves as a useful metric when considering the potential benefits of actions taken to reduce GHG emissions. Under this lens, the FESBC Incremental Haul Program's per unit cost of \$45 per tonne of CO₂e is less than the current SCC and since the benefit outweighs the cost, we can assume the program is effective and will pay for itself in the long run. The FESBC programs stand up well to more well-known programs aimed at addressing climate change.

Investments in the expansion of fibre utilization has other benefits to society beyond what can be measured in terms of GHG's. The FESBC investment in utilization alone created approximately 540 direct and indirect jobs including those for machine operators, truck drivers, mill workers, and administrators while making significant contributions to the economy and tax base of BC. The investment from private industry was also substantial. For every dollar FESBC invested in a log that would be burnt, the industry put in approximately three to process, load, and partially transport that same log to a secondary facility. Collectively, the investments made by both FESBC and its partners created over 2,000 jobs in rural BC.

Our industry is in transition. Our ability to make use of the resources available to the fullest extent will most certainly help us navigate this transition and preserve the tremendous value British Columbians derive from our forests. The BC forest sector benefits by having many of the leading thinkers within the OCF on climate change. Whereas before we always knew burning was the least cost and least environmentally friendly means to abating our wildfire hazard, today we know that investments in utilization will help avoid significant GHG emissions from entering the atmosphere, will create meaningful jobs in rural communities, while contributing to the provincial tax base. We know these investments stack up well against other climate change reduction programs/policies. We also have a better sense of where the fibre is and how much is available to us. Most importantly, we know through the performance of companies that have used FESBC incremental haul funding, that the institutional knowledge exists to overcome the operational barriers that previously were in the way of the paradigm shift that is front and center. ❌

REFERENCES

1. Modernizing Forest Policy in British Columbia Setting The Intention and Leading the Forest Sector Transition; online at https://www2.gov.bc.ca/assets/gov/farming-natural-resources-and-industry/forestry/competitive-forest-industry/modernizing_forestry_in_bc_report.pdf
2. Provincial Inventory of greenhouse gas emissions 1990-2020. Average from 2011 to 2020. CO₂e means "carbon dioxide equivalent". CO₂e is a measurement of the total greenhouse gases emitted, expressed in terms of the equivalent measurement of carbon dioxide.
3. United States Environmental Protection Agency - Greenhouse Gas Equivalencies Calculator. <https://www.epa.gov/energy/greenhouse-gases-equivalencies-calculator-calculations-and-references#houseenergy>
4. <https://www2.gov.bc.ca/gov/content/industry/forestry/forest-tenures/forest-tenure-administration/residual-fibre-recovery/residual-fibre-utilization-operational-support>
5. Spencer, S. Validation of FPinnovations BioS App in Topley, BC: Methodology and Results. September 2020. Online at https://www2.gov.bc.ca/assets/gov/farming-natural-resources-and-industry/forestry/supporting-innovation/bios_app_validation_-_topley.pdf
6. The report listed for reference #4 uses oven dried tonne (ODT), which is a biomass measurement. The author of this article has converted ODT to cubic metres (m³).
7. Calculated from UTOL software developed by Garrett McLaughlin, RPF.
8. <https://www.canada.ca/en/environment-climate-change/services/climate-change/science-research-data/social-cost-ghg.html>

