Forest History Ontario

Forestory

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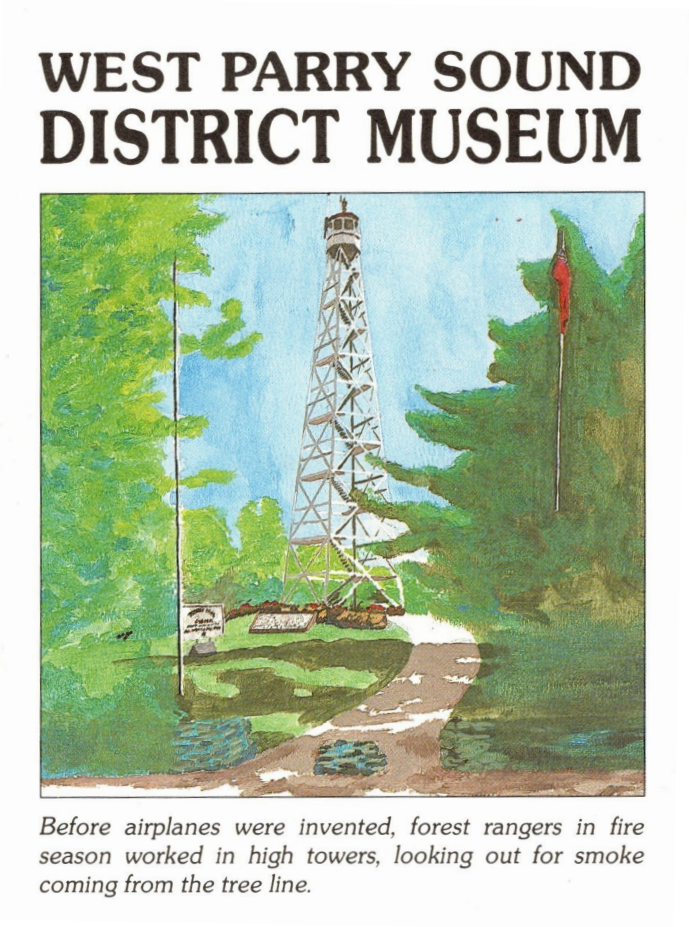
Contents

Canada's First Permanent Sample Plots, the 2023 Forest History Tour, and much more



Before airplanes were invented, forest rangers in fire season worked in high towers, looking out for smoke coming from the tree line.

Courtesy of West Parry Sound District Museum.
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Do you have an interesting story to tell about some aspect of forest history in Ontario? Or are you prepared to write an article for the newsletter on some aspect of forest history? Do you know of interesting photographs, documents, websites or other items that would be suitable for inclusion in the newsletter? Do you have a comment about something you read in a previous issue? If so, contact Journal Editor, Caroline Mach, R.P.F., at editor@fhso.ca. Deadlines are April 1 and October 1.

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Chair's Message

By: Jim Farrell

As I gaze out my home office window (I know, I should be working) looking at the local tree cover in my suburban Ottawa neighbourhood, I am amazed to see the trees looking very healthy, robust and ready to pop their buds. That is certainly not the scene of a couple of weeks earlier when everything, including trees, were coated with a thick layer of ice, and branches and trees were snapping off and falling over and power was lost in some parts of the region for days. Today, at a quick glance, it looks pretty much as it should….unless you look closer or travel to other parts of the city and countryside. Before the May 21, 2022 derecho, it was possible to see remnant impacts of the 1998 ice storm that hammered the region…and beyond. These are the history making weather events that are shaping the nature, composition, structure and future of many of our local woodlands and urban trees. The only thing we know for sure is that these events will increasingly become frequent but unpredictable crises for our forests, of a scale and scope that will have short- and long-term impacts with recovery after each event becoming increasingly challenging.

On a more upbeat note, I am pleased to report that our virtual AGM on February 9 was a great success with attendance of 24 members with another few engaging through proxies. We were able to announce and celebrate the successful overhaul of our website, confirm our working name as Forest History Ontario, note that our finances have taken a hit with the website project and welcomed a new Board member, Terry Schwan, R.P.F. (Ret.). Board member Faye Johnson, R.P.F. challenged all members to go through their archives and send her at least five photos (with captions). Faye is delighted with the response and has been loading them up on the Gallery section of our website. Keep them coming.

