



## ANNUAL REPORT 2018-2019

Wow – we just completed our 25<sup>th</sup> year working in forest gene conservation in southern Ontario. 25 years of cautious management to sustain our progress. We are strong, but still planning for the next threat – climate change, invasive species, changing political priorities...

2018 / 2019 was a year as always, of opportunities and challenges, and unfortunately a year that included a loss so huge, the despair of people who 'got it' was palpable. The Ontario Tree Seed Plant, despite a concentrated effort to save it, is now closed. These now lost seed facilities, expertise, and government leadership that we need in our arsenal to sustain our forests and sustain ourselves, are what other jurisdictions are actually building to be able to sustain their forests, their societies. This loss made a large crack in our fragile infrastructure. But to quote Leonard Cohen – *"There is a crack, a crack in everything. That's how the light gets in."*

The light got in through this crack to show us how big the challenge really is. If the political leaders of 2 parties could do this – we've got work to do. It shows us that at all levels of society there is ignorance of what it takes to sustain us. And in Ontario, it takes a forest.

A crack can also show silver linings. It reveals the people who get it; who will work with you to fix what we can, as we can. Both **Somerville Nurseries** and the **Ferguson Forest Centre** stepped up with major investments in seed banking to save our seed, not to mention my sanity - SOS indeed. The people of **Aware Essa**, the township that was home to the Seed Plant punched way beyond their local boundaries to get the word out to thousands of people – this is effort I know will bear fruit in the long term. **Forests Ontario** worked at any and all levels to connect people to a system that will conserve and restore our forests efficiently and effectively. And the last 2 months were a roller coaster ride for them and their partners. The descent when the Ford provincial government with no notice, and as millions of trees were being lifted to plant, cancelled the province's 50 million tree program. And the ascent when the Trudeau federal government injected funds for a very timely 4-year program save. This time SOS stands for Save our System. Note this is timely, it is great, but it is not enough. Our forests, like our public finances, are in a significant debt and deficit situation. The challenge continues to plant the 1 billion trees our southern landscape needs to be sustainable, that is IF we also conserve our existing forests.

Luckily our partners understand forests, biodiversity and the challenge of working with people who don't. And they also get the joy of sharing a good craft beer at the end of a long day. Henry Kock – FGCA founder and mentor, gone from us 14 long years, collected quotes – a favourite of his and now mine "I won't join your revolution if I can't dance".

Read on to learn about what we achieved this year. Email us to learn more, and to please give us feedback. Here's to another 25 years of forest conservation, dancing and good craft beer.

*Barb Boysen*, FGCA General Manager

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This report is presented as per our proposed, renewed



## 2021-2025 Strategy

FGCA is a credible Not-for-Profit Corporation in Ontario with

### **A Vision of:**

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

### **A Mission:**

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

### **and Priority Programs:**

#### **Education & Advocacy**

Increasing awareness of forest genetic principles and practices

#### **Tree Seed Expertise**

Ensuring supply and use of high-quality, locally-adapted tree seed



#### **Species Conservation**

Implementing recovery programs for at risk species

#### **Climate Change Adaptation**

Providing strategic advice to practitioners and facilitating assisted migration

Our programs could not succeed without the many **people** and organizations listed in this document. We thank you all and look forward to another year of collaboration.

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## Education & Advocacy

### Communications Strategy

**Melissa Spearing** and **Heather Zurbrigg** prepared an external communications strategy that is expanding our tools and strategies to efficiently get our message out across Ontario and to receive feedback from the many people whose observations and experiences will better inform our work.

### Presentations

Staff prepared information for delivery by several Board members in their local areas. Our well used display units were reviewed, and plans developed to revise them.