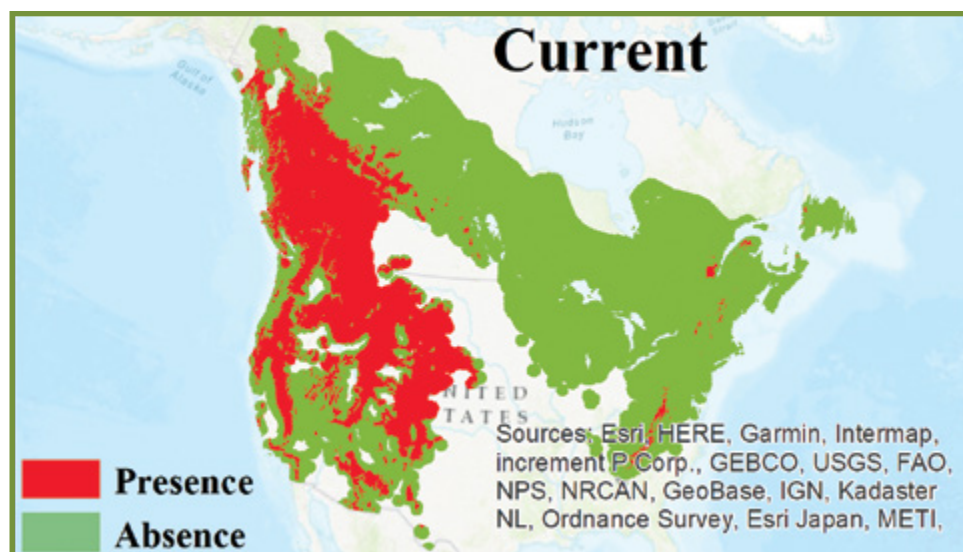


FIGURE 2. Distribution changes between select time periods and climate change scenarios depicting predicted contraction, expansion, and areas of no change in MPB outbreak distributions. Predicted distributions of MPB associated fungi have been overlaid to identify mutually conducive zones.

Continued from Page 15 Predicting Forest Insect Outbreaks: Insights for Proactive Forest Management

Study 1 is a “proof of concept” using newly configured DODMs that incorporate biologically relevant, species-specific biological data in combination with environmental variables. This study is the first step towards incorporating forest health information and future impacts into operational planning tools for defoliators. Predicting areas of range expansion and areas of high outbreak susceptibility allow for proactive harvesting and silvicultural methods now (e.g. tree species selection and spacing) to reduce stand susceptibility in areas of high climate suitability.

Study 2: Dynamic Species Distribution Models for Mountain Pine Beetle (MPB)²

Mountain pine beetle is a second “native invasive” forest insect species in western Canada that has massively impacted BC. During the last outbreak, the mountain pine beetle expanded its historical range within BC to the north and east into the boreal forest. This insect now has the potential to spread across the transcontinental boreal forest.

Study 2 used novel dynamic species distribution models to represent temporal variations in the environment that match the timing and location of the insect species occurrence. Previous mountain pine beetle distribution models used static distribution methods. As with the western spruce budworm, the new dynamic modeling approach for mountain pine beetle incorporates both dynamic biotic and abiotic predictors to account for year-to-year variability.

To build the model in Study 2, we used host tree availability, degree of native host tree (lodgepole pine) and novel host tree (Jack pine) introgression (i.e. the level of host tree hybridization), and interannual variation in climatic variables to develop a model that reproduced robust temporal trends of MPB distributions (Figure 1). The model outputs were able to match the range expansion resulting from the last mountain pine beetle outbreak.

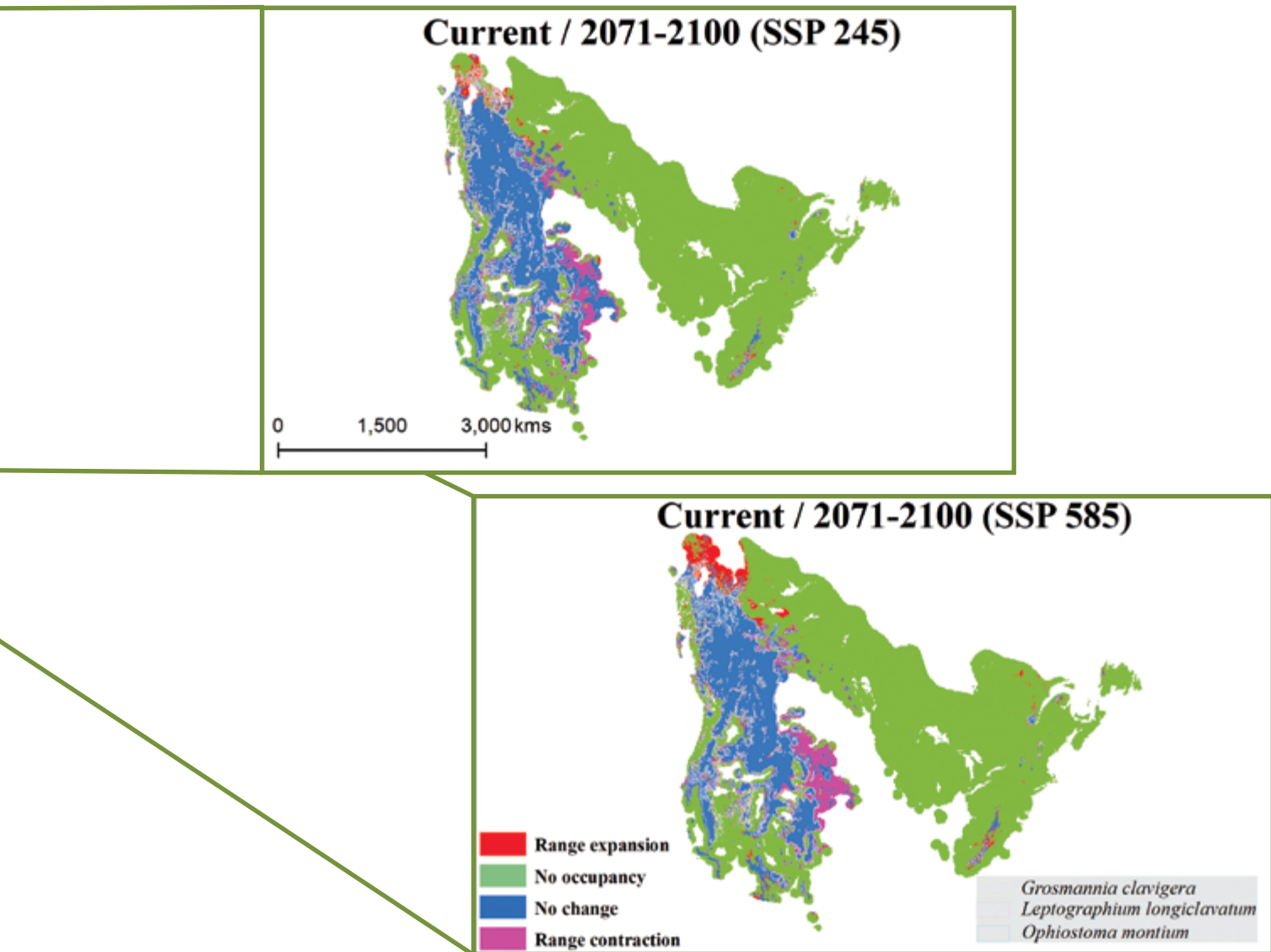
Surprisingly, the degree of lodgepole pine-Jack pine introgression was

