

OUR FOREST



forestsontario.ca

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SPRING 2022

Assisted Tree Migration

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Where Edmund Zavitz Planted His First Trees

PAGES 10-11

Urge Leaders to Fight Climate Change

With provincial vote near, now is the time to demand action

Spring is here, and while all of us at Forests Ontario are looking forward to longer days and warmer evenings, the snowy early months of 2022 didn't stop our team from getting off to a great start!

Our 2022 Annual Conference, **Strength in Biodiversity**, was a resounding success, with more than 800 attendees tuning in from around the world. Over the three days, we heard from dozens of speakers on important topics including forest management, wildfire challenges, and sustainable forestry. Our keynote speaker, former Forests Ontario President Steve Hounsell, gave an impassioned presentation on the need to solve the twin crises of climate change and biodiversity loss. We also hosted two free sessions, the *Forest Health Showcase*, and our 4th annual *Student-Employer Engagement Day*. You can read more about the entire conference on pages 12-17.

I took away many insights and lessons from our Annual Conference and was thrilled to end the event with a session on sustainable forestry, and how it is an ally in the fight against climate change. Moderated by our President, Malcolm Cockwell of Haliburton Forest & Wild Life Reserve, and featuring four experts in the field, the session offered excellent presentations and discussions highlighting the valuable contribution our forests make towards a healthy future. You will find more about this session on page 13.

Of course, the main event we are all preparing for right now is the spring planting season. Our staff and partners are working closely together to ensure that we are ready to go once the weather allows us to get seedlings in the ground. The demand for tree planting in Ontario is greater than ever, and we expect to plant millions of trees this year. While COVID-19 brought about challenges, it did highlight one positive – the inherent connection between humans and nature. Over the last two years, many have rediscovered their love for our forests. We also know that living in a thriving natural environment contributes to a multitude of mental and physical health benefits, in addition to the economic benefits our forestry sector provides. We're thrilled to see people getting outside, learning more about our environment, and enjoying all that nature has to offer.

Not only do new forests benefit us, but they are crucial to a healthy climate. Climate change is the greatest threat we have ever faced, and has detrimental impacts on not just our ecosystem, but also on global stability, on our health, our economy, and our way of life. Forests are one of the primary nature-based solutions we have to fight climate change. Sustainable forestry can be a net sink for carbon dioxide, one of the few tools we have to actually remove CO₂ from the atmosphere.

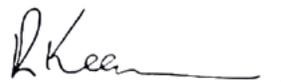
To ensure that every community has greenspace to enjoy for generations to come, we must continue to enhance southern Ontario's forests. Forest cover in southern Ontario is presently around 26 per cent, and studies tell us we need at least 40 per cent to maintain healthy ecosystems. Thanks

to your help, as well as the support of our many partners, donors, sponsors, and the Government of Canada, we have been able to plant millions of trees each year to work towards this goal. However, more must be done, and to do more, we must increase our collective tree planting capacity. There's a role for everyone, whether it be creating a legacy through tree planting on your property or making a financial donation. Achieving this goal is not the job of just some of us, but must be the work of all of us.

With the provincial election coming up in June, now is a great time to voice your support for our forests. Please make your local candidates aware of the need for more tree planting in our rural and urban communities, and ask what their plans are to fight climate change, reduce biodiversity loss, and support the creation of new forests. If we, as a nation, are going to achieve net-zero emissions by 2050, action is required now. We must make the health of our environment front and centre this election, and we look forward to working with all levels of government to ensure there is appropriate financial support for important nature-based solutions to fight the effects of climate change.

As always, I must share our sincere thanks to you, our members and supporters, for all that you do. Thanks to you, we are looking forward to another record year of tree planting, reaching future environmental stewards through our forest education programs, and spreading awareness of all that our forests do for us. I hope you enjoy this issue and spend some time this spring in your local forest.

All the best,
Rob Keen, RPF



CEO of Forests Ontario and Forest Recovery Canada



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#ItTakesAForest

OUR FOREST

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The World's Largest Living Tribute

Highway of Heroes continues to expand its green monument

BY MIKE HURLEY

Just over seven years ago, a group of tree-loving people were inspired to transform Highway 401 into a living tribute to honour Canada's war dead, who total 117,000 since Confederation. As a result, the Highway of Heroes Tree Campaign was established to do just that. In addition to honouring our troops, the commemorative trees will help clean the atmosphere, cool the environment and, once fully mature, will provide a memorable drive down an otherwise ordinary stretch of asphalt.

As support grew, so did the project's ambitions. In addition to the 117,000 trees planted directly on the highway honouring fallen soldiers, more than 1.8 million trees have been planted along the 401 corridor, paying tribute to all past and present soldiers of the Canadian

Armed Forces. The vast majority of these "service trees" have been planted through the Highway of Heroes partnership with Forests Ontario's 50 Million Tree Program. The Highway of Heroes Tree Campaign plans to commemorate the planting of its final trees just in time for Remembrance Day this fall. This will be a year filled with celebrations for all those involved with the campaign.

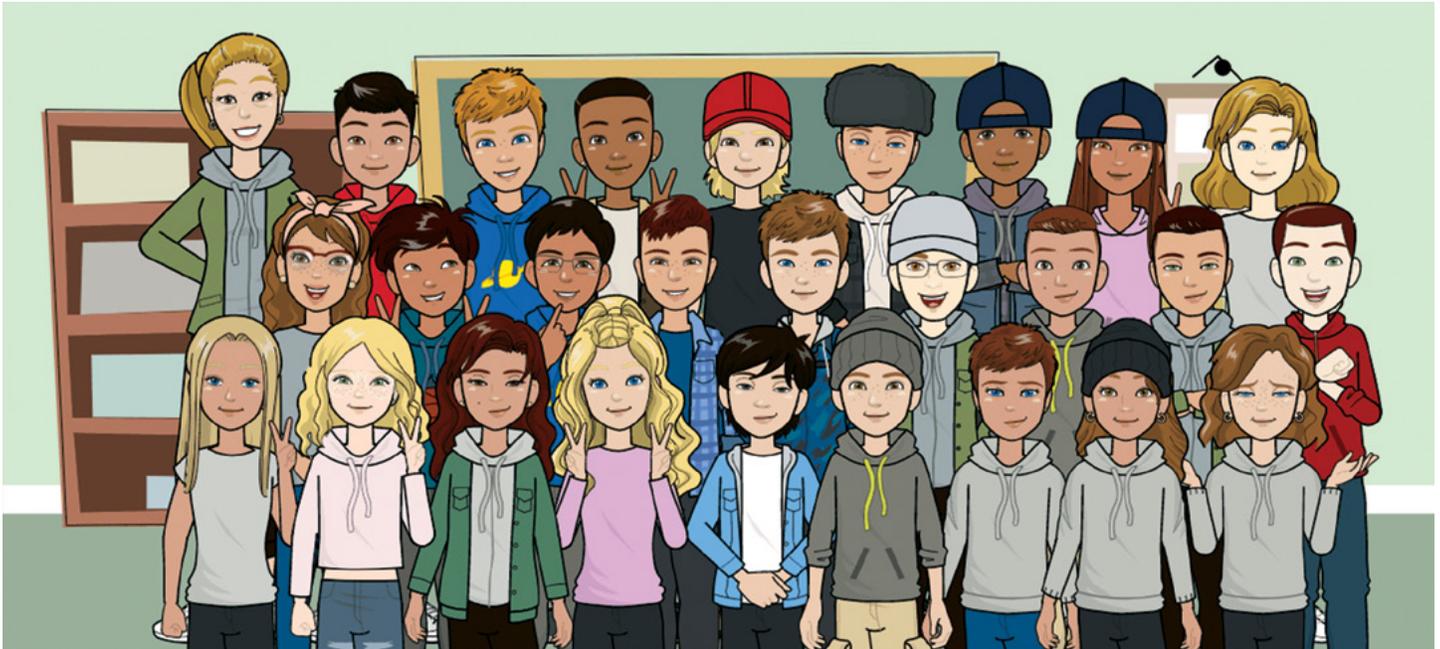
In April 2021, Cindy McElrea, whose son Master Cpl. Sean Markwell served in Afghanistan, had 7,750 spruce, pine, and oak trees planted on her 30-acre horse farm near Colborne as part of the Highway of Heroes Tree Campaign.