### Website - [www.fgca.net](http://www.fgca.net)

**Melissa Spearing** is the current webmaster and is managing updates and revisions. Melissa has updated it with online applications for example for CSC workshops. Contact [melissa@fgca.net](mailto:melissa@fgca.net)

## Tree Seed Expertise

### Seed Strategy

Forestry Futures Trust (FFT) funded our 2-year project to assist our Sustainable Forest Licensee (SFL) members in the development of a Central Ontario Crown Forest Seed Strategy for long term sourcing, processing and banking of seed with a climate change adaptation focus. This project was made significantly more important as the MNRF closed the Ontario Tree Seed Plant (OTSP). This year significant effort was made to promote the complexity and urgency to better manage tree seed for all southern and central Ontario, and included:

#### Tomorrow's Forests: The Future of Tree Seed Management in Ontario

Produced in partnership with Forest Ontario *"This paper summarizes much of the accumulated knowledge related to tree seed acquisition, seed management,"* and was widely circulated to partners and funders.

#### Ontario Native Seed Management System: Market Analysis and Business Plan

FGCA and Forest Ontario, *"Prompted by the Ontario Government's decision to close the Ontario Tree Seed Plant (OTSP) ... prepared the subsequent market analysis and business plan to ensure the long-term maintenance of vital programs benefitting Ontario society as a whole."* This plan was unsuccessfully proposed to the MNRF, who instead continued to cut support for private land reforestation and ultimately in April 2019 cut the entire 50 million tree program. FO and FGCA had already begun discussions with other funders including Environment Canada, which in June 2019 elected to save the 50 Million Tree Program (MTP) for 4 years. This timely injection of funds allows FGCA and FO to work on longer term solutions as described in the next Initiative.

#### Ontario Tree Seed Stewardship Initiative – 5-year MOU with Forests Ontario

*"to create and deliver a native seed management system for Ontario that will provide a sufficient and secure supply of viable, locally adapted, biologically appropriate native seed..."* The FGCA led by our Seed and Climate Change Program Coordinator **Melissa Spearing** worked with Forests Ontario, local groups and in particular this year with the MNRF staff who are developing a new Seed Transfer Policy for Ontario which will incorporate climate change projections. This policy now targets only crown land managers, and thus affects only our SFL members, as there is no longer any government funded tree planting programs. FGCA has stayed involved to ensure the policy facilitates the use of sound gene conservation principles, and to be able to interpret it for the benefit of our partners and ultimately the forest.



## Seed Storage and Tracking System

### Seed Storage

We worked with Forests Ontario to ensure the seedlots from the Seed Plant were moved to new facilities established by Somerville Nurseries and the Ferguson Forest Centre. FGCA's bulk 2017 Cayuga white pine orchard seed is now in storage at the Ferguson Forest Centre. We also entered into an agreement with the National Tree Seed Centre to store several hundred small, clonal seedlots from the white pine seed orchards.

### Seed Tracking: Largest White Pine Collection in Ecoregion 7E

**Melissa Spearing** has been reviewing the Tree Seed Plant records including years of tree seed collection, processing and deployment data. For example, we learned that the 2017 Cayuga white pine seed orchard bulk seedlot represents significant progress on the 1987 Tree Improvement Master Plan for Ontario. It is the largest known-parentage white pine seed collection effort to date in Ecoregion 7E since OTSP records began. 10.988 million viable seeds were collected; a second all-time Ontario record white pine seed yield of 1.263 kg per hectoliter of cones versus the former Cayuga benchmark of 0.789 kg/hL. This represents a 160% gain in seed collection yield and return on FFT investment in orchard operations. 163 clonal seedlot collections made during the 2017 thinning operations are an additional strategic investment with substantial potential return to the forestry sector. The only collections OTSP received that are higher in volume are red oak from Zones 37 and 38, but because of seed weight, white pine wins on number of viable seedlings in future deployment.

## Seed Transfer Assistance

### MNRF Seed Transfer Policy

**Melissa Spearing** and **Barb Boysen** continued to provide information and feedback to MNRF's Seed Transfer Policy Development team about FGCA's seed transfer analyses and climate change recommendations. Melissa also assisted Forests Ontario in their efforts to determine transfer strategies for their banked seed. This policy will now only regulate crown land managers, given the cancellation of the Ontario government funded 50 MTP. However, it does have the potential to be a guide for all forest restoration programs. FGCA will monitor its progress regarding both its adherence to sound gene conservation principles, and the operational realities of the practitioners. Communication is key to implementation of any policy.