the most consistent predictor of habitat suitability; even small degrees of Jack pine introgression reduced habitat suitability and the likelihood of observing MPB occurrence (*for further information, see reference #2*). Successful insect attack on host trees during range expansion is the outcome of complex interactions involving beetles, host trees, and the environment, but these new results suggest that Jack pine-dominated forests across the boreal are less suitable for mountain pine beetle population expansion than was originally feared. This new dynamic approach is a step towards the clarification of risk in future forest ecosystems from forest insect disturbances like mountain pine beetle.

Study 3: Climate-Driven Range Changes and Bark Beetle-Fungal Interactions³

Study 3 will build on the approach used in Study 2 by incorporating the climate thresholds for bark beetle-associated blue-stain fungi. Modeling studies often do not take the interaction of the beetles and their associated fungi into account, although both are critical for the efficient and successful colonization of host trees species. Three fungal species are commonly associated with MPB: *Grosmannia clavigera*, *Ophiostoma montium*, and *Leptographium longiclavatum*. These fungi are sensitive to temperature extremes, and it is likely that warming temperatures will impact the success of bark beetle-fungal communities within host trees.

Given the anticipated variations in the response of MPB and its fungal symbionts to changing climate, assessing the risk of eastward spread through species distribution models presents a unique opportunity, particularly in the context of the invasion of novel habitats. Such an assessment could reveal the possibility of mismatched co-occurrences, potentially impacting the outbreak potential of MPB. Mapping the distribution of both the MPB and its associated fungi under climate change scenarios can provide critical information to identify mutually conducive zones for the



study of the bark beetle-fungal complex and highlight areas at a greater risk of outbreaks. This study can help inform proactive forest management strategies that promote resilient forest ecosystems and help adapt to climate change.

Results suggest that MPB distributions in Canada and the United States are in agreement with the current climatic suitability. Range expansion is likely to continue under a range of climate scenarios and associated fungi will also continue to expand their ranges to assist successful MPB establishment in novel areas (Figure 2) In other words, mountain pine beetle range expansion and the elevated potential for future large outbreaks will not be limited by the biology of its associated blue-stain fungi.

