

OUR FOREST



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The Healing Place Reconciliation and climate change planting in Eastern Ontario

PAGES 6-7

Invasion of the Gypsy Moth

PAGE 20



A Message from our CEO, Rob Keen

This summer, we witnessed firsthand the inherent connection between human health and our natural landscapes. Following a spring marked by isolation and uncertainty, we saw people instantly gravitate towards nature as the weather warmed: booked camp sites, sold out outdoor recreational gear, buzzing trails. As Ontarians, we are incredibly lucky to have these natural spaces at our fingertips, allowing us to seek refuge and recharge without having to travel very far. In this way, COVID-19 has demonstrated our deep dependence on our forests and landscapes, but also our responsibility as stewards to ensure that they remain healthy and intact.

Another thing that COVID-19 has shown us is how cooperative Canadians are. Collaboration and support are more important now than ever, and our partners, sponsors, and donors have not let us down. It is with this backing that we have been able to make some difficult decisions, such as cancelling our fall Tree Marking courses in order to prioritize health and safety. It is also with this support that we have achieved multiple successes, like meeting our spring tree planting targets and facilitating two reconciliation community tree planting events.

We've also seen widespread collaboration and support in the broader forest industry with the development and production of innovative forest-based products such as biodegradable N95 masks, disinfecting wipes, surgical gowns, and toilet paper – all while our forests continue to be managed sustainably. This is a testament to the fact that forestry truly is an essential sector.

And of course, I can't forget the support of our generous members and donors. As we all benefit from our forests, it is each of our responsibility to give back in some way. An excellent example of this is Fred Mogelin. Fred celebrated his 100th birthday by walking 800 metres-a-day, raising \$5,000 for Forests Ontario in the process. It is with support from people like Fred, and people like you, that we can continue establishing new forests and improving the health of our planet and its population. We all have a part to play.

I will restate what I said earlier, collaboration and support are more important now than ever – and not just because of COVID-19, but because of climate change as well. Stark observations like biodiversity loss and increasingly frequent extreme weather events are constant reminders that we don't have time to wait; we must continue moving forward, and we must move forward together. There is no doubt that nature-based solutions will play a pivotal role in addressing climate change, with afforestation being an incredibly powerful tool. For this reason, Forests Ontario continues to support the work being done by the federal government towards their commitment to plant two billion trees by 2030. We recognize better than most the many values tree planting provides, from purifying the air we breathe and water we

drink, to providing wildlife habitat, to supporting jobs and local economies, to mitigating climate change. We also want to commend the Ministry of Natural Resources and Forestry on the release of the report Sustainable Growth: Ontario's Forest Sector Strategy, which recognizes and supports the importance of forestry education and enhancing public awareness of Ontario's world-renowned forestry practices.

On the topic of collaboration, tree planting, and climate change, I am pleased to announce the theme for Forests Ontario's 2021 Annual Conference: Growing our Future. For the first time ever, our conference will be held virtually, enabling speakers and guests from around the world to participate, and allowing us to engage attendees in an entirely novel way. We are working hard alongside our partners to ensure that this event is as successful as it has been in the past, while also achieving an unprecedented level of inclusivity and diversity. We invite you to join Forests Ontario's conference as we explore our successes and future ambitions in support of a healthy planet.

Thank you for your support of our organization, and thank you for your help to provide healthy landscapes for future generations. Let's continue working together to achieve this goal.

All the best,



Rob Keen, RPF
CEO of Forests Ontario and Forest Recovery Canada



Contents

A Message from our CEO, Rob Keen	2	Forest Physical	14–21
Prism Sweep (News in Brief)	4	Plant the Trees that Suit your Needs	14
The Healing Place	6	Surviving the Summer	16
Tree Planting’s Deep Indigenous Roots	8	Plan in the Fall, Plant Trees in the Spring	17
What Keeps Centenarian Walking?	10	Diversify Your Forest	18
Experts Rescue Envirothon	12	Dear Silvie: Fear for the Pine Needles	19
		The Invasion of the Gypsy Moth	20
		More Help with Planting	21
		An Important Book for the Next Generation	22

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Growing Forestry Awareness in the Classroom

Since 2012, program has reached more than 450 schools and communities

BY ALLISON HANDS



Forests Ontario launched Forestry in the Classroom (FIC) in 2012 to bridge the gap between youth and the natural resources sector. Introducing students to forest management and dispelling myths about the forestry sector helps to generate support for a vital industry across Canada.

Since then, FIC has matched over 450 schools and community groups with speakers across Canada.

While each speaker brings his or her own expertise to a presentation, Forests Ontario also develops resources to help teach forestry concepts. These include lesson plans, activities, and videos about industry practices, careers, and education pathways. Every time a student meets a worker in the forest sector, we strengthen the connection from the classroom to the forest.

As one teacher in Ontario remarked: “Bringing in experienced persons from the real world is always a benefit to a classroom. It brings a degree of authority to what the teacher has been teaching and shows the real-life applications of what they are learning.”

Interested in sharing your forestry knowledge as an FIC volunteer speaker? Contact info@forestsontario.ca.

Ken Jewett Turns 90

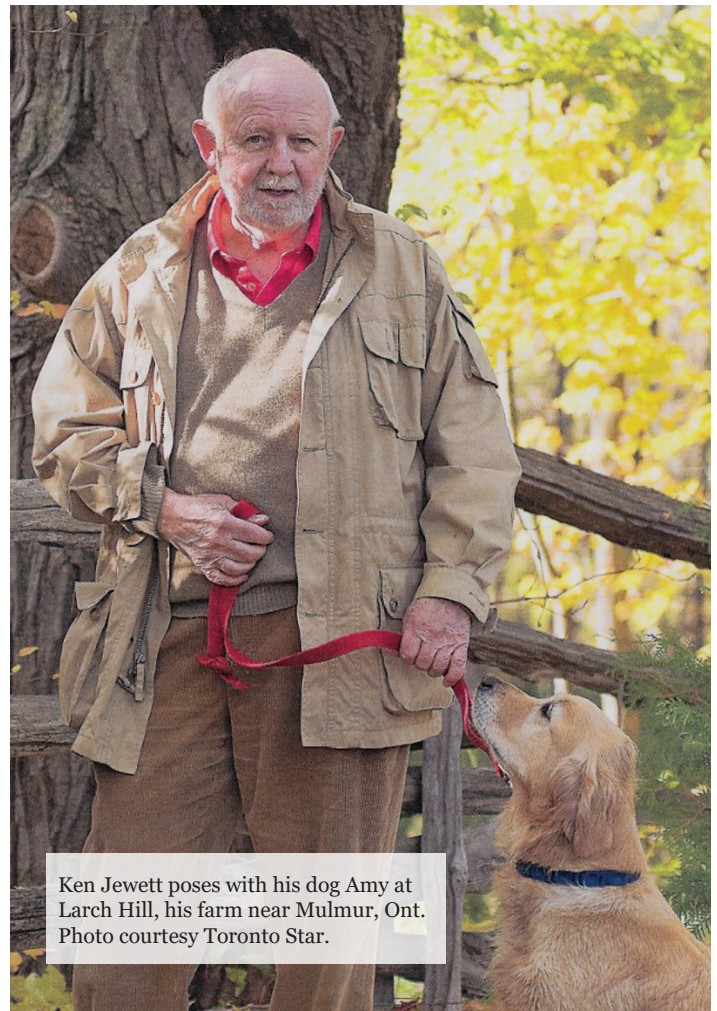
Maple Leaves Forever teams up with Forests Ontario

BY NOAH PAGE

Ken Jewett, founder of Maple Leaves Forever (MLF), turned 90 on September 23rd, 2020. Jewett rose to prominence as the founder of Marsan Foods, a company that produces frozen meals. When he retired from Marsan, Jewett started MLF. His inspiration was an Ontario government program from the 1800s that subsidized farmers to move maples and other hardwoods from their woodlots and plant them along roadsides. In May 2019, Deborah Pella Keen joined the team as Executive Director of MLF. Jewett remains active with MLF and walks daily through his woodlot in Mulmur, Ontario. Happy birthday, Ken!