## Ontario's Natural Selections (ONS) Seed Source Certification Program

### Seeds of Ontario Trees & Shrubs Manual (2014)

The seed manual was widely distributed, with copies going across Ontario and the USA.

### Certified Seed Collector Course

A July CSC workshop in western Ontario hosted by the Saugeen Valley CA, was led by **Melissa Spearing** with assistance of **Brent Forbes**, Somerville Nurseries and **Mark McDermid**, Forests Ontario. This effort trained collectors and future CSC trainers. Essex Region CA staff that attended the workshop then hosted a local seed collection workshop. The CSC workshop has evolved to include more hands-on, field training, but last year we had to cancel the collection field day at Guelph Arboretum as little seed survived the long hot summer. We will offer all participants more mentoring opportunities as developing seed crops allow. A heavy spring 2019 flower crop in many species may help us out in this regard. A CSC workshop at Fleming College led by **Melissa Spearing** in February 2019 continued our training 'seed collection trainers' with both Fleming College staff and our SFL partners. It had the added benefit of exposing the Fleming College staff to the operational realities of forest management on crown land.

## SCAN – Seed Collection Area Network

Little work was done on SCAN this year given the focus on the seed plant.

## White Pine Seed Orchards

### Orchard Management

2018 was an off year for seed crops from the 8 seed orchards:

SFL Managed Orchards – Conger, Grattan, Taylor Lake, Snowdon, Crowe River

Southern Ontario Orchards - Cayuga, Glencairn, Scugog.

The focus was on site and crown management with mowing, thinning, and topping in several orchards. Unfortunately, this work in the 3 southern orchards was delayed as we waited to obtain some form of tenure from MNRF to allow us to continue to invest and manage the 3 southern orchards. Though formal tenure was not obtained we were given the green light to continue our management.

### Orchard Seed Deployment

**Melissa Spearing** worked with the plus tree data to document and cross reference the clonal seedlots we have from Taylor Lake, Conger and Grattan orchards. This seed has value to establish new high-quality seed production areas. Their stewardship is critical, and we have entered into an agreement with the National Tree Seed Centre to store, test and manage these seedlots as well as those from the Cayuga Seed Orchard.

## White Spruce Seed Orchard

FGCA is working with Ottawa Valley Forest to rejuvenate Westmeath white spruce seed orchard, with the support of FFT funding. The orchard was established with genetic material selected from the Ottawa valley area. **Steve D'eon**, Eastern Ontario forester calculated, based on provenance test data, that the Ottawa Valley white spruce population - the famous Beachburg provenance - has added \$21 million in superior growth as compared to other white spruce populations. The original natural Beachburg population no longer exists but we are hoping the gene pool is still well represented in this orchard. This orchard is a good source of seed for both local areas as well as for assisted migration in the north.