Conclusion

We are striving to push the frontiers of science to benefit future forest ecosystem health, and we aim to make science-based information openly accessible through FFEC and bark beetle portal. Robust,

data-driven decision-support tools for high-risk forest health factors allow forest professionals to identify current forest management tactics more confidently in uncertain conditions. Ultimately, we hope to include interactions of factors in forest ecosystems to understand changes to forest values such as timber, fibre supply, carbon storage, and biodiversity. These new approaches are just the beginning for predicting future forest dynamics under climate change, and for supporting a proactive forest ecosystem management approach to ensure the health and resiliency of future forests. ✖

REFERENCES

1. Srivastava V, Tai A, Robert J and Carroll AL. (2023 in review) A dynamic outbreak distribution model (DODM): proof of concept using an irruptive folivore, the western spruce budworm. Forest Ecology and Management. Available at SSRN: <https://ssrn.com/abstract=4446696> or <http://dx.doi.org/10.2139/ssrn.4446696>
2. Srivastava V and Carroll AL. 2023. Dynamic distribution modelling using a native invasive species, the mountain pine beetle. Ecological Modelling. Volume 482. <https://doi.org/10.1016/j.ecolmodel.2023.110409>
3. Srivastava V, Sambaraju K, Robert J and Carroll AL. (in progress) Mapping mutually conducive suitability areas of mountain pine beetle and its fungal symbionts: A modelling attempt to study bark beetle-fungal complex.

CPD REPORTING MADE EASY:

Key Takeaways from Last Year and

As we approach the end of the continuing professional development (CPD) reporting year, let's walk through last year's reporting highlights as well as some tips and FAQs to help ensure your success.

In the 2021-2022 period, 95 per cent of registrants were compliant. On average, registrants reported 45.6 hours, with some reporting as many as 400 hours. The top five learning modalities reported were on-the-job conversations, face-to-face classes/workshops, conferences, webinars, and e-courses.

We strongly recommend reporting your CPD hours within a week of completing the learning activity to avoid website congestion, timeouts, and data loss. Additionally, it is advisable to back up your CPD records as an Excel workbook (.xls or .xlsx) or PDF file after completing your annual reporting. This serves as a reliable failsafe and may also be a requirement from your employer.

When planning your professional development, be strategic and focus on addressing any competency (knowledge, skills, abilities, or behaviors) gaps you currently have, as well as considering future competencies you may need.

We have collated some frequently asked questions below to help you achieve success.

Can I carry over unreported CPD hours from one year to the next?

- ▶ No. You cannot carry over unreported CPD hours from one year to the next. You must engage in learning annually in order to maintain and improve your professional, practice area, and interpersonal competencies.

If I get seriously ill and cannot work, can I get an exemption from CPD?

- ▶ Yes. If you become seriously ill, or have to care for a dependent and cannot work, you qualify for a "special circumstances" exemption from CPD requirements. In this case, your CPD requirements will be adjusted to reflect your time not working. For example, if you took six months off of work you will only have to report 15 CPD hours (2.5 CPD hours/month × six months). If you would like to apply for a special circumstance exemption, contact CPDhelp@fpbc.ca.

If I am on a LOA do I have to report CPD?

- ▶ No. You do not have to report CPD while on a Leave of Absence (LOA). However, if your LOA is for only a portion of the year, you will have to report CPD for the period you were working. In this case, your CPD requirements will be adjusted to reflect your time not working. For example, if your LOA was six months you will only have to report 15 CPD hours (2.5 CPD hours/month × six months).

Does informal learning such as office conversations, meetings, and field-based discussions with other professionals qualify for CPD?

- ▶ Yes. Any time spent learning qualifies as CPD.

Where can I see how much CPD I have reported to date?

- ▶ The CPD Status Check graphic indicates — in real time — your CPD hours and percentage of completion. This tool is can be accessed from you CPD Reporting Tool page on the FPBC website.

Does volunteering for the FPBC Board, a statutory committee, or the Conference Planning Advisory Panel qualify as CPD?

- ▶ Time spent learning while volunteering for the FPBC Board, a statutory committee, or the Conference Planning Advisory Panel qualifies for CPD. However, time spent volunteering does not.

What happens if I do not report 30 CPD hours by November 30?

- ▶ If you do not report 30 CPD hours by November 30:
 1. You will receive a non-compliance notification.
 2. You will have to complete outstanding CPD on top of current year requirements. For example, if you only reported 15 CPD hours in the previous reporting period, you will have to complete 45 CPD hours in the current period.
 3. If you fail to report outstanding CPD hours you will be referred to the Audit and Practice Review Committee for a practice review.



Troy V. Lee is the manager of member competence and engagement with Forest Professionals British Columbia. He has a BSc in Forestry (UBC) and a Master of Arts in History (UNBC). Troy has over 20 years' experience in learning and continuing education. When not encouraging others to learn, he explores BC's backroads, backcountry, and trails on his mountain bike.

Essential Success Strategies

Do Trainees have to report CPD?