Recently, MLF entered into a service agreement with Forests Ontario to assist in administering its native maple incentive program, which offers a 25 per cent rebate on eligible purchases of native maples. MLF is also a long-time, generous supporter of the Ontario Envirothon, administered by Forests Ontario.

To date, MLF has subsidized the planting of 127,599 native Canadian maple trees. MLF helps to ensure that native Sugar, Red and Silver Maple trees are available to people interested in planting them on rural roads, laneways and hedgerows. To apply for a 25 per cent ‘Thank-you’ rebate on purchases of native maples, visit: mapleleavesforever.ca



Ken Jewett poses with his dog Amy at Larch Hill, his farm near Mulmur, Ont. Photo courtesy Toronto Star.

Faces in the Trees

Brockville photographer has a unique hobby — and researchers have noticed



Seeing patterns that look like faces in objects is commonplace, and it has a name: pareidolia. Ronald Senack, a retired construction worker, sees faces in the trees that grow near his home in Brockville. “I go out and search for anything that’s bent or twisted,” he said.

The *National Post* reports that several scientists find Senack’s photographs useful for their own work. Jessica Taubert, of the U.S. National Institute of Mental Health, speculates on why the faces that people see often express intense emotion. Catherine Mondloch, of Brock University, looks at how face perception evolves across a person’s life. Kang Lee, at the University of Toronto, researches how our brain constructs what we see. Whatever the explanation, Senack has a knack for discovering pieces of old trees that resemble faces.

Forests Ontario Renews Partnership for Heritage Trees

BY PETER WYNNYCZUK

The Ontario Urban Forest Council (OUFC) and Forests Ontario have been collaborating on the Ontario Heritage Tree Program (OHTP) for over a decade now.

The Heritage Tree Program raises awareness of trees with social, cultural, and historical value, as well as trees of ecological importance. Highlighting a person, event, or a significant property connected to a heritage tree brings positive attention to both the tree and our collective heritage.

Since 1963, the Ontario Urban Forest Council has worked to emphasize the importance of the urban forest and how we can preserve and sustain trees across Ontario communities through proper planning. Please visit forestsontario.ca or oufc.org for more information.

Peter Wynnyczuk is Executive Director of the Ontario Urban Forest Council



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Forests Ontario's Annual Conference



WEEK OF FEB 1
2021

Details coming soon!

The Healing Place

Reconciliation and climate change planting in Eastern Ontario

On September 23rd Plenty Canada, Mohawks of Akwesasne, Algonquins of Pikwakanagan, Shabot Obaadjiwan First Nation, South Nation Conservation, Ontario Power Generation, and Forests Ontario teamed up for a planting event on the traditional territories of the Algonquin and Mohawk Nations in Shanly, Ontario.

Through the planting of culturally significant tree and plant species, combined with the sharing of traditional knowledge, the event acted as an important platform for cross-cultural dialogue and a critical step forward in the journey of reconciliation.

Peter Kuitenbrouwer, editor of Our Forest, participated in a virtual sit-down with members of the event's working group ahead of the planting to talk about the event and the intersection between reconciliation and ecological restoration.

In your own words, can you describe the concept and importance of reconciliation?



Chris Craig

Member of the Algonquins of Pikwakanagan.
Senior Forestry Technician, South Nation

For Indigenous peoples, reconciliation means non-Indigenous peoples understanding the suffering that colonialism and the Canadian law system have caused. Reconciliation isn't

supposed to be easy, and it's definitely not supposed to be fun. It should make everybody uncomfortable, whether it's First Nations talking about it or whether it's other people listening and learning from it.



Ronda Boutz

Special Projects Lead at South Nation Conservation

Coming from a non-Indigenous background, reconciliation is a big word. Much of the general public doesn't have any concept of what it means or what First Nations have been through. This planting event is

an opportunity to bridge that gap in education, for myself as well as for anyone else who doesn't know where to start the conversation.

What exactly is a reconciliation planting event?
How can planting support reconciliation?



Larry McDermott

Algonquin from Shabot Obaadjiwan First Nation and Executive Director of Plenty Canada

When we put trees in the ground, we create more than just a physical forest that we see. We create an environment in which the mental, physical, emotional, and spiritual

are all cultivated – they are all honoured, they are all part of that experience. When we do something like that together, we bond and become stronger in our relationships.

At one level, this planting event is a small gesture; at another level, it's hugely important. It brings a number of partners into the process, it allows us to tell our stories as we see them, and it gives us an opportunity to learn from each other and to help others learn about what's really important. To me, that is reconciliation.



Abraham Francis

Environmental Science Officer for the Mohawks of Akwesasne

Can planting support reconciliation? Yes and no. If these initiatives are not accompanied by stories that increase people's understanding of the importance of the individual trees and the lessons associated

with them, then it's going to fall on deaf ears. It's also about seeing trees as more than just a resource for extraction; it's seeing trees as beings with roles and responsibilities within the web. Can we take this further and share these stories in a way that is open to multiple individuals?

Indigenous communities must be meaningfully engaged in a participatory manner that is not just transactional. This is a continuous and slow process, and it's going to go on forever. That's why we created the covenant chain, which



Left: The site plan for The Healing Place was inspired by the medicine wheel. Right: Carley Hutchinson, South Nation Conservation Stewardship and Outreach Assistant, at the Reconciliation Climate Change Planting in Shanly, ON. Photo by CNW.

was an agreement with the British government; the reason that we chose the chain is because the chain needs to be polished regularly, otherwise it breaks down.

We are working together to co-develop and imagine an alternative future where we're not pitted against each other, where we're creating peaceful and important conversation, where we're acknowledging the systemic violence that is experienced, where we address the importance of the land and its connection to our culture. This is a restorative process, because as we restore the land, we restore the health of our people, we restore language, we restore ceremonies; we are calling those things home as land improves.



Jessica Frappier

Member of the Temagami First Nation and Communications Coordinator at Plenty Canada

I think of the regreening efforts here in N'Swakamok, or Sudbury. If those had been done with Indigenous consultation and input, there would have been more

consideration of the different species that are native to here and all the different medicines that they provide. For example, when I built a wiigwaas (birch bark canoe) four years ago, it made me reflect on the absence of those trees in this area. These kinds of initiatives would be very valuable in so many different places, and would help recreate forests that are sustainable for future generations.

The site is called 'The Healing Place,' can you expand on what that means? How does the site plan contribute to healing?



Augusta Lipscombe

Communications & Stakeholder Relations Officer at Forests Ontario

The name 'The Healing Place' came from a comment that Abraham Francis of Akwesasne made regarding COVID-19 and how forests are seen as safe and healing places for many

people – Indigenous peoples especially.

