

# 2022/23 ANNUAL REPORT





# ABOUT THE FGCA

**Vision** A genetically diverse, resilient forested landscape in Southern Ontario that supports healthy ecosystems, healthy people and a healthy economy

**Mission** to ensure that genetic diversity is recognized and protected as the foundation of a resilient forested landscape.

The Forest Gene Conservation Association (FGCA) is a not-for-profit organization unique in its focus on gene conservation, the foundation of resilient forests.

We pride ourselves in working with current science and assisting forest practitioners to conserve and augment the genetic diversity of forests through Species Conservation, Seed Management Expertise, Climate Change Adaptation, and Education & Advocacy.



## Message from the President and Chief Executive Officer

As we emerge from a major pandemic that heavily impacted our lives, we are now seeing the way our world has changed as a result of that major event. The economy is buzzing again and the demand for human resources hasn't been this great in many years. The demand for people is exacerbated by a slew of retirements brought on by the pandemic and people's desires for a change in their lives.

The Forest Gene Conservation Association is successful because of its people. Our membership, staff, valued partners and board members all make this organization function. Without them it would not. We have had our fair share of major retirements and changes in human resources. The demands of the work that it takes to make an organization like this successful is ever changing. Organizations that can adapt with the times and turn the challenges they face into an opportunity will continue to be successful in the future.

Keep it up everyone, you're doing great.



Matt Mertins, President Forest Gene Conservation Association

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You get what you put into organizations like the Forest Gene Conservation Association, and I would say this year the organization gained so much. From new partnerships and exciting projects, to strengthening our relationship with existing partners who are managing and restoring crown, reserve and public lands. We have learned so much this past year and we are encouraged by the work of our partners related to gene conservation and the restoration work completed in Canada's most developed landscape.

As predicted, obtaining high quality, source identified material for both propagation and species recovery is a challenge. However, we know it is a challenge worth tackling, one decision, one action and one partner at a time, utilizing the support of our incredible team, board, members and partners.

We hope you enjoy this year's report and are encouraged to be a part of what we are doing.



Kerry McLaven, CEO Forest Gene Conservation Association

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# FGCA TEAM



## STAFF

**Kerry McLaven**, Chief Executive Officer

**Heather Zurbrigg**, Manager of Species Conservation and Administration

**Kristen Sandvall**, Seed and Climate Change Coordinator

**Briana Heuving**, Operations Coordinator

**Meghan Clay**, Seed and Climate Change Technician

**Becky Agnew**, Forestry Technician

**Corey Gent**, Eastern Ontario Butternut Technician

**Madelaine Danby**, Central Ontario Butternut Technician

**Ayman Hammamieh**, Butternut Assistant

**Kaylen Foley**, Program Assistant

**Chelsea Ertel**, Administrative Assistant

## BOARD OF DIRECTORS

**Matt Mertins, RPF**, President

**Brent Forbes, RPF**, Vice President

**Nancy Young, RPF**, Secretary

**Aron Fazekas, PhD**, Treasurer

**Barbara Boysen**

**Danijela Puric-Mladenovic, PhD**

**Elizabeth Celanowicz**

**Jeff Sharp, R.P.F. In Training**

**Margaret Scott, RPF**

**Maureen Jacques**

**Robert Davies Assoc. Member OPFA**

**Stephen Smith**

## RETIRED MEMBERS

**Gary Nielsen**

**John Enright, RPF**

**Terry Schwan, RPF**

# Species Conservation

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When you talk to people about species at risk, everyone has a story and lessons to share. When working with trees, we connect with so many people that get excited about what we are doing, and how we are doing it. No matter where we go, there are new stories, new research and new developments on tree species at risk. So, as we deliver our long-standing programs, we are constantly evolving and learning from others, making advancements, and pursuing new ventures.

## General Species at Risk

Many will know the FGCA for its Butternut Recovery Program however, the FGCA team is actively working to determine what other species would benefit from our support and network of experts.

Hemlock is a species that has a critical role in our forests, both in southern Ontario and in the managed forest. Many have documented and shared concerns over the spread of Hemlock Woolly Adelgid (HWA) and the significant impact it could have on our forests. The FGCA was proud to become a member of the HWA Forest Managers Working group, joining Conservation Authorities, municipalities, Canadian Food Inspection Agency and many other organizations and experts in understanding the pest, including its management, treatment and monitoring methods.

