

The Professional Forester

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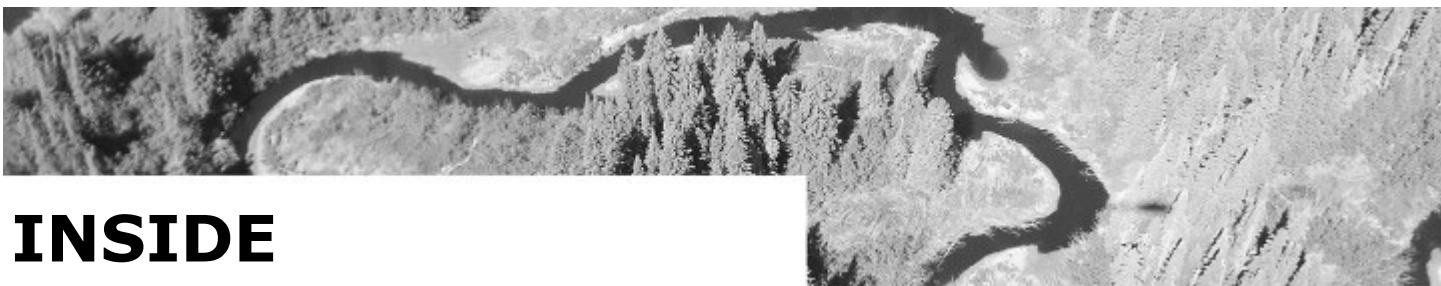


Climate change, adaptation and mitigation

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Council for the 2022-2023 fiscal year

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ONTARIO PROFESSIONAL FORESTERS ASSOCIATION

OFFICE	905.877.3679
FAX	905.877.6766
ADDRESS	5 Wesleyan Street #201 Georgetown, ON L7G 2E2

opfa@opfa.ca

www.opfa.ca

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Climate change considerations at Conservation Halton

Adrian Bryant, R.P.F., Coordinator - Forestry

In 2014, Conservation Halton began the development of a Strategic Forest Management Plan to provide us with a long-term guide for sustainably managing our forests in a changing climate. More specifically, the Plan will:

- Take a landscape approach to forest management, focusing more on the landscape scale and management of our forest resource.
- Re-establish a commitment to sustainable management practices that place forest health as the principal outcome.
- Identify and address the key pressures and challenges that our forests face from both global and local activities.
- Support us in re-engaging in active, sustainable forest management, to ensure that the current condition of our forests is addressed.
- Take an accountable approach to forest management with Key Performance Indicators.
- Re-define a commitment to excellence and leadership in forest management.

The Plan identifies a 20-year vision, delivered through a five-year outlook of activities, and addresses three goals to be achieved through its implementation:

Goal 1: To improve forest health conditions using current and future accepted methodologies and science.

Goal 2: To maximize the value of our forests in delivering environmental goods and services, social and health benefits, and enhanced forest diversity.

Goal 3: To maintain, and where possible, increase forest cover within our watershed through afforestation of Conservation Halton land acquisitions, on private, municipal, and corporate lands, and through public education and landowner outreach programs.

Existing forest resources under both public and private ownership are experiencing increased biotic and abiotic stressors, including invasive species and climate change. The combined effects of these stressors can have a detrimental effect on the health forest resources and their ability to sustain ecological functions. In particular, continued global trade and an increasingly warm climate are anticipated to bring about more invasive species that target native trees and other plants in our forests.



Strategic Forest Management Plan

SECTION ONE: Context, Goal and Performance Measures

Conservation Halton | 2020



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On a local scale, there are several reasons that the forests within Conservation Halton's watershed are not as healthy as they could be:

- Forest fragmentation
- Abiotic stressors
- Invasive plants
- Invasive insects and pathogens
- Heavy recreational use

Climate change, increasing development, and population growth within the region will only increase these and other pressures. This highlights the importance of sustainable forest management which will protect and conserve the valuable forest ecosystems in our watershed.

Climate change has already started to impact ecosystem health and biodiversity, but our ability to value and deliver ecosystem services through strategic forest management in response to climate change creates potential new areas for growth and management services for Conservation Halton. It is vital that we manage our forests to prepare for the impacts of climate change using scientifically sound approaches, such as managing invasive species, increasing biodiversity, assisted migration trials from southern seed zones and adaptive harvesting practices.

Monitoring forest health has enabled Conservation Halton staff to develop a set of metrics and goals for ongoing assessment and identification of trends (Table 1).

Table 1. Metrics for Assessing Forest Health

Metric	Description	Goal
Growing stock condition	Acceptable growing stock (AGS) are healthy, robust trees. Unacceptable growing stock (UGS) are trees that have a high risk of dying and are expected to decline over the next cutting cycle (15-20 years).	70% AGS and 30% UGS at the stand and landscape level
Desirable natural regeneration prior to thinning operations	Forests that are adequately stocked have the capacity for sustainable regeneration.	1000-3000 stems per hectare
Invasive species, forest pests and diseases	Approaches and priorities developed based on abundance, habitat, impact, future threat, individual forest needs.	Manage/reduce the abundance of these populations
Species at risk (SAR)	All forest management planning will consider SAR protocols.	Maintain/enhance all known SAR habitats and create more interior forest habitat

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Sustainable Forest Management (SFM) is the care and use of forests such that their environmental, social, and economic values are maintained into the future (Natural Resources Canada, 2017). Conservation Halton has developed a SFM program that mimics natural disturbances while promoting old growth forest characteristics, interior forest habitat and promoting mixed wood forests. We can use these tools to improve forest health and climate change resilience including:

- maintaining characteristics for which lands are recognized
- monitoring and managing forest pests and diseases identifying and proactively addressing potential hazards
- promoting desirable growth and thinning of over-stocked plantations and promoting mixed wood forests that have multiple species and variable age classes, which helps support climate change resilience

Prior to settlement, forests were part of an interconnected landscape that was influenced by periods of natural deforestation from disease, storms, and fires, as well as periods of forest renewal through natural regeneration.

Today, we understand that when forest management mimics natural disturbances and other natural processes, the result is healthy, resilient, complex, and diverse forest stands. Science has taught us that managing forests in this manner is not just an option—it is essential if we want them to remain healthy and resilient in the face of climate change.

Conservation Halton will continue to work towards the goals outlined in the Strategic Forest Management Plan. With sustainable forest management techniques and our forest health assessment matrix, Conservation Halton is confident in our ability to sustainably manage our forest resources, while ensuring that healthy, resilient forests remain for the benefit of our environment and watershed communities into the future.

References

Conservation Halton, 2020. Strategic Forest Management Plan. Available at: https://www.conservationhalton.ca/wp-content/uploads/2022/07/SFMP-Full-Plan-2020_Final_Oct.9.2020.pdf

Natural Resources Canada, 2017. The state of Canada's forests: annual report. Available at: <https://d1ied5g1xfqpx8.cloudfront.net/pdfs/38871.pdf> Accessed April 7, 2017.

Managing our forests for climate change: Credit Valley Conservation's Sustainable Forest Management Plan

Aaron Day, R.P.F., Program Manager, Forestry, Credit Valley Conservation

Since 1937, average air temperatures in the Credit River Watershed have increased by nearly 2 °C, with even greater increases over the winter months. Extreme weather events are occurring at higher frequencies. Understanding what this looks like in the forests that cover 23 per cent of the watershed, what that means for the future, and how to respond, is a priority of Credit Valley Conservation's (CVC) forestry efforts.

The Credit River Watershed spans from the northern headwaters in Orangeville to the mouth of the Credit River in Mississauga. Maintaining and increasing healthy forest cover is critical to helping buffer the impacts of climate change, especially in the highly fragmented landscape of southern Ontario. These forests help mitigate flooding in our urban communities by increasing infiltration and reducing run-off and erosion, helping to prevent some of the devastating floods that have met southern Ontario and cities across Canada. They also help sequester greenhouse gases that cause global warming and act as refugia for biodiversity that is at risk as this warming occurs. To provide all these benefits and more, our forests need to be healthy and resilient.

The primary focus of CVC's *Sustainable Forest Management Plan* is to maintain and restore forest health, improve biodiversity and strengthen the resilience of forests in the watershed. On the ground, that means we apply a restoration lens to our silvicultural approaches. We are adapting our practices to better understand and address the stressors associated with climate change and to build a forest that is healthy and resilient to future conditions.

Having good inventory and monitoring information is paramount to making good decisions. CVC is adapting its forest inventory and monitoring collection protocols to include indicators that will help identify trends and impacts of climate change. Specifically, our Integrated Watershed Monitoring Program's (IWMP) forest permanent sample plots measure indicators of change to soil, plants, tree health and birds. Some examples of these indicators include:

- growing degree days for soil
- abundance and distribution shifts of climate vulnerable plants
- tree mortality rates
- abundance and distribution shifts of Carolinian bird species, among others.

Field data collected through CVC's Forest Resource Inventory also supports this monitoring data by adding detailed, stand level information like composition, structure and stocking. The Forest Resource Inventory is a typical variable-radius cruise but some modifications to our protocol include moving to a plot-based tally (i.e., a cruise-card for each plot rather than a stand-level tally) that allows us to identify unique conditions for prescriptions or forest health incidences by plot. We also include a tree health defect code so that we can identify proportions and trends of specific tree health indicators like certain pathogens.

CVC has also completed vulnerability assessments on 55 tree species found within the watershed based on how specific traits of those species could potentially be impacted by the changing climate. This information was then used to assign cumulative climate change vulnerability scores to treed polygons in the watershed (see Figure 1, next page).

All this information helps us identify where and how we should prioritize our silvicultural efforts; for example, to identify highly vulnerable stands that may require silvicultural treatments to transition their composition to less vulnerable cover types. We are also using our monitoring and inventory information to identify stands with high incidences of pest and disease, or to address areas with concerns of tree species homogenization. Silvicultural treatments in these areas aim to increase functional and structural diversity and often include management of invasive plant species and artificial regeneration where a diverse seed source is not present.

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Finally, CVC is developing guidelines for implementing assisted migration, along with planting palettes to guide species selection in planting plans as we increase forest cover in the Credit River Watershed. We have already begun shifting species selection based on predicted individual tree vulnerability and site suitability. These guidelines will provide direction for including seeds of more southern provenance, as well as expanding ranges of species found in our southern watershed and Carolinian species predicted to be better suited to our region under predicted changes to climatic envelopes.

Increasing forest resilience has become a fundamental approach to managing for the uncertainty of climate change. At CVC, a trait-based approach to assessing vulnerability and selecting for increased diversity is shaping our practices to mitigate the impacts of climate change. Our monitoring and inventory are the backbone that helps us guide and prioritize these practices, assess results and changes, and ultimately adapt.

References

Credit Valley Conservation. 2022. Climate change vulnerability of treed habitats in the Credit River Watershed. Mississauga, ON.

Credit Valley Conservation. 2022. Integrated Watershed Monitoring Program - Technical Bulletin: Climate Change Indicators. Mississauga, ON.

CVC. 2020. *CVC sustainable forest management plan, 2021-2040*. Mississauga, ON. Available at: https://cvc.ca/wp-content/uploads/2021/07/com_lands_forestry_strategy_20210319-web.pdf

Further reading on increasing functional diversity:

Messier, Christian. 2021. A More Resilient Woodlot: How to make your woodlot more resilient to biotic and abiotic threats. *The Ontario Woodlander*. Dec., issue 105.



Figure 1. Climate change vulnerability heat map for the Credit River Watershed.

Climate change and the urban forest - management and response

Michael Rosen, R.P.F., Cert. Arb. TRAQ, Adjunct Professor, UBC

Like everything else, climate change is directly affecting the management of urban forests. At the same time, they are helping to mitigate the effects of climate change, especially to the 85% of the Canadian/Ontarian population, who live in the urban forest.

Effects on the urban forest

There is little need to convince most Canadians (and Ontarians) of the importance of urban forests and the need to ensure their existence - yet climate change continues to be one of its major threats. Higher summer temperatures, lower precipitation rates, decreases in the snowpack and more violent, erratic storm events are having immediate and long-term negative consequences. Storm damage is particularly problematic as it can not only uproot and break tree stems, but it can promote branch loss which allows for greater insect and disease activity. Invasive species proliferate because of warmer temperatures - some invasive plants have allelopathic effects on trees and out compete native regeneration, invasive insects may feed on and debilitate trees. Increased temperatures will be the major driver of changes in tree species, with some declining or becoming more difficult to establish (like sugar maple) while other more southern species showing greater promise (like Kentucky coffee-tree). Increasing levels of carbon dioxide may actually have a positive effect on tree growth. However, wildlife species dependent on specific tree species or tree characteristics (e.g., acorns or cavities) may become less common. Changes in plant phenology (timing of seasonal events, such as flowering and leaf unfolding) and changes in species composition will also affect urban wildlife.

The *urban heat island* is a universal phenomenon affecting cities, typified by the removal of vegetation which reduces shading and transpiration, coupled with the creation of impermeable surfaces such as concrete and asphalt, while conveying surface water for stormwater drainage. Heat islands absorb heat during the day and release it overnight. Loss of tree canopy due to climate change will increase the urban heat island effect, leading to additional temperature increases beyond those predicted by climate change

alone. This will have a negative effect on human health (especially "night mortality") as well as exacerbating the effects on vulnerable tree species.

Climate change has important implications for urban forest management including increased tree removals, reduction in pruning cycle times, increased watering, and an increase in planting in response to damage, decline, and mortality. Genetic diversity within species should provide some protection from the effects of climate change, but unfortunately, sensitivity towards seed source in large-caliper tree, urban plantings is a relatively new concept, even when pushed by recent trends towards using more native species (seed source is not a consideration for exotics which as conditions dictate, are planted in urban

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Top: Periwinkle (invasive plant) in woodlot. Bottom: Tree killed by Emerald ash borer. Photo Credit: Mike Rosen.



Heat island demonstration in Montreal showing temperature differences (greenspace vs hard surface). Photo Credit: Tree Canada.

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areas). Traditionally, Canada's large-caliper tree nurseries purchase their stock from large U.S. growers as "liner stock" (essentially seedlings) from southern seed zones. Some of those same growers also use clonal plant materials due to advances in nursery production techniques. While the use of this plant material may provide uniform results (or may not) in present climates, it may lead to uniform decline and failure in future climates. Species that have been dependable in the past may not be in the future and vice versa. Being able to recognise these changes is critical to being able to adapt to them. Surprisingly, even native species are purchased from southern, U.S. seed sources as large-caliper tree nurseries seek uniformity, good initial growth and other qualities.

Urban forests mitigating climate change

Ironically, healthy urban forests can also mitigate the negative effects of climate change. In terms of severe weather, communities across Canada are projected to witness an increase in the seriousness and frequency of floods and windstorms, the number of days over 30 °C, and exposure to pollution and smog - all because of climate change. Trees can help with all of this. Through their shading in summer and windbreak abilities in winter, significant reductions can be realized in heating and air conditioning (by 15%-25 %) meaning less carbon emitted into the atmosphere and a reduction in the heat island effect. Trees themselves sequester carbon dioxide (CO₂) from the atmosphere through the process of photosynthesis with the remaining oxygen being released back into the atmosphere, also mitigating climate change.