“We Learned New Things About Trees”

Holland Landing class brings home gold at Tree Bee contest

BY GRADE 6 CLASS, PARK AVENUE P.S.



We are a class of grade 6 students from Park Avenue Public School in Holland Landing. We won the 2021 Tree Bee contest. This is our story.

Tree Bee is a website that identifies trees based on the description of what they look like. Every year there is a competition to see who can correctly identify the most trees and answer questions about forests. When we were competing, our class learned new things about trees while

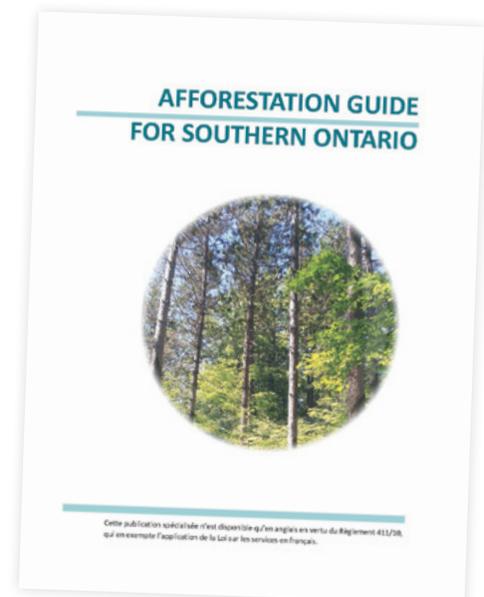
building our collaboration skills. We were so excited about the possibility of winning. It was very exciting to hear we did so well, and the prizes were awesome!

The overall experience was educational, a great bonding experience, and we had fun too! Tree Bee is a great tool and identifying trees is a useful skill that we can use throughout our lives. Thank you Forests Ontario.

New Afforestation Guide for Southern Ontario

Forests Ontario is proud to have played a key role in creating a new **Afforestation Guide for Southern Ontario** from the Ministry of Northern Development, Mines, Natural Resources and Forestry (NDMNR).

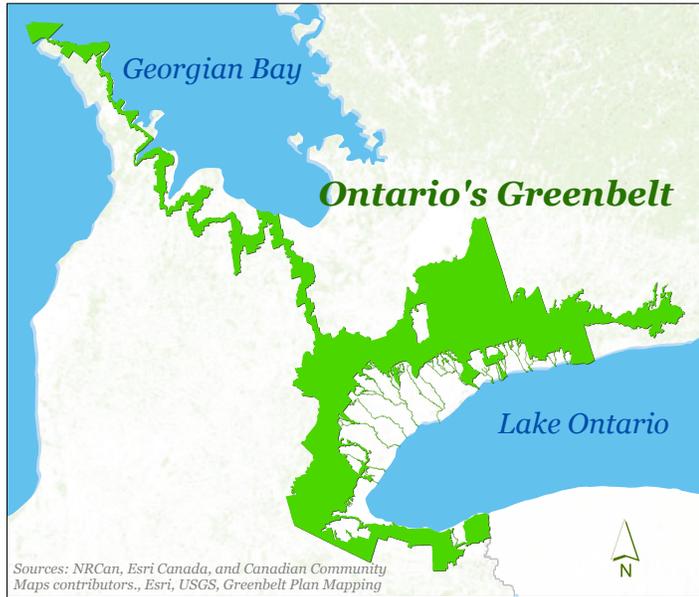
The guide results from a collaborative effort that joined a qualified group of forestry experts and highly skilled practitioners, including contributions from NDMNR, Forests Ontario, Conservation Authorities, private consultants, nurseries, and academic and research institutions, among others. Please visit forestsontario.ca to learn more.



Forests Ontario Teams Up with the Greenbelt Foundation

Partnership reduces costs to landowners to plant trees

BY NICOLE BALDWIN



In 2021, Forests Ontario and the Greenbelt Foundation launched a partnership through Forests Ontario's 50 Million Tree Program, to increase forest cover throughout the Greenbelt. The Greenbelt is an 810,000-hectare area of green space, farmland, forests, wetlands, and watersheds around greater Toronto, largely protected from development. Through this partnership, Forests Ontario and the Greenbelt Foundation offer even greater cost savings to landowners who wish to plant trees on their property.

The partnership pairs landowners, who enroll in the program, with a local restoration professional who will assess and prepare the site, develop a site plan, secure appropriate stock, plant, and perform follow up survival assessments in subsequent years.

Habitat loss and fragmentation of forests have threatened ecosystem health throughout the Greenbelt. An investment in forest cover today will pay dividends for generations to come.

Monument Trees

Photography and sound installation celebrates historic trees in Hamilton

BY LESIA MOKRYCKE

In Hamilton, where I live, large old trees that pre-date the settlement of the city form the backbone of urban patterns. As an artist and landscape architect who has grown up in Hamilton, I gained an appreciation for the natural systems that inform the structure of our region.

Last September, I received a grant from the Canada Council for the Arts to locate and document the oldest trees in the city. The project, titled Monument Trees, aims to recognize the role legacy trees play as anchors of these larger natural systems, and to present new models for urban growth that prioritize ecology.

Over the past three months, my inventory has rapidly increased from 350 to 900 trees that appear to have historic significance, with many having been contributed by the public. This fall, I will present a selection of my photos of these trees at a photography exhibition and sound installation at Hamilton's Royal Botanical Gardens.

Through a partnership with a member of Six Nations, Paul General, the project is raising awareness of the culture and history of old-growth trees in our region. We want to work with the local municipality to recognize ancient trees as a new type of living monument.



Lesia Mokrycke poses with a Sugar Maple on municipal land on Mountain Brow Boulevard in Hamilton, January 16, 2021. This tree has been battered by the wind, but is comparable in size to other Sugar Maples growing beneath the escarpment that are part of Mokrycke's Monument Trees project. It is a good example of how environmental conditions, such as wind and forest cover, can influence the life of a tree. Artist Lesia Mokrycke is a member of Forests Ontario.

Cutting, Carving, and Capturing Carbon

Sawmill Sid teaches his clients, and school children, about the sustainability of wood products

BY COLLEEN MAHAFFIE

“When I’m cutting a tree, one of the first things I always say to myself is what is the highest and best use of this tree?” says Sidney Gendron. He has asked himself this question for 21 years. With his family, Gendron co-owns Sawmill Sid, a Mississauga-based business that cuts trees in mostly urban areas, recovering and repurposing their wood.