We continue to get inquiries about American beech, including, but not limited to seed collection, seed production, genetic resistance and challenges with respect to regeneration.

Prior to the government of Ontario's listing of black ash as an endangered species on the Species at Risk Ontario list in 2022, the FGCA has been exploring black ash recovery. The nature of the spread of Emerald Ash Borer (EAB) across Ontario presents a challenge to the recovery program. The FGCA expressed these challenges as well as opportunities through reviewing and contributing to the black ash recovery strategy.



*Figure 1 Black ash seed cut test*

To date, the FGCA has connected and built connections and resources pertaining to black ash with the University of Toronto and University of Guelph, Canadian Forest Service and their partners with the United States Department of Agriculture (USDA). With a decision to move ahead with a black ash recovery initiative, the FGCA applied for funding to initiate a recovery project in Ontario that considered the complexity of this listing.



## Butternut Recovery

Another successful butternut archiving year is in the books and even still, we are not resting on our laurels. Between new research, new techniques and a broader network of experts, we are into the next generation of butternut recovery. It's an exciting and challenging time with new partnerships and new and common pests to manage.

Over 4,000 person hours goes into delivering our butternut recovery program each year, a substantial year-round effort. Not only that, but the team is also constantly working to augment and diversify skills by visiting partners and experts across Ontario including Grimo's Nut Nursery (Niagara on the Lake) and following the work being done by the Canadian Chestnut Council in St. George Ontario. The year was not without its challenges, significant rainfall, heavy (and early) squirrel predation and rose chafer insect damage influenced our butternut grafts and affected our seed crops.



*Figure 2 FGCA team tour at Grimos Nut Nursery in Niagara.*

Although the grafts in our archive may have some putative genetic tolerance, it is still possible for them to be impacted by butternut canker. We have developed a protocol that standardizes canker monitoring between all 6 of the archives. This way we can see if site conditions, or canker load can be attributed to

the presence of canker in our archives, or if some of our parent trees are proving to have less potential genetic tolerance than originally thought.

The FGCA butternut database continues to retain important information from recovery tree to, graft, storage, field and even to the seed collected off the grafts. This database is a wealth of knowledge and we continuously use it to improve our understanding and practices in butternut recovery.



*Figure 3 Corey and Ayman planting butternut grafts in eastern Ontario*





*Figure 4 Meghan and Terry scouting putatively tolerant, pure butternut trees for the recovery program in Perth, ON*



*Figure 6 (left to right) Madelaine, Meghan and Brent planting butternut grafts at Camplain butternut orchard.*



*Figure 5 Site tour conducted at one of the central Ontario butternut seed orchards.*



*Figure 7 Corey and Briana assisting with the black walnut rootstock lift at Somerville Seedlings.*



# BUTTERNUT QUICK FACTS

## RECOVERY >

### NEW HOMES FOUND FOR 120 ORCHARD-DERIVED, BUTTERNUT SEEDLINGS

**T**hanks to our excellent partners at Somerville Seedlings, the FGCA was able to produce a few hundred putatively tolerant orchard-derived seedlings to plant across the Butternut range.

The FGCA worked with qualified professionals and organizations who have a role and stake in the long-term recovery of the species, to find homes across Ontario. We wish these progeny the best of luck and we will keep an eye on these trees.



## INDUSTRY >

### 350 GRAFTS PLANTED IN 5 ARCHIVES

**T**his spring 350 grafts were planted within 5 archives across southern Ontario.

In addition to those planted, over 1,000 grafts were maintained, irrigated and inspected for pests throughout the growing season.



## IN THE KNOW >

### FGCA BREAKS GROUND FOR A SIXTH ORCHARD IN EXETER, ON

**A**sixth orchard was always in the cards for the FGCA. In 2022 we not only created a new orchard, we also forged a new and exciting partnership with the Ausable Bayfield Conservation Association (ABCA). All thanks to funding provided by the Ministry of Environment, Conservation and Parks.

Working closely with Ian Jean from ABCA, the FGCA was able to confirm that the conditions of the site were ideal for the grafts, and confirm the safety of the site itself. All required in a very quick timeline.

Next spring, we will be planting over 100 grafts in the new orchard with ABCA and FGCA staff.

The FGCA will also be hosting a ground breaking event to help celebrate this new and exciting venture.