Even as trees die, the carbon is not entirely lost back into the atmosphere with some of the carbon sequestered by the soil as they decompose, playing a vital role in keeping soil healthy. Canopy cover helps minimize flooding by intercepting the rain, allowing up to 30% to evaporate without even touching the ground. The green space needed for a tree provides more permeable surfaces in urban areas which reduces water run-off, with tree roots helping water penetrate the earth even faster. Urban trees can screen and protect urban infrastructure (like houses) from debilitating wind events.

Case in point: the SFI Urban Forest & Community Forest Sustainability Standard

The Sustainable Forestry Institute (SFI) with the world's largest single forest certification standard by area, is developing an *Urban Forestry and Community Forest Sustainability Standard*. Not only can standards provide a roadmap to sustainable management, but they can also allow "organizations" (governments, NGO's, Indigenous Peoples, community groups, corporations) to prove their efforts through third-party verification and certification. The goal is to adopt, work to, and be certified to the standard with third party-verified credentials, enabling them to prove that they are managing sustainable urban forests. SFI has devoted an entire objective to climate change entitled "Climate-Smart Management" in which performance is evaluated under four measures:

- Maximizing the ecosystem services provided by their urban forest.
- Minimizing the carbon footprint of their urban forestry operations.
- Addressing the various vulnerabilities within their jurisdictions related to climate change and extreme weather.
- Creating educational programs, policies, incentives, and regulatory measures aimed at building social and ecological resilience via trees and nature-based solutions.

Another objective related to "Disaster Readiness, Response, and Recovery" also relates to climate change, in which the Standard tries to, "limit undesirable effects and aid in the recovery of communities and forest resources from disasters through strategic planning, preparation, effective response, restoration, and improved resilience". This includes three measures:

- Proactively planning and preparing for catastrophic natural events and disasters that can be anticipated
- Adoption of disaster-response strategies in response to events.
- Recovery strategies after an event.

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Municipalities, urban forests and climate change

Since municipalities continue to be in the front line of urban forest management, they continue to develop plans, strategies and techniques to deal with the realities of climate change in their urban forests. This includes:

- Planning – most municipalities are engaged with, or are revising, their urban forest plans due to the impact of climate change (species choice, disaster response). They are also including trees in their asset management planning to better quantify the value of trees
 - Species Choice – openness to trying new species (“species migration”), species that would normally be located further south, that will be able to tolerate warmer temperatures and compacted soils
 - Maintenance – reducing the pruning cycle times (pruned trees are less susceptible to damage) and increasing watering especially in young trees to cope; greater attempts are being made to increase the soil volumes of planted trees especially in hard surfaces to increase success
 - Disaster Preparedness – the “next big storm” is a constant reality and communities are preparing for it. Most municipalities include disaster planning as part of their climate change preparedness
 - Public Awareness – since most of the urban forest is on private land and since residents pay for urban forests and their management, trees need to be constantly “sold” as part of the solution to climate change even after large, debilitating storms. Municipalities have a responsibility to inform people of the positive role trees have even in mitigating the effects of climate change and even in screening infrastructure from large, climate change-related storms
-

Bob Dobson's Farm – Increasing biodiversity and climate resilience

Tony Bull

The Food and Agricultural Organization (FAO) report on the State of the World's Biodiversity for Food and Agriculture describes a worrying decline in biodiversity that both supports agriculture and provides essential ecological services. The report outlines issues such as loss and degradation of forest and aquatic ecosystems. At the same time, climate change is not only driving some of this biodiversity loss, but also making the restoration of biodiversity more challenging.

On the other hand, the report also acknowledges that there is an increase in biodiversity-friendly farming practices in many parts of the world. Increasing native biodiversity is widely accepted to be an important and practical method for mitigating the impacts of climate change and improving future resilience.

Bob Dobson of Dobson Farms north of Cobden, Ontario has been practicing biodiversity friendly agriculture for the last fifty years. His great grandfather started the farm in the 1830s. It has been in the family ever since.

He remembers his father clearing fencerows prior to the 1970s in order to create more open land and make farming more efficient. At that time there were support programs encouraging such practice. Bob remembers feeling uncomfortable at this practice.

Bob has pictures of the farm and house in 1982 and the in 2015 after he had engaged in a multi-year tree and shrub planting program to diversify the farm environment as part of his change to grass fed beef without the use of chemicals and growth hormones. The change between the two aerial photos is dramatic.

In the original photo the farm buildings and house had no trees near them and the surrounding land was bare. In the latter photo trees were abundant around the farm buildings and dotted the landscape as well.

Since he started planting in 1972, Bob has planted over thirty thousand trees including some wildlife shrubs. From 1980 to 2010, he planted one thousand trees per year usually in the first week of May. The seedlings, from the Ferguson Forest Centre in Kemptville, include varieties of deciduous and coniferous trees.

Bob now has over two miles of upland shelter belts, two to five rows of trees wide, planted across the prevailing wind. These shelter belts slow down the wind and keep more of the moisture, snow and rain, on the farm. Also, the trees provide windbreak shelter for livestock and a home for wildlife such as birds, snakes, and fox, that help control insects and rodents on the farm. The shelter belts consist of seven species: spruce, cedar, pine, ash, oak, butternut, and black walnut.

To solve the problem of decreasing quantity and quality of water, Bob continued fencing the cattle out of the stream area completely over the last few years and a reservoir was dug. The cattle still needed a source of drinking water so an in-line gravity trough system was constructed in 1987 to give them access to water while restricting their access to the waterway.



Figure 1. Bob Dobson's Farm in 1982, prior to significant planting efforts.



Figure 2. Bob Dobson's Farm in 2015, showing the establishment of tree cover on the farm.

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Bob planted approximately one mile of lowland riparian buffer strips on each side of the two streams crossing the farm. These two miles of buffer strip plantings provide excellent habitat for many species of wildlife, while at the same time slows down or stops runoff from the fields entering the stream. He finds that the trees, as they grow, crack open the heavy clay soil, creating a sponge of sorts, more easily allowing the penetration after a heavy rainfall and runoff from the hay or pasture fields.

He has also reduced his herd size and feeds them exclusively on grass and cut hay from his fields; using no fertilizer or chemicals.

Bob is convinced that he now has a much better environmental footprint on his farm. The Ontario Cattlemen's Association was convinced, too. In 1994 Bob was the first recipient of their Stewardship Award in recognition of his projects on the farm to enhance and protect waterways as well as create bird and wildlife habitat.



Figure 3. Bob Dobson planting trees.

FAO State of the World's Forest Report states; "Environmental literacy can provide a foundation for achieving biodiversity conservation and sustainable forest management and can be promoted through education and evidence-based communication. A new approach to education for sustainability must emphasize critical thinking, integrated principles and the use of acquired skills to turn knowledge into action. Environmental literacy is often built through first-hand experience of nature, including involvement in outdoor activities that have an ecological focus and engagement in adaptive management."

So, what Bob Dobson does on his farm, both in terms of his biodiversity friendly approach, and in being a place of demonstration to others is an ideal way to make progress that goes beyond the boundaries of his farm.

As a final comment, Bob described how he has seen the local climate change over the past decades. He feels that his tree planting is a positive measure to slow down the impact of this challenge.



Figure 4. Pond restoration achieved by fencing cattle out, planting the banks, and providing cattle with alternative water sources.

Effect of climate change on maple syrup producers

Paul Renaud, Ontario Maple Syrup Producers' Association

The material in this article was initially gathered and summarized by the Climate Change Committee of the Ontario Maple Syrup Producers' Association. In compiling this information, we were careful to only include results for which there was widespread scientific consensus. There have been additional research findings (such as the effect of climate change on Brix levels) that have not yet been substantiated by other researchers and hence are excluded for the time being. The author wishes to acknowledge Jenny Liu and Brodie Berrigan for their contribution to the research and synthesis of the findings reported in this article.

While there are both good and bad impacts on maple syrup producers due to climate change, overall, the effects will be negative. On the plus side, longer summers mean longer growing seasons for maple trees. However, regionally this longer growing season will increasingly be accompanied by periods of extended drought – particularly in more southern latitudes. This in turn may hinder root growth and performance. As maple syrup producers we are aware that anything negatively effects maple tree roots is a concern because the roots are the origin for sap movement in the spring.

Longer, hotter summers also increase the opportunity for greater impact from invasive species, native and invasive insects, as well as diseases. While these negative factors impact existing maple trees, the longer, hotter summers also have the potential to increase seedling mortality rates. Younger trees must also increasingly compete with invasive tree and undergrowth species who may be better suited for hotter and dryer climates.

The combined effect of greater premature tree death of established mature trees and the diminished replacement rates from younger trees will cause the viable range for sugar maple habitat to shift northward over time. While this may be good news for producers in central Quebec and northern Ontario, it is of long-term concern for producers in Southern Ontario and most of the USA. Fortunately, as maple trees can have a lifetime of over 100 years, the falling level of replacement will take several decades to reduce many sugarbushes to uneconomic levels of tree density.

Of far greater short-term concern is the impact of severe weather events, particularly windstorms. In 2022, both the hurricane event that hit Nova Scotia as their sugaring season was starting, and the derecho event that tore across Ontario and Quebec, demonstrated that the risk of widespread loss of pipeline infrastructure and healthy, productive mature trees is also more likely as wind events continue to increase in both frequency and severity. Increasingly, tornado-scale events are occurring both spring and fall in eastern North America.

Many producers lost over 1/3 of their tappable trees in 2022. Unlike other agricultural harvests that can be easily ensured against annual climate-related losses, maple syrup producers are keenly aware that the loss of a healthy mature tree means the loss of up to 40 years of harvest until a replacement tree can replace it. Currently there is no crop insurance scheme available to deal with this magnitude of productive loss.

As we progress from summer and fall into winter, we can expect to see more precipitation falling as rain which will reduce snowpack that typically insulates fine roots from damage. And as the variability of temperature change increases in spring, maple syrup producers can expect more spring frost events occurring during the vulnerable budbreak period, making both the prediction of buddy sap development more difficult as well as causing leaf dieback. Trees will need to apply more of their energy to leaf replacement which will tend to hinder both tree growth and canopy development.

The same sudden changes in spring temperatures can result in shorter seasons and all regions have seen end-of-season spring dates occurring earlier in the year over time. Similarly, the end-of season fall dates are occurring later and later over time. Long term forecasts suggest that over a period of several decades these two sap

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movement seasons may merge if climate change continues unabated, meaning that maple syrup may become a winter harvest in some regions. In the shorter-term, shorter seasons in southern regions will make maple syrup production uneconomic for smaller scale producers.

Other economic impacts that accompany climate change include greater difficulty in predicting labour needs (as seasons fluctuate more each year) as well as increasing costs for fuel employed in boiling sap and managing the sugarbush. Labour costs are also likely to increase due to the increasing effort to recover from severe wind events.

The demand for maple syrup may also be affected as consumers increasingly shift their preference towards climate-friendly products. Maple syrup producers who are demonstrably climate-friendly will have an advantage over those who are not. This trend will likely grow much in the same way as the organic trend overtook the industry in the past.

Maple syrup producers can take several actions to mitigate the impact of climate change, even if we cannot individually prevent or adapt to it:

- Biodiversity in the sugarbush is the best mitigation for invasive species/insects/disease. Any monoculture is a fertile ground for any invasive threat that can thrive in it and monoculture maple sugarbushes are no exception. Biodiverse tree species slow the advance of these invaders and give maple trees more opportunity to recover should they become afflicted. Biodiverse wildlife also acts as natural predators for invasive insects.
- Depending on the configuration and topology of your sugarbush, coniferous tree wind breaks planted/encouraged at the periphery of the compartments in your sugarbush can help limit damage from many wind events.
- Thinning practices need to be revisited as tighter packing of trees helps canopy trees support each other during windstorms. Unfortunately, we also know that tighter canopies may mean less sap production per tree. Finding the right balance is an area for greater research and study.
- Ensuring that recovery trees are “pre-positioned” should mature trees be lost prematurely can shorten the recovery time to regrow the replacement by several decades. A “recovery” tree is an immature adult tree approx. 10-20 ft in height that is waiting for a break in the canopy to shoot up. While it still may take 5 – 10 years for an immature recovery tree to replace a lost mature tree, it is better than waiting 40 years.
- Maple syrup producers in southern regions can start planting Red Maple to supplant Sugar Maples as they ultimately die off. Red Maples can also be harvested for sap and are more heat tolerant. In regions where there is a risk of greater flooding, Silver Maples can be planted as they are more tolerant of wet growing areas.
- Maple syrup producers who are not using pipelines to increase the scale of their operations can consider doing so. With appropriate sanitation practice, pipelines enable trees to be tapped during winter, reducing the need to try to guess when the spring thaws will start as seasons get more variable over time.
- Single-year production losses due to climate events can be insured using crop insurance in many jurisdictions. While this may not mitigate against multi-year losses, it can soften the blow and help mitigate losses from smaller-scale events. Infrastructure insurance can also be purchased for pipelines and pump houses located in the sugarbush.

Maple syrup producers can also contribute by lowering their own emissions in producing syrup. 90% of producer emissions are from heat energy used to evaporate sap into syrup. It does not matter what the fuel used is (wood, pellets, biomass, oil, propane, etc.), they all emit CO₂. Renewable fuels are just as much a part of the short-term problem as fossil fuels as they are only carbon-neutral over the lifetime of a tree. This is longer than the scientific consensus that requires emission reduction within 20 years to prevent greater climate impacts.

Maple Syrup producers can also transition their own operation to be net-zero. This will be the topic of a subsequent article.

Tackling the complex problem of climate change in Ontario, one project at a time

Kerry McLaven, R.P.F. in Training, CEO, Forest Gene Conservation Association

For over 27 years, the Forest Gene Conservation Association (FGCA) has taken action to support Ontario's forests. The foundation of our work is genetic diversity, gene conservation, and tree improvement. This work supports species recovery, assists in responding to seed supply, management needs and capacity challenges, along with an increased focus on climate change adaptation planning. The FGCA works closely with restoration and reforestation practitioners to equip them with strategies and tools to put climate change adaptation into practice. Each partner and each forest has unique challenges and opportunities. FGCA works to develop tools and resources ready to adapt to each practitioner's unique situation.

Our work utilizes research and resources created by organizations like Natural Resources Canada/Canadian Forest Service, The United States Department of Agriculture/US Forest Service and the Ontario Ministry of Natural Resources and Forestry. With these resources and datasets from research scientists, in combination with practitioner knowledge, FGCA creates tools to be utilized on the ground with a *best bets* practical approach to climate change adaptation and forest genetic resource management.

Essex Region Conservation Authority Climate Change Toolbox

As part of the Conservation Authority's strategy to create climate-ready restoration programs, the FGCA set off to develop a toolbox to support the restoration team when developing tree planting projects in the watershed.

The tool itself contains information, pertinent to the watershed, to inform species selection under changing climatic conditions and known species vulnerabilities. It also provided guidance on seed procurement and recommendations for the establishment of seed production areas to supply future seed needs.

French Severn Forest Vulnerability Assessment

For Westwind Forest Stewardship, a Tableau tool was used to create an interactive experience for the forest

management planning team in the French Severn Forest (FSF).