- ▶ No. Trainees (FIT, TFT, ASFIT, ASTFT) do not have to report CPD. However, we recommend Trainees become familiar with the CPD program and policies, as well as the reporting tool.

If the FPBC conference program indicates that a session is 1.5 CPD hours can I simply report 1.5 hours?

- ▶ Perhaps. If you learned throughout the entire session then report 1.5 CPD hours. If you only learned for a portion of the session, then report that.

I believe that I know everything I need to know for my professional practice. Why should I have to report CPD?

- ▶ Continuous learning is the hallmark of a forest professional. Given the rapid social, ecological, and legislative changes we are experiencing, it is unlikely you know everything. Plus, it is the law.

I received my professional designation in February. How much CPD will I have to report during the current period?

- ▶ If you received your professional designation in February, you will be required to report CPD for March to November 30. In this case, you will have to report 20 CPD hours (2.5 CPD hours/month × eight months).

I am enrolled in a Master's program and anticipate at least 200 hours of learning. Can I pre-report the time I may spend learning in this program?

- ▶ No. Pre-reported CPD hours do not qualify for this program. CPD hours must be reported after a learning experience.

I am not sure what practice area or key skill or ability to select in the first drop-down menu of the reporting tool. What should I do?

- ▶ In this case select "Other." There may be some learning activity topics that do not fall within one of the categories in the first drop down menu of the reporting tool. Do not overthink it. We are more or less looking for accuracy not precision. This drop down menu gives us a general idea of the alignment between your learning and the key competency buckets: professional, practice-area, and interpersonal competencies.

Align your professional development with your declared practice areas. Be intentional and strategic: focus on what you need to learn in the present, and what you may need for the future. Report soon after learning. Great work on all your efforts. ✖

UNBC Grad, ForestTrust Scholarship Winner 'Swimming' Along as FIT

Tom Younger knew he wanted to apply his passions as a professional forester, and that he wanted an adventure. Raised on ecologically and culturally diverse West Coast islands, he figured where better to learn and explore than the University of Northern British Columbia (UNBC), with its campus embedded in the emerald forest above Prince George and outdoor labs at the nearby Aleza Lake and John Prince research forests.

"These are the specialties of the UNBC forestry program," says Younger, a forester in training (FIT) and former ForestTrust scholarship winner. "On top of that, the thought of learning forestry in downtown Vancouver, as rural BC guy, didn't call me."

Younger grew up on Haida Gwaii and Quadra Island; his father, a forester, owns woodlots on both.

Younger recalls taking guide books to the beach at low tide with his dad and brother to inspect moss — step and electrified cat's tail. They would take their books to the forests as well.

"I was very lucky, growing up like that.

You get exposed to a lot of forestry enforcement law. Quadra's all about small-scale forestry," says Younger, who now works there for Huock Resource Consultants,

managing woodlots throughout northern and southern Vancouver Island.

"Ecology and biology have been a passion of mine since I was very young, and I wanted to find a way to make it my career," he adds. "Registration as a forest professional allowed me to find a niche where I can use my skills. Everyone I work with today is just as passionate as I am."

Younger graduated from UNBC in 2022 and received the Forest Professionals British Columbia Award for Excellence, a \$2,000 scholarship from ForestTrust given annually to a full-time undergraduate student in the Natural Resources and Environmental Studies program.

ForestTrust is the registered charity of Forest Professionals British Columbia (FPBC). It provides scholarships and bursaries to forestry students through 13 awards at nine accredited, post-secondary institutions in BC.

"I am very thankful to have been selected for the scholarship as it helped relieve the financial burden that comes with university," Younger says. "It provided me the opportunity to focus on my studies and pursue my passions."

His experience as an FIT, so far, has come with expected challenges, but support and supervision have helped.

"Adjusting to life as a professional is a big one. Performing quality work was

a change from being a summer student," Younger says. "The

sheer volume of new concepts has been challenging. Seven months later, though, I feel as though I am starting to swim instead of sink."

He still has a way to go.

Forestry at UNBC

UNBC forestry has come a long way.

Dr. Kathy Lewis, RPF, was one of the first 40 faculty members hired by UNBC before it opened in 1994, and is now interim dean for the school's faculty of environment, as well as interim vice-president of research and innovation, and a professor. Lewis is also former chair of the accredited Forest Ecology and Management degree program.

"At the time, it was probably the only program in the world that only had women in it because there were just two of us," says Lewis — her and Winifred "Wini" Kessler, the first program chair.