We know this orchard will not only help the FGCA in achieving recovery goals with Butternut, it will also help us benefit other species at risk and species of concern in Ontario.



# Seed Management and Expertise

## Tree Seed Sourcing

As a major advocate of seed source and seed quality, we were excited to support our partners in their hunt for high quality source-identified tree seed this past year.

For the past two years, the FGCA has been working with the Petawawa Research Forest (PRF) to support their Adaptive Silviculture for Climate Change (ASCC) project by sourcing seed from southern Ontario, and the United States. This project did not come without challenges, however what we gained through this project was immense.

The highlight reel:

- 2022 was one of the leanest and most non-productive seed years in the past 10 years.
- Much of the seed required was not in a seed bank, or could not be banked. This led to a greater quantity of fresh collections.
- Logistical challenges with shipping large quantities of heavy, and perishable seed over the border.
- Varying expertise and knowledge of suppliers on maintaining seed quality post-collection.



*Figure 8 Red oak acorn delivery to Ferguson Tree Nursery as part of the Petawawa Research Forest ASCC project.*

As the 2 Billion Tree Initiative builds momentum, the FGCA has expressed concern about the source of seed to support a program at this scale. For large-scale tree planting efforts, we advocate for the use of high quality, genetically appropriate tree seed. Without proper guidance, this program could potentially drain existing seed supplies and put pressure on an already

### Fun Facts regarding the Petawawa Research Forest ASCC seed sourcing project

- 1,268 pounds of red oak acorns were obtained from US sources.
- 417 pounds of white oak acorns were obtained from southern sources.
- FGCA established over 10 solid contacts for source identified seed collectors and suppliers in the northern United States.



strained seed system in the province. The FGCA participated in many discussions pertaining to the 2 Billion Tree Program (2BT) and supporting tree seed capacity under the 2BT, and has been working closely with the National Tree Seed Centre (NTSC) and Forests Ontario (FO) to prioritize investments in seed to support the program.



*Figure 9 Good quality red oak acorns sourced from the United States for the PRF ASCC project.*

In addition to work that we support in southern Ontario, we have been having several conversations with our Sustainable Forest License holder (SFL) partners in the Great Lakes St. Lawrence Forest region regarding seed inventories. Many of these partners have relied on the former Ontario Tree Seed Plant (OTSP) to help manage their seed inventories, however now it is solely their responsibility and their

knowledge that will aid them in this venture. With the support of Forestry Futures Trust (FFT), the FGCA is actively and regularly in discussion with the SFLs regarding seed inventory management, seed procurement and acquisition, short and long-term quality, report reading and supplier questions and much more. These discussions have been fruitful both for the partners and for the FGCA and they enable us to provide more effective support moving forward.

### Ontario's Natural Selections

Ontario's Natural Selections (ONS) is FGCA's origin story. Modeled after Michigan state's seed chain of custody and certification program, this is FGCA's longest standing program and is foundational to our climate change work.



*Figure 10 Seed 101 course delivered to the Daki Menan Lands and Resources Corporation forestry crew in partnership with Nipissing Forest Resource Management Inc.*

In 2022 the FGCA delivered a Seed 101 course in Temagami Ontario to help train indigenous



youth and community members as well as address challenges collecting wild seed in the region due to a lack of collectors and depleting seed inventories. We had a great day with the Daki Menan Lands and Resources Corporation as well as with the Nipissing Forest Management Inc.



*Figure 11 Certified Seed Collector course stop at Pineneedle farms where attendees observe seed processing practices completed at the nursery.*

There is significant interest in seed training in northern Ontario for forestry companies. This is due to the fact that the seed collector network in these parts of the province is dwindling, and this expertise is rare to find and challenging to develop. We have been in several discussions and are working to develop capacity in these regions to deliver more training and workshops.

The FGCA continues to deliver the highly regarded Certified Seed Collector Certification and training program. This year we delivered 3 virtual training sessions and 4 in-person training

sessions. In-person courses were delivered in Cornwall, Kawartha, Barrie and near Hamilton.

With the second year of support of Forestry Futures Trust, the FGCA made significant progress in the development of a new and important publication, “Seed Quality Guidelines”. These guidelines are developed to support people and organizations involved with all aspects of seed, with an emphasis on those who are responsible for seed inventories, tree growing and many others. These guidelines are designed to help ensure high quality seed that is collected by a seed collector is maintained until the seed is sown at the nursery. This may seem like a simple task but is much more complicated than most realize. We made significant progress on these guidelines and expect to officially release them in the fiscal year 2023/2024.