What's so neat about the name is that it has multiple layers. It's relevant within the context of COVID-19, but it's also related to the broader goal of reconciliation itself and how healing is a part of reconciliation, or should be a part of reconciliation. It also speaks to the tree-to-person connection, and how each of us can feel very at peace and healthy when we're inside of a forest or around trees.



Scott Jackson

Director of Indigenous & Stakeholder Relations at Forests Ontario

When I first heard 'The Healing Place,' three things immediately stood out. One is the cultural side of it: the medicinal applications and traditional uses of the species that are being planted. The second part

is the healing aspect of our natural environment – planting trees, growing the forest, carbon sequestration, and what that all means from a climate change perspective. Finally, within the broader concept of reconciliation, this is an opportunity to build relationships and to spread awareness that will help us look in an unfiltered, unvarnished way at our past and help heal some of the pain at a larger, cross-cultural scale.

Abraham Francis

This planting is a story that we tell. This is going to be a healing story that has many lessons, has many teachings for future generations. We're not just the descendants of our ancestors, we are future ancestors as Indigenous peoples, as people of this land.

Though unable to attend the discussion, Peggy Pyke (Mohawks of Akwesasne), John Sanna (Ontario Power Generation), and Pat Piitz (South Nation) acted as key members of the working group.

Many thanks to our generous sponsors: Assembly of First Nations, TD Bank Group, Enbridge Gas, and Ontario Power Generation for helping make this event possible.



Tree Planting's Deep Indigenous Roots

Mohawks have worked for more than 150 years to help restore forests in Ontario and Quebec

BY JOHN BACHER

In 1879 in Hamilton, Ontario, 12 Mohawks, all of them forest wardens of the Six Nations reserve, attended the annual meeting of the Ontario Fruit Growers Association (OFGA). George Johnson, the traditional Wolf Clan Confederacy Chief, led the delegation. Two Mohawks became directors of the OFGA and according to its minutes, “They were heartily cheered upon taking their seats on the board.”

This long-ago meeting is an early example of the key role that the ecologically well-informed leadership of Indigenous communities played in reforestation across central Canada. Since long before Confederation, conservationist Mohawks of the Six Nations have put the need to plant forests on Ontario's political agenda. Other Mohawks pioneered afforestation in Quebec. Leaders from Akwesasne helped keep significant reforestation programs alive in the face of deep Ontario funding cuts in the 1990s.

The father of reforestation in Ontario among non-natives, Edmund Zavitz, mentions the 1879 meeting in a history of forest recovery in Ontario. Zavitz's grandfather, Edmund Prout, and provincial cabinet minister Charles Drury both attended the meeting. Their descendants would breathe life into Ontario's reforestation efforts.

Johnson, the Mohawk chief, had long feared the desertification that follows excessive forest harvest. Upon becoming a Wolf Clan Chief in 1854, Johnson used his Condolence Ceremony to draw attention to the threat of spreading sand dunes. In the Roll Call of Chiefs, also known as the Hai Hai, Johnson warned that, “Their degenerate successors have inherited the names, but not their mighty intellects; and in the flourishing region which they left, nothing but a desert remains.”

The OFGA President, Delos Beadle, praised Johnson for the “deep interest in the welfare of the association” among the “Indians of the reservation.” He reported that, “There were no less than 16 of the Nations Indians on the membership roll.” Its Vice-President William Roy recalled how he had visited Chief Johnson's “fine walnut grove.”

Several OFGA delegates praised Johnson's reforestation efforts, using walnut, butternut and hickory trees planted at Six Nations. William Burke of Ottawa, who had traveled to Johnson's home, known as Chiefswood, told the OFGA delegates how “anyone wanting to obtain nuts of the Black Walnut or Butternut, or young trees, may get both at trifling cost from Chief Johnson of the Six Nations Reserve.”

Burke urged the province to follow Johnson's example by creating a demonstration forest at the Ontario College of Agriculture (OAC), so that the “general public” would understand “with what rapidity the denudation of our forests can be reversed.”



Chief George Johnson of Six Nations, 1816-1884. Posed in the studio wearing the traditional costume for a condoleed Mohawk Confederacy Chief (Wolf Clan).

Charles Drury, the provincial politician, followed Johnson's advice and grew Black Walnuts in his Crown Hill farm north of Barrie. His son Ernest would grow up under their shade and later become a passionate advocate for tree planting as premier of Ontario.

Across the provincial border, excessive forest harvest had caused an avalanche of sand, threatening to bury the village of Oka, Quebec. Mohawks led the way in reforestation. In 1888, the Mohawks planted a pine forest and reversed the desertification. A century later, Mohawks' defence of this forest from a golf course expansion led to a historic standoff, known as the Oka Crisis. The pine forest endures.

About a century ago, a young Ontario man named Ferdinand Larose traveled to Laval University's Oka campus to study agronomy. There, Larose saw the Mohawks' tree planting efforts. On his return to Ontario, Larose became a government agricultural extension agent.

Eastern Ontario had a serious problem: the marching sands of the Bourget desert between Ottawa and the Quebec border, caused by indiscriminate logging on sandy sites. Larose copied the conifer plantations he saw in Oka. Larose's massive tree planting initiative, begun in 1928, created the 11,000-hectare Larose Forest, one of the largest man-made forests in Canada. The crowning symbol of this success came one cold winter in the 1960s, when moose crossed the frozen Ottawa River from Quebec and recolonized the area they had fled 50 years before.

In the mid 1990s, Conservative Premier Mike Harris led Ontario to close several provincial tree nurseries, including the Howard Ferguson Forest Station at Kemptville, near Ottawa. Ferguson grew the trees which made possible the miracle of the Larose Forest. Indigenous people in the Akwesasne Mohawk community insisted that the demonstration forest created by the reforestation station be protected from urban sprawl. Today, the municipality owns the nursery property, while the Ministry of Natural Resources and Forestry owns the surrounding Crown forest. A non-profit, the Ferguson Forest Centre Corporation, manages both properties.

Henry Lickers, environmental manager at the Mohawk

Council of Akwesasne, played a key role in saving the nursery with his involvement in the Eastern Ontario Model Forest (EOMF). Lickers secured acceptance by the EOMF of the Mohawk belief in the need to have forest management done according to the needs of "seven generations." He also obtained approval of the Naturalized Knowledge System. This included such principles as 'The Earth is Our Mother' and 'Keeping the Good Mind.'

To save the Ferguson tree nursery, Lickers later recalled that he and others "coordinated volunteers who would save the remaining seedlings in the ground and protect the facilities from vandalism until the station would be reopened." Following municipal purchase of the station, he recalls how "a non-profit corporation was established with a governance structure representing the community of interest that values and relies on the station. Community groups, First Nations, industry and others play a direct role in governance of Ferguson Forest Centre."

Today, the Ferguson Forest Centre Corporation continues to operate the Ferguson Tree Nursery on the principles of 'the Good Mind.' It protects Ontario from spreading deserts, promotes good forestry in general and supports conservation and recreation in the region.

"Community groups, First Nations, industry and others play a direct role in governance of Ferguson Forest Centre."



Chiefs of the Six Nations at Brantford explain their wampum belts. Left to Right: Joseph Snow (Hahriron), Onondaga Chief; George H. M. Johnson (Deyonhehgon), Mohawk chief, Government interpreter and son of John Smoke Johnson; John Buck (Skanawatih), Onondaga chief, hereditary keeper of the wampum; John Smoke Johnson (Sakayenkwaraton), Mohawk chief, speaker of the council; Isaac Hill (Kawenenseronton), Onondaga chief, fire keeper; John Seneca Johnson (Kanokeredawih), Seneca chief. Photo by Horatio Hale, Sept. 14, 1871.