Sawmill Sid currently operates a sawmill and a resaw; Gendron is looking at buying a third sawmill near Smooth Rock Falls. Thanks to past experience in construction, Gendron can provide custom cuts to contractors, engineers, and interior designers. “One day I could be cutting standard lumber, on another I could be cutting 70” wide tabletops for a customer.” For Gendron, it always circles back to educating his customers. Clients regularly ask him to take down trees to make way for home renovations. “I’ll say to them, what’s the bill for your air conditioning? You can expect that bill to be up 10-15 per cent next year. That tree is doing a lot more than you think.” Sometimes, Gendron’s clients change their minds once they learn about the benefits a healthy tree provides.

Along with his skill at milling, Gendron is also an artist whose raw material is wood. Gendron, who is Métis, was recently selected to create a carving on the Port Credit



Above: Sawmill Sid poses with his carving of a sunflower for Lakeview Village in Mississauga.



lakeshore. Gendron calls the carving, titled *This Dance*, a highlight of his career. “When you do a carving and it moves you, in the native world, it’s no longer a carving at that point – it’s a spirit, because there’s something about it that’s become overwhelming to you. She’s a legacy piece.”

Gendron looks forward to welcoming back visits from schoolchildren, a regular staple of his week prior to the pandemic. When students visit, they receive a small tree cookie, which they then sand down and weigh. Gendron helps them to calculate the amount of carbon sequestered in the wood, and then they stamp the cookie with a carbon stamp. Sequestering carbon in wood, and teaching people about the process, is a key factor in Sawmill Sid’s business, and important to the Gendron family. “We all need to have a better understanding of carbon capture. It keeps evolving, and you’ll never know everything about it. You just do your best to follow what you can on it; whether it’s a big message or a small message, you just keep on passing it along.”

Left: *This Dance*, carving by Sawmill Sid and Richard A. Posa.



Master of Architecture candidates from the University of Toronto meet with Graeme Davis, County of Simcoe Forester, at active harvesting site in County of Simcoe, November 5, 2021. Photo by Teri Hoang

Field Trip to the Forest

Graduate students in architecture visit County of Simcoe

BY TERI HOANG



Masters of Architect students observe an active harvesting site in County of Simcoe. November 5, 2021. Photo by Teri Hoang.

Last fall, a group of architecture students participated in a sustainable forestry tour and lecture organized by Forests Ontario, as part of the It Takes a Forest initiative, in collaboration with The Mass Timber Institute, the Daniels Faculty of Architecture, Landscape and Design at the University of Toronto, County of Simcoe, and Timmerman Timberworks. The Master of Architecture students were investigating how to reduce the greenhouse gas emissions of building stock and examining whether mass timber is a more sustainable, lower-carbon form of construction.

In November, the group, including international students from Hong Kong, India and Israel, attended a lecture on sustainable forestry by Rob Keen, RPF and CEO of Forests Ontario, followed by a day tour out in the forest later that week.

The tour began at Simcoe County Forest, where the students met Graeme Davis, RPF, who is the county forester. Travelling next to the Museum Tract Forest in Midhurst, Davis gave an overview of the history of the Agreement Forest program in Ontario, which began in the 1920s. At this site, a former aggregate pit, students saw recent tree planting and habitat restoration work in an early successional pine-oak forest. They learned about succession, dead standing trees, and wildlife. In a first in Canada, foresters here are working to create habitat for the endangered Kirtland's Warbler.

Next, students visited the Hendrie Tract in Anten Mills, the first property planted under the Agreement Forest Program about 100 years ago. The students saw a range of forest stand types, ages, and management history. This part of the tour ended with a visit to an active harvesting operation where safety vests and hard hats were passed out, and students watched in awe at the skilled high-tech feller operator. He easily maneuvered through the brush to cut down marked Red Pine trees with one swoop per tree.

For their last stop, students visited Timmerman Timberworks in New Lowell, about 30 km west of Barrie, a mass timber supplier that specializes in heavy timber construction. Co-owner Michael Kran showed off his

facility and its operations. Here, the students were in their element, and got the chance to put their architect hats back on to ask an array of technical questions about wood production, and how to build with heavy timber.

As the popularity of wood as a building material continues to grow, it is paramount we bring attention to the economic and environmental benefits of nature-based solutions, and the sustainability of wood products. The tour offered students an appreciation for how forests are managed in Ontario, and the viability of building with local wood, a sustainable, renewable resource.

One student, Robert Raynor, summed it up nicely: "On behalf of the class, thank you very much for organizing Tuesday's talk and Friday's excursions — we had a wonderful time and learned a lot. Rob, Teri, Graeme, and Michael: all of us truly appreciated your time, and your willingness to cater to our endless questions and curiosities. It changes the game to be able to touch and see the actual things and processes we read about, so thank you for this education."

We couldn't agree more, Robert! Forests Ontario would like to thank all the students who participated in our lecture, and acknowledges the many organizations and forestry professionals who collaborated to make our forest tours a memorable experience for all.

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Zavitz's team plantings trees on the Ontario Agricultural College Campus, date unknown. Photo by Edmund Zavitz, courtesy of University of Guelph Library Archives.

Right: One of the 1907 Zavitz pines, which serves as the Forests Ontario Heritage Tree designate, thrives at the University of Guelph Arboretum. Photo by Toni Ellis.

A Visionary's Growing Legacy

White Pines planted by Edmund Zavitz thrive at the University of Guelph Arboretum

BY SEAN FOX



Many of us with an appreciation for trees and forests are familiar with the tales of one of our pioneers, Edmund J. Zavitz. Considered to be the father of reforestation in Ontario, Zavitz left a long legacy of tree planting in the province, highlighted particularly well in John Bacher's 2011 book, *Two Billion Trees and Counting: The Legacy of Edmund Zavitz*. With so many trees being planted under Zavitz's direction in the early 20th century, it can prove a challenge to determine exactly which were among his earliest.

It is well-documented how instrumental Zavitz was in establishing the St. Williams Forestry Station, and planting the first trees there in 1908. However, there is also some evidence to suggest that even earlier plantings occurred on the campus of the Ontario Agricultural College (now a part of the University of Guelph), with some of these trees remaining to this day.

Zavitz joined the Ontario Agricultural College as a lecturer in 1905, and his interest in reforestation, and the damaging effects of desertification in parts of Ontario, led to early forest nursery trials in Guelph. Plantings as early as 1905 likely happened in what are now developed

areas of the main University of Guelph campus. A separate group of trees, still living today, are presumed to have been planted in 1907, where a part of the University of Guelph Arboretum now resides. These towering Eastern White Pines also survived a 1983 tornado that knocked down many of their siblings. They now clearly stand as an emergent layer from the successional forest canopy below.

Today, 34 of these pines can still be viewed by visitors to the Arboretum, complete with a historical plaque to celebrate Zavitz's efforts. To honour the history of all the trees in the grove, one tree was designated through Forest Ontario's Heritage Tree Program in 2017.

Zavitz's legacy doesn't stop there. As just one example, some of the Tulip Trees in the Arboretum's Rare Woody Plants of Ontario Gene Bank are offspring from parent trees that Zavitz saved from clearing over a century ago in what is now Rondeau Provincial Park. These trees are now able to continue their own natural history legacy over multiple generations.