*Figure 12 Certified Seed Collector Cornwall field session being led by Kristen and Meghan and supported by Kaylen.*

### White Pine Seed Orchards

The clonal white pine seed orchards that were established by the Ministry of Natural Resources (MNRF) are now more than 30 years old, however due to the management and caretaking that the FGCA has completed in recent history, the sites are arguably the best quality source of white pine seed in southern Ontario. These trees were the best of the best, at the time of initial collection and grafting.



With the support of Forestry Futures Trust, the FGCA has begun year one of a 2-year project to take a deep strategic dive into the white pine seed orchards with guidance from provincial and national experts on white pine management, genomics and acquisition. With the help of our expert consultant who is managing this project, we have compiled an impressive group of experts and experienced practitioners who have had excellent discussions and made progress pertaining to orchard management and seed use from the orchards for the next 30 years. It is certainly an exciting time for the orchards and well-overdue discussions on white pine in Ontario.

Throughout the field season, the FGCA team conducted site visits at many of the orchards including Scugog, Taylor Lake, Crowe River, Snowdon, Glencairn and Cayuga. Discussions on

site include management advice, forecasting and collection opportunities.

The FGCA not only has set the direction for strategy development for the orchards, but we have also engaged new partners at the University of Toronto to conceptualize a new database to host the very complex data associated with the orchards. This work will continue in 2023/2024, however some foundational discussions have been had and new and exciting partnerships are underway.



*Figure 14 Significant wind damage at the Taylor Lake white pine seed orchard. Photo is one example of how some grafts were damaged during blowdown events.*



*Figure 13 FGCA contractor, Ken Elliott visiting the Scugog white pine seed orchard to discuss history of orchards for the white pine seed orchard renewal project.*





# Climate Change Adaptation

## Climate Change Strategy

Two climate change strategies were completed in this fiscal including a Tableau tool for both Forests Ontario and the Bancroft Minden Forest Company (BMFC).

Forests Ontario's tool provides detailed information on seed movement under various Representative Concentration Pathways. The BMFC tool focuses on forest vulnerabilities and management challenges pertaining to climate adaptation, seed collection, seed management and natural regeneration of primary species.



Figure 15 Salford Assisted Migration Trial with trees showing excellent promise

## Assisted Migration

The concept of assisted migration 'trials' has led to greater interest by practitioners in moving tree seed to their region to adapt to an unknown climate future. Strategic movements are encouraged and supported by the FGCA when the source of the seed is known and the movement is beneficial to the region's genetic make-up.

Tree height measurements were taken at each of the trial sites in 2022 and data was provided to Natural Resources Canada's Canadian Forest Service.

This year we assisted Conservation Halton in the development of Ontario's first Bur Oak Seed Production Area (SPA) to support their tree



Figure 16 Indiana sourced bur oak (left) beside a seed zone 37 sourced bur oak, collected in the same year. FGCA staff noticed significant differences in size of acorns from the various sources.



planting programs. This seedling SPA won't be producing seed for about 20 years but is a necessary investment when it does produce seed. At that time, this seed source will be critical. Two US seed sources were incorporated into this site which required significant logistical support and oversight to ensure the highest possible quality. In the end, even with a very disappointing seed year, we were able to obtain high quality source-identified tree seed. Of course, learning some foundational lessons along the way.

White pine SPAs that the FGCA has developed over the past 3 years required maintenance this past year as trees have not yet reached free to grow status. These SPAs, located across central and eastern Ontario, were designed to support SFLs in seed procurement. This year, the FGCA conducted site visits of all the sites and provided maintenance recommendations that were implemented by staff. This work was graciously supported by the Forestry Futures Trust. We expect these sites to require funding for maintenance for at least the next 2 years.

The FGCA successfully planted a third United States seed source at the Westwind SPA and assisted migration trial near Harris Lake.



*Figure 17 Kemptville white pine seed production area following mechanical and manual competition control.*



*Figure 18 Taylor Lake white pine seed production area prior to mowing treatment.*



# Education and Advocacy

There are so many important conversations being had by practitioners, organizations and experts across Canada as people understand the importance of forests and the establishment of them. The FGCA looks at the forest with a unique perspective and our voice is more important than it has ever been.