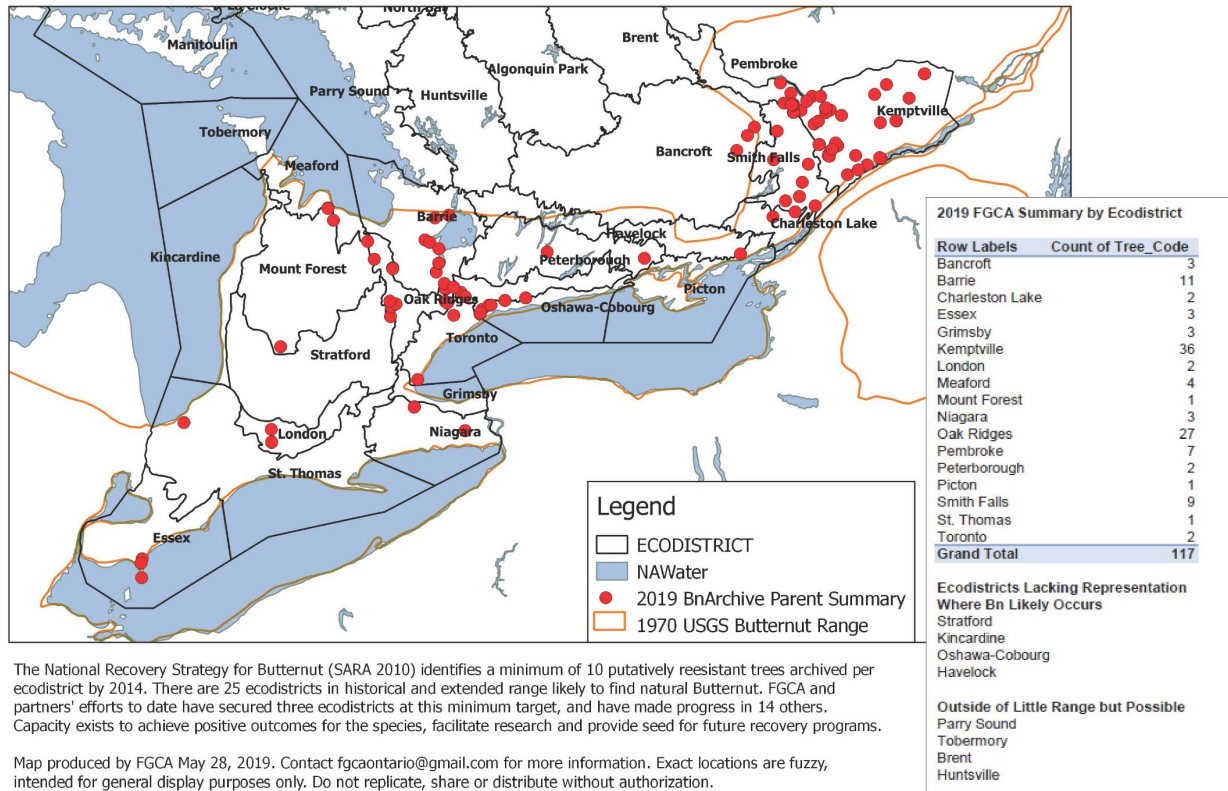
## Species Conservation

### Butternut Recovery

#### Planning and Coordination

**Heather Zurbrigg** managed the program with the assistance of part time employees **Greg Bales**, **Madelaine Danby** and **Bri Heuving** and contractors **Barb Boysen**, **Rose Fleguel**, **Virginia Gordon**, **Terry Schwan**, **Steve Bowers**, **Steve Pitt**, Somerville Nurseries, Ferguson Forest Centre, and the Upper Thames River CA. **Melissa Spearing** provided GIS assistance in the preparation of a map to show archived tree locations and help us plan to attain short term Recovery Strategy goal of 10 trees per Ecodistrict (see below).

## 2018 Butternut Archive Parent Map by Ecodistrict (as of May 2019)



This was the first full year with our new and expanded facilities at the Ferguson forest Centre including a grafting greenhouse and shade house (photo - grafts in shade house, June 2018).

### Grafting

- Grafted 18 trees in April 2018 and tended 1-year-old grafts of 10 trees at FFC; planted 2-year-old grafts of 10 trees in 4 orchards; prepared rootstock to graft 18 trees in April 2019.
- Tree inspection then scion collection was done for 18 trees to be grafted in April 2019, including several from southwest Ontario, where we need more trees for the long term 20 tree/Ecodistrict target.



### Seed Orchards / Archives

- Establishment of the second Eastern Ontario Butternut Seed Orchard at FFC continued with cover crop management and new plantings (see photo here – June 2018)
- Planning and site preparation including cover crop sowing were undertaken to establish the new orchard at Somerville Nurseries to be ready for planting in 2019.
- After seed forecasting and collection in what was a generally poor seed year for many species, 11 seed from older grafts of 2 butternut trees in EOBS01 were collected and potted.





- 41 Potted 2017 seedlings, progeny from the grafts in EOBSO1 were planted in 3 seed orchards to monitor for canker tolerance.
- Orchard Management includes irrigation, pest control, cover crop management and also late winter pruning. This pruning corrects crown issues and when done in late March the twigs can be grafted to increase numbers of certain grafts (see before and after here)



#### Landowner Outreach to find Archivable Trees

Heather Zurbrigg contacted agencies across southern Ontario to assist in our search for healthier trees to consider archiving, particularly in western Ontario (see gaps in map below).