Sean Fox is the Manager of Horticulture and Curator of Collections & Conservation at the University of Guelph Arboretum

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Record Attendance at Annual Conference

Strength in Biodiversity unites forest enthusiasts from around the world

BY COLLEEN MAHAFFIE

Forests Ontario smashed attendance records at its 8th Annual Conference in February, with more than 800 landowners, forestry professionals, Indigenous leaders, entrepreneurs, educators, and students joining in from across the country and around the world. The three-day conference, *Strength in Biodiversity*, explored the ways biodiversity is fundamental to ensuring healthy ecosystems and communities. Due to the ongoing pandemic, Forests Ontario held its conference virtually for the second time.

Rob Keen, Registered Professional Forester and CEO of Forests Ontario and Forest Recovery Canada, is very encouraged to see so many participants focusing on supporting biodiversity. “It’s important to remember that biodiversity is a key element for a healthy future,” Keen said. “This year, our Annual Conference showcased dozens of experts working towards reducing biodiversity loss and ensuring healthy, thriving forests for our future.”

Forests Ontario’s annual forestry conference is the largest of its kind in the province. This year’s virtual event featured 40 sector leaders presenting in six sessions, as well as more than 25 exhibitor and sponsor booths.

Steve Hounsell, a former chair of Forests Ontario, and an ardent advocate for biodiversity conservation and ecological sustainability, delivered the keynote presentation highlighting the importance of biodiversity while also examining the critical benefits that biodiverse landscapes provide for people and their livelihoods.

Forests Ontario recognized a host of forest champions at its conference. Sharing the highest honour, the Forests Ontario Award, are: Al Corlett (Toronto), Scott Reid (Port Sydney), Brian Batchelor (North Bay), Bob Dynes (Bancroft), Brian Naylor (North Bay), Kerry Sinibaldi (Sault Ste. Marie), Al Stinson (North Bay), Jeff Leavey (Pembroke), Mike Walsh (Peterborough), and Steve Munro (Parry Sound). In 1993, these individuals established the Ontario Tree Marking Program, with the objective to implement consistency in the application of silvicultural tree marking on Crown lands, while incorporating leading-edge science to silvicultural and habitat management efforts.



Steve Hounsell with his dog, Laddie.

The Green Legacy Award was given to Ontario Power Generation in recognition for both its Regional Biodiversity Program, and for its participation in the Eastern Ontario First Nations Working Group and inaugural launch of The Healing Place.

The Robert de Pencier Award celebrated Eric and Barb Boysen of Maberly, ON, for their dedication and commitment to projects that support healthy forests, and their contribution to the original structure of Forests Ontario’s 50 Million Tree Program.

Rick Knapton, of Cataraqui Region Conservation Authority (CRCA), earned the designation of Most Valuable Planter. Knapton has planted trees with Forests Ontario in the Kingston area since 2005. Through Forests Ontario’s 50 Million Tree Program, the CRCA has planted more than two million trees.

The White Pine Award went to Ben Woodward, Geography and Environmental Management student at the University of Waterloo.

The Susan Wiecek Forestry Education Award was presented to the Regional Municipality of York. York Region has supported Ontario Envirothon for more than 10 years, funded a regional Tree Bee competition for six years, and held a pilot Virtual Hike project in 2021.



The Forests Ontario Award went to ten individuals who were instrumental in the creation and delivery of the Ontario Tree Marking Program. Three of the ten winners (from left to right): Brian Naylor, Al Stinson, Brian Batchelor.

“Excellent Machines for Sequestering Carbon”

Well-managed forests can help us to heal our planet

BY PETER KUITENBROUWER

Forests can help curb global warming if we manage them well, leading forest researchers told Forests 2022 Ontario’s Annual Conference.

As they grow, trees suck carbon from the air. When trees burn, they emit carbon. Careful forest management is crucial if we want forests to store carbon and slow climate change, researchers told a panel moderated by Malcolm Cockwell, chairman of Forests Ontario.

“Eventually, carbon removals from the atmosphere must be greater than carbon emissions,” Dr. Werner Kurz, who runs the National Forest Carbon Monitoring and Reporting System, part of the Canadian Forest Service, told an online panel in the session titled Sustainable Forestry – An Ally in the Fight Against Climate Change. “But forests are at risk.”

Dr. Kurz said that due to forest devastation from the Mountain Pine Beetle, coupled with “catastrophic fires” (with both human and natural causes), Canada’s forests, rather than removing carbon, have in recent years become a net source of carbon. “And the models show that will continue,” he said.

Still, there is hope. Dr. Kurz, who works with the Pacific Institute for Climate Solutions, said that in order to make our forests a carbon sink, we need to restore and protect forest cover, and improve forest management.

Building with wood is one of the best ways to store carbon, he added. When we harvest trees and use them in mass timber construction, we store the carbon for the life of the building.

Dr. Kurz said Canada has a lot to learn from Scandinavia’s foresters, noting that “intensive forest management in the

boreal forests of the Nordic countries has resulted in large transfers of carbon to society, and in increasing biomass carbon stocks.”

Dr. Ronnie Drever, a senior conservation scientist with Nature United, a Canadian arm of The Nature Conservancy, said that a study he co-authored last year with other researchers shows that Canada has room to plant six billion trees on four million hectares of available land. The trees will sequester carbon slowly at first, he said, but then pick up steam. “By 2050, trees have hit their photosynthetic stride, and become excellent machines for sequestering carbon.”

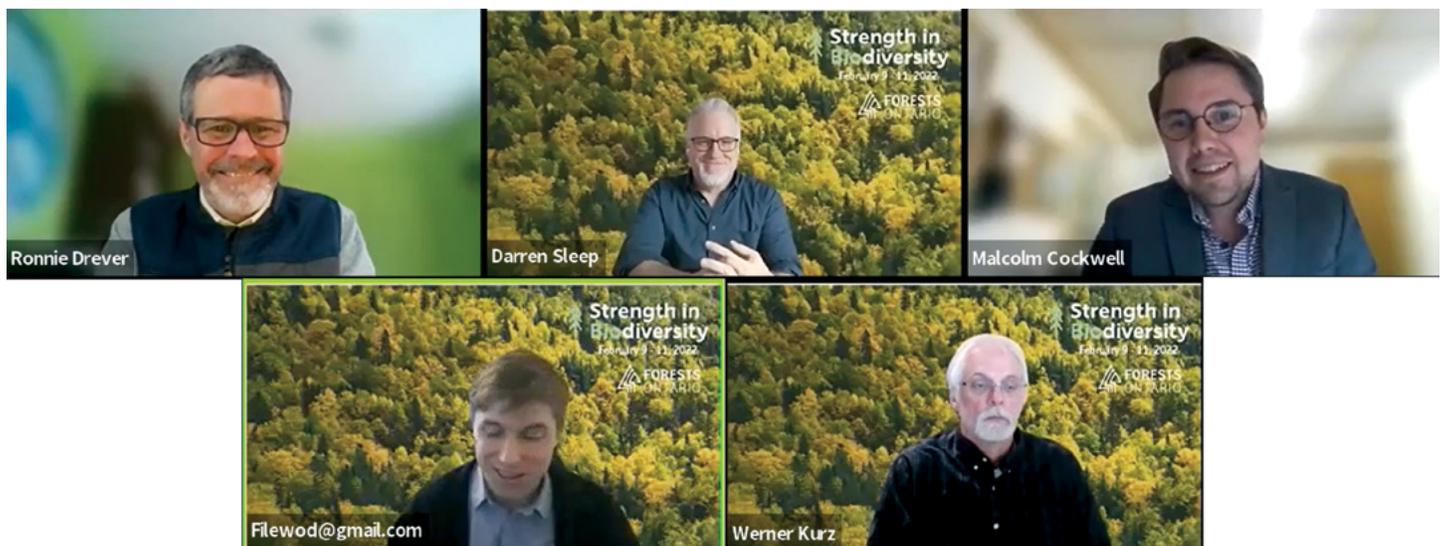
Dr. Drever also talked about the opportunities to combine trees with agriculture and with livestock, and planting trees alongside streams, which he called a cost-effective way to mitigate climate change.