What Keeps Centenarian Walking? Garlic and Merlot

Fred Mogelin commemorates his 100th birthday with a gift to Forests Ontario

BY NOAH PAGE

Raised in the German city of Wuppertal, near the Dutch border, Fred Mogelin spent his youth gathering beech nuts and mushrooms in the forest. Mogelin's love of walking through nature inspired him, on his 100th birthday, to make a substantial donation to Forests Ontario.

"Nothing bad will happen to this Earth as long as I'm living," Mogelin said.

Fred Mogelin was born on August 10th, 1920. His parents' home in Wuppertal had a 600 square-metre garden; along with helping their parents, each child had their own plot. Wuppertal was so rainy, Mogelin said, that the locals used to joke that "a baby is born wearing rubber boots."

"Nothing bad will happen to this Earth as long as I'm living..."

Rob Keen, CEO of Forests Ontario, accepts a cheque for \$5,000 from Fred Mogelin in Barrie on Mogelin's 100th birthday, Aug. 10, 2020.
Photo by Elizabeth Celanowicz.

During World War II, Mogelin trained as a wireless operator in the German Navy. He learned to use radar systems in the German town of Bergen. Radar was new technology at the time, and Mogelin educated others in its use. In 1945, the British captured Mogelin on the Channel Islands and he spent a year-and-a-half in an English prisoner of war camp, working as a farmhand. Mogelin lost his brother, Horst, on the Eastern Front.

Mogelin emigrated to Canada in 1953, arriving by ship in Halifax. He planned to travel by train to Vancouver, but his money ran out in Toronto so he settled in Ontario. He followed in his father's footsteps in carpentry, building patios and recreation rooms. During his holidays, Mogelin camped with his wife and children throughout Ontario along the shores of Lake Huron, Georgian Bay, Lake Erie and in Killarney. These trips inspired a lifelong passion for Ontario's forests.

Mogelin credits a story he saw on TV about Tom Moore, a British veteran who supported health workers by walking in his garden, as his inspiration to start a his own fund-raising walk. Moore, also 100, has raised more than £32 million for Britain's National Health Service.

"I thought, if he can do it, I can do it," said Mogelin, father of four children, eight grandchildren and six great-grandchildren. "I like nature and, in particular, trees. And Forests Ontario is known for doing a very good job with planting trees. We need to keep nature going."

In June, Mogelin, then aged 99, began walking 800 meters-a-day, seven days a week, to raise money for Forests Ontario. On August 10th, at a birthday party on the grounds of his residence, Mogelin, surrounded by his family, handed a cheque for \$5,107 to Rob Keen, Forests Ontario's CEO. Keen gave Mogelin a certificate of appreciation that included messages of support from campaign donors.

"Fred's passion for forests is truly heartwarming," said Keen. "He understands that healthy forests are essential for a healthy planet; they clean the air, mitigate the impacts of climate change and support human health."

"Fred embodies the wish of many to leave the land better than when he found it," wrote Philip Joudrey, one of the many who donated to Forests Ontario on Mogelin's behalf. "I am inspired by you, sir!"

What is the secret to Mogelin's longevity and enduring energy? "Everyone asks me, how do you get to be a hundred? And I tell them: garlic," Mogelin said. He eats a whole clove of it every day, some of which he grows himself. He also makes his own Merlot. "I drink a glass a day," he says with a smile that displays a mouth full of his own teeth. "About a bottle a week."



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Experts Rescue Envirothon

How do you reinvent an environmental competition in a pandemic?
Put the pros on the web

BY NOAH PAGE

In response to COVID-19 safety measures, Forests Ontario's education department developed the Envirothon Virtual Lab. In a normal year, hundreds of students gather outdoors to compete in Ontario Envirothon. This year, the Virtual Lab consisted of five videos on the four topics of Envirothon, plus the current issue (in 2020, waste management) produced by experts in their fields.

Lacey Rose

Forester, County of Renfrew.



Forestry

Lacey Rose explains how tree planting in urban environments can lower heating costs and make pavement last longer. She moves on to forest and field tree planting and describes how she monitors trees for potential health issues, such as the Redheaded Saw Fly, which lay eggs in pine trees and damage their needles. Rose describes how forests are managed for wood products, while also protecting wildlife and ecological values. Any logging that Rose prescribes seeks to emulate the conditions created by natural disturbances, such as windstorms and forest fires. One of Rose's prescriptions recommends cutting out shorter lived species, such as Red Maple and White Birch, while leaving White Pine and oak, and also planting White Pine. The goal is to create healthier, more natural forest conditions suited to the site.

Aquatics

Holli Campbell leads us through a lesson on aquatic species known as benthic macroinvertebrates. Monitoring our aquatic ecosystems is important, as human activity can have detrimental effects on their health. Assessing the organisms in an aquatic ecosystem can be a good way to determine its health, and that's where benthic macroinvertebrates come in. Benthic macroinvertebrates are small aquatic bugs found at the bottom of waterbodies (benthic) that are visible to the naked eye (macro) and are lacking a backbone (invertebrate). Benthics are used as bio-indicators for water quality health as each benthic has a different tolerance level to pollution. For example, certain benthics, such as stoneflies, have a low tolerance to pollution and can only live in clean water, where other species, such as sowbugs, can tolerate more polluted water. Thus, testing water for what and how many benthic macroinvertebrates are present can be a useful tool to determine the water quality.

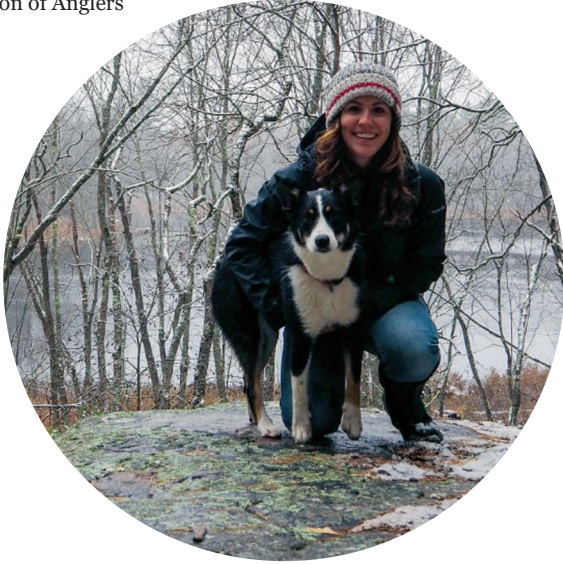


Holli Campbell

Education co-ordinator, EcoSpark.

Jordan McArthur

Conservation Education Liason,
Ontario Federation of Anglers
and Hunters.



Wildlife

Jordan McArthur explains that suitable habitats provide four basic needs for animal species: food, water, shelter, and space. McArthur's next topic is identifying wildlife through signs.

Trees with scratched bark indicate Red Squirrels nearby, as they peel bark to make their nests. A large amount of acorn tops scattered under a tree indicates a squirrel nest in the tree above. Yellow-bellied Sapsuckers create tiny holes in trees, while the Pileated Woodpecker creates larger, square holes. McArthur closes the video by describing how to use a dichotomous key to identify the species of a mammal skull. The key asks a series of yes-or-no questions about the skull such as "does it have upper incisors?"