Analysis for this project was completed to identify species vulnerabilities and opportunities leading to a greater understanding of how climate change may affect forest units within the FSF (see Figure 1). The FGCA also provided guidance on seed transfer, procurement, and the planting of a Seed Production Area for future climate ready seed.

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French Severn Forest CC Vulnerability Storyboard - Westwind Forest Stewardship

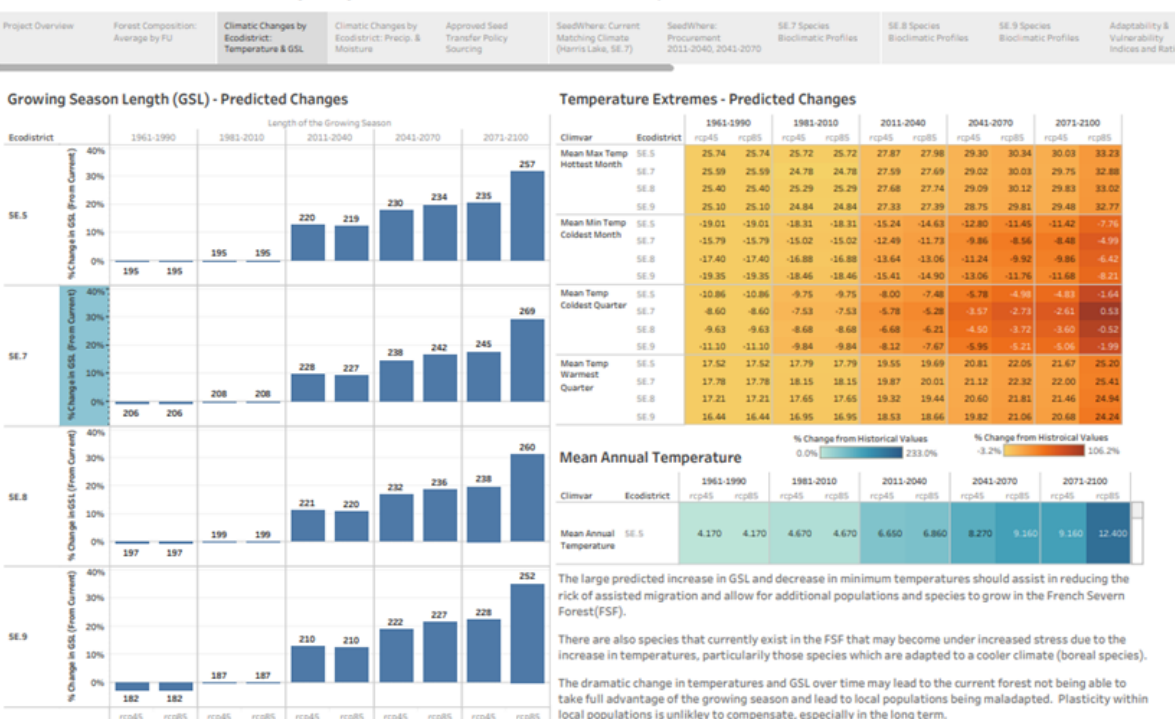


Figure 1. A snapshot of the French Severn Forest CC Vulnerability Storyboard.

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Creating Resilient Forests in Ontario, A Climate Change Analysis for Forests Ontario's Tree Planting Programs

This project stemmed from several questions, including: how could climate change affect large-scale afforestation programs and how can we enable flexibility for planting partners? Under this project we worked to utilize current science and present it in a manner that was consumable by practitioners. A guidance document was created for Forests Ontario to create program level changes that enable practitioners to make adaptation decisions.

Six ecodistricts were selected in Ontario from London to Dryden (see Figure 2), to show predicted changes to climatic variables, seed procurement areas for climate adapted seed transfer, and predicted species ranges. As each practitioner may have varying risk tolerance and access to resources, we created recommendations with flexibility to provide a stepped approach to climate adaptation. We are currently working with Forest Ontario to expand this body of work to more ecodistricts.

Petawawa Research Forest Seed Procurement Project



Figure 3. Red oak acorns sourced from southern Wisconsin for the PRF ASCC project.

As part of the Petawawa Research Forest's (PRF) Adaptive Silviculture for Climate Change (ASCC) project, researchers were looking to bring in material adapted to future climate change scenarios to introduce genetic diversity operationally. The FGCA developed a seed procurement plan that would inform the purchase of seed to generate trees for planting in 2023 and implemented the plan by sourcing seed from target areas. Species considered under this project included eastern white pine, red pine, pitch pine, red oak (see Figure 3) and white oak.

What is consistent about these projects is that we use sound data, and credible local forestry experience to create actionable projects. Unfortunately, in forestry we do not have the luxury to wait until all the data becomes available and need to act now under a rapidly changing climate. As the climate changes, our current forests may no longer produce the quality and quantity of seeds we need, when we need them. Early planning, like many of these projects, can allow us to be flexible, adaptable, and prepared for action now and in the future.

For more information on these projects and others or to learn more about the Forest Gene Conservation Association please visit our website www.fgca.net or email us at outreach@fgca.net.

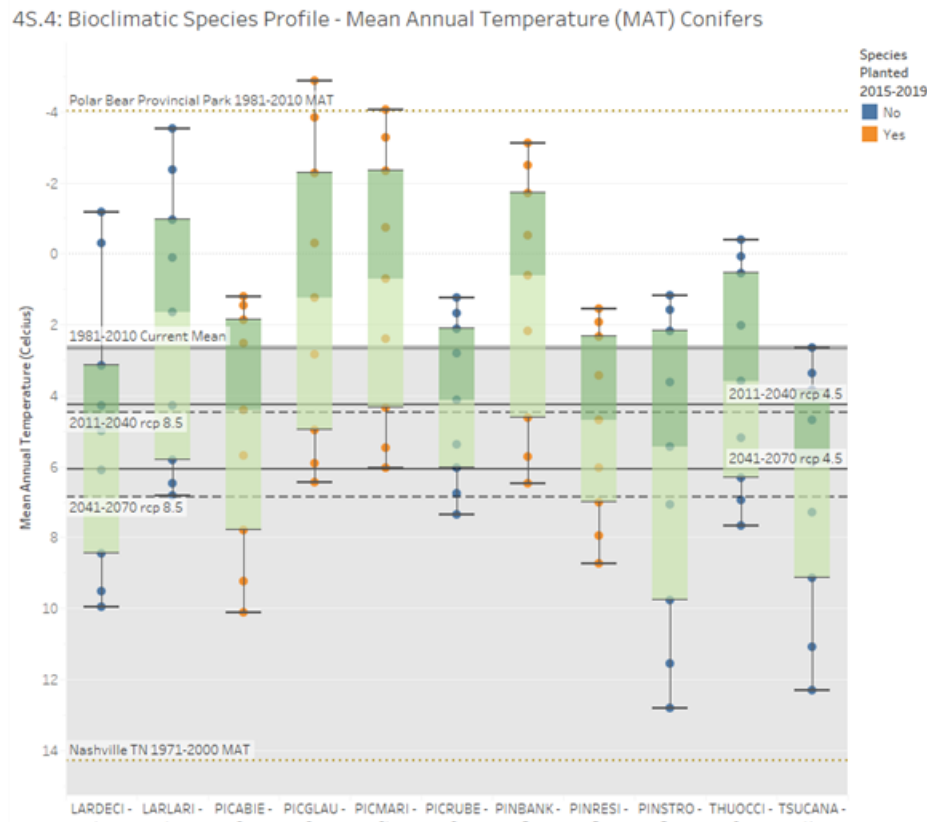


Figure 2. Bioclimatic Species Profile for EcoDistrict 4S.4 (Dryden area).

Benefits of tree diversity in a changing climate: Lessons from IDENT-Sault Ste. Marie

Eric Searle and William Parker, Research scientists, Forest Research and Monitoring Section, Ministry of Natural Resources and Forestry, Ontario Forest Research Institute, Sault Ste. Marie, ON

In recent decades, forest management has shifted away from intensively managed monocultures focused on maximizing fibre production to promoting more structurally and taxonomically diverse stands that provide multiple ecosystem goods and services. At the same time, compelling scientific evidence has shown that forest ecosystem productivity, stability, and resilience (i.e., the capacity to resist and recover from disturbance) depend strongly on biodiversity. More recently, studies have shown that more diverse stands may be better able to mitigate the negative effects of reduced water availability and enhance the positive effects of increased temperature projected for northern forests (Ammer, 2019; Hisano et al, 2019). While most studies are conducted using observational permanent plot networks that can provide average responses across a range of gradients, experimental evidence is needed to fully understand the mechanisms driving increased resilience in more diverse forests.

Broadly speaking, diversity can improve ecosystem productivity, stability, and resilience in two primary ways: (i) resource partitioning and (ii) biotic interactions (Trogisch et al, 2021). Resource partitioning occurs when tree species with different traits and resource needs are mixed, allowing stands to access site resources more completely (Figure 1). Biotic interactions occur when species influence one another. For example, tree species may directly benefit one another, such as improved jack pine growth when mixed with N-fixing green alder (Urli et al, 2020).

IDENT-Sault Ste. Marie

The intent of this study is to examine the effects of tree species richness and functional diversity on productivity and other ecosystem functions under conditions of high and low water availability. It is one of several experimental sites established in the *International Diversity Experiment Network with Trees* (IDENT) to compare young, single species and mixed forest communities.

The IDENT experimental site was established in 2013 in Sault Ste. Marie (IDENT-SSM) with six species selected to create a gradient in shade tolerance among broadleaf (white birch, red oak, sugar maple) and conifer (larch, white pine, white spruce) species. All IDENT sites use small plots with high planting densities to facilitate rapid development of among-tree interactions. IDENT-SSM also incorporates diversity effects under high and low growing season water availability created by weekly irrigation (+130% of normal rainfall) and a rainfall exclusion apparatus that reduces incoming precipitation by 26% (Figure 2, next page).

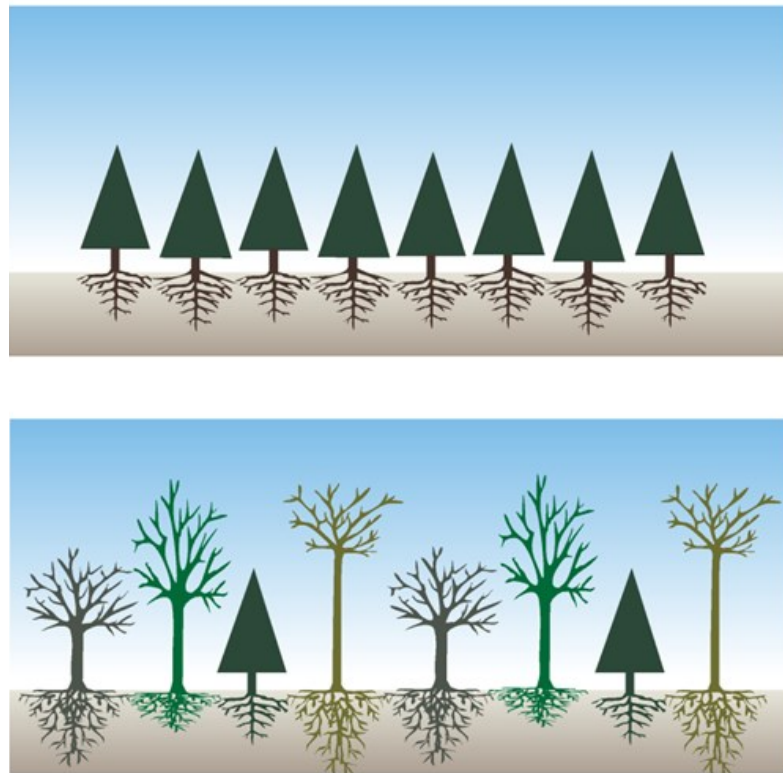


Figure 1. Graphical depiction of experimental plantations differing in species richness and functional diversity. Upper panel shows a monoculture. Lower panel shows a plantation with four species differing in crown and root architecture.

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Since its establishment, several experiments have been conducted at IDENT-SSM. Results show that growth is higher in many mixtures but contrary to theory, the diversity effect is more pronounced in the high-water treatment. The positive diversity effect on growth appears to be driven by mixing shade intolerant with shade tolerant species, with best growth observed in mixtures of tamarack with white spruce or red oak, highlighting the importance of combining species with different functional traits to improve productivity (Belluau et al, 2021). Soil microbial biomass is also higher in more diverse plots but this effect was observed only in the high water treatment (Strukelj et al, 2021). Some evidence points to increased growth and soil microbial biomass due to higher nutrient use efficiency in mixtures, but to date only pine-birch mixtures have been investigated (Maxwell et al, 2022).

The next decade of IDENT-SSM promises to be just as intriguing. Due to limits of the irrigation system, the high-water treatment will be suspended in 2024, providing an unparalleled opportunity to examine how diverse tree communities respond to catastrophic drought. Other ongoing studies include investigating how diversity and water availability interact to affect soil fungal communities, litter decomposition, and herbivory by insects and snowshoe hare. Diversity effects are known to increase in magnitude as stands develop so continued monitoring of IDENT-SSM is essential to better understanding the mechanisms driving diversity effects on ecosystem function.

As climate continues to change, increased use of practices that improve resilience of forests is critical to sustainable forest management. Science-based recommendations to increase the use of mixed species plantations can contribute to efforts to maintain and enhance productivity while increasing climate change adaptation. IDENT-SSM will continue to be a centre of investigation into the traits that best balance productivity with resilience to identify and test mixed plantations for operational use.

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Figure 2. Aerial view of IDENT-SSM study site during (a) the second and (b) the sixth growing season. Eavestroughs used to create water treatments are visible in (a) as white grid system. In the high-water treatment, eavestroughs have holes that allow rain and irrigation water to drain into the plots.

Earlier and more variable spring growth anticipated for eastern Canadian forests with climate warming

Rongzhou Man, Research scientist, Forest Research and Monitoring Section, Ministry of Natural Resources and Forestry, Ontario Forest Research Institute, Sault Ste. Marie, ON

Higher spring temperatures from a warming climate mean that trees in North American boreal and temperate forests start growing, i.e., burst buds, earlier (Tao et al. 2021). Understanding how anticipated further warming will affect spring phenology (timing of tree growth) is needed to project and manage future forest resources. In the Northern Hemisphere, spring budburst is driven by temperatures, i.e., chilling fall/winter temperatures to break dormancy and warm spring temperatures to force budburst (Chu et al. 2021). The effects of day length vary and apply mostly to plants without adequate winter chilling (Chu et al. 2021) so are unlikely to constrain spring development where winters are long and cold (Zohner et al. 2016). Low moisture can delay budburst (Moore et al. 2015) but this effect is not anticipated in eastern Canada where both temperatures and precipitation are projected to increase as the climate warms (Bush and Lemmen 2019).