Dr. Darren Sleep of the Sustainable Forestry Initiative, a certification system for forests across North America, noted that forests managed sustainably, i.e., where sustainable harvests take place, “capture carbon faster than unmanaged forests.”

Ben Filewod, an Assistant Professorial Research Fellow at the London School of Economics and Political Science, mentioned that at last fall’s climate change summit in Glasgow, banks that control \$130-trillion in assets made a commitment to net zero emissions.

“They will have to purchase offsets,” he said. That thirst for carbon offsets will push money towards Canada’s forests, Filewod predicted. He expects that Canadian forest offsets will be purchased domestically, adding, “there will be a lot of money to invest.”

Screenshot of conference panel on Sustainable Forestry. Clockwise from top left: Ronnie Drever, Nature United; Darren Sleep, Sustainable Forestry Initiative; Malcolm Cockwell, Haliburton Forest; Ben Filewod, London School of Economics and Political Science; Werner Kurz, Canadian Forest Service, Natural Resources Canada.



Forest Health Showcase: Climate Change and Our Forests

Trees will need our help to migrate northward as our planet warms

BY ROCCHINA BURDO



Kirsten Sandvall

As the planet warms in this century, the climate is predicted to shift more rapidly than our forests have ever historically experienced, Kristen Sandvall told attendees of Forests Ontario's 2022 Annual Conference.

"The climate is changing the world around us and that includes our forests," Sandvall, Seed and Climate Change Program Coordinator at the Forest Gene Conservation Association, mentioned during the Forest Health Showcase. Historically, trees have adapted to climate change through natural migration, Sandvall noted. A tree species may have migrated 10 to 50 kilometres in 100 years in past, post glacial periods. Now, with the rate of climate change, scientists expect that the climatic range of a tree species could shift up to 700 kilometres in this century. Our forests don't have the capacity to migrate this quickly and will need our help.

The climatic changes predicted to occur will drastically affect key climatic variables important for tree growth. Climate analysis illustrates that the Climate Moisture Index is predicted to decrease, meaning there will be less moisture available for tree growth and establishment. Growing season length (GSL), another important variable, influences a tree's growth potential. The growing season is predicted to increase by as much as 60 days in some Ontario ecodistricts by the end of the century. While this longer growing season may increase a tree's growth potential, trees accustomed to

a shorter growing season will not be able to take advantage of the increased GSL. All climatic variables point to the same conclusion: our forests need help.

This is where assisted migration comes in. Assisted migration is the human assisted movement of individuals within their existing range or to areas where they have not historically existed. The first step is to work with widely distributed species and assist through population migration within a species natural range. The goal is to bring in new genotypes that are adapted to the future predicted climate. Introduced populations will mingle with the old, and their offspring will have greater genetic diversity which allows for a greater chance of adaptation.

The key to 'best bet no regrets' climate adaptation actions is making informed decisions with local practitioner knowledge while keeping seed and genetic quality at the core of our actions. As Sandvall noted, "Climate change may have many negative impacts, but we have tools to turn some of the negatives into positives, with genetic diversity at our base, we can create resilient forests."

Rocchina Burdo is a Master of Business Administration Candidate at the Lazaridis School of Business and Economics at Wilfrid Laurier University, who volunteered for Forests Ontario's 2022 Annual Conference.

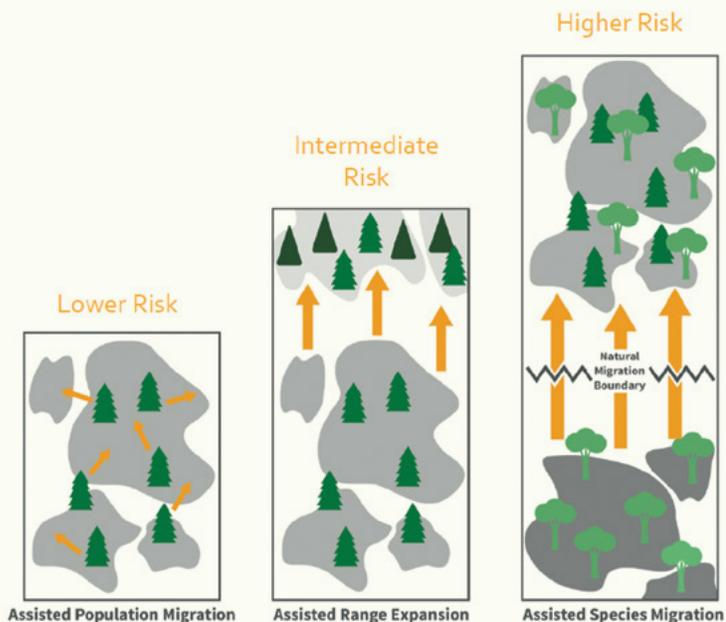
Assisted Migration (AM)

Assisted population migration — movement of populations within a species' established range

Assisted range expansion — movement of species to areas just outside their established range, facilitating or mimicking natural range expansion

Assisted long-distance migration (species) — movement of species to areas far outside their established range

*Beware of variable weather patterns



Bullfrogs and Birch Bark Canoes

Conference panelists learned to value forests through personal journeys

BY COLLEEN MAHAFFIE



Forests Ontario 2022 Annual Conference Speaker Amberly Quakegesic at a workshop where she learned to make a traditional birch bark canoe.

“I’m a storyteller, so here’s my journey in about six minutes or less,” Amberly Quakegesic told Forests Ontario’s 2022 Annual Conference. “I believe we are all on our own spiritual journeys, and I’m pretty sure mine began a couple summers ago. I’ll never forget the week we went out with master canoe builder Chuck, where he took us out on the land to teach us how to build a traditional birch bark canoe.” Quakegesic, Guardian Program Manager at Wahkohtowin Development Inc., was one of nine panelists at a session titled Ecocentric to Anthropocentric: Perspectives on Forest Values.

Students, practitioners, and professors on the panel agreed that biodiversity means more than a diversity of species, and is best defined as the interconnectivity of all living things. To motivate people to protect biodiversity, panelists said, we need to first connect them to the natural world via lived experience.

“Biodiversity, to me, is the sound of bullfrogs in the marsh in July,” said Dave Pearce, Senior Forest Conservation Manager at Wildlands League, as the panelists shared their personal connections to the environment. For Ella Wen, secondary school student and Ontario Envirothon Candidate, it was the flood of childhood memories that returned to her as she helped her father digitize photos from his youth in China. Ben Woodward, Ontario Envirothon Alumni and University of Waterloo Geography student, emphasized the importance of these intimate links, saying “people need to know what they’re losing to desire to protect it – not from a textbook but from a lived experience.”