Soils

Serra-Willow Buchanan explains that soils are a medium for plant growth – they provide stability for roots, as well as water and macro nutrients such as nitrogen, phosphorus and potassium. Insects and microorganisms living in the soil decompose organic materials. Waste excreted by these species is then used for plant growth. Soils modify the atmosphere, as carbon dioxide is absorbed by plants and expelled into the soil through plant roots. Soils provide an engineering medium – we build roads and buildings on it after carefully researching its structural properties. Lastly, water is purified as it flows through fine soil, because nutrients, pesticides, and other sediments adhere to the soil as the water flows through it.



Serra-Willow Buchanan

Agroecology PhD student,
University of Toronto.



Arlie Flynn

Environmental Science,
Dalhousie University.

Waste Management

Arlie Flynn breaks down various methods of dealing with waste in an ecologically appropriate manner. Reusing plastic containers is a good way to reduce plastic waste. Repurposing items is similar – Flynn used her mother's old deck boards to build a bird feeder. Properly washing and sorting your recycling ensures that items that can be reused don't end up in a landfill. Composting can also reduce the amount of household waste shipped to landfills. Finally, landfills should be the last place you think to send your waste.

Plant the Trees That Suit Your Needs

With four tree planting options, Forests Ontario has a solution for every site

BY PETER KUITENBROUWER AND FRASER SMITH

The best time to plant a tree was 20 years ago, and the second-best time is now. While spring is the ideal time of year to plant trees, autumn is the ideal time to prepare to plant trees under Forests Ontario's 50 Million Tree Program for the next year. Forests Ontario will connect you with a planting partner who will visit your property. They will work with you to choose the right trees based on your objectives and create a plan. Typical questions include:

- Do you want to create wildlife habitat?
- Do you want to leave a legacy for your family?
- Do you want to grow wood products that a future generation will harvest?
- Do you want to enhance your property for recreation?



Afforestation

How productive is a farm field, planted in crops? In some marginal fields, cleared generations ago for agriculture, the soil is poor, rocky, or dry, meaning that the cost of fertilizer, seed, fuel and time can add up to more than you earn from the crops. In these conditions, it is often best to convert this land back to forest. Foresters call this afforestation – planting trees on a large scale where there have been none for a long time. You can plant a large new forest on your property with a variety of native species. The planting partner that Forests Ontario sends your way will ensure the right trees go in the right places to maximize their odds of survival.

Afforestation is a way of 'jump starting' a new forest. You could, of course, just leave the field alone to return to forest on its own, but this comes with potential issues. The danger is that undesirable invasive species (European Buckthorn, Dog-Strangling Vine, and Garlic Mustard) often take over. Also, you may have to wait quite a while. A well-established grass field can maintain itself for

Riparian Buffer

You may have a pond, a creek, or a wetland on your property. When you mow right to the edge of the water, and a heavy rainfall comes, it sends sediment into the water. This decreases the depth of water, causing warming and algae blooms which hurt fish and impacts wildlife living nearby.

Creeks, ponds and streams need buffers of trees and plants that stabilize their banks, reduce soil erosion and sedimentation, and keep their water cool. Tree plantings for this purpose are called riparian buffers. Riparian buffers minimize the runoff into creeks, rivers, ponds, lakes or wetlands. The trees also provide a home for wildlife that thrive near the water, from ducks to dragonflies. Wider buffers support more wildlife. Our planting partners will help you to choose riparian species to plant along the water, and implement a plan for healthier waters on your lands.



several decades before any trees show up. To jumpstart the process, plant trees where and when you want them.

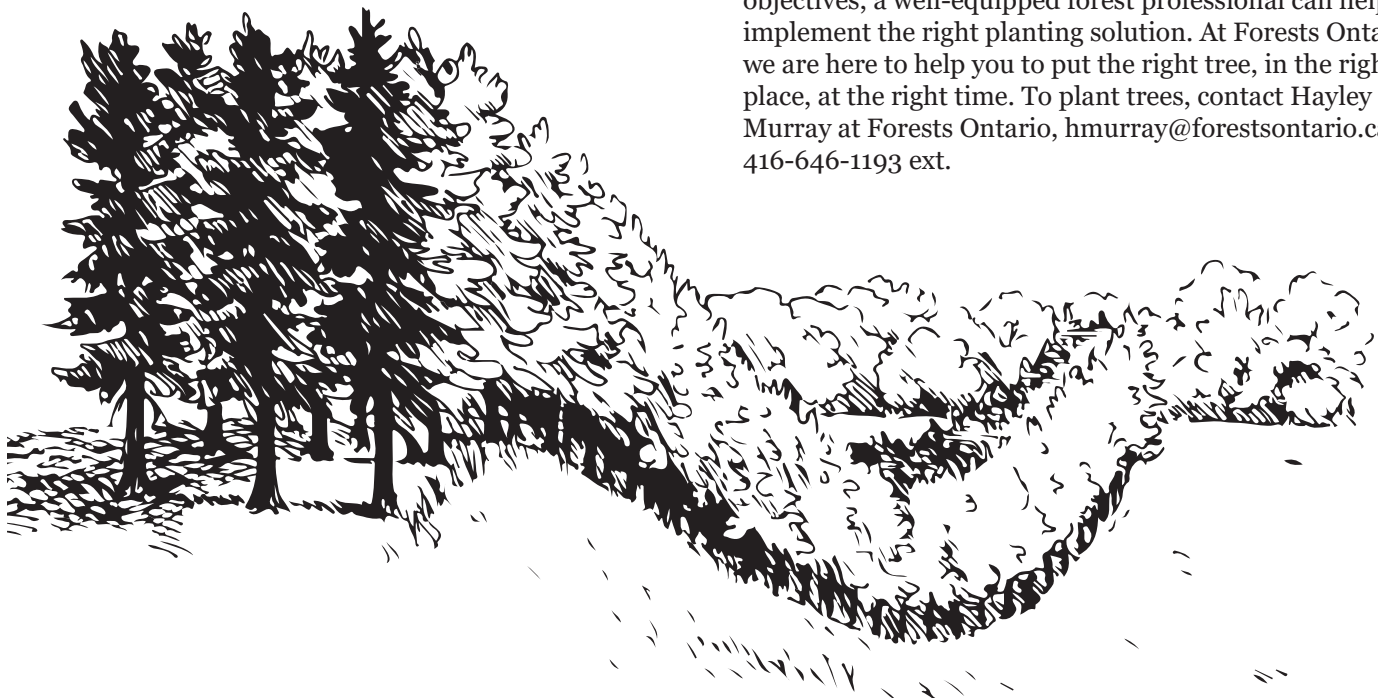
Some landowners get tired of mowing lawns every year. With increasing drought, who wants to look at brown, dry grass? Plant trees instead to avoid this problem. A forest is less work than a lawn and provides incredible biodiversity to your property. Increasing shade around your house will lower your cooling bills in summer. Plus, you can leave a forest legacy for your family. As another added bonus, planting a forest could save money on your taxes under the Managed Forest Tax Incentive Program. If your total forested area is above four hectares, you can save 75 per cent or more in property taxes on your forested property.

Windbreak

Windbreaks have many uses. Rows of trees shade livestock, reduce soil erosion, increase privacy, and limit noise from nearby roads and snow drifting into driveways in the winter. A row of trees can lower your cost for heating in winter and air conditioning in summer. Windbreaks double as wildlife corridors: In agricultural areas where there are not many trees, rows of trees connect fragmented woodlots, helping mammals and birds to move and thrive.