Cumulative winter chilling: total hours or days of chilling temperatures near zero

Cumulative spring forcing: total degree hours or degree days of temperatures above a threshold after chilling requirements met

Our work showed that cumulative forcing temperatures needed for budburst decreased with increased cumulative winter chilling; this happened faster at low chilling and gradually stabilized as chilling requirements were met (Man et al. 2017, 2020). We conducted large-scale controlled experiments to determine chilling-forcing relationships for 6 boreal trees and 6 temperate trees (Figure 1), after different exposures to natural chilling (Man et al. 2017, 2020). We used these species-specific budburst models to project changes in spring phenology from the 1981–2010 baseline to warmer future climates (+2, +4, and +6 °C). Projections were for 6 locations in each of the eastern boreal and temperate regions (Figure 1), with the hourly temperatures for 1981–2010 uniformly raised by 2, 4, and 6 °C, representing moderate, high, and extremely high warming by the end of this century (Bush and Lemmen 2019). Chilling was accumulated from October 1 of the previous year and forcing from January 1 of the current year.

On average, species budburst was 10 to 15 days earlier per 2 °C increase in temperature (Figure 1, next page). In both regions, budburst advanced more for early season species (those that start growing early in spring), except for early temperate yellow birch and eastern white pine that have relatively high chilling needs. Budburst for those species advanced only 5 to 7 days when temperatures increased from +4 to +6 °C. Between regions, phenology of trees in the boreal changed more (averaged 12.6 days with every 2 °C increase in temperature) than those in the temperate region (averaged 11.0 days). The average difference in timing of spring budburst between boreal and temperate regions stayed at about 20 days from 1981–2010 baseline temperatures to +4 °C warmer and dropped to 16 days from +4 to +6 °C warmer, as higher temperatures reduced winter chilling in the temperate region (Tao et al. 2021). Further warming would reduce winter chilling in the boreal region and slow the advance of spring phenology. Thus, a convergence in spring phenology between boreal and temperate regions would not be expected in eastern Canada, which differs from suggestions by others (Prevéy et al. 2017).

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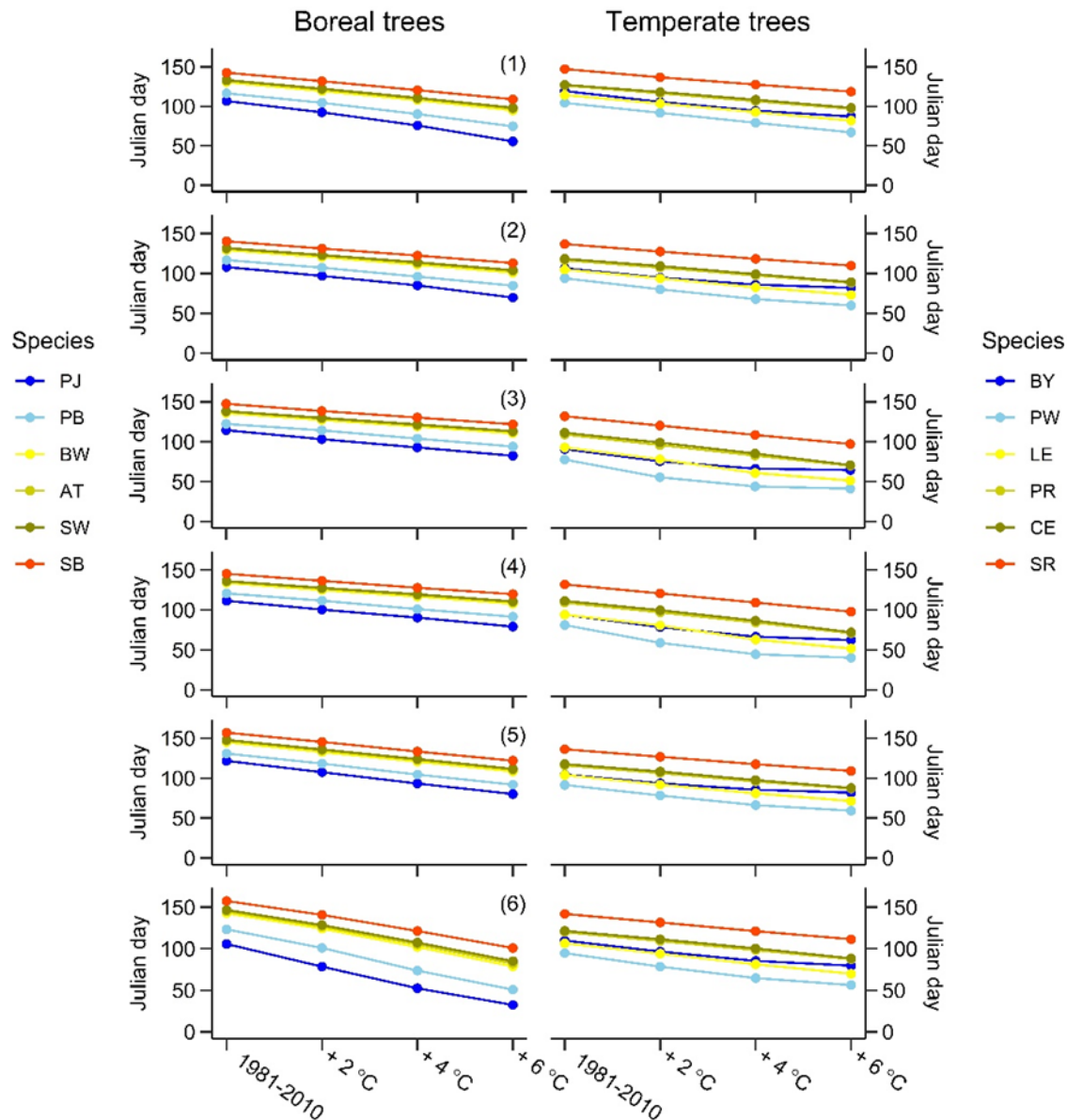


Figure 1. Changes in spring budburst with levels of climate warming projected from 1981–2010 baseline to three 2 °C warming increments by climatic regions/species groups, locations (1 to 6), and species in eastern Canada. Species are ranked from early to late spring phenology; abbreviations for boreal trees are PJ (jack pine), PB (balsam poplar), BW (white birch), AT (trembling aspen), SW (white spruce), and SB (black spruce) and for temperate trees are BY (yellow birch), PW (eastern white pine), LE (eastern larch), PR (red pine), CE (eastern white cedar), and SR (red spruce). Boreal locations are (1) Sault Ste. Marie, (2) Sudbury, (3) Kapuskasing, (4) Timmins, (5) Baie Comeau (Quebec), and (6) St. Johns (Newfoundland) and temperate locations are (1) North Bay, (2) Ottawa, (3) Toronto, (4) London, (5) Montreal (Quebec), and (6) Sherbrooke (Quebec).

Along with changes in timing of budburst, variation and sequence of budburst also changed. In both regions, among year and among species variation increased with warming. Trees in the boreal region showed less variation due to the relatively longer winters and less restrictions from insufficient winter chilling. Relative to the 1981–2020 baseline, budburst order in boreal trees was not affected by warming, but deviated in temperate trees, mostly by yellow birch and eastern larch due to their relatively higher chilling needs (Man et al. 2020) and a greater reduction in cumulative winter chilling with warming in the temperate region (Tao et al. 2021).

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Earlier budburst was also associated with greater risk of frost (≤ -4 °C), but mostly for early season species, i.e., jack pine and balsam poplar in boreal trees and yellow birch, eastern white pine, and eastern larch in temperate trees. Our projected changes in spring phenology, while larger than those of some earlier projections, are comparable to the rates of phenological changes observed in North American boreal and temperate forests due to climate change (Tao et al. 2021).

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Climate change considerations during Forest Management Planning in Ontario

Betty van Kerkhof, R.P.F.

The 2020 Forest Management Planning Manual (FMPM) used for planning in the Managed Forest (provincially owned and located in central and northern Ontario) does provide for climate change considerations. The FMPM foreword specifically, references both adaptation and mitigation:

"Ontario's efforts to address climate change are focused on adaptation and mitigation. Adaptation involves practices and behaviours to reduce vulnerabilities and risks associated with climate change. Mitigation refers to efforts to reduce or prevent emissions of greenhouse gases into the atmosphere or increase sequestration."

The 2020 FMPM foreword on climate change considerations can be viewed— pages 7-8/319: <https://files.ontario.ca/mnrf-forest-management-planning-manual-en-2021-04-09.pdf>

There were additional climate change considerations included in the 2020 FMPM under PART A, Section 1.1.2 - Planning Team (engaging reviewers/advisors with climate change knowledge/expertise), Section 1.1.8. - Assembly and Update of Background Information and Section 1.2.3 - Management Considerations (for the development of the Long-Term Management Direction) (LTMD).

Very similar considerations were also included in the 2017 FMPM. However, in the 2020 FMPM climate change is notably highlighted as a "boxed" consideration for planning teams.

The OPFA canvassed the Ontario Ministry of Natural Resources and Forestry (MNRF), Regional Operations Division (ROD), for some insight on how climate change is being considered in the development and implementation of Forest Management Plans (FMPs).

In summary most plans were prepared prior to the effective date of the 2020 FMPM and as a result many do not explicitly consider climate change.

All current plans in Southern Region used FMPMs predating the 2020 FMPM for their strategic planning, but climate change came up as a concern during planning team meetings. As result all plans, have an objective to address local climate change concerns. For example, some plans have an objective to address local climate change concerns by exploring assisted migration of tree seedling genetic material. One plan also has an objective to provide a pre-determined rate of carbon storage. Many plans also considered climate change in their Risk Assessment section.

The wording in the FMPM Foreword is not new for the 2020 FMPM. Similar wording was included in the 2017 FMPM, so many of the current plans in the Northeast Region, which were written under the 2017 manual include some reference to climate change as a management consideration. Two plans also included targets for use of approved seed from sources outside of the traditional seed zones.

In the Northwest Region, most plans were prepared prior to the 2020 FMPM coming into effect and as a result there has not yet been much documented climate change consideration.

This is a very high-level summary, for more detail one would have to do an online search of the FMPs for climate change. **Forest Management Plans Online.** https://nrip.mnr.gov.on.ca/s/fmp-online?language=en_US

Climate Smart Forestry is ESSENTIAL in meeting global climate change goals

Kate Lindsay, SVP and Chief Sustainability Officer, Forest products Association of Canada (FPAC)

I was privileged to attend the recent COP27 event in Egypt, where our sector launched a new global report that will help advance forestry solutions and policy dialogue in Canada and other forested nations worldwide. (You can learn more and access the full report <https://www.fpac.ca/reports/the-growing-role-of-forest-products-in-climate-change-mitigation-the-need-for-nationally-determined-forestry-approaches-to-achieve-net-zero-emissions>)



The Dalberg report was commissioned by the United Nations Food and Agricultural Organization's (FAO) Advisory Committee on Sustainable Forest-Based Industries (ACSFI) and the International Council of Forest and Paper Associations (ICFPA). It highlights the urgent importance of growing national forest-based economies to help address an emerging global timber and wood fibre supply gap as demand for climate-friendly materials continues to rise. It also showcases the benefits of recognizing country-specific approaches to sustainable forest management which provides a clear market advantage for Canada. But we have some work to do if we are to unlock the powerful potential of forestry in Canada and around the world.

From a purely Canadian perspective, there is a win-win opportunity before us. We can increase Climate Smart Forestry, while supporting a vibrant bio-economy, storing more carbon in the built environment and supporting climate change adaptation and resilience. Which brings together mitigation, contributions to net-zero, and climate change adaptation.

Over time, Canada's forests have become the largest source of greenhouse gas emissions in Canada, exceeding both oil and gas with over 250 million tonnes of CO2 emitted in 2018. This is not driven by increased harvesting but by natural disturbances like wildfires and insects. Since 2004, Canada's annual timber harvest has been reduced by one third - largely as a result of an 80% reduction in newsprint production. Simply put, as timber harvest has dropped, forest GHG emissions have risen, and a changing climate and associated pests and wildfires are the key drivers. Aging forest stands, a century long effort to combat wildfires, and a buildup of flammable material in high density forests are also to blame.

Storing carbon in long-lived solid wood products like lumber is a scalable and proven approach to combat climate change, but much of the wood generated by forestry operations is low-grade and of insufficient quality to be consumed in a sawmill. Amazingly, residues such as wood chips are used for engineered panels and paper, and sawdust and bark are used in mouldings, engineered cabinets and flooring. These materials can also be turned into pellets that can be converted to solid, liquid or gaseous biofuels displacing fossil fuels while substantially reducing greenhouse gas emissions. And everyday, researchers are inventing new and environmentally friendly products using materials from the forest that would otherwise be waste.

In Canada, sustainable forest management is central to realizing our domestic and international goals and objectives regarding carbon and climate change and to developing solutions to support Canada's Net Zero Emissions objective. More specifically, a sustainable approach to forestry combined with wood products' carbon storage capacity represents one of our greatest climate change mitigation opportunities. Innovative wood-based products also have the potential to replace more carbon and energy-intensive materials and displace non-renewables such as single-use plastics.

The Forest Products Association of Canada looks forward to ongoing discussions with the federal, provincial and territorial governments, Indigenous peoples and businesses, municipal leaders, organized labour, and other partners to ensure that the benefits of responsible forest management are widely recognized and documented, and to discuss forestry's ongoing role in securing a sustainable future.

A pan-Canadian assessment of a Functional Complex Network Approach to forest management

Fostering social acceptability and forest resilience to global change through functional diversity and connectivity

Christian Messier, Professor, UQO-UQAM, Olivier Villemaire-Côté, PhD candidate, Université Laval, and **Kevin A. Solarik**, Director of Forestry Research, NCASI

Current Challenge

Global changes threaten the adaptability, resilience, and sustainability of Canada's forests. They also increase the intensity, frequency, and duration of natural disturbances (e.g., fire, insect outbreaks, windthrow), which contributes to the fragmentation of the forest landscape, and the arrival of new exotic and/or invasive pests and diseases. Global changes, therefore, pose major threats to the capacity of our forests to meet our socioeconomic needs while still maintaining essential ecosystem services (e.g., carbon storage, clean water, wildlife habitat, recreation, wood and pulp). Yet forest management still largely focuses on sustained yield and volume maximization, an approach based on the predictability of forest dynamics and past conditions. In this context, there is an urgent need for developing new forest management approaches that increase forest resilience to the unpredictability of global change and its potentially devastating impacts.