Throughout the year, we are actively inserting ourselves or being engaged in important conversations pertaining to seed and forest quality, climate adaptation, species at risk or species of concern, forest resilience and biodiversity conservation.

## Membership

With over 50 members consisting of experts across the field of forestry, ecology, research, government, not-for-profit and for-profit organizations, we are certainly in the best possible hands to help practitioners navigate challenging and exciting times in forestry.

Our Annual General Meeting was held on June 23, 2022. During this meeting the members navigated changes to the By-laws to comply with the Not-for-Profit Corporations Act and elected a new and staggered board of directors. Prior to the AGM, the FGCA hosted a tour of the Glencairn white pine seed orchard, white pine seed production area and our Central Ontario Butternut Seed Orchard.

The FGCA has been working this past year to understand our membership and have begun to understand gaps in our membership. Thanks to work of our communications team, we have developed a stakeholder evaluation tool that

looks at organizations that have influence and interest in the FGCA. The outcome will help the FGCA better support our partners and improve our social media outreach.

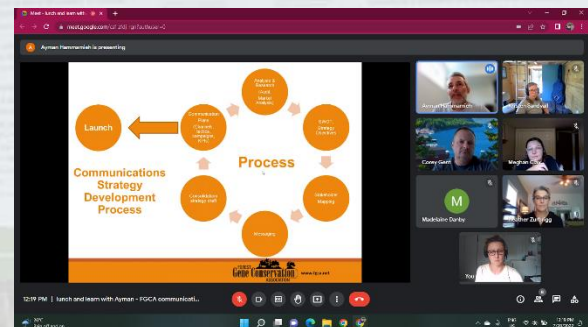


Figure 19 Ayman delivers a staff lunch and learn on developing a communications strategy.

## Events & Displays

At the FGCA we always keep an open-door policy for those that want to take a look at what we do. This year we had Algonquin Forestry students visit our Butternut archive, white pine Seed Production Area and realized gain trial.

This year we hosted an event at the Petawawa Research Forest with the intention to get FGCA staff, board of directors and Sustainable Forest License holder partners together to discuss climate and seed related projects. We had a great turnout and excellent discussions on current and future plans to work with the Petawawa Research Forest.

In addition to these events, the FGCA team attended (both virtually and in-person) a significant number of events hosted by our



partners and organizations across Canada and the United States.

We'd also like to thank partners and organizations that invited us to speak at events and conferences including but not limited to the Kemptville Woodlot Conference, the Canadian Institute of Forestry Annual Conference, Trent University, Forests Ontario and others.

### Website & Social Media

We have had a record year on social media thanks to the efforts of the entire FGCA team. Thanks to some strategic planning and regular contributions by all team members, we have increased our social media presence on Instagram, Facebook and LinkedIn.

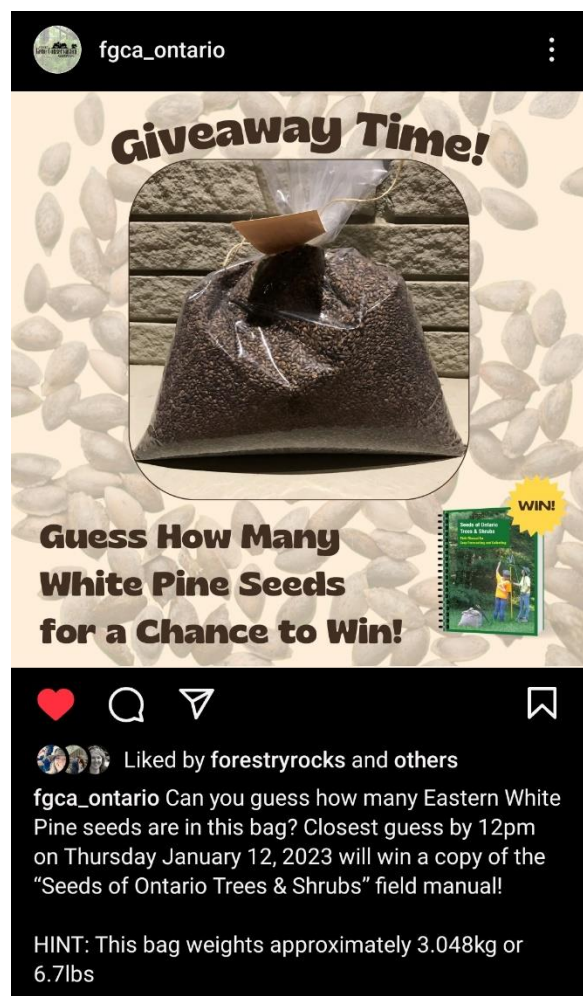


Figure 20 FGCA seed guessing contest on Instagram and Facebook generated an excellent response.