The tree species you chose for your windbreak varies with your objectives. Evergreen trees offer protection all year round, including winter. Broadleaf trees provide habitat for wildlife, and nut trees are a food source. You can mix evergreens and deciduous trees. Why put up a fence when you can have a living feature that does more than a fence and adds to your property value?

Illustrations by Ann-Ida Beck, originally published in *The Woodlot Management Handbook* (Firefly Books, 2009).
Reproduced with permission of the artist.
Below: Windbreak.



Restoration

A forest is like any dynamic and living system: from time to time, it will face illness. Red Pine pocket decline, a disease that attacks the roots, can force a landowner to cut down part of a plantation. White Pine Weevil and White Pine Blister Rust are other pathogens that strike the forest. How should you respond to these illnesses reducing your forest cover? Our planting partners can help you restore the lost trees. You may have a woodlot dominated by ash, and then devastated by the Emerald Ash Borer. Cut the ash for firewood, then replant for the future.

Perhaps your forest has been afflicted by a natural disaster like ice storms or downburst? You can restore the forest with underplanting, bringing up a new generation under the trees that got damaged. Some people don't thin their plantation soon enough and end up with little diversity. You can incorporate some restoration planting in a thinned plantation as well to ensure a healthy, diverse forest into the future.

Finally, if you have a smaller planting project, you could plant trees yourself under our Over-The-Counter (OTC) program, which does not have a minimum number of trees (but may vary depending on nursery standards).

Whatever your property, your challenges, and your objectives, a well-equipped forest professional can help you implement the right planting solution. At Forests Ontario, we are here to help you to put the right tree, in the right place, at the right time. To plant trees, contact Hayley Murray at Forests Ontario, hmurray@forestsontario.ca or 416-646-1193 ext.



From left, clockwise: Red Pine trees planted in 2015; Red Pine, planted in 2015, grows beneath White Pine; Shaun Devlin inspects a planting of Red Pine from 2015; Rainer Dinkelmann stands next to Red Pine and White Spruce planted in 2012. Photos by Shaun Devlin & Rainer Dinkelmann.



Surviving the Summer

Forests Ontario survival assessors help landowners achieve forest health

BY NOAH PAGE

Over the summer, Rainer Dinkelmann took a job with Forests Ontario as one of two Planting and Habitat Assessors. Along with his colleague, Shaun Devlin, he conducted survival assessments for landowners who had planted trees under our flagship 50 Million Tree Program. In total, they conducted assessments on about 350,000 trees.

Survival assessments have many purposes. They allow us to monitor planting success and tree growth, and they give us an opportunity to make recommendations to landowners who are experiencing challenges such as invasive species.

By taking an active approach to managing survival, we help landowners to ensure that their plantations will grow into healthy and diverse forests over time. Hardy plantations can survive the winter elements and additional stressors, such as drought conditions. Challenges to plantations are more easily managed if caught early.

The assessors took samples of trees and notes on important site factors such as soil conditions and competition between plant species.

For all of his professionalism, the job was not without adventure. At times, the pair had to travel through dense forest. Rainer recalls one plantation in particular – Red Pine – that was so dense that he had crouch down to half his height just to be able to get through.

While in the field, Rainer enjoyed sharing his technical knowledge about forestry with the landowners he visited. He also told them about ways to improve survival rates, such as mowing the grass between tree rows (especially in the first

few years after a planting). Some of the landowners were especially memorable, such as a Toronto architect planning to make the structures on his property net-neutral and a Renfrew County landowner who had planted 33,000 trees in a single year.

Rainer was born in South Africa and moved to Keswick, Ontario when he was 10-years-old. He completed an Environmental Studies Degree in Waterloo, and went on to work for Toronto and Region Conservation Authority and the Ministry of Environment, Conservation and Parks. When he's not hard at work checking up on our planting sites, you can find Rainer hiking through forests with his wife and his German Shepherd, Hanna. He also aspires to ride his motorcycle across Canada one day.

His fellow assessor, Shaun Devlin, grew up just outside of Owen Sound. Shaun has always been enamoured with the outdoors. He refined his knowledge of nature through Scouts Canada, going all the way from Beaver to Scout Leader. Shaun loves to be outside whenever he gets the chance; some of his favourite activities include canoeing, biking, camping, and fishing.

Shaun graduated from the forestry technician program at Fleming College in April and will attend Fleming again this fall for conservation and environmental law enforcement. He hopes to one day become a conservation officer or park warden.

To learn more about Forests Ontario's 50 Million Tree Program, please visit forestsontario.ca/50mtp.

Plan in the Fall, Plant Trees in the Spring

Now is the time to advance a Canada-wide tree planting strategy

BY ROB KEEN, RPF

As Canadians, we need to ask ourselves this question – how do we build upon and deploy large-scale tree planting efforts such as the Two Billion Tree Program envisioned by Prime Minister Trudeau?

We are not alone with this idea. According to ETH Zurich University, the Food and Agriculture Organization and the United Nations, planting one trillion trees around the world may be one of the most effective ways to combat climate change impacts.

To respond to our moral and global responsibilities, and since Canada is able to contribute to the world's growing need for trees and new forests, I say it is time we build on the Prime Minister's visionary Two Billion Tree promise announced near Belleville last September with a climate focused national tree planting strategy.

Forest Recovery Canada and Forests Ontario are ready

to help. With our dedicated partners, we already plant about 3 million trees a year from coast to coast in British Columbia, Alberta, Ontario, Nova Scotia, Quebec, and Newfoundland and Labrador. Last spring, despite COVID-19, with the support of the Canadian government, our tree planting operations involving large numbers of paid tree planters were safe and successful.

As the global spotlight focuses on climate change, Canadians are ready to embrace the vision of planting two billion trees (or even more) at home. Growing and planting future forests is an excellent response to the climate crisis that provides a host of benefits, including green employment. I believe Canadians are ready and eager to be part of a tree-focused, tangible climate response. Now is the time to plan for spring tree planting.

Rob Keen, RPF and CEO of Forests Ontario and Forest Recovery Canada, speaks at the Reconciliation Community Tree Plant with Six Nations in Ohsweken, ON, September 2020. Photo by CNW.



Diversify Your Forest

Gather and plant seeds from your own trees to help spread species throughout your woodlot

BY PETER KUITENBROUWER

Hiring people to plant trees is not the only way to expand and diversify your forest. You can also increase your woodlot's size and complexity with seeds from your own trees.

When you're walking through the woods during the spring, keep an eye out for male and female flowers on tree branches. After the trees pollinate and start to develop cones and seeds, you can get an idea of how much seed potential a tree has. This is what the tree seed business calls 'forecasting.'

In fall, or late spring for certain species, you may see an abundance of cones, maple samaras or acorns on the forest floor. Don't take them all: the forest needs these seeds to regenerate itself. Acorns, beech nuts, hickory nuts and other tree fruits are also valuable food for wildlife. Still, you can take some to naturalize your property.

Here are some tips to gather seed and ensure they are viable for planting.

Oaks

White Oaks produce a good crop of acorns about every four to 10 years. Their flowers bloom in May, and if pollination is successful, their acorns are ready in September and early October. Red Oaks, Ontario's most common oak, produce a good crop every one to three years. They also flower in May, but Red Oak acorns take two years to develop; they are ready in September through November.