- Over 25 landowners were contacted and FGCA was permitted access to the properties
- 23 properties were visited by expert BHAs and 15 single tree assessments were done;
- 10 trees that were found to be of archivable quality and FGCA has put these trees into a ranked queue for Archiving and up to 12 will be used in the April 2018 FGCA grafting season.

#### Funding Agreements

- In 2019 - agreements to archive 18 trees with grafting starting in April 2019
- In 2020 - agreements pending to archive 18 trees with grafting starting in April 2020
- 2 Landowner outreach and archivable Tree Search agreements
- MOU with MNRF OFRI to administer the DNA testing program

#### Government Liaison

**Heather Zurbrigg** and **Barb Boysen** participated in the following:

- Discussions with Parks Canada on Butternut management and planning to train staff in assessment
- Communications with MNRF re the FGCA Recovery Program to limit misinterpretations about recovery practices, including an April 2018 Open House at FGCA Archive Program facilities for MNRF staff.
- An agreement with the MNRF to deliver the Butternut Health Assessor workshops in 2019
- Submission to the ESA 10-year review to MNRF and via the Environmental Registry.

#### Ash Conservation

**Melissa Spearing** joined University of Guelph Arboretum staff in southwestern Ontario last fall for lingering ash surveys and seed collection. Results included:

- 36 tissue samples of all 5 native ash sent to Canadian Forest Service scientists for DNA testing to profile the rare survivor trees that are persisting long after EAB has swept through an area.
- Incredibly, also 3 seed collections (average 700 seeds) from within the EAB-affected zone (one blue ash and two green ash) to send to the NTSC for evaluation including cleaning and germination tests.
- An Ontario Woodlot Association article to give woodlot owners hope
- An FGCA webpage - <https://fgca.net/2018/09/help-us-find-ash-seed-and-eab-survivors/>



## Climate Change Adaptation

### Climate Change Strategy

FGCA continued to support SFL staff in their use of the Strategy (2016). **Melissa Spearing** and **Barb Boysen** met several SFL staff in January to review how FGCA could be of assistance with genetic resource management and in particular Climate change adaptation and seed. Plans were made to work with one specific SFL – Nipissing Forest Resource Management to help them adapt their plans and operations. The strategy was also promoted in general across southern Ontario and resulted in plans for a similar project with Essex Region CA.

### Climate Change Assisted Migration

#### Assisted Migration Trials

- FGCA relied on the local trial owners to maintain the southern Ontario oak trials. It is early to expect significant results regarding differing adaptation that would not also be affected by stock type and quality. We undertook the first measurement and analysis of the oldest oak trial in Woodstock in early November 2018, with in-kind support from Dr. Emma Davis from the University of Guelph Arboretum. Phenological observations showed Tennessee stock in particular failing to shut down late season lamas growth compared to local and Pennsylvania stock, resulting in significant dieback episodes.

#### White Pine Assisted Migration and Seed Production Areas

- We are working with SFL partners and using the clonal seedlots obtained from the Cayuga white pine seed orchard to establish a series of seed production areas within central Ontario. These will both serve as assisted migration trials but also could be high quality seed production areas of southern material, and address seed needs well into an uncertain future. 160 clonal seedlots were stratified and sown at the Ferguson Forest Centre this year, intended for planting in 2020.
- We are also working on establishing plantations with similar stock among local stock to serve as assisted migration trials and potentially as seed production areas.