"I think, right from the start, we had a strong interest in the management aspects of natural resources. Our focus was less on the harvesting and processing of forest products and more on the ecology of the forest and how to sustainably manage it. There's much more in a forest than just the trees we want to harvest for wood products," Lewis adds.

"At the time we were first designing the degree, climate change was known, but it certainly wasn't at the tip of everyone's tongue like it is now. And we weren't seeing the tremendous ramifications of the climate change problems like the pine beetle



Mike Hall is a senior communications specialist with Forest Professionals British Columbia and is a former journalist and editor.



Tom with his dad Dave at the Quadra Island Woodlot Sign in 2023.

outbreaks and the wildfires right now."

UNBC had to adapt, teaching more about disturbance ecology and forest health, with a focus on issues such as climate change, wildfires, and insect infestation.

The changes are also reflected in the students who want to study forestry.

"The profession itself has gone through some ups and downs, which is kind of typical of a resource-based profession," Lewis adds. "I think, probably, our earlier students were thinking about forestry in a traditional way, and that was managing the forest sustainably for the goal of producing products."

Forestry students today are more interested in understanding the role of forest ecosystems in carbon sequestration and helping with climate change mitigation, says Lewis.

"They're recognizing that forestry isn't just a terminal degree to a specific career path. It actually opens doors to many other types of careers in graduate education. So I think that's one of the reasons we're maintaining relatively strong enrolment."

Lewis stresses, however, that staying in forestry is as important as ever.

"I would say it's a critically important profession right now. I would also say that forests can provide so much more than wood products, and we're really starting

to understand that now and many start-up companies and other companies are getting into producing things other than commodity wood and pulp products... we need folks who really understand that so we can get some of those wood products."

In Forests We Trust

Lewis helped select ForesTrust winners as a chair of the forestry program, and maintains that scholarships and bursaries are vital.

"We have students coming into university degrees from all walks of life and many of them don't have the resources they may need to get through an entire degree without having scholarships and bursaries available to them. Especially now. Housing costs are just going through the roof and inflation is affecting our students. We don't want to have the only people who can afford to come to university being those that have the privilege of having more income available to them. We want to make sure that university is accessible to everyone. And that really is a huge role for the scholarships and bursaries."

Faculty members are consulted on scholarship and bursary winners.

"One of the primary criteria we use is the performance of the students in their classes," says Dr. Ken Otter, a UNBC professor, chair of the Department of Ecosystem Science and Management, and

Support ForesTrust

ForesTrust provides funding for scholarships and bursaries for forestry students enrolled in accredited forestry programs at nine post-secondary institutions across BC and for educational activities focused on how we care for and manage BC's forests.

For more information about scholarships or educational activity funding, visit fpbc.ca/about-fpbc/partnerships/forestrust.

chair of the Forest Ecology and Management Curriculum Committee.

All Forest Ecology and Management students have to complete either a professional report or an undergraduate thesis, usually undertaken in their final year. Younger opted for the thesis. He earned A+ grades in his independent studies was considered exceptional by his respective supervisors, says Otter.

"I recall that Tom was also very active in our Forestry Club."

Younger has about 18 months remaining to get his RPF accreditation. Afterwards, he plans to pursue small-scale forestry. "Quadra really pushed me in that direction." Quadra has 11 woodlots, all of which are unique.

"The topography and elevation changes are just incredible," Younger says. "We've got lots of western hemlock, but you don't have Douglas-fir or western redcedar or anything. And so what we're doing in converting it back to what the stumps were previously, before they were logged, and dealing with some of the forest health issues, as well."

He has found his calling. ✖

Employer Recruitment and Retention

Every week in the news, we hear about labour shortages affecting different employment sectors. The aging workforce in Canada is creating challenges for replacing the wave of baby boomer retirements and both federal and provincial governments are fast-tracking legislation to increase opportunities for people immigrating to Canada. This is a time of great opportunity for early and mid-career workers but these conditions present significant challenges for employers filling openings at all levels in their organization.

On top of this, the workforce has increased expectations from employers in terms of compensation, work/life balance, as well as provisions for their health and well-being. Employers are rapidly updating their recruitment strategies and flexible benefits in order to appeal to a smaller number of available candidates.

A quick tour of forestry job ads and vacancies indicates there is a wide range of employment opportunities for forest professionals. Forest Professionals British Columbia (FPBC) is aware that employers



Casey Macaulay, MA, RPF, is FPBC's registrar and director of act compliance. Casey oversees the registration of forest professionals and the complaints and discipline process. Casey has a technical diploma in forestry, an undergraduate degree in forest management, and a master's degree in conflict analysis.