Collect and verify: Rake or sweep acorns into piles. After a frost, shake branches to drop acorns onto a tarp. Acorns with caps attached usually means the seed was aborted by the tree before complete development or there is insect damage (the exception to this is Bur Oak, where the seed caps come down over most of the acorn and even a healthy and mature acorn can have the cap still on). Pin holes indicate an acorn infested with insects. Then do a float test. Fill a bucket or wheelbarrow with water and pour in your acorns. "Acorns that float usually

mean they are not good," says Mark McDermid, Seed & Stock Coordinator with Forests Ontario. "The ones that sink are solid. Still, good acorns will occasionally float, so it's important to do the cut test to confirm." Cut an acorn in half, and look for a well-developed embryo that fills the seed cavity.

Maples

Every year, Red Maple and Silver Maple trees (soft maple) produce both flowers and samaras (which contain seeds). These maples flower in April and early May. They drop their samaras between late May and the third week of June. Sugar Maples (hard maple), on the other hand, flower every year, but only produce seeds every three to five years. Sugar Maples bloom in mid-April to May and produce samaras in late September and October.

Collect and verify: Spread a tarp under the tree and shake branches to collect keys, collect directly from the tree if seeds are mature, or off of the ground if they are not dried out. To check seed viability, cut the key open and look for a well-developed, bright green embryo. Avoid collecting seeds of Norway maple, an invasive species that can take over forests. When in doubt, ask a professional or someone at Forests Ontario.

Plant hardwood species as soon as the seed has matured. The seed is ready to germinate immediately. Plant seeds first in flower beds or gardens (where you can care for them). Transplant hardwoods at 20 to 30 cm in height; one to two years old. Note where the parent tree grows and plant its offspring under similar conditions.

For more information on seeds of Ontario's native tree species, refer to the Forest Gene Conservation Association's Seed Manual fgca.net/what-you-can-do/seed-collection/#SeedManual.



Keys on a Sugar Maple tree,
Grey County, ON, autumn, 2019.
Photo by Peter Kuitenbrouwer.

Fear for the Pine Needles

Mysterious malady afflicts trees planted in 1940s

Dear
Silvie



Forests Ontario's experts, known collectively as "Silvie" (short for silviculture), answer your forestry questions. Send questions to info@forestsontario.ca, or c/o Forests Ontario, 144 Front St. West, Toronto, Ont. M5J 2L7

DEAR SILVIE,

I live in a pre-confederation schoolhouse on a one-acre property near Stirling, Ontario. In the 1940s school kids planted pine trees on the property. There is now a mixture of mature and young pines that have established over time. This spring I noticed the needles on the pines were disappearing, leaving only this year's growth. Last summer my then-boyfriend planted a tiny Jack Pine he transplanted from the Pickering River up north. I was worried about this transplant potentially carrying some sort of pest. Can you shine a light on what may cause my pines to lose their needles?

Catherine Bush, Stirling

DEAR CATHERINE,

Defoliation is a concern many landowners have faced across Ontario this year. Gypsy Moth, an invasive tree defoliator from Europe, climbs trees to feed on foliage in the spring and early summer (see related story, p. 20). Your region this year experienced the worst Gypsy Moth infestation since the mid-1980s. The photos you sent depict Scots Pine trees. Gypsy Moth does not typically defoliate Scots Pine, but experts note that as moth population levels increase, it will also begin to attack evergreens such as pine and spruce. In the fall, look for tan-coloured, quarter-sized Gypsy Moth egg masses on tree trunks. Scrape them off surfaces into soapy water.

The bare branches on the photo you sent result from the loss of male pollen catkins, or flowers. The younger trees may suffer from drought and competition for light from grass and other trees.

The Pine Sawfly is a natural forest pest in Ontario. This sawfly feeds on primarily needles, leading to reduced



growth and performance, stem deformity and even death of small trees. You should be able to identify the sawfly's very pale lemon-coloured larvae on the bare branch tips. Sawfly treatment options depend on the type of outbreak and your resources.

It is unlikely the Jack Pine seedling your ex-partner transplanted from the North carried a pest or disease. The symptoms you described and the timeline point to many pest culprits found in your area of Ontario. If the pest identification tips suggested here do not match what you find on your property, have an I.S.A Certified Arborist or Registered Professional Forester out to your property for advice.

Yours,
Silvie

Clockwise, from above left: Pine sawfly, photo via Forests Ontario; Gypsy Moth egg masses, photo by Peter Kuitenbrouwer; Scots Pine, photo by Catherine Bush; Author Catherine Bush.



The Invasion of the Gypsy Moth

Aerial spraying of a bacterium can control the defoliator, but only in spring

BY PETER KUITENBROUWER

Three staffers at Zimmer Air, an aerial pesticide application company, barely kept up with the phone calls and emails this past summer from homeowners, cottagers and forest owners. Everyone asked the same question: how can I stop the gypsy moth from devouring my tree leaves and needles?

"I've never had so many calls," says Paul Zimmer, president of Zimmer Air. His company owns a dozen helicopters and planes, and has been spraying for 45 years to combat gypsy moth and other pests. Along Lake Huron and in eastern Ontario "the population of gypsy moth has exploded this year," Zimmer said.

Alas, most calls came too late. Aerial spraying from early May to mid-June is effective. When the caterpillars grow too large, says Zimmer, spraying is "a costly mistake."

"A guy in Stirling called crying to come and spray his pine," Zimmer said. "He said, 'They are in there feeding on my pine. I'm probably going to lose them.' But it was too late."

The gypsy moth is an invasive insect. A French scientist imported gypsy moths from Europe to Boston in 1868 to spin silk. The moths escaped and spread. With few predators, the European gypsy moth today ranks among eastern North America's worst defoliators. It prefers oak or maple but can eat up to 150 different species. In the Belleville Intelligencer newspaper, forester Jim McReady called this summer's outbreak the worst since the mid-1980s.

Beginning in 2007, the City of Toronto and other municipalities have hired Zimmer Air to spray *bacillus thuringiensis kurstaki* (BTK), a natural bacterium found in soil. Zimmer compares producing the spray to "a yoghurt you make in a fermenter." Health Canada confirms that other insects, mammals, birds, and fish are not affected by BTK.

After it feeds, the gypsy moth caterpillar pupates and becomes a moth, which lays eggs on tree trunks, buildings and even cars. (The moth got its name because it lays eggs on cars or campers, whose travels spreads the insect). An egg mass the size of a quarter can produce 500 larvae. (One can scrape the egg masses off tree trunks with a putty knife or stick, though given the number of eggs above your reach, it's a Herculean task.)

Extreme winter cold can kill the eggs. "Now the best hope is we'll get 30 or 40 degrees below zero for three or four days," Zimmer said. A cool, wet spring could bring a fungus and/or virus that kills the moth. Cuckoos, blue jays and orioles eat the caterpillars.

In fall, towns hire firms to count egg masses and decide whether to spray in spring. Already, some cottage associations have booked Zimmer for next year. Business is booming. "The gypsy moth is an extremely prolific little creature," Zimmer said. Consult your municipality for their plans to manage the pest.



Paul Zimmer, president of Zimmer Air, poses with his Bell Helicopter 206L3, used for aerial spraying, at his base in Blenheim, ON. Photo courtesy Zimmer Air. Inset: Gypsy Moths in their caterpillar stage feed on tree leaves in May and early June. Photo courtesy Ontario's Invading Species Awareness Program.