Fred Pinto, Executive Director of the Ontario Professional Foresters Association, encouraged participants to think beyond the binary definition of biodiversity, demonstrating that “we see certain things not from what is out there, but from what is within our heads.” Bridget Stutchbury, Professor at York University, said that “Biodiversity is more than just a count – it’s alive.” She lamented the 30 per cent loss in bird abundance across the North American continent. For Kate Lindsay, Senior Vice President of Forest Products Association of Canada, ensuring biodiversity beyond a set of numbers means adopting regulations and criteria to ensure the sustainable management of our forests.

Many panelists seemed to err on the side of ecocentric perspectives when it came to discussing forest values and biodiversity. Diya Rangrej, secondary school student and Ontario Envirothon Candidate, pointed out the anthropogenic origins of climate change, a problem that only amplifies itself as it continues. Janani Sivarajah, Assistant Professor of Urban Trees and their Environment in the Department of Wood and Forest Sciences, Faculty of Forestry, Geography, and Geomatics at Université Laval, noted that while anthropocentric ecosystems like cities are typically harmful to biodiversity, humans have an innate need to stay connected to nature. “My research has shown that diversity in tree species allows primary school students to perform better academically,” Sivarajah said. “We should embrace diverse perspectives, different approaches from different disciplines, and diverse people when it comes to managing and planning for biodiverse ecosystems.”

Planting a SEED for the Future

Forests Ontario holds its fourth annual Student-Employer Engagement Day

BY JOANA CARREIRA

On February 11, more than 180 high school and post-secondary students, graduates, and prospective forestry professionals from across Ontario gathered virtually for Forests Ontario’s Student-Employer Engagement Day (SEED), to discuss possible career opportunities in the forest sector.

Both students and employers completed a survey with questions regarding their experiences, future career plans and expectations, as well as the realities of working within the forestry sector. The survey showed the students who participated are ambitious and willing to pursue different avenues to enter the sector. However, responses in the employer survey suggested there is still an ongoing employee shortage, especially among young adults entering the profession (Figure 1).

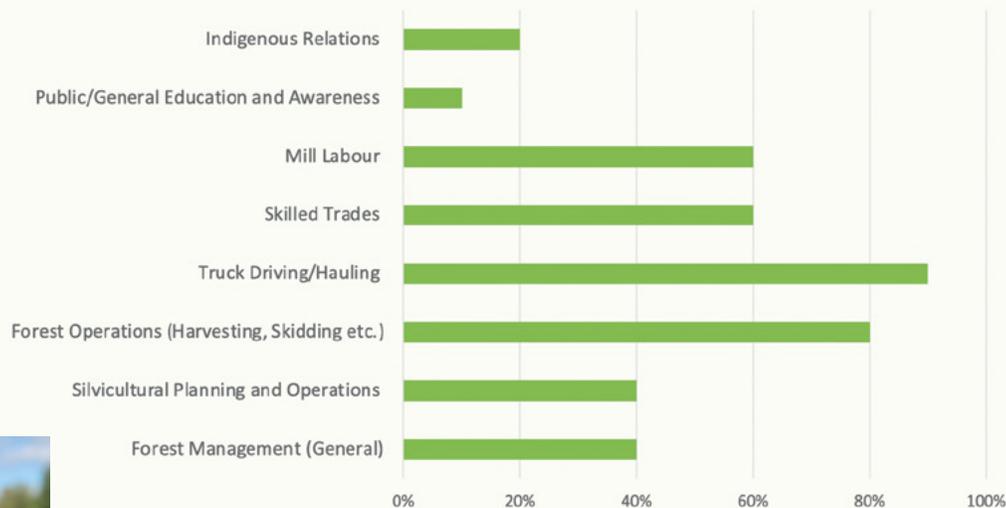
Throughout the day, employers inspired attendees to not become discouraged from reaching their professional goals, recounting their own experiences

within the forestry sector. Forestry, the presenters said, has various pathways and not all are linear. Many speakers began their career with unpaid internships, but over time, their persistence and dedication led them to secure the position they wanted, and reassured students that their professional goals are attainable.

SEED gave students the opportunity to better understand the realities of the sector and provided a forum to share experiences, and participate in important conversations, about the concerns and reservations students and young adults have about entering the sector.

Forests Ontario thanks SEED sponsors, Sustainable Forest Initiative’s Project Learning Tree and the Government of Ontario, and our presenters from Domtar, First Resource Management Group, Forest Products Association of Canada, Juniper Collective, Temiskaming Shores and Westwind Forest Stewardship Inc. who helped students plant their roots and made the event a success.

Where do you see the greatest need for employees/labour within the broader forest sector?



“SEED was a wonderful way to meet prospective employers. The conference gave us insight to the different avenues in forestry and the pathways we can take. I loved hearing about the journey the speakers had to get where they are. There are so many fascinating aspects and opportunities in forestry!”

- Caitlin Zvanovec, SEED Volunteer, Forestry Technician Co-op at Fleming College

“The information shared was incredibly topical not just for youth but anyone studying, making a career change, or just interested in learning more about the diversity and complexity of Ontario’s forestry sector. To add, I was totally blown away by the level of knowledge and engagement our future forestry sector holds. The future of forestry is very promising.”

- Jade Schofield MSc. EP, SEED Volunteer, Project Manager- Sustainability & Climate Change Strategic Initiatives Office of the CAO, Town of Whitby



“As a scientist and engineer working for a national industry trade association, I’ve been able to combine my passion for environmental policy and working on climate change solutions for a sector that I’m proud to be a part of. Forestry offers high-quality career opportunities for researchers, engineers, foresters, and those in the skilled trades. I’m most excited about the sector’s potential to be a cornerstone of a world-leading green economy – where we are surrounded by carbon-storing tall wood buildings, and forest wood residues produce biofuels and bioplastics. Now more than ever, the sector needs top talent who will become tomorrow’s leaders.”

- Mahima Sharma, SEED Speaker, Director, Environment, Innovation, and Mill Regulations, Forest Products Association of Canada

“Because of the long-term global economic decline we suffered as an industry a decade ago, we now have an age-gap distribution problem. We couldn’t hire anyone for 10 years. So now, we have two distinct cohorts; a brain trust who’s reached the horizon of their careers, and alternatively, a young competitive demographic who is anxious to establish themselves as the next leaders of our industry. There’s limited time to bridge the gap we created. Thanks to Forests Ontario and SEED, we at least have a venue for that purpose. I’m excited to contribute.”

- Allan Foley, SEED Speaker, President and COO, First Resource Management Group



Dead Trees Are the Forest's Friends

Resist the impulse to tidy your woodlot, and forest creatures will thank you

BY PETER KUITENBROUWER

It is a normal impulse to tidy up one's surroundings, declutter, put things away. For some landowners, this urge to clean extends to the forest. After they cut a tree or it falls down, some people want to burn the branches or haul them away. One may want to cut dead standing trees, since they might not look nice, and to remove or burn fallen logs.

A tidy forest, however, is not necessarily a healthy forest. In fact, some level of mess: dead standing trees, logs in various stages of decay covered with moss and mushrooms on the forest floor, and piles of dead branches here and there, are all vital to forest health.