Chi Cejalvo, RD, is FPBC's deputy director, registration. Chi oversees registrant admissions and registration systems. She also has more than 10 years' experience in governance and administrative leadership for non-profit organizations. As a regulated health professional (Registered Dietitian), Chi understands and appreciates the duties and obligations that regulated professionals uphold.

are dealing with a constrained supply of qualified and registered individuals. This may cause some employers to re-consider the classification for a position, or remove the requirement for FPBC registration. It is important to remember the *Forest Professionals Regulation* and section 51 of the *Professional Governance Act* (PGA) establish the requirement for employers to employ a practising FPBC registrant for any duty that engages the reserved practice of professional forestry. Failing to meet the law in this regard is an offence under the PGA and could result in a fine of up to \$200,000 for an individual or up to \$500,000 for a firm.

The PGA sets a high bar for compliance, but FPBC knows that employers need support and information in order to understand and comply with the regulation. For this reason, we have resources on our website to assist organizations with aligning job duties to the definition of reserved practice. You can always reach out to FPBC staff for support as well.

Increasingly, employers are hiring FPBC trainees to fill vacancies on the assumption that they will eventually be able to carry out independent reserved forestry practice. This is a reasonable approach, assuming the job duties do not immediately require the independent discretion or advice of a fully licenced forest professional. However, recent audits conducted by FPBC indicate that some trainees have been recruited into positions where independent practice is required yet supervision is not available. This creates a number of problems for the trainee, employer, and compliance with the regulation since FPBC bylaw 5-11(4) specifies that trainees may provide a service that is included in reserved forestry practice while under the *direct supervision* of a practising RPF or practising RFT registrant (as appropriate).

Employers hiring trainees on the basis that they are working towards independent licensure — due to a lack of practising registrant applicants — need to ensure that adequate supervision by a practising registrant is available. But, rather than seeing



Strategy – Supporting Trainees

this as further constraint, ensuring adequate trainee supervision could be seen as an opportunity to provide deeper support to new employees as a practical element of recruitment policy, job satisfaction, and retention.

Employers have an opportunity to create rich work and learning environments for trainee-employees that are mutually beneficial to both parties. The trainee period is a time of high learning and growth. Employers can leverage this period to shape trainees into employees that meet their current and future business needs. At the same time, employers can provide appropriate supervision and mentorship in reserved forestry practice that fosters the development of trainees into better forest professionals who make sound decisions.

To achieve independent practising registration, all trainees must fulfil 24 months of articling (i.e. supervised, qualifying professional work experience), complete six education modules in FPBC's online learning management system, and demonstrate core competency in professional forestry practice. All requirements must be completed under the mentorship and guidance of a practising registrant sponsor. Typically, the sponsor is also the trainee's supervisor within their place of employment.

If made a priority, and with the right encouragement and support from employers, it is very possible for trainees to complete requirements for independent practising registration in 24 months. FPBC's Roadmap to Practising Registration¹ offers a schedule for completing requirements within this timeline. Employers can create supportive environments for trainees to achieve independent licensure by:

- Ensuring practising registrants are available to act as sponsors and/or supervisors within the organization. This ensures compliance with legislative requirements for trainees performing reserved practice duties in the workplace.
- Providing exposure to a broad range of reserved forestry practice areas to expand the trainee skills and abilities to meet the employer's needs.

- Offering direction and guidance through the experience area learning modules. The experience area modules cover key topics for conduct as a forest professional – regulation and ethics; forest stewardship and professional discretion; working with Indigenous communities; forest legislation and policy; the business of forestry, and communicating professional advice and conflict management.
- Incorporating the completion of practising registration requirements into employee professional development plans to help ensure that trainees will achieve independent practice and strengthen the capacity of the employer's professional team.
- Permitting completion of experience area modules and core competency requirements as part of work time and/or providing paid time-off to complete these requirements.
- Awarding incentives for completing the requirements in a timely way.
- Contributing to FPBC admission, enrolment and/or annual registration fees. Trainees are often early in their professional careers with less financial means to progress quickly through the roadmap to practising registration.