More Help With Planting

Forests Ontario welcomes new partners to its network

BY HAYLEY MURRAY



Emily Johnston, Stewardship Technician at Kawartha Conservation

Wildlife and Forestry Consulting

Located in Paris, Ontario, Wildlife and Forestry Consulting specializes in planting riparian areas and woodland edges. At the Thames River Wetlands in Beachville, for example, these forest professionals planted trees on soil piles within the wetland complex. Along the Nith River near the village of Canning, they planted trees on a section of floodplain.

Wildlife and Forestry Consulting often incorporates a mix of developed trees and younger seedlings in its projects. The company makes a conscious effort to design plantings with suitable habitat features for white-tailed deer and wild turkey.

Kawartha Conservation

Kawartha Conservation, a watershed-based, non-profit organization, provides stewardship programs and landowner services to parts of the Kawartha Lakes, the Region of Durham, and Peterborough County.

Landowner services include over-the-counter tree seedling and native plant sales, full-service tree planting, and project planning assistance for projects ranging from enhancing pollinator habitat to increasing biodiversity in woodlands. Kawartha Conservation's Water Fund offsets the cost of private land stewardship projects.



Travis Lockhart, Wildlife and Forestry Consulting



Nolan Kelly, Conservation Lands summer technician (left) and David Beamer, Manager of Conservation Lands (right)

Lower Trent Conservation Authority

Lower Trent Conservation's watershed supports diverse forests and wetlands, as well as agricultural and settlement areas. The core of the watershed region is the mighty Trent River, flowing from Rice Lake, through rolling drumlin hills to the Bay of Quinte on Lake Ontario.

Lower Trent Conservation works with local communities to create a healthy, environmentally diverse watershed that improves the quality of life for residents, increases appeal to visitors and new business, and helps build a vibrant regional economy.

Central Lake Ontario Conservation Authority

The Central Lake Ontario Conservation Authority (CLOCA) stretches across Ajax/Pickering, Whitby, Oshawa, and Clarington, from Lake Ontario to the crest of the Oak Ridges Moraine. CLOCA worked with Forests Ontario in the past to plant trees on private lands and CLOCA conservation areas. Now, the authority returns to this role.

CLOCA is currently redeveloping its private land stewardship program. It will help support complete restoration projects on landowners' property. The program services include site visits, professional technical advice, project planning and coordination, funding support, and more.



Central Lake Ontario Conservation Authority staff. From left to right: Jamie Davidson, Meagan Breems, Jackie Scott

An Important Book for the Next Generation

Book review: *A Forest in the City* by Andrea Curtis

BY FRASER SMITH, RPF, AND ISLA PHOEBE GLEESON SMITH, (VERY) JUNIOR FORESTER

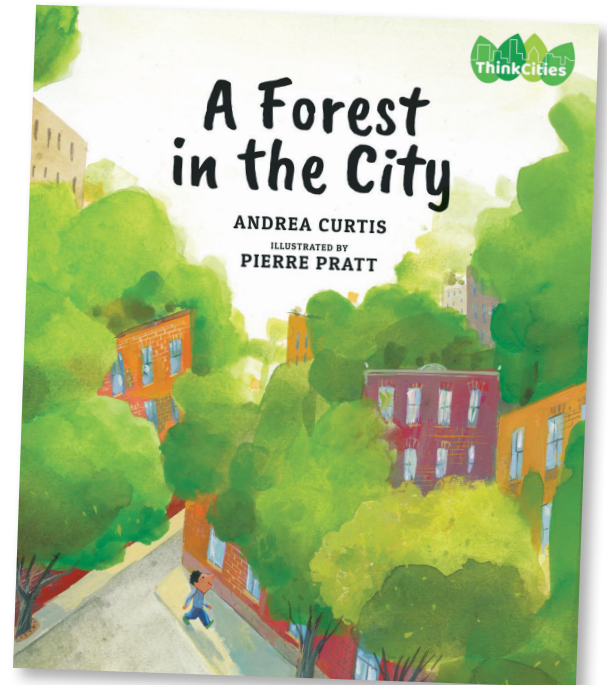
“This was a good book”

– Isla, age 7

The first book in the ThinkCities series from House of Anansi Press asks readers in grades 3-7 to think deeply about the role of individual trees in the urban forest and the challenges they face. The book begins with the history of urban trees and forests and ends with urban design suggestions for a more resilient green infrastructure. The illustrations are of a whimsical and young story book nature, while the text delves quite deeply into some large and pressing issues ranging from individual trees, to global climate, and the history of invasive tree diseases.

To test the book’s appeal to young readers, we enlisted the help of a “Forester in Training”: Isla, age seven. An “(I)” indicates Isla’s commentary.

This book goes deep, right from the start. Issues of the role that trees play, the challenges they face, and the interactions with the broader course of human history are covered with connections more broadly to tree diseases and invasive pests. For example: on Dutch Elm Disease (I) “So is the green bug on ash trees kinda like the disease after World War 1 that spread around the world on elm trees?” On tree structure and biology (I) “So, pretty much is bark just like the tissue on us? And does that mean that skin is dead too?” On urban street tree infrastructure (I) “Good thing I’m not a street tree, I would be long gone! (I kinda want to be a turtle though).”





Fraser Smith, RPF, with his daughter Isla Gleeson Phoebe Smith, age 7, in Peterborough, ON.

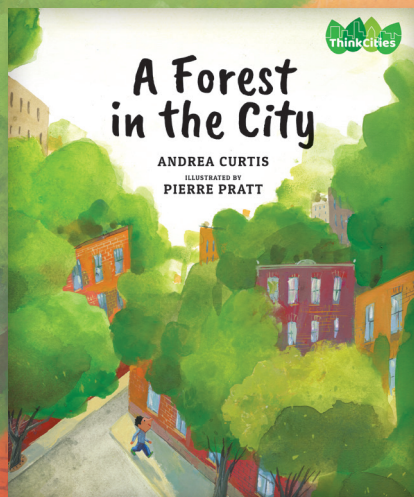
The book deftly covers some information that is often left out of other publications for school age children, such as the role of mycorrhizal fungi. (I) “Fungi are in forests so that they and trees can talk to each other through messages where they use it to send nutrients to trees that need it or are different. Like if an ash tree had lots of water and a maple tree had lots of dirt and if there’s trouble then they can trade with messages and fungi.” Interestingly, the topic of water and drought is not covered, as our Forester in Training notes: (I) “So these plastic things that hold soil in place help, but how do they get water? It’s weird that they don’t tell you that because that’s an important thing that trees need. Like, a really, really important thing.”

The book misses the mark when it delves too far into the traditional urban forestry arguments aimed towards governments and decision-making bodies-- in a story intended for grade school readers. (I) “What does that mean? Why are they talking about why trees are good through dollars?” Still, overall the book is well illustrated, a pleasure to read, and inspires some important conversations that an older reader may not have considered: (I) “You know how you tap a maple tree for maple syrup? I wish you could do that for hazelnut trees to make Nutella...” Most importantly, *A Forest in the City* clearly makes the case for the role of the next generation of stewards: (I) “It’s saying if you want more green and more trees then YOU have to say something about it.”

We highly recommend *A Forest in the City*. Two green thumbs up.

A Forest in the City

A NEW PICTURE BOOK WRITTEN BY ANDREA CURTIS AND ILLUSTRATED BY PIERRE PRATT



“[A] book for budding environmentalists.”

— *BOOKLIST*

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— *PUBLISHERS WEEKLY*

“The vital importance of the urban forest in relation to the welfare of city dwellers is presented with interesting information and lush illustrations.”

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