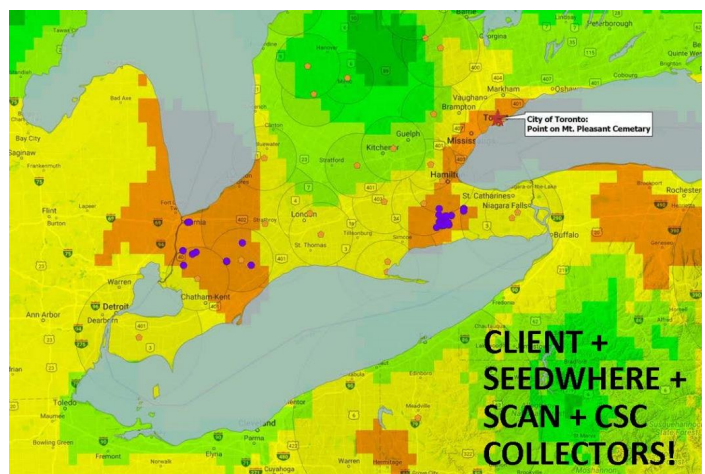
### Bringing it all together to create climate change resilient forests

Much of our work overlaps and creates a system to help us adapt to climate change. Melissa's slide here is an example of our various programs and tools coming together to help, in this case, a City of Toronto client.

Clients can be provided with:

- Regional sources to target for seed collection now and under climate change,
- Good seed collection sites within those areas from our SCAN database, and
- A network of trained collectors to help them collect the seed.

Finally, our *Ontario's Natural Selections* seed source certification program can provide oversight to the now private sector links in the chain of custody handling that seed, so the client is assured of its source.



## Administration:

**Heather Zurbrigg**, our Species Conservation and Administration Coordinator is managing our increasingly complex administration program from employee supervision to Board support to financial systems.

### FGCA Board of Directors

- The Board directed us via google hangouts, email and meetings in June/October/ February and March.

<b>Gary Nielsen</b>	Forest Consultant, Elected June 2018, President, FGCA Executive Committee
<b>John Enright</b>	Upper Thames River CA, Board member appointed by Conservation Ontario
<b>Matt Mertins</b>	Mazinaw Lanark Forest Inc., Board member appointed by SFL members
<b>Kerry McLaven</b>	Forests Ontario, Elected June 2016, FGCA Treasurer, FGCA Executive Committee
<b>Terry Schwan</b>	Forest Consultant, Elected June 2018
<b>Aron Fazekas</b>	The Arboretum, University of Guelph, Elected June 2018
<b>Ed Patchell</b>	Ferguson Forest Centre, Elected June 2016 FGCA President, FGCA Executive Committee
<b>Steve Smith</b>	Forest Consultant, Elected June 2016
<b>Rob Davies</b>	Essex Region CA, Elected June 2016
<b>Dave Harbec</b>	Somerville Seedlings, Elected June 2018
<b>Nancy Young</b>	City of Ottawa, Elected June 2018
<b>Kristen Sandvall</b>	Tree Seed Expert, southwestern Ontario, Elected June 2018

Some changes included Ed Patchell stepping down as our President after many years of leadership, but thankfully agreeing to stay on the Board to continue to provide great input. Gary Nielsen agreed to move up from Vice-president to President and Matt Mertins agreed to take on the Vice President role. Glenn McLeod another long time Board member and FGCA Secretary also decided to retire – we thank him for his unwavering support. Nancy Young agrees to take over Glenn’s role as Secretary. Kristen Sandvall was newly elected and provided welcome input from the challenging world of tree seed and Carolinian Forests.

### NFP Corporation

Minutes were kept; Financial Reports reviewed, and Insurance maintained.

### Financial Management

Heather Zurbrigg oversaw the transition of our books to a new system of Quickbooks, Telpay and Paypal. As per new Ontario Not for Profit Corporation legislation Heather is steering us through our first full financial audit.

### Human Resources

We initiated a Human Resources Plan to better support our team of passionate, hard-working staff.

Barb Boysen	General Manager (contractor)
Heather Zurbrigg	Species Conservation & Administration Coordinator (employee)
Melissa Spearing	Seed and Climate Change Program Coordinator (employee)
Greg Bales	Central Ontario Operations Manager (part time employee)
Madelaine Danby	Central Ontario Operations Technician (part time employee)
Briana Heuvig	Eastern Ontario Operations Technician (part time employee)

### FGCA Office

The FGCA maintained an office at the Ferguson Forest Centre at 275 County Road 44, Kemptville Ontario K0G 1J0