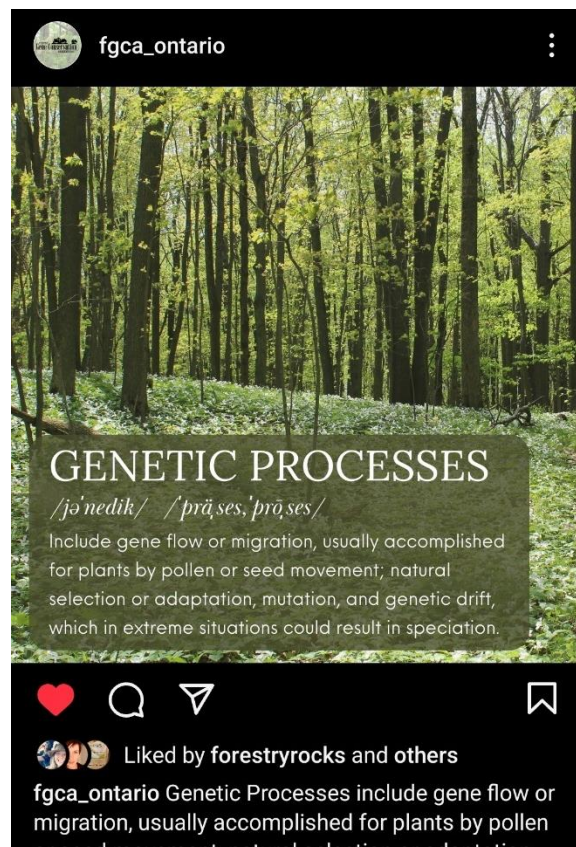


Figure 21 FGCA using social media to improve practitioner and partner understanding of Forest Genetic Resource Management.

### Forest Genetic Resource Management

Last year, the FGCA endeavoured to help improve practitioner knowledge of forest genetic resource management and how they influence the current and future gene pool.

We have tackled this in many ways, the most effective is regular meetings including those in-person and virtually and include partners that work and operate in the crown forest and on public lands.

Topics we regularly cover include but are not limited to:

- Seed orchard management and maintenance
- Seed forecasting and collection logistics
- Seed banking and inventory management

- Seed tree retention
- Vegetation management
- Influencing natural regeneration of hardwoods

We have also expanded our social media to include commonly used terms when talking about forest genetic health, diversity and management. This has reached practitioners and organizations here in Ontario and abroad.





# Administration and Human Resources

As we continue to grow as an organization, so do our administrative needs. This year, the FGCA hired an Administrative Coordinator to relieve other staff of administrative duties.

Due to the nature of our work both in field and in the office, the FGCA maintains a comprehensive Health and Safety program. We have also provided staff with important mental health resources to navigate challenges within and external to the organization. All health and safety files are maintained and are easily accessed by our staff virtually.

The FGCA strives to be a place where people want to work, not just for the work that we do, but for the flexibility we offer as an organization of this scale.



*Figure 22 FGCA team including (back left) Kristen, Corey, Madelaine, Meghan, (front left) Kerry and Heather. Not pictured here is Briana, Becky, Chelsea, Ayman and Kaylen*





## With Gratitude

(written by Barb Boysen)

John Enright, Terry Schwan and Gary Nielsen

So many similarities, not just as long time and now retired FGCA Board Members, but all foresters of a special vintage. Old! But, like Scotch and wine, all the more valuable. Each bringing over 40 years of experience in the forests of southern Ontario with all its diversity of trees, climate, landowners and politicians. There's no substitute for such experience. Couple it with a passion for their work and the resulting expertise is invaluable. Their employers benefited - the provincial government in Gary's and Terry's case, and Conservation Authority in John's. But more importantly the landowners and most importantly, the forests. Finally, the FGCA benefited greatly in the 20 plus years of total Board time they contributed.