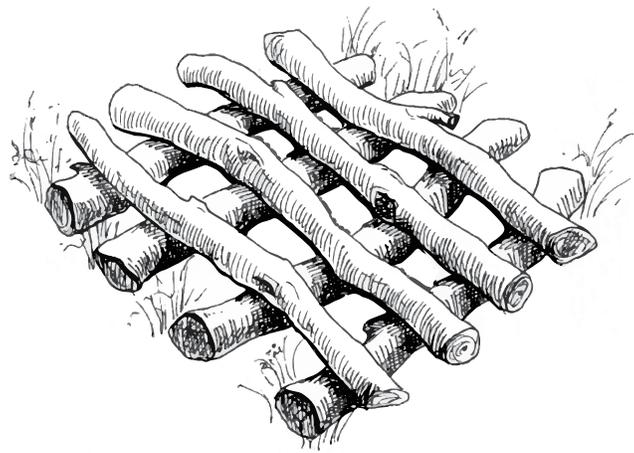
Michael Snyder, a forester writing in the magazine *Northern Woodlands*, noted that some woodlot owners keep their forests too tidy; a healthy woodlot requires an "aesthetic sensibility that has room for a bit of death, decay, and disarray."

Foresters even have a term for the logs and branches rotting on the forest floor. They call it "downed woody debris," or "coarse woody debris."

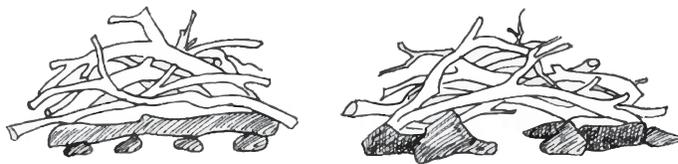
If a tree dies alongside a trail, you will likely want to remove it to avoid any risk of the tree falling and hurting somebody. Still, if a tree dies deep in the woods, leave it standing. John Hagan and Stacie Grove, writing in the *Journal of Forestry*, note that woodpeckers and other birds – up to a third of the birds in a forest – depend on cavities in dead trees. In Finland, when foresters removed dead trees, half of the cavity nesting birds left the forest.

If you do cut down a tree, or it falls on its own, move it off the trail, and let it rot. As trees rot, they become foraging sites for a wide variety of wildlife: millipedes, earthworms, spiders, earwigs, bark beetles, termites, ants, wasps and bees, who not only need the wood to survive but also help the wood to decompose and thus feed the forest soil.

Step 1: The foundation



Step 2: Build pile



Step 3: Finished brushpile



Above: When you cut trees, use the branches to build brush piles as habitat for forest mammals.

At right: Standing dead trees, also called snags, are home to over 50 species of birds and mammals.

Illustrations copyright 2009 by Ann-Ida Beck, from The Woodlot Management Handbook, used by permission of the artist.

An Ontario government extension note, Restoring Old-Growth Features to Managed Forests in Southern Ontario, suggests that you leave decaying logs, branches, and organic debris on the ground: “Fallen logs and branches provide homes for small mammals, salamanders, snakes, insects and fungi.”

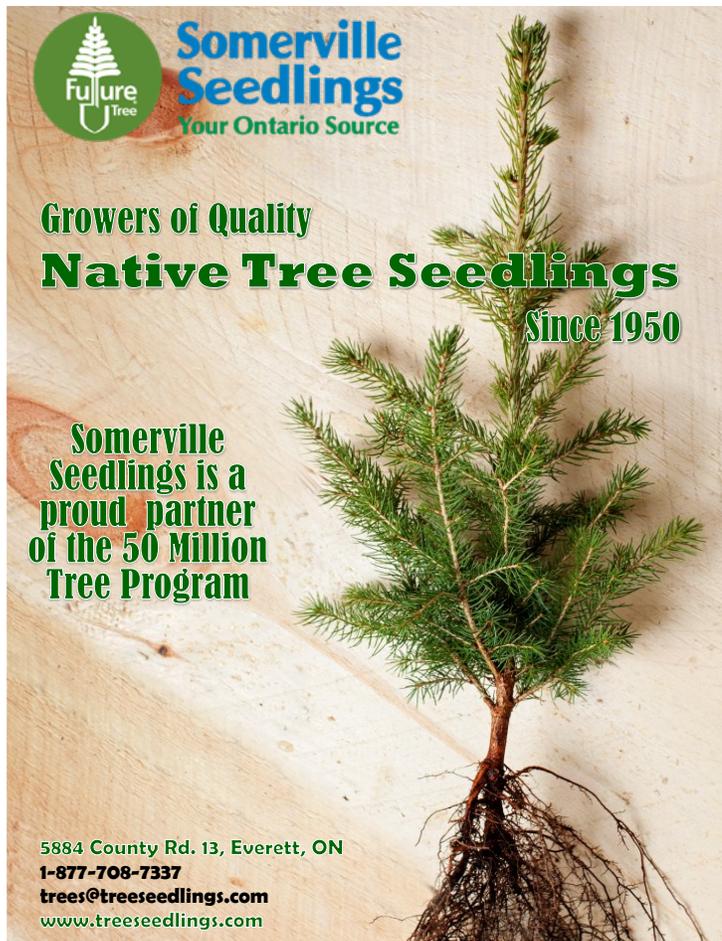
Rotting logs also retain moisture, which can help the forest during dry periods. The seeds of some trees, such as Yellow Birch, hemlock and cedar, germinate in rotting logs.

The note adds that, “the stump ends of defective, harvested trees are a good source of decaying material. Build the organic litter by allowing leaves, twigs, branches and piles of brush to decompose on the ground. This provides habitat for many life forms, including Cottontail Rabbits and Wood Frogs.”

The rotting trees are a source of what’s known as mycorrhizal fungi: microscopic organisms that help live tree roots to absorb nutrients from the forest. Hollow logs make homes for small mammals.

The Woodlot Management Handbook, published by Firefly Books of Richmond Hill, says that many small mammals, reptiles, and amphibians will thank you for leaving or creating brush or rock piles in your forest. Put larger logs or rocks at the bottom, and cover them with smaller sticks or stones (see illustration).

Woodlot owners who need help looking after their forests may wish to enroll in the Managed Forest Tax Incentive Program. In Ontario, landowners with at least four hectares of forest and a registered forest plan benefits from a 75 per cent reduction in property tax on their forest land. You can hire a consultant to write a forest plan. Details, and a list of forest plan approvers, are available at ontario.ca.



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Minding the Mushrooms

Fungi are a sign of decay and also a vital part of a health forest ecosystem

Dear
Silvi



Forests Ontario's experts, known collectively as "Silvi" (short for silviculture), answer your forestry questions. Send questions to info@forestsontario.ca, or c/o Forests Ontario, 15 Maple Ave. Unit 103, Barrie, ON L4N 2N6

Dear Silvi,

I own a woodlot north of Smiths Falls in Eastern Ontario. I have noticed mushrooms growing on some trees and wondered if this has an impact on their health. Can you suggest what to look for and whether any action is needed?