Proposed Solution - Functional Complex Network (FCN) Approach

Here, we propose the Functional Complex Network (FCN) approach (Figure 1). It seeks to optimize both the diversity of tree species with specific ecological traits such as wood density, rooting depth, bark thickness, drought and shade tolerance, seed weight and dispersal types, type of mycorrhizae, etc. (called functional diversity) and the connectivity among stands in terms of seed propagation from a wide variety of tree species (called functional connectivity) to promote adaptability and resilience at stand and landscape scales. Most adaptation strategies currently being put forward (e.g., Climate-Smart Forestry) tend to focus on adapting

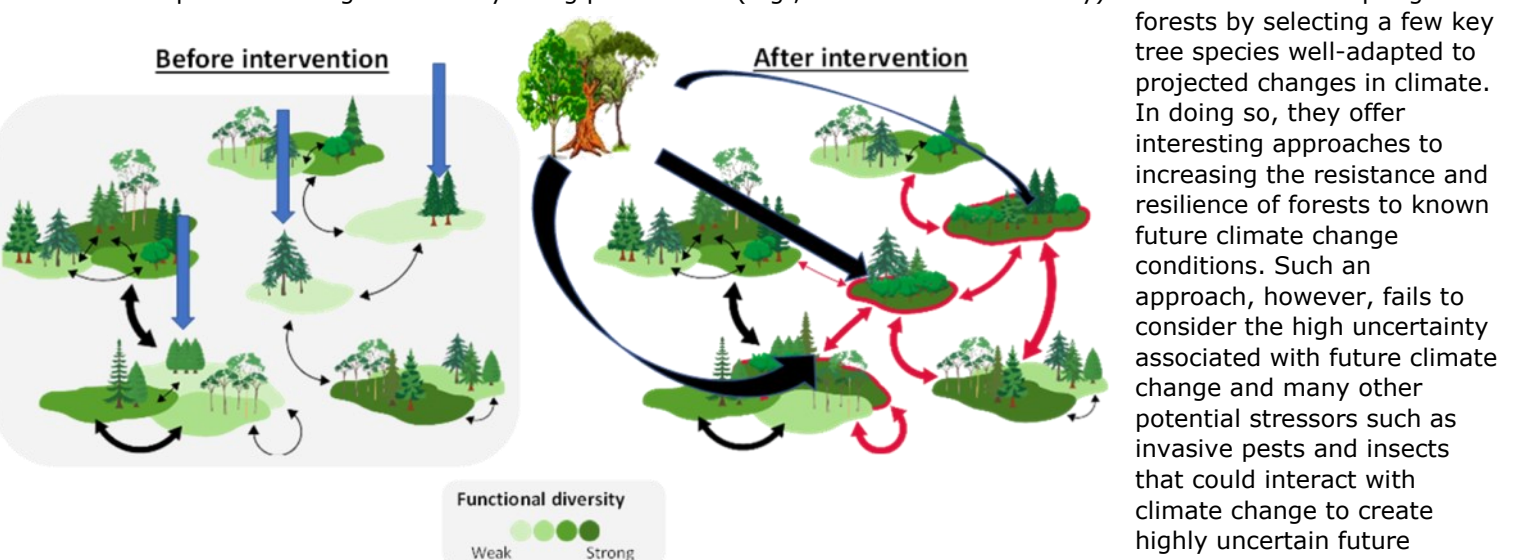


Figure 1. The functional complex network approach in practice. Left pane: Looking at the landscape level, its forest stands and their current connectivity (black arrows, thickness showing quality of connectivity), we identify forest stands which functional diversity should be increased and which improvement could create better connectivity in landscape (blue arrows). Right pane: We increase functional diversity in the selected stands, influencing both 1) resilience within stand, and 2) connectivity among stands (red arrows), therefore increasing resilience of newly connected stands down the line and increasing landscape-level resilience.

forests by selecting a few key tree species well-adapted to projected changes in climate. In doing so, they offer interesting approaches to increasing the resistance and resilience of forests to known future climate change conditions. Such an approach, however, fails to consider the high uncertainty associated with future climate change and many other potential stressors such as invasive pests and insects that could interact with climate change to create highly uncertain future conditions. By favouring stands with a diversity of tree species having very different

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ecological traits we (1) reduce risks of having many tree species affected by the same stressor, and (2) improve the vitality of the forest due to complementarity, i.e., the reduction in competition among tree species having different resource requirement. Furthermore, by favouring a landscape with high functional connectivity, we greatly increase the ability of the forest to reorganise itself efficiently following various disturbances, making the forest highly resilient to unknown future conditions. The FCN approach intends to shift the focus from yield to functional diversity and connectivity, making future conditions' unpredictability central to its vision. It aims at cost-efficiently maintaining sustainable harvesting levels while maximizing the adaptability and resilience of our forests.

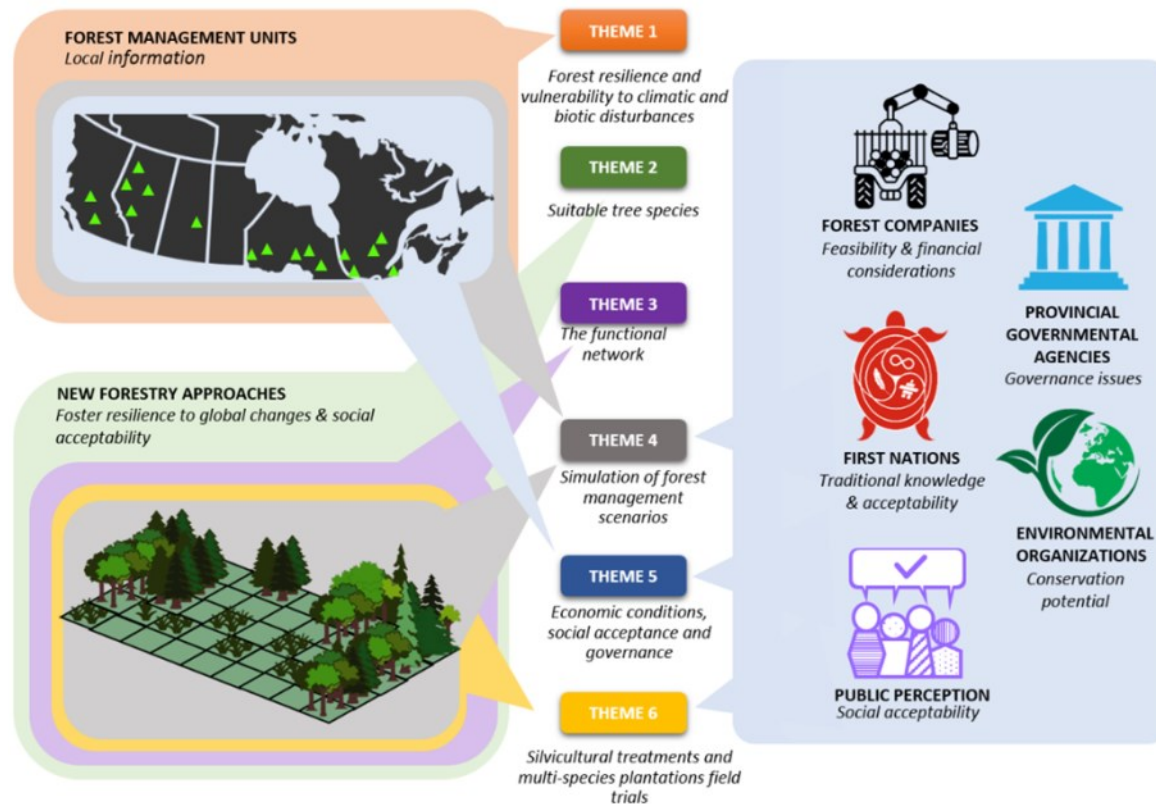


Figure 2. Project overview including the six project themes and key partners. Top left panel shows a map of the forest management areas included in the project and tested. Bottom left panel represents the Functional Complex Network approach to foster resilience to global changes. The six research themes are shown in the center. Right panel shows all included partners and stakeholders, and their direct engagement in themes 4 through 6.

Testing FCN Across Canada's Managed Forest

Nationwide testing of the application of the Functional Complex Network is about to kick off across Canada's managed forests (Figure 2). The project has amounted to an impressive partnership that includes heavy involvement of the forest industry, First Nations, provincial government agencies, non-governmental organizations, and over 50 academic and government researchers collaborators. The project is centered around six integrated themes (Figure 2) that will be tested across 20 forest management areas across Canada, including 6 in Ontario (Kenora, Wabigoon, Pic, White River, Spanish, Temagami, and Haliburton). Research Themes: Theme 1 will evaluate the current functional diversity and vulnerability of Canada's forests. Theme 2 will then focus on identifying groups of suitable tree species to be promoted within the regions deemed most susceptible (in Theme 1), while considering climate change and future disturbance regimes. Theme 3 will represent current forests as a FCN for each forest management areas, effectively creating maps of functional diversity and connectivity for each management area developed from on-the-ground data from our partners. Theme 4 will then simulate three different forest management scenarios: (i) business as usual (status quo), (ii) climate-smart forestry, and (iii) FCN, each then being tested under a suite of climate and forest disturbance scenarios. Theme 5 will evaluate the socioeconomic considerations of this new forestry approach, focusing on the financial implications, social acceptability, and possible modifications required for Canadian forestry regulations and standards to adapt to the FCN approach. Finally, Theme 6 will develop and test alternative silvicultural field trials and multi-species plantations, focusing on the most promising silvicultural approaches implemented elsewhere and adjusting them to results from previous themes.

With this project, we will develop an innovative forest management approach to mitigate and adapt our forests to global changes. By developing and testing our methodologies in close collaboration with industry across Canada, we aim to provide managers and practitioners across the country with guides, tools, and simulation models that can be used to further test novel conditions and adapt management practices to the known and unknown conditions of tomorrow.

Western redcedar dieback monitoring in the Pacific Northwest

Christine Buhl, PhD, Oregon Department of Forestry

From Oregon through western Canada, western redcedar (*Thuja plicata*, WRC) has been dying in areas where it should be thriving, such as along streams and within shaded stands. Evidence suggests that the cause for this sudden, and expanding, dieback is from drastic changes in climate such as higher temperatures and lower precipitation over long periods of time. Temperature and precipitation levels, duration, consistency, and timing always vary over time but the changes we have seen in recent years are occurring at a much faster rate. The sudden frequency of ongoing hot droughts has been especially stressful for less drought-tolerant trees such as WRC – even in areas where they have historically thrived such as shaded sites or along streams. Even though streams still carry water in WRC dieback areas, the flow rates are less than what has supported these trees over decades of growth. In some areas, changing climate may be altering microclimates enough to make them unsuitable for WRC thus resulting in a range shrinkage or shift.

Mortality in many tree species is often incorrectly attributed to insects and diseases, when in fact many of these agents are opportunistic and attacking trees that are already dead or dying due to other pre-existing stressors. WRC is extremely insect- and disease-resistant and/or tolerant because its sap has repellant and antimicrobial properties and can also trap insects and seal off wounds from invading fungal pathogens. WRC can tolerate endemic levels of native bark beetles, woodboring beetles and stem rots for many years. In fact, it is not uncommon for WRC to appear healthy and continue thriving despite containing a large volume of stem rot.

Symptoms that a WRC tree may be dying typically include topkill and crown thinning, other symptoms include branch flagging, yellowing, or large cone crops paired with these other symptoms. Some trees die soon after these symptoms appear and others hang on for many years to come. Trees that were healthy before stress occurred or that were growing on less stressful sites have a better chance of survival.



Oregon Department of Forestry, Washington Department of Natural Resources and U.S. Forest Service conducted a study to determine the distribution and cause of WRC dieback. We repeatedly measured tree, stand and site characteristics to determine if there were patterns across sites and to observe rates of dieback. We then compared this data with climate data to determine if there were any correlations. We also compared climate data between our dieback sites and sites that support WRC (as indicated by species parameter maps) to determine if our known dieback areas experienced different temperature and/or precipitation conditions. We divided our data into ecoregions (western Oregon, western Washington and eastern Washington) to avoid

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making comparisons across regions that differ widely in average temperature and precipitation levels. The overall goal was to determine if dieback was correlated with sites that experienced more extreme temperatures and/or precipitation levels. In western Oregon and Washington, we found that dieback was strongly correlated with low levels of spring precipitation as snow, and occurs in areas with higher temperatures in warm months and at lower elevations. In eastern Washington, there is more variability in elevations so our correlations weren't as strong but we did find that dieback was correlated with higher summer climate moisture index (i.e., higher dryness on the landscape).

WRC is a vital part of Pacific Northwest ecology (stream shading, bank stabilization, bird nesting habitat, etc.), cultural heritage (indigenous medicines, baskets, canoes, etc.), and the timber economy. To retain this species on our landscape we must plan accordingly for climate change by putting WRC on the landscape where it will be supported over decades of intensifying conditions. Areas that are becoming too warm or dry for WRC should be transitioned toward drought-tolerant species such as incense cedar, Willamette Valley pine, ponderosa pine, western larch, Oregon white oak, and Douglas-fir.

Factsheet: <https://www.oregon.gov/odf/Documents/forestbenefits/TreeDeclinesRedcedar.pdf>

Storymap: <https://tinyurl.com/WRCStorymap>

Dashboard: <https://tinyurl.com/WRCDashboard>

Report dieback at WSU's iNaturalist WRC page: <https://www.inaturalist.org/projects/western-redcedar-dieback-map>

Online resources to support forest managers in a changing climate

Betty van Kerkhof, R.P.F.

There are many resources to support forest managers in determining how to manage forests and disturbed sites in a changing climate. A few examples are identified below:

The brochure for the 2 Billion Trees program is a solid source of information, entitled, "The science at the Canadian Forest Service in genomics and climate change in relation to the 2 Billion Trees Program. 2022. Natural Resources Canada". The brochure provides information about genomics and climate change and focuses on providing information to support planting the right tree in the right place. It also reinforces the need for ongoing monitoring. Link: <https://cfs.nrcan.gc.ca/publications?id=40660>. This brochure is also available in French.

Another website with considerable information and a wealth of NRCan forest adaptation tools and resources is available at: <https://www.nrcan.gc.ca/climate-change-adapting-impacts-and-reducing-emissions/climate-change-impacts-forests/forest-change-adaptation-tools/17770>. This website provides users with considerable opportunities to explore adaptation tools, the data supporting the tools and to run interactive simulations. A few examples of the tools and resources include: climate modelling and the data supporting it; information on the vulnerability of tree species to a changing climate, plant hardiness zone maps and species specific information; a link to Seedwhere, a climate similarity mapping tool; climate based risk models of native and invasive pests; a platform to allow users to run simulations. There are also resources to support the adaptation process.

The 2022 SFI certification standard introduced new requirements and certified organizations are collaborating through their local SFI Implementation Committees (aka SICs) in acting on these requirements. To support these efforts SFI is developing a set of SIC Playbooks that provide resources and information. One of the first playbooks that has been drafted is on Climate Smart Forestry <https://forests.org/sic/>. It contains links to many resources including a website by the USDA entitled [The Adaptation Workbook](#) that provides a number of different adaptation strategies including considering the future climate and picking species and genotypes that are most likely to be adapted to that future environment.

Emerging Leaders Bursary provides opportunity to learn and connect

Louise Simpson, OPFA Registration Manager

The OPFA only has a small number of staff, but we are always seeking out opportunities to learn new skills, technology, and best practices. Recently, I received an Emerging Leaders Bursary that provided myself and 9 other recipients the opportunity to attend the Canadian Society of Association Executives conference in Halifax, which took place October 19th to 21st.

The conference agenda consisted of a wide range of session and workshop topics aimed at improving association management and overcoming challenges that many associations are facing. Most of these topics were very applicable to regulatory bodies such as the OPFA, including Equity, Diversity, and Inclusion, engaging young professionals, hybrid event planning, strategies to engage exhibitors and sponsors, tackling disinformation, board succession planning, risk management, and building successful government relationships. While there is not enough space in this article to fully describe all the sessions and lessons learned, I wanted to share a summary of some of the most impactful sessions for me and the key messages that I took away from them.