John represented Conservation Ontario on the Board and was our conduit to other Conservation Authority staff for all things FGCA. He also got his boots dirty in the operations of butternut recovery, assisted migration trials, and seed collection programs. John lent his much-needed expertise to our partners with their local FGCA sites. From deer fencing to vegetation management, endangered species to landowner stewardship efforts, John quietly, efficiently, wisely made a big difference in our programs.

Terry built his career starting in northern Ontario but then lucky for us landed in southern Ontario. Like John, Terry accumulated years of practical operational experience with landowners and their forests. With a penchant for research and history and networking, Terry has been a force in southern Ontario private land management. And like the forests, his interests are diverse - from economic studies on forest vs. agricultural crops, to tracking local forest research sites, and to endangered species education. Like John, Terry wasn't just content with FGCA Board meetings - he got his boots dirty in most, if not all of FGCA's numerous programs from white pine seed orchard operations to the many details of butternut recovery.

Like Terry and John, and lucky for all of us, Gary built his career up from private land forestry operations in eastern Ontario. He continued onto people management in the Ontario stewardship program and the ultimate people management challenge of provincial policy administration of the 50 Million Tree Program and Climate Change. He started as an FGCA Board member, and his people management skills benefited us there too. He not only served for years as our President, but he also charted a succession course for the CEO and future vice President and Presidents. Gary followed his often simple, often humorous advice and we all benefited. "Tell 'em what you're going to tell 'em, Tell 'em, then Tell 'em again."



Figure 23 (left to right) John Enright, Terry Schwan and Gary Nielsen



## Acknowledgements

The FGCA wouldn't be where it is today if not for the financial support provided by funders and partners. Thank you to all our funders in the 2022/23 fiscal year:

**Forestry Futures Trust**  
**Species at Risk Stewardship Program (Ministry of Environment, Conservation and Parks)**  
**Natural Resources Canada**  
**Petawawa Research Forest**  
**Conservation Halton**  
**Forests Ontario**  
**Multiple Butternut Agreement Holders**  
**FGCA Members**

In addition, thank you to all our partners, members and colleagues who have provided in-kind support over the past year. Your time and resources have been very valuable and contributed substantially to the FGCA mission and vision.



*Figure 24 Kristen participating in a panel at the Forests Ontario annual conference.*



## Team Photo Wall



Figure 25 Briana



Figure 27 Heather and Kerry



Figure 26 Corey



Figure 28 Becky and Corey

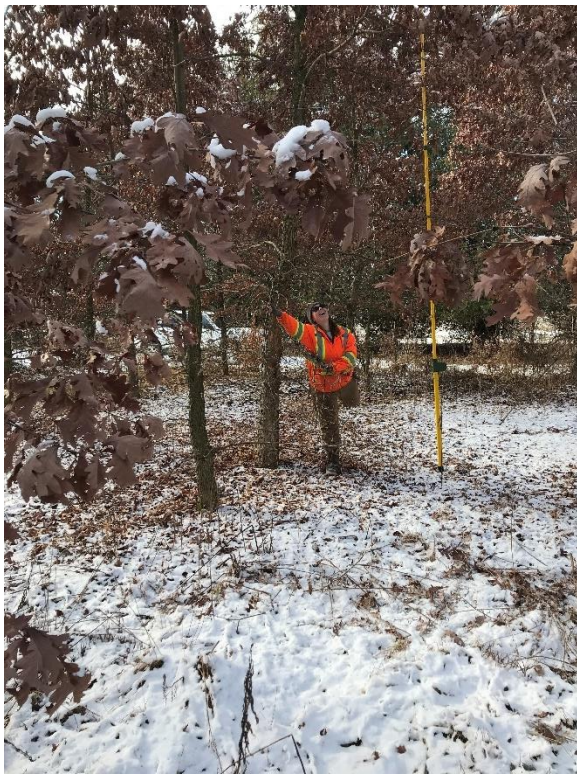




*Figure 29 Madelaine, Brian Swaile (member), Meghan*



*Figure 31 Madelaine and Corey*



*Figure 30 Kristen*





# FOREST Gene Conservation ASSOCIATION

**WEBSITE**

**FGCA.NET**

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**INSTAGRAM**

**@FGCA\_ONTARIO**

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