— Smitten in Smiths Falls

DEAR Smitten in Smith Falls,

If you were not feeling well and went to visit a doctor, as part of their diagnosis, the doctor would ask you to describe your symptoms. Since trees and shrubs cannot describe their ailments, arborists and foresters look for signs and symptoms to determine the cause of the problem. A symptom is how a tree reacts to a disorder. An example is wilting leaves. There are many reasons why a tree's leaves wilt, but this observation helps narrow down the possible causes. Signs left behind by culprits are direct indicators of what is causing the tree's illness. These may include



Armillaria Mella, commonly known as honey fungus. Photo by iNaturalist.

insect excrement, wood boring insect holes, and fruiting bodies of fungi (mushrooms or conks). Stress factors, like defoliation and drought, are cumulative. Once a tree is stressed, it is more susceptible to additional (secondary) stressors, which can lead to a spiral of decline.

Many fungi are secondary stressors. If a tree develops a frost crack, fungi can make its way into the tree and lead to decay. The initial stress was the frost crack; the fungi lead further to the tree's decline. Many fungi thrive in Ontario forests and while some benefit trees, others lead to decay. The presence of a fungal fruiting body growing on a tree is a direct indication of decay. The tree has been infected with a rot-inducing pathogen and the conk or mushroom is visual evidence of this. A few common examples of decay-causing fungi include a Mossy Top Conk, Yellow Cap Fungus, and Shoestring Root Rot. Mossy Top Conks, seen year-round, often form at open seams and wounds on Sugar Maple trees. Forming annually in late summer, Yellow Cap Mushrooms indicate significant rot mainly on maples and Yellow Birch. In the late summer, honey-coloured mushrooms are indicators of Shoestring Root Rot, which causes lower trunk and root decay in many hardwoods and conifers.

But mushrooms are not all bad news. Fungi in the forest provide food for deer, bears, rabbits, squirrels, insects and even humans! And mushrooms are vital to the process by which trees die and decompose. All trees will die; some, such as Trembling Aspen or White Birch, live only a few decades; oaks can live for centuries. As a tree's life winds down, fungi kick into high gear. The fruiting bodies are hard-working organisms that help to break down the tree, forming a vital link in the nutrient cycle that regenerates the ecosystem of a forest. Trees contain lignin, a compound that helps trees grow strong. When a tree dies, the fungi transform this compound into nutrients. Seedlings depend on these nutrients to get their start, and the cycle of forest life begins anew. Even so, it is always worthwhile to keep an eye out for fungi in your forest.

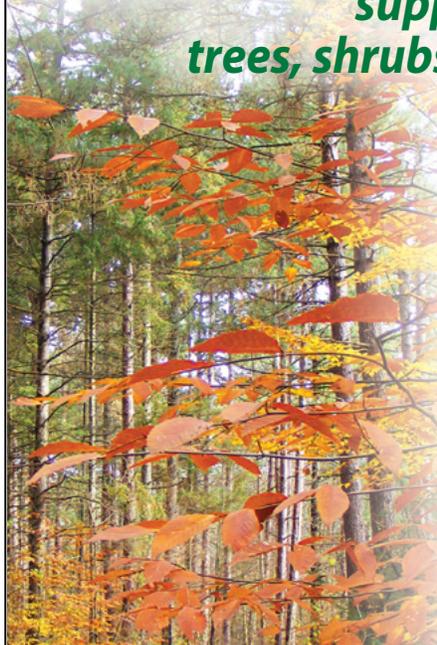
Fungi, among many other stressors like cankers, sunscald, and the Sugar Maple Borer, can have a significant impact on tree health and merchantable timber. This may seem worrisome, but foresters and arborists are trained to assess the health of a forest and develop suitable management plans. The presence of stressors in a forest is part of nature. How that forest is managed, however, is crucial to achieving long-term health. Whether you are interested in maple syrup production, timber harvest, or solely recreation, a registered professional forester can help guide you to make good decisions for forest health.

Yours,
Silvi



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FOREST PHYSICAL

Natural Spaces in Canada's Largest City Receive a Biodiversity Boost

Tree Seed Diversity Program Well Underway with the City of Toronto

BY SANDRA IACOBELLI

The collective benefits of living in a thriving natural environment have been well documented. Forests Ontario has been at the forefront of greening our communities for some time, working closely with its network of partners across the country to support the growth, health, and biodiversity of our urban and rural ecosystems.

In November 2021, Forests Ontario announced a partnership with the City of Toronto that will expand the municipality's existing tree seed diversity program and enhance the genetic diversity and resiliency of natural spaces dotted across Canada's largest city. Through this 10-year collaboration, Forests Ontario will supply high-quality, source-identified native trees and shrubs to support Toronto's forest restoration planting programs, including community planting and restoration planting in parks, ravines, and Environmentally Significant Areas.

"Through our network of certified seed collectors and local nursery partners, Forests Ontario is uniquely equipped to carry out this essential program from seed to survival," said Elizabeth Celanowicz, Forests Ontario's Chief Operating Officer. "Source-identified plant material is key to improving genetic diversity, making urban forests less vulnerable and more adaptive to the impacts of climate change."

Toronto will plant the sourced trees and shrubs across more than 80 city parks and ravines, with the goal of preventing the spread of invasive species and replacing them with appropriate native source-identified stock that support habitat for wildlife, help combat the negative impacts of climate change, and improve community recreation spaces for residents and visitors alike.

"Forests Ontario has developed a specialized system which includes native seed forecasting, seed collection, tracking and monitoring over 197,000 native source-identified trees and shrubs over a period of ten years through the Tree Seed Diversity Program," notes Kim Statham, Director of Urban Forestry with the City of Toronto. "These planted trees will contribute to the natural regeneration of Toronto's forests and help to meet the City's goal of increasing Toronto's tree canopy to 40 per cent by 2050, allowing communities to enjoy the various benefits urban green spaces provide year-round."

Municipalities across Canada have long recognized the important ecological, environmental, health, social, cultural, and economic benefits our urban green spaces provide. "This partnership provides the City of Toronto with trees that have the best chance of surviving to maturity, improve genetic diversity and support an ecosystem that is more resilient to climate change, ultimately creating a healthier urban forest," adds Statham. "The importance of planting native species and using source-identified stock was prioritized in Toronto's Ravine and Biodiversity Strategies, and Urban Forestry's Strategic Forest Management Plan."

Planting the right tree in the right place for the right reason begins with quality source-identified native plant material, alongside the long-term commitment to sustainable nature-based solutions by all levels of government, to ensure healthy and diverse forests thrive in our communities for generations to come.

To learn more about this partnership, and many other Forests Ontario initiatives, visit forestsontario.ca.



Potted native trees being grown for the Forests Ontario and City of Toronto Tree Seed Diversity Program. Photo by Elizabeth Celanowicz.

Stumped: Spring into the Forest with this Scavenger Hunt

BY ALLISON HANDS & MADELEINE BRAY

As spring arrives, the melting snow reveals a wealth of treasure on the forest floor. Now is the time to saunter into the underbrush and discover nature's secrets. If you are hunting with friends, make copies of this sheet: first one to fill all the squares wins.

Our forests are beautiful—so be gentle as you walk through them. If you are collecting any of the items below, make sure that they have already fallen on the ground. For those items that are not on the ground, just observe and check off that you've found them. Let the searching begin!

ANIMAL TRACKS	LEAF	FLOWERS	TWIG
BARK	SEED	NEEDLE	CONE
MUSHROOM	SOIL	MOSS	BRANCH
TRUNK	FEATHER	ROCK	BUD

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