Re-imagining a New Way Forward with Intention



The opening keynote speaker was Sheila Watt-Cloutier, Environmental, Cultural and Human Rights Advocate. You can learn more about Sheila's influential work at <https://www.speakers.ca/speakers/sheila-watt-cloutier/>. She provided an overview of the historical context of the Inuit Peoples and the need to move forward and build trusting relationships with Indigenous Peoples for real reconciliation, emphasising that this can only be achieved by creating understanding. This made me think of the OPFA's Indigenous Peoples, Lands and Resources Standard, and the training materials that are in development to assist practicing professional foresters in Ontario to improve their understanding and ensure that they have the necessary context in which to approach their work with Indigenous communities, clients, and colleagues. I believe this is a step in the right direction, though of course there are many more facets involved.

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One section of her talk featured a question that had been asked of Tim Flannery, a well renowned climate ecologist, at a climate change panel that Sheila had participated in. The question was: “What is it about us, in this world, that is lacking? That is not allowing us to take urgent action on climate change, when the science is so strong and” as added by Sheila, “corroborated by the ground truthers on the ground which are the Inuit and Indigenous Peoples of the world, who rely on their climate and their environment and the healthiness around them for their food source and culture”. Tim’s answer apparently, was “Imagination”. This hit home with me. Professional forestry is adapting and innovating with new ideas and technologies to address climate change and mitigate its impacts, and OPFA registrants have an important role to play.

Sheila went on to emphasise the need to reimagine and realign economic values with those of the Indigenous world, which are based on fairness, respect for the environment and for each other. She noted that in conferences that she had spoken at in the past you always saw the polar bear displayed on the screen, but never the human faces, and that putting the human face to this issue connects all of us and reminds us that we’re in this together. She concluded with the need to humanise the issues that we are all working on. To reimagine and build a new way forward in partnership with Indigenous Peoples with intention and understanding.

Equity, Diversity and Inclusion

This session was led by Sarah Lampson, Executive Director of the Canadian Association of Research Administrators (CARA) and Dupal Damani, Founder and President of D&D Inclusion Consulting. They provided an overview of EDI and shared experiences and best practices that can be implemented by other associations. Most of their recommendations are items that the OPFA is already working on, but the details and questions discussed regarding each step will be utilised during this work. Their main recommendations were:

1. To “have a clear why” and to develop an EDI statement to communicate this. The OPFA Equity and Inclusion Task Team, with input from staff and Council, developed an Anti-Discrimination Statement in 2021: [you can review it here](#).
2. Undertake a review of programs, policies and procedures, with an equity lens. This is something that the Equity and Inclusion Task Team are currently working on.
3. Embed EDI into the organisation’s strategic plan. The OPFA’s 5 year [Strategic Plan for 2021-2026](#) has EDI embedded into the strategic and tactical goals, although it does not specifically list the Anti-Discrimination Statement, as recommended by the speakers, which can be a future improvement. This is because the Anti-Discrimination Statement was developed after the Strategic Plan had already been finalized.
4. Develop matrixes to assess the composition of boards. The OPFA has used these matrixes to assist in board, committee, working group and task team recruitment, but are planning to develop revised versions that include a wider range of EDI considerations, as well as the required skillsets for the positions.
5. Ensure that staff and board/committee members have understanding of the basic EDI terminology and principles. EDI learning resources continue to be shared among OPFA staff, Council and committees/working groups/task teams on an ongoing basis as we become aware of new opportunities/resources. Of course, this is a rapidly evolving field with new and better resources being developed regularly. To respond to this dynamic environment, I am developing some online courses for these groups, containing various resources that can be worked through and updated/replaced as we go. If any registrants know of any particularly good resources that I should make sure not to miss, please feel free to share them! You can reach me at registration.manager@opfa.ca.

Investing in your Future: Identifying and Activating your Emerging Leaders

The speaker for this session, Lindsay Murray, is the chair of CSAE Pan-Canadian Young Professionals Committee. She provided personal and professional insight on how to identify, engage, and activate young professionals and emerging leaders. There were several group discussions and activities, with different association and regulatory body staff sharing their experiences and challenges: both throughout their own career paths and when recruiting and retaining volunteers and staff for their organization. My main takeaway was that young/emerging leaders are worth investing in; both as volunteers and as staff. They are driven and motivated about the things they care about and if you can create a sense of value, belonging and purpose and

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find ways to foster those, the organization will benefit. Young/emerging leaders often challenge the status quo and are vital to the continuance and growth of both associations and regulatory bodies; or any organization for that matter. I say young/emerging as although the assumption is often that these individuals are young, they may also have taken a break in their career for personal reasons or have retrained and begun a new career path recently.

The role of mentors was identified as key. From my discussions both with R.P.F.s and with those in the session working in all different sectors, finding someone who provided guidance and championed them early on was often a key turning point in their career. Unfortunately, the most common challenge discussed at this session was in finding mentors, which is something that some R.P.F.s in Training find challenging. Although we have more of an established mentorship system in place than many associations, there is always room for improvement. We are always in need of additional volunteer mentors and will require registrants/employers willing to participate in the new job-shadowing program being developed by the Professional Networking Task Team. This session did provide me with some potential ideas regarding recognition of mentors which will be explored further, including some additional research about the mentor experience through a 2023 registrant survey; look for that in your inbox in the spring!

Fake News and Media Blues: A panel on the state of disinformation in Canada



This panel consisted of **Dakshana Buscaaramurty, National News Reporter for the Globe and Mail, Fuyuki Kurasawa, Associate Professor, York University, Justin Ling, Freelance Investigative Journalist and Sarah Stinson, Director of Operations, Democratic Institutions Secretariat, Privy Council Office.** I don't think I can describe the subject matter of this panel discussion better than the program itself, so I am going to share that description with you here: "From selling more newspapers, to bolstering ideologies, there's no question that sensationalism, exaggeration and outright lies can be useful tools. The digital age brought in the 24-hour news cycle and social media catapulted the volume of content in circulation, making it that much easier for disinformation to gain a foothold." The panel discussion explored who benefits from misinformation and disinformation campaigns, the risks associated with those campaigns, and the tools that exist to mitigate the risks.

While the focus was mainly on mainstream politics and Covid-19 examples which certainly have impacted most, if not all of us recently, I know that misinformation and disinformation about forestry in Canada also impacts those who work in the forestry sector, whether directly in your workplace or indirectly through what you hear on the news and see on social media.

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The panelists provided some helpful advice on how to respond:

- Speak about the disinformation with colleagues; it's easy to get down about it, so feel free to use humor to lighten the load.
- Share resources and training opportunities for strategies on how to respond (if you need to respond).
- Encourage the sharing of accurate information, that is engaging and in plain language, to create a healthy "information ecosystem".
- Ensure that the purpose of any messaging is clear and try not to leave room for misinterpretation.

We do see some improvements in public awareness reflected in the increasing number and diversity of people joining the OPFA as R.P.F.s in Training, and the increasing diversity of employers that are hiring professional foresters. However, enhancing public awareness on the roles and responsibilities of professional foresters and the OPFA is a key goal identified in the 2021-2016 Strategic Plan, and OPFA staff are currently collaborating with other forestry regulators and NGOs to develop communications initiatives to help address this.

How to Build a Successful Government Relationship

This session, led by Michelle Hoad, CEO of the Medical Laboratory Professionals' Association of Ontario, provided a case study of how a small association of only 5 staff were able to strengthen their stakeholder relationship with the government during the pandemic. It provided an overview of each of the building blocks needed to build a successful government relationship and some advice to help organisations be successful such as:

- If hiring a government relations firm, ask other similar sized associations to share their experiences because they are not all equal. Find one who understands what you are doing.
- Educate government staff about the work you do; many do not understand.
- Participate in media training to learn how to answer/redirect difficult questions or comments.
- Make connections personal and speak government talk: use their language, understand who their constituents are and make the issue relatable to them.
- Keep stakeholders engaged.
- Invest in communications.

Being able to attend the conference provided a great opportunity to share experiences and challenges with staff from other regulatory bodies and associations from across Canada, make new connections, learn about current best practices, and build upon skills. I am grateful to have received the bursary to attend and am now eager to put what I have learned into practice to assist the OPFA in achieving its mandate and strategic goals.



Forest History Ontario has a new website!

We are interested in stories of the past related to Ontario's environmental, economic, industrial, indigenous, cultural and social forest history.

Consider sharing your memories through our Facebook page, private Facebook group or by contributing to our bi-annual publication, *Forestry*.

Check out our new website at <https://www.ontarioforesthistor.ca/>.

New members are always welcome!

Council corner

Waseem Ashiq, R.P.F., Councillor South East

Council Corner is to provide membership with insight into what happens at OPFA Council meetings.

I am writing this on the last day of my 2nd two year term as OPFA council member. On the halfway of this journey, I shared my experiences, excitement and expectations in a council corner article in the December 2020 newsletter. So, I would like to start where I left my story. If you recall, I left it with the exciting news of the then two new initiatives: OPFA Strategic Plan and a Task Team for diversity and inclusion.

The OPFA Strategic Plan – a five year (2021-26) strategic plan was developed as we were transitioning into the new normal of *online*. Participating *online* in the strategic plan development process was certainly not straight forward as it involved additional learning of an *online* collaboration board. This *learning curve* varied among council members, but with mutual support and patience we got comfortable enough to work together through an *online* collaboration platform. The thought process and collective wisdom used to develop this plan certainly makes it unique. It provides a clear *Vision* and *Mission* and well-articulated strategic goals that closely align with the *regulatory* responsibility of the OPFA. I assume that you have already read the Strategic Plan or at least learnt some details from September 2021 council corner article of Neil McLean.

Before I get to the Task Team, let me quickly mention some other high-level initiatives. These include the development of an Indigenous competency standard (Indigenous Peoples, Lands and Resources Standard) and its implementation strategy, the 2021 amendment of the Professional Foresters Act, 2000, changes in the OPFA by-law, Council's decision to discontinue the OPFA-led awards program, and efforts to mitigate organizational [OPFA] risk. I am certain that you appreciate the positive role that OPFA council and executive perform in making these initiatives happen. I am also aware of concerns and questions surrounding the need and the validity of some of the decisions related to the awards program, membership fees, and by-law changes. These decisions were not easy to make. Council held considerable deliberations using the legislative role of the OPFA and/or the organizational risk assessment as key instruments for decision-making. To mitigate organizational risk, the council has approved the *Reserve Fund Policy* and an *Investment Policy* as instruments for OPFA financial management. Any change [increase] in membership fees is mainly associated with efforts to mitigate organizational risk as well as maintain and improve OPFA services. Trust that your council is holding a *Big Thing*, and I invite you all to envision council's role using *regulatory* responsibility lens.

The Task Team emerged from the foundation *Work to Treat All People Fairly*. In my December 2020 article I referenced it as the diversity and inclusion task team, which later got a formal name: *Equity and Inclusion Task Team*. The first chair of the task team, Carol Walker, in her March 2021 council corner article provided a comprehensive overview of the rationale and its DEI (diversity, equity, and inclusive) deliverables. Larry McDermott (public member of the council) and I assumed the co-chair responsibilities in December 2021. Later, we provided a progress update during the 2022 OPFA conference. Here, again I am excited to share that with dedicated task team efforts the OPFA now has an *anti-discrimination statement* which is consistent with its mandate, a set of recommendations to improve OPFA communication, and a survey designed to collect human rights-based data of OPFA membership. Stay tuned for the launch of *OPFA Survey: Count Me In!* in mid-January 2023. The task team is also finalizing its report on a DEI-based review of OPFA policies and practices. This task team has been functional for almost two years, and I am pleased to have been a part of it from day one. The accomplishments have been made possible due to team member dedication, a collaborative work environment, and support from OPFA staff, executive and council.



A full perspective is needed to hold a Big Thing

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You may have also noticed an increase in the use of the term *registrants* rather than *members* in OPFA business communication including council meeting minutes. *This language difference speaks to the difference between an association of like-minded professionals and a truly regulated profession*, as Gord King noted in his December 2021 council corner article. Like Gord and other council members I am also a proponent of *registrants*. However, I don't think we can easily eliminate using term *members*. Just a few days ago I received an email with subject line *New Member in Your Section* (referring to a new OPFA registrant in southeast section). You may also notice that even I have used *OPFA membership* in this short article. We are accustomed to getting reminders for *membership* renewal. Above all, *members* is still the language used in our governing legislation [Professional Foresters Act, 2000] as the 2021 amendment submission didn't include replacing *members* with *registrants*. It may take a long time for a complete language shift from *members* to *registrants* but internalizing the meaning of a regulated profession should be accomplished more quickly.

Also, I was a member of the OPFA *Discipline Committee* for the last three years but I didn't get a chance to implement my training because we haven't had a case in the time period. Isn't that exciting news for the OPFA and its *registrants*!!!

Save the date

Peterborough
will be the home of the
2023 OPFA Hybrid Annual Conference
and Annual General Meeting

Put
April 18 – 20, 2023
in your calendar

THIS YEAR'S THEME:
Professional Foresters Adapting
Through Collaboration and Innovation



Shadow a Forester Program

Francisco M. Murphy, R.P.F., Chair, OPFA's Professional Networking Task Team

Many people studying forestry or wanting to enter the profession of forestry, whether domestically or internationally trained, usually lack a professional network and experience in forestry. These factors have been noted as major barriers for entry into the workforce by new forest professionals around the world in a recent United Nations report.

In 2022, the OPFA formed a Professional Networking Task Team (PNTT). One of the goals of this task team is to provide new OPFA members opportunities to gain a better understanding of forestry and develop their professional networks. To do so the PNTT is developing a program called "Shadow a Forester". This program will provide interested individuals the opportunity to connect with OPFA members working in various aspects of professional forestry.

How will the "Shadow a Forester" program work?

- The PNTT will develop a roster of volunteer Professional Foresters and employers that are willing to participate in the "Shadow a Forester" program.
- New OPFA members will be invited to register for the program and provide a resume. These candidates will be given access to the roster of willing Professional Foresters and organizations that are willing to offer a networking opportunity. New OPFA members will be able to select a volunteer, Professional Forester or Employer that best meets their career aspirations.
- The Professional Forester and individual will decide how best to provide the job shadowing experience (e.g., online, in-person, hybrid, etc.)
- The duration of the job shadowing experience will be mutually agreed upon by the Professional Forester and the interested individual.

Frequently Asked Questions (FAQ)

What is the time commitment for the "Shadow a Forester" program? It will depend on the forester/employer. It can be a few hours or a few days. For example, when students go home for reading week, they could take a few days and tag along to learn. Or it may be linking with you via virtual video conference technology for a couple of hours.

How will the interested individual be covered for liability/insurance purposes when in my company's premises? Depending on your company's/organization's policy, the individual will have to sign a volunteer or visitor form.

Can I offer a stipend to the interested individual? Yes, you can. At this time, this program is not offering stipends to interested individuals.

Will the OPFA cover costs for an interested individual to learn about boreal forests? Not at the moment.

When does the PNTT recommend the best time to help interested individuals? It depends on the forester/employer. We recommend helping students whenever you are available.

How will the interested individual contact me? Your name and contact information will be added to a list where, depending on the interested individual's interest, they will have the option to choose who to call.

Can I have more than one interested individual at the same time? Absolutely. You may have the opportunity to help 2 or more people at the same time.

Is this the same as the OPFA mentorship program? It is not. The OPFA mentorship program is to ensure a Provisional Member obtains necessary experiential knowledge to work as a Professional Forester. For the "Shadow a Forester" program the time required depends on the volunteer/employer.