FPBC staff are always happy to speak with employers about identifying new opportunities to support trainees towards registration. Employer recruitment programs have proven successful using some of the strategies listed here. Such programs and strategies, when combined with dynamic and diverse job opportunities in natural resource management, can attract young workers who might otherwise pursue different work. Forest schools in Canada continue to graduate hundreds of future professionals every year. Let's make sure they have the support to go the distance. ☘

LINK

1. FPBC Roadmap to Practising Registration: <https://www.fpbc.ca/become-a-forest-professional/requirements-forest-professional/>

It is very important to many registrants to receive word of the passing of a colleague. Obituary submission guidelines and due dates can be found at fpbc.ca/contribute. Forest Professionals British Columbia sends condolences to the family and friends of the following registrants and colleagues:

David (Dave) M. Lawrie, P.Eng, Life Member

April 30, 1929 – October 23, 2022



With sadness, we announce the passing of David M. Lawrie on October 23, 2022 in Victoria.

Dave graduated in 1964, in the second to last year of the Forestry Engineering program at the University of British Columbia. Dave has the distinction of being the only Forestry Engineer to graduate in Canada that year.

Dave started his career with Weldwood in Quesnel in 1965 to 1970.

In 1970, he accepted a position with the BC Forest Service Engineering Division in Victoria. Dave had a great love for the outdoors and would spend 11 months of the year away from Victoria working on engineering projects in northern BC until his retirement at age 65.

Dave loved to go camping, as well as fishing and hunting. Dave also had a great passion for flying his Piper Super Cub into remote lakes all over BC.

Dave was a very talented man. He was a licensed scuba diver and pilot, and a skilled builder. Over the years, he built trailers, campers, and five family homes. He even rebuilt his Piper Super Cub plane after he flipped it landing on a lake. In 1982, he built his dream home on waterfront property in Willis Point overlooking Saanich Inlet.

Dave's love for the outdoors was only matched by his love for dogs. He was never without a faithful companion during all those years on projects around BC.

Dave leaves behind his daughter Dawn (Paul); son Brent; grandchildren Brandon (Jennifer), Brittany (Riley), Dirk, and Marshal (Jayde); and great grandsons Grayson and Weston.

Submitted by Joe W. Tress RFT(Ret) #1876, a lifelong family friend.

Lyall Douglas Smith, RFT(Ret) #0259

May 17, 1951 – June 19, 2023



We are saddened to announce the passing of Lyall Smith, RFT(Ret), a longtime resident of Agassiz, BC.

Left to mourn Lyall's passing are his spouse of 38 years, Cindy Brown; his sister, Wendy Zimmer; as well as family, friends, and colleagues.

Lyall graduated from Douglas College in New Westminster in 1972 with an Associate of Arts Diploma. He went straight into employment in the BC coastal logging industry where, during a five year period, he held various high lead logging positions as chokerman, chaserman, and rigging slinger for Kipalla Logging in Port McNeil; Percy Logging in Theodosia Arm; and Qwikeno Logging in Qwikeno Lake. Lyall's logging experience led him in to forestry and he achieved a Diploma of Technology in Forestry at BCIT in 1977.

Lyall started his forestry profession with Canadian Forest Products in Harrison Mills in 1977, employed as an Engineering Crewman conducting road and cut block layout. Lyall worked again in the logging sector for G&F Logging in Taleomey Inlet and Kwatna Bay in 1983. During a short respite from logging and forestry he conducted mineral exploration field works for Hewmac Resources from 1984 to 1986.

In 1986, Lyall settled into spending the majority of his forestry career working for G.B.F. Technical Forest Services Ltd. from 1986 to 2021, providing silvicultural services directed at achieving reforestation objectives for forest licencees in the Chilliwack Natural Resource District — particularly in the Harrison Lake and Coquihalla River areas. Work included Ministry of Forests Research Branch projects that took him to many coastal areas. Lyall, in keeping with his earlier logging occupations, was very woods oriented in experience and participated in silvicultural surveys until 2017, enduring field challenges all too familiar in the forestry profession. He did this up to a remarkable age of 66 and remained active in office support for clients until 2021.

Lyall spent many years participating in the reforestation, survey, and management of thousands of hectares of forest plantations, following and reporting their progress from planting to free to grow. These same reforested areas will continue to grow and flourish for many years until such time as future forest professionals once again initiate and manage another cycle of forest establishment and growth; as much as Lyall was associated with. A well-deserved epitaph for a dedicated and respected forest professional.

Submitted by Garth Gaudette, RFT(Ret); Jim Beatty; and John Gow, RFT(Ret).



A Moment in **Forestry**

In the Squamish estuary, a lone Bald Eagle keeps an eye on the wetlands and coniferous forests on a typical Squamish morning. Eagles migrate to Squamish every fall and winter to feed on the salmon return when their northern habitats are frozen over.

Photo by Gerald Wolfe, RPF.

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