When will this program start? We are aiming to start the "Shadow a Forester" program this winter

**For more information on the program or to get involved contact
Francisco M. Murphy at 705-491-5875 or opfa@opfa.ca**



SHADOW A FORESTER

PROFESSIONAL NETWORKING TASK TEAM

**CURRENTLY UNDER DEVELOPMENT
AND LOOKING FOR VOLUNTEERS!**

THE GOAL OF THIS TASK TEAM IS TO PROVIDE NEW OPFA MEMBERS OPPORTUNITIES TO GAIN A BETTER UNDERSTANDING OF FORESTRY AND DEVELOP THEIR PROFESSIONAL NETWORKS. THIS PROGRAM WILL PROVIDE INTERESTED INDIVIDUALS THE OPPORTUNITY TO CONNECT WITH OPFA MEMBERS WORKING IN VARIOUS ASPECTS OF PROFESSIONAL FORESTRY.

THE “SHADOW A FORESTER” PROGRAM IS CURRENTLY IN THE DEVELOPMENT STAGE. TO LAUNCH THE PROGRAM, WE ARE LOOKING FOR PRACTICING MEMBERS WHO WILL ALLOW NEW MEMBERS TO SHADOW THEM IN-PERSON OR VIRTUALLY.

PLEASE CONTACT FRANCISCO MURPHY, R.P.F., CHAIR, FOR MORE INFORMATION OR FOR WILLING PARTICIPANTS TEL: (705) 491-5875 E-MAIL: OPFA@OPFA.CA

Below is the OPFA Council for the 2022-2023 fiscal year beginning December 1, 2022. Council is the governing body of the OPFA. They develop the policies, determine fees, and set strategic direction.

On behalf of all our members, I would like to convey our gratitude to the outgoing members of Council: Neil McLean, R.P.F., Central West Councillor, Waseem Ashiq, R.P.F., Southeast Councillor, and Sarah Todgham, R.P.F., Central East Councillor. Each of them has served selflessly as volunteers and they have indicated that they will continue to help the OPFA.

Council for the 2022-2023 fiscal year

Officers (1-year term)

President: Chris McDonell, R.P.F.

Vice President: Peter Nitschke, R.P.F.

Past President: Denis Gagnon, R.P.F.

Elected Councillors (2-year term, maximum of two consecutive terms)

Northwest:	Scot Rubin, R.P.F.	2 nd term ends: November 2023
Northeast:	Wendy LeClair, R.P.F.	1 st term ends: November 2023
Southwest:	Brandon Williamson, Associate R.P.F.	1 st term ends: November 2023
Central East:	Ritikaa Gupta, R.P.F.	1 st term ends: November 2024
Central West:	Maegan Ciurko, R.P.F.	1 st term ends: November 2024
Southeast:	Malcolm Cockwell, R.P.F.	1 st term ends: November 2024

Public Members (appointed by the Ontario government *)

Larry McDermott	1 st Term ended June 2019
Sally Krigstin	1 st Term ends August 2023
Daniela Corapi	1 st Term ends August 2023
Douglas Reynolds	1 st Term ends August 2023
David Goldsmith	1 st Term ends August 2023

**The Professional Foresters Act, 2000 specifies that public members of Council may serve a 3-year term for a maximum of 2 terms but will serve until replaced.*

OPFA Response to Proposed Changes to the *Surveyors Act*

October 2022

Thank you for your presentation to registrants of the Ontario Professional Foresters Association (OPFA) on September 27, 2022, and for sharing with us the proposed changes to the *Surveyors Act* by the Association of Ontario Land Surveyors (AOLS). The external stakeholder interview background document provided by the AOLS was shared with all OPFA registrants. Following the presentation on the proposed changes registrants of the OPFA were requested to send in their individual or company comments to you.

The OPFA understands the need to modernize regulatory laws so that a regulator can govern its members in order that the public interest is served. The public interest includes the safety, health, and welfare of the public, and the protection of the environment. In modern societies there is a lot of overlap in the skills and services that different professions such as OPFA registrants and other unregulated occupations provide. To reduce problems that may arise we recognize the importance of getting the correct description and definitions for activities carried out by Ontario Land Surveyors and other regulated professionals. This may not be easy, but it is important.

It is vital that the proposed changes to the *Surveyors Act* do not impact the ability of professional foresters to practice their profession. The scope of practice of a professional forester, as defined in the [Professional Foresters Act, 2000](#), includes many services that involve various types of surveying and mapping.

These areas are core competencies of Professional Foresters. Professional forestry has seven common national professional standards for all registrants and five different streams of practice, each with their unique national professional standards (see the professional certification standards on the [Forest Professional Regulators of Canada/ Organisme de réglementation des professionnels de la forêt du Canada website](#)). The five Professional Forester streams are Forest Management, Natural Resources and Ecosystem Management, Urban Forestry, Forest Operations and Ecological Restoration and Management. Registrants in each of these professional streams create and make extensive use of maps, images and analyses of lands/waters and their resources.

Many OPFA registrants have their own businesses or are employed by municipalities, private landowners, Conservation Authorities, First Nations as well as forest product companies and the provincial government among many others. OPFA registrants provide services that involve remote sensing, LIDAR, GIS, photogrammetry, and geodetics. For example, all forest and urban woodland plans involve the use of GIS, photogrammetry, and geodetics.

As mapping and analyses of land resources and human values are key functions of professional foresters, some additional clarification is required regarding the wording of the proposed changes to the *Surveyors Act*. The background document provided to us lists geodetic surveying, hydrographic surveying, photogrammetric surveying, and geographic information management as currently being non-exclusive, however it also states "registered Surveyor" in brackets beside each. We do not comprehend the intent of these items. We understand that the intent is to propose new definitions of "Cadastral Surveying", "Boundary" and "Professional Surveying" however while the webinar suggested those would not affect the ability of professional foresters to provide services within the currently non-exclusive practices listed, this is unclear from the written information. For example, the term "map" used to define Cadastral Surveying is undefined also GIS, photogrammetry and geodetics that are described as professional surveying are not clearly defined and will cause confusion.

While we have indicated a few terms that need to be defined, there are other terms that will appear in a revised *Surveyors Act* that we will have not seen that will need to also be defined. The OPFA supports improved definitions and clarifications within the *Surveyors Act*. It is important however, that the proposed definitions as written be specific enough to ensure that the exclusive practice of Land Surveyors is protected without impacting the ability of professional foresters to provide their services or cause public confusion. We believe that the current proposed definitions would require some additional detail and specificity. The definitions proposed for cadastral surveying, boundary, and professional surveying create overlap with the scope of professional forestry. While professional foresters do not create legal boundaries for properties they do classify, inventory, map, model, locate roads and make plans for forests, urban woodlands and other natural resource features.

The AOLS have indicated in the written information that they are proposing to have a shared-exclusive practice with Professional Engineers and Professional Geoscientists (except for Cadastral Surveying which would remain the exclusive domain of Ontario Land Surveyors). The OPFA objects to a proposal that would prohibit

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(Continued from page 38)

Professional Foresters from practising their profession to its full scope and so if the practice of Professional Surveying is to be restricted, we ask that an exemption be made in the *Surveyors Act*, or a regulation thereto, providing an exemption for Professional Foresters.. Currently, the regulation ([O. Reg. 145/01](#)) under the *Professional Foresters Act* excludes certified Land Surveyors from the application of the statute, to ensure that Land Surveyors are able to provide their services as defined in their scope of practice. As currently drafted, the proposed changes to the *Surveyors Act* would impact the ability of Professional Foresters to provide the services as listed in their scope of practice, and therefore a similar exclusion will be required.

The OPFA will be happy to engage in further discussion with AOLS regarding the proposed changes to the *Surveyors Act*, to receive additional clarification and ensure that Professional Foresters are able to continue to provide services within their scope of practice, while the AOLS refines the exclusive scope of a Land Surveyor. To help ensure the people of Ontario are well served by registrants from both Associations the OPFA also suggests that we jointly develop a protocol that OPFA registrants can use to remark boundaries. Having this protocol will help the AOLS in its quest to revise the *Surveyors Act* as it will provide assurance to landowners and the Government of Ontario where relocating, marking and mapping of boundaries will not need the services of an OLS.

Response received: Mon, Oct 17, 2022 at 10:01 AM

Fred,

I had a chance to read your comments this morning. The current definition of professional surveying does relate to many of the activities performed by Professional Foresters and as noted is not exclusive and does not prevent those from happening. For clarity, our proposal is to significantly reduce the scope of professional surveying, which would only include certifying the location of items with respect to a legal boundary. We do not believe this limits your members from their current activities.

As for your last paragraph, we have worked with Professional Foresters many years ago in creating a protocol dealing with legal boundaries. We believe and will continue to insist that only Ontario Land Surveyors can perform surveys to OPFA response to revisions to the *Surveyors Act* establish and re-establish legal boundaries but recognize that Professional Foresters will determine where to cut within their abilities. We would be pleased to discuss this again if necessary.

Brian Maloney, OLS (he/his)

Executive Director

Association of Ontario Land Surveyors

(416) 491-9020 x 27

Grey Areas

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A COMMENTARY ON LEGAL ISSUES AFFECTING PROFESSIONAL REGULATION

Measuring Regulatory Performance Part 1 – Recurring Features

by Rebecca Durcan
December 2022 - No. 273

How should regulators measure their regulatory performance? We were surprised at a [newspaper reporter's observation](#) that securities regulators were less effective regulators because they obtained lower fines and less prison time than in previous years.

We have conducted a review of the most recent annual reports (all for 2021) of ten Ontario regulators. Five were for regulators of health professions and five were for regulators for other professions. We selected a mix of larger, medium and smaller sized regulators. Our goal was to identify what objective measures of performance the regulators highlighted in their annual reports.

We were struck by the diversity of approaches taken to annual reports. A few were innovative and looked like a PowerPoint presentation with less narrative. Other reports were more traditional. For example, they contained statements from organizational leaders, recognized the contributions of board and committee members, included reports from all or the more significant committees or program areas, described recent initiatives, and attached a copy of the financial statements of the organization.

In our assessment, six of the regulators predominately followed the traditional model, even though performance measures were also included in the reports. For example, one report from a smaller regulator listed the names of all of the registrants who were no longer members for various reasons (e.g., retirement, resignation, revocation, suspension, death). Another report listed the registrants who had passed away in the previous year. One annual report was dominated by a transcript of the verbal

presentation made at the annual general meeting of its registrants.

This two-part series of articles is not intended to take away from the importance of qualitative information. For the foreseeable future, prose descriptions, analysis, proposals, and predictions about regulatory activities will continue to provide immensely significant information about the performance of regulators.

However, the main take away from these articles is to examine how regulators of professions can choose to publish quantifiable measures of their performance.

Dashboards

Dashboards provide a pictorial or graphic display of information that allows the reader to quickly assess information. Dashboards are increasingly used by organizations to provide executive level insight to Boards or Councils so as to enable high level monitoring while, at the same time, discouraging operational level intrusion.

Seven of the reports contained a significant amount (ten or more) of dashboards in their annual report.

A somewhat related concept is the length of the report. Reports containing numerous dashboards tended, with notable exceptions, to be shorter and less wordy than reports with fewer dashboards. Three of the reports were fewer than 25 pages and three contained between 26 and 50 pages. Four of the reports were over 50 pages long. One was over two hundred pages long. Another of the longer reports was difficult to measure in this way because the report was in a webpage format with numerous links. In total, the report would have been many hundreds of paper pages long.

FOR MORE INFORMATION

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WANT TO REPRINT AN ARTICLE

A number of readers have asked to reprint articles in their own newsletters. Our policy is that readers may reprint an article as long as credit is given to both the newsletter and the firm. Please send us a copy of the issue of the newsletter which contains a reprint from Grey Areas.



Throughput Numbers

All of the reports contained “throughput numbers” such as the number of applicants registered, the number of registrants participating in some form of quality assurance, the number of complaints, or the number of discipline hearings. Interestingly, which throughput numbers were included varied although most included registration, complaints / investigations and discipline numbers.

Seven of the reports compared at least some of the throughput numbers to previous years so that comparisons could be made.

Five of the reports provided information about the nature of the outcomes of complaints, investigations and discipline proceedings. Five of the reports (but not precisely the same five) also set out the frequency of the type of concerns raised (e.g., professionalism, standards of practice, competence, practice management). Some of the reports may have minimized this information because the information was contained elsewhere (e.g., for the health regulators, in their College Performance Measurement Framework¹ (CPMF) reports). In fact, one report referenced the CPMF and reported on its degree of compliance with the CPMF requirements rather than to report on those matters directly in its own annual report.

Eight of the reports contained information about the outcomes of quality improvement activities, such as participation rates in the programs and the percentage of successful completion of activities on a first attempt.

Timeliness

Surprisingly, perhaps, given the recent emphasis on timeliness, including by the courts, only three of the reports contained at least some indication of how quickly core regulatory activities (e.g., processing applications for registration, assessing complaints, completing discipline hearings) were accomplished.

Surveys

Three of the reports contained results of surveys. These included registrant satisfaction with their participation in the quality improvement program, participant satisfaction with continuing professional development programs offered by the regulator, satisfaction surveys about mentoring programs, and satisfaction with the practice management helpline.

Another report contained reference to one survey result related to customer satisfaction with its customer service in responding to inquiries.

Preliminary Observations

Annual reports of regulators are quite diverse in format and content. Even recurring measures of performance are not universally adopted and vary in their presentation. As such, regulators and policy makers can learn much by studying the annual reports of other regulators and adopting the more useful performance measures for themselves.

¹ While some might view the College Performance Measurement Framework (CPMF) reports of the health regulators as representing a better presentation of their performance, this article focuses on the annual reports of the regulators. The performance measures contained in the

CPMF reports are prescribed externally through a government-led process. The performance measures in a regulator’s annual report are largely (there are some minimum requirements that are externally imposed) chosen by the regulator themselves.



Part 2

In Part 2 of this series, we will look at some of the less common and even unique performance measures contained in some regulators' annual reports.

To see the reports themselves, go to:

- AOLS - https://www.aols.org/site_files/content/pages/resources/reports/2021-annual-report.pdf
- CMLTO - http://cmlto.com/images/stories/Resources/CollegePublications/AnnualReports/cmlto_ar%202021_web.pdf
- CMO - <https://www.cmo.on.ca/wp-content/uploads/2021/09/CMO-Annual-Report-2020-21.pdf>
- CNO - <https://www.cno.org/globalassets/1-whatiscno/annualreport/cno-2021-annual-report-en.pdf>
- COptomO - <https://collegeoptom.on.ca/wp-content/uploads/Annual-Report-2021.pdf>
- CPSO - <https://viewer.joomag.com/annual-report-2021/0389290001652738123?short&>
- HRP A - <https://hrpa.s3.amazonaws.com/uploads/2022/05/HRPA-2021-Annual-Report.pdf>
- LSO - <https://lso.ca/annualreport/2021/home>
- OAA - <https://oaa.on.ca/publications/detail/2021-OAA-Annual-Report>
- RECO - <https://www.reco.on.ca/wp-content/uploads/RECO-Annual-Report-2021-vF.pdf>

Job Opportunity: Forestry Manager - Full Operations

COMPANY/AGENCY/EMPLOYER: BARRETTE-CHAPAIS LTÉE

APPLICATION DEADLINE: JAN 25, 2023

LOCATION: CHIBOUGAMAU, QUEBEC **JOB TYPE:** FULL TIME, PERMANENT

Looking for a new challenge? You want to improve your career perspective and future? You are ready for a promotion but nothing is planned ahead for you? You like nature and "grand espace" with full package benefits and salary over the market!!! Looking forward to hear from you: Claude Lajoie – consultant Recrutement 819-574-2546

Notre cliente, Barrette-Chapais Ltée est, depuis plus de 40 ans parmi les usines les plus avant-gardistes du point de vue de la technologie mise au service du procédé de sciage et est reconnue tant par l'excellence de ses produits que pour son environnement de travail stimulant. Pour réaliser sa mission, Barrette-Chapais Ltée doit compter sur un approvisionnement à long terme en harmonie avec ses objectifs et respectueux de ses principes directeurs. L'Équipe expérimentée de Direction veut s'enrichir d'un(e): Forestry Manager – Full Operations of the forestry team Directeur(trice) des Opérations Forestières Based in the Chibougamau-Chapais, QC Relevant du Directeur général, la personne sélectionnée planifie, organise, dirige et contrôle les activités pour le groupe de la foresterie, en assure le bon fonctionnement et l'atteinte des objectifs, et ce, tout en s'assurant du respect des normes de sécurité et de qualité en vigueur. Vous négocierez des contrats liés à la planification forestière, à la construction de routes, aux opérations de récolte et aux activités sylvicoles. Vous établirez et maintiendrez également des contacts avec toutes les parties prenantes. RESPONSABILITÉS • Planifier, organiser, diriger et contrôler les opérations forestières pour l'approvisionnement de l'usine de Chapais. • Négocier les contrats avec tous les entrepreneurs impliqués et en assurer le respect et la conformité. • Développer et entretenir des relations basées sur le respect auprès des Premières Nations. • Préparer et assurer le suivi des budgets. • Gérer et assurer le mentorat du personnel sous sa supervision. • S'assurer du respect des normes de santé et sécurité au travail. • Veiller au respect de la législation et de la réglementation en vigueur. • Effectuer toutes autres tâches nécessaires à l'accomplissement de ses fonctions. • PROFIL DE COMPÉTENCES • Autonomie et aptitudes marquées pour la planification et l'organisation du travail. • Faire preuve de créativité et d'innovation. • Professionnalisme, jugement et rigueur. • Capacité à saisir les enjeux d'affaires et à établir des relations professionnelles basées sur le respect. • Compétences éprouvées en négociation. Qualifications • Formation en génie forestier de même que de 5 à 10 ans d'expérience pertinente en foresterie. • Avoir à son actif une expérience pertinente de gestion d'équipes d'opérations, gestion de projets et de budgets d'opérations. • Expérience et réalisations significatives impliquant divers intervenants du territoire dont les Premières Nations. • Connaissances avancées en termes d'outils informatique dont : Suite Microsoft office. • Expérience de la forêt boréale un atout. • Bilinguisme est un atout. POUR PLUS DE DÉTAILS : Claude Lajoie consultant Recrutement – 819-574-2546 clajoie@scdconsultant.com

In Memoriam

James Parker, R.P.F. (Hon.)

July 13, 1947 - August 13, 2022

Walking through the gardens at the family home, you can't help but feel Jim's presence. He built the gardens with Wanda and through the years the gardens have been a great source of joy; a type of joy only accessible through working the soil. There is a varied collection of flowers, vegetables, trees, ground cover, a few ornaments and decorations. Some trees have been there since the family arrived; others are new additions. Some of the original trees are gone, making room for a shed and an herb garden. This little oasis is also home to all sorts of creatures: cardinals, robins, hummingbirds, gold finches, 'brown farts', butterflies, bees, families of bunnies, foxes, three different colours of squirrels, an opossum named Patrick, skunks and other urban wildlife. The plants aren't just for decoration, they are a home and respite for many. His children Chris, Paul and Brian would spend many hours there as well, cutting the lawn, expanding the boundaries and in later years playing with their own families amongst the gardens. And having the grandchildren, Lavender, Turner and Mason in the gardens is a special treasure all unto itself.

Born and raised around London Ontario, Jim grew up with three other siblings. Throughout his life, Jim stayed committed to his family, keeping close to his father Douglas, mother Jean, sister Lois, brother Mike and sister Janice. He was a country boy through-and-through, trees and forests would always be of keen interest to him. If you went for a walk with him in the forest, he would be sure to share some observations of the giants towering over and the seedlings pushing up from the floor.

Jim pursued a career in the public service that took him and the family all over Ontario. Even when he retired, he continued to focus his business on public service, whether here in Canada or abroad. His public service also included many hours of volunteering at The Compass Food Bank, a charitable organization very close to his heart.

Many of his closest relationships came from his work and volunteering, and the rest of them came from the golf course. We know he enjoyed the hours out on the course, focused only on the stupid little ball in front of him. He has probably golfed a couple million holes over the years, some with hickory sticks, all while connecting with people through his sport.

We all miss him dearly. But know that you can always feel his presence, whether walking through the garden at the family home, on a forest walk or during a round of golf.

In lieu of sending flowers, please consider making a donation. <https://www.arbormemorial.ca/glenoaks/obituaries/james-parker/90062>

Jim served as a Public Councillor of the Ontario Professional Foresters Association from 2001 and 2007, appointed to the role by the Ontario Government. During that time he also served on various committees, working groups, and task teams such as the Growing Professionalism in the Forest initiative, Complaints Committee, Governance Committee, Annual Conference Working Group, and the Competency Support Working Group. In April of 2007, he was granted Honourary Membership and was able to use the designation R.P.F. (Hon.). From 2013-2018 Jim worked in a contractor role as the Enforcement Coordinator and was a valued asset in assisting the Registrar in enforcement matters.



In Memoriam

Daniel Michael Cooligan, R.P.F.

August 29, 1958 - November 21, 2022

It is with profound sadness that we announce that Daniel Michael Cooligan died unexpectedly on November 21, 2022, at his home in Goulais River, Ontario. He was 64.

Born in Ottawa on August 29, 1958, Dan was the eldest son of Rachel (Lapointe) Cooligan and the late Garret Joseph Cooligan; brother to Michael (Jacqueline), Roxanne (Stuart), Andree (Jaana) and Noelle (Sean); uncle to Fiona, Benjamin, Sara, Colin and Michael; nephew to Veronique Bonnick, Marcelle Lapointe, Maureen Doyle, Desmond and Shirley Cooligan, and Neil Cooligan.

Dan is survived by his long-time companion, Janice Lewton of Sault Ste. Marie, Michigan, and her daughters Carly Lewis and Pamela Claussen and grand-daughter Olivia Claussen. He is also survived by many cherished cousins and friends.



After attending Canterbury High School in Ottawa, Dan studied forestry at Algonquin College and obtained a diploma as a Forest Technician. Inspired by his love of the outdoors and after spending many summers fighting forest fires in northern Ontario -- including being lowered into fire zones by helicopter -- Dan obtained a Bachelor of Science in Forestry from Lakehead University in Thunder Bay.

Dan loved both policy and communications work so it was a natural transition when he joined Ontario's Ministry of Natural Resources in Sault Ste. Marie, Ontario. Dan ran countless outreach and research initiatives across Ontario and Canada related to Sustainable Forest Management. As a Forest Legislative Policy Advisor, he was responsible for bench-marking forestry programming and legislation of other Canadian provinces and countries. Dan was a member of the Ontario Professional Foresters Association and his work included a secondment to the Canadian Forestry Association in Ottawa, where he fronted a wide range of national and international forestry issues. Dan was well read, articulate, intelligent and insightful, which made him a trusted advisor to many ministers and colleagues for decades. He was an authority on forest legislation, silviculture, forest management and cultural heritage. Dan retired from the Ministry in 2016 after which he continued to consult on forestry issues.

While Dan loved his work, this pales in comparison to his love for his family, his girlfriend, his many cats over the years (Big Kitty, Little Kitty, Small Big Kitty, Pumpkin, Cheetah and Molly), his dear cousins Mark Doyle and Natalie Bonnick and his friends -- Kevin, Sharon, Joanne, John, Mark, Craig, Tom, Peter and too many more to name. Friends from his youth remained his dear friends forever. On Goulais Lake, Dan shared an important camaraderie with Frank, Paul and Ted, who were always eager to lend a hand and join in a meal. Dan also had many important work colleagues and friends with whom he remained in touch after his retirement. Dan loved his people and said it, with meaning and with a big heart, and he showed it by visiting family and friends often, across Canada and the US, and by opening his home as a respite for many.

Dan's last love was his retirement home on Lake Superior, his "Camp Goulais." He spent his retirement surrounded by his forest and mother Lake Superior. He was at peace and very happy, living his best life. He busied himself building and fixings things, gardening and tending to his green houses. He was always inviting friends and family to visit and loved to prepare amazing feasts, especially at Christmas and Thanksgiving. He was a great cook and a gracious host, most often the last to turn down the music and head to bed.

Dan was a presence, a helper, a generous friend and, as his mother often said, a diamond in the rough. He lived his life to the fullest. He was a hiker, a driver, a skier, a thinker and a reader. He was a world traveller but most often returned to his favourite spots: Europe, Jamaica, Florida and Columbia. He loved to "broast" on sandy beaches, ski snowy northern climes and enjoy local cuisine. He would easily make friends with people at the table next to him, anywhere in the world. He loved conversation.

(Continued on page 46)

(Continued from page 45)

He was an intellect, a news media junky and a debater. He held and shared opinions with conviction but without judgment. He was a strong advocate for civic responsibility and lived his life with integrity.

Dan will be greatly missed. Our only consolation is that he died doing what he loved at his camp. His weakened heart broke suddenly that day, but pieces of it survive in all of us.

Friends and family can pay their respects at Moose McGuire's (3320 McCarthy Road, Ottawa, ON) on January 2nd from 2 to 4 PM when we gather to celebrate and remember Dan's life. In lieu of flowers, take someone dear out to dinner in his memory.

<https://www.sootoday.com/obituaries/cooligan-daniel-michael-6191614>



Member News

New Full (R.P.F.) Members:

Jared Binguis
Brianna Dumas
Erin Kielt
Janice Lam
Adrian Smith
Shay Yaskovitch

New Associate (Associate R.P.F.) Members:

Mark Watson

Please welcome and support the following people who have been admitted into the OPFA but are not yet entitled to practice professional forestry in Ontario:

New Provisional Members (R.P.F. in Training):

(may practice if under the direct supervision of a qualified member)

Yemi Adeyeye
Matthew Aleksa
Dzhamal Amishev
Dan Bausoleil
Rachel Bowery
Asad Choudhry
Neal Hissa
Silvia Ho
Thomas Hojniak
Luke Kastelic
Donovan Parenteau
Shravankumar Patel
Jacob Rudy-Froese
Alexander Stepniak
Tom Tiisler
Adam Tweedle
Megan Wain

New Provisional Member (R.P.F. in Training with Scope):

(may practice within their prescribed scope of practice or under the direct supervision of a qualified member)

Alastair Biscaia

New Student Members:

Enoch Ofosu
Hannah Adair
Ivan Adarme
Andrew Base
Eildert Beeftink
Aliya Bein
Dylan Cole
Devon Conway
Jaako Crawford
Ricardo de Oliveira Antunes, Jr.
Cristina Elchyson
Nikola Gligorevic
Charlotte Grieve
Daniel Guindon
Olivia Hardtke
Jingyu He
Carly Jackson
Imrul Kayes
Amanda Ladd
Stevie Luzzi
Dawson Meecham
Kevin Myers
John Newell
Peiyao Ouyang
Faris Rasiff
Jin Shaopeng
Zebulun Snider
Yifeng Zhao

New Inactive Member:

Marie-Paule Godin

New Life Member:

Robert Fleet

Deceased Members:

Dan Cooligan
Jim Parker
Albert Zwart

Resigned, Associate Member:

Dan Puddister

Resigned, Full Members:

Robert Bowen
Isabel Gannon
Michele Kipien
Robert MacLeod
Hartley Multamaki
Dwayne Schultz
Tammy Verhaeghe
Krista Watters

Resigned, Inactive Members:

Daniel Demers
Brian Hillier
Brian Cavanagh
Keith Ley
Kandyd Szuba

Resigned, Provisional Members:

Jacqueline Gauthier
Bikiran Homagain
Martin Mostert
Pedram Sadoghi
Greg Van Every

Continuing Education

Webinars and Other Resources

Websites that offer free webinars to earn CEUs for your membership maintenance.

- Canadian Institute of Forestry (CIF-IFC) - Offers considerable resources and ongoing lecture series
<https://www.cif-ifc.org/e-lectures/>
- Ontario Ministry of Natural Resources and Forestry. MNR Science Insights, contact Kristy McKay, Science Transfer Specialist at Kristy.McKay@ontario.ca
- Forestry and Natural Resources Webinars
<http://www.forestrywebinars.net/>
- Conservation Webinars
<http://www.conservationwebinars.net/>
- Urban Forestry Today
<http://www.urbanforestrytoday.org/>
- Climate Webinars
<http://www.climatewebinars.net/>
- Cornell University
<http://blogs.cornell.edu/ccforestconnect/subscribe/>
- Forestry Chronicle
<http://pubs.cif-ifc.org/journal/tfc>
- Canadian Journal of Forest Research
<http://www.nrcresearchpress.com/journal/cjfr>
- FPInnovations
<https://web.fpinnovations.ca/blog/>
<https://wildfire.fpinnovations.ca/index.aspx>
- Tree Research and Education Endowment Fund (TREE Fund)
<https://treefund.org/webinars>
- Ontario's Centre for Research & Innovation in the Bio-economy (CRIBE) - Forest EDGE. Decision support tools, projects and case studies.
<https://www.nextfor-forestedge.ca/>
- Invasive Species Centre webinar series
<https://www.invasivespeciescentre.ca/learn/webinar-series/>

- Canadian Partnership for Wildland Fire Science (Canada Wildfire). Partnership members include: the Canadian Forest Service, Alberta, BC, Northwest Territories, Saskatchewan and the University of Alberta. Originally focused on western Canada, it has expanded and includes information and research of interest to forest managers elsewhere in Canada.
<https://www.canadawildfire.org/>
- Planit Geo Urban Forestry Webinars
<https://planitgeo.com/urban-forestry-webinars/>
- Forestry Adaptation Practitioners' Network (FAPN)
<https://facop.earthnet.world/join-team/1d797c02-a57a-4b5f-8aa2-b77fb2181848>
- CanAdapt climate adaptation capacity-building hub
<https://can-adapt.ca/>

Coming Events

Forests Ontario's 2023 Annual Conference - Growing a Healthy Tomorrow – For Communities, For Earth, For Life
February 16th to 17th, 2023
Alliston, ON
<https://forestsontario.ca/en/event/annual-conference>

2023 Annual OPFA Conference and AGM
Professional Foresters Adapting Through Collaboration and Innovation
April 18th to 20th
Peterborough, ON
<https://opfa.ca/about-us/event-list/#!event/2023/4/18/2023-annual-conference-and-agm>

Please send any upcoming events to opfanewsletter@gmail.com