On February 17, in conjunction with the annual Forests Ontario conference 'Growing a Healthy Tomorrow', in Alliston, Ontario, Forest History Ontario hosted a very well received panel of expert speakers on aspects of Ontario's forest history. First up was Patricia Baldwin a UofT graduate forester and long standing FHO member who provided a very well researched retrospective of Indigenous use and relationship with forests and lands across southern Ontario and some impacts that can be observed today. Her presentation was titled **'Effects of Aboriginal Land Use**

(Continued on page 4)

on Forest Development' (in southern Ontario). This was followed by Danijella Puric-Mladenovic, Assistant Professor of forestry at University of Toronto whose expertise is on the planning, conservation and monitoring of settled landscapes. Danijela offered a very well described historical perspective on the nature and extent of forest cover across southern Ontario, pre-settlement as compared to today and some insights as to how these can be identified and perhaps re-established in future with careful research and management. Her presentation was titled **'Changing Southern Ontario Landscapes from Pre-settlement to Today'.** Our final speaker was Andrew Gordon, Professor Emeritus at UofG School of Environmental Sciences and expert in agroforestry and forest ecology. Andy presented a fulsome and entertaining picture of the history, ecology, morphology, distribution and uses of red spruce in Ontario and beyond. He had the personal benefit of many insights on red spruce given that as a youngster he worked with his father, Dr. Al Gordon, on researching red spruce across North America and Europe. His talk was titled **'Red Spruce in Ontario: A Tree of Unusual Qualities'.** All of these presentations can be found on our website at this link: www.fhso.ca/research-explore/videos/historical-forest-landscapes-across-southern-ontario.

Mark your calendars for our next event which will be **a June 9, 2023 field tour of the St Williams area forest history** led by some of Ontario's foremost experts on the subject. Track updates and information on registration on our website. You can register by contacting Brooke McClelland bmcclelland@forestsontario.ca and if you have any questions about the tour, please contact Terry Schwan, R.P.F. (Ret.) schwell1@rogers.com who is organizing the tour. (Editor's Note: See page 27 for more details about the tour.)

As our coffers are running a bit low these days you are invited to donate to the FHO and encouraged to spread the word about FHO to expand our membership. Thanks for your ongoing support.

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What We Can Learn From Canada's Oldest Forest Sample Plots

By: A. Stinson, M. Scott, and Petawawa Research Forest Staff

Background

Petawawa Research Forest (PRF) located near Chalk River, Ontario is home to Canada's oldest continuously measured permanent sample plots (PSPs). These plots were set up in 1918 (PSP 1) and 1926 (PSP 2) in young natural white and red pine dominated stands of fire origin, stands that are now 144 years old. These permanent sample plots had tagged trees and were remeasured at least 18 times since their inception. This includes spatial mapping of all trees in both plots and following rigorous scientific measurement protocols. The plots were set up as paired plots. PSP 1 was setup to record the impacts of forest management. PSP 2 was set up to monitor conditions in a stand that is influenced by natural processes with no harvesting taking place. PSP 1 has been harvested seven times using partial harvest techniques commonly used in uniform shelterwood silviculture, cutting the smaller trees, especially those with defects. PSP 2 has had no human interventions. This overview contains some interesting observations that are based on measurements and analysis done in 2016 by Margaret Scott. It is understood that the following observations are based on a small sample size and represent a case study. Nonetheless, they provide some interesting trend through time observations that for such long-time frames, are rarely available in Canada's forests.

Sign for PSP 1 at the PRF (photo credit: Jen Dickman)

PSP 1 (numerous thinnings)

Sign for PSP 2 at the PRF (photo credit: Jen Dickman)

PSP 2 (no thinnings)

Partial Harvesting Captures Mortality

The total observed mortality since 1918 in PSP 1 (harvested) is 50 m^3/ha. Meanwhile, in the unharvested plot (PSP 2) the total observed mortality is 420 m^3/ha. PSP 1 has been harvested seven times capturing a total accumulated harvest volume of 445m^3/ha. Many of the harvest operations were thinning and improvement cuts, with a regeneration cut occurring in 1941. This cut was partially successful, and another regeneration harvest was required in 2015. In 2015, PSP 1 had a current standing volume of 335 m^3/ha. This is in comparison to PSP 2's standing volume of 604 m^3/ha. The natural mortality in the unharvested plot was 8.4 times higher than in the harvested plot. It appears that much of the volume harvested and converted to wood products would otherwise have been mortality. Additionally, many of the wood products produced from pine forest are of high value and long lasting, thus some of the wood products from the seven earlier harvests might still be storing carbon.

PSP 1 Partial Harvest Record

Harvest Year	Harvest Type	% Basal Area Removed	Vol. m^3/hectare (refers to residual volume)
1918	Thinning	14%	23.0
1933	Thinning	27%	74.5
1941	Regen Cut	38%	101.4
1959	Thinning	8%	21.1
1969	Thinning	30%	92.1
1989	Salvage	7%	24.9
2015	Regen Cut	24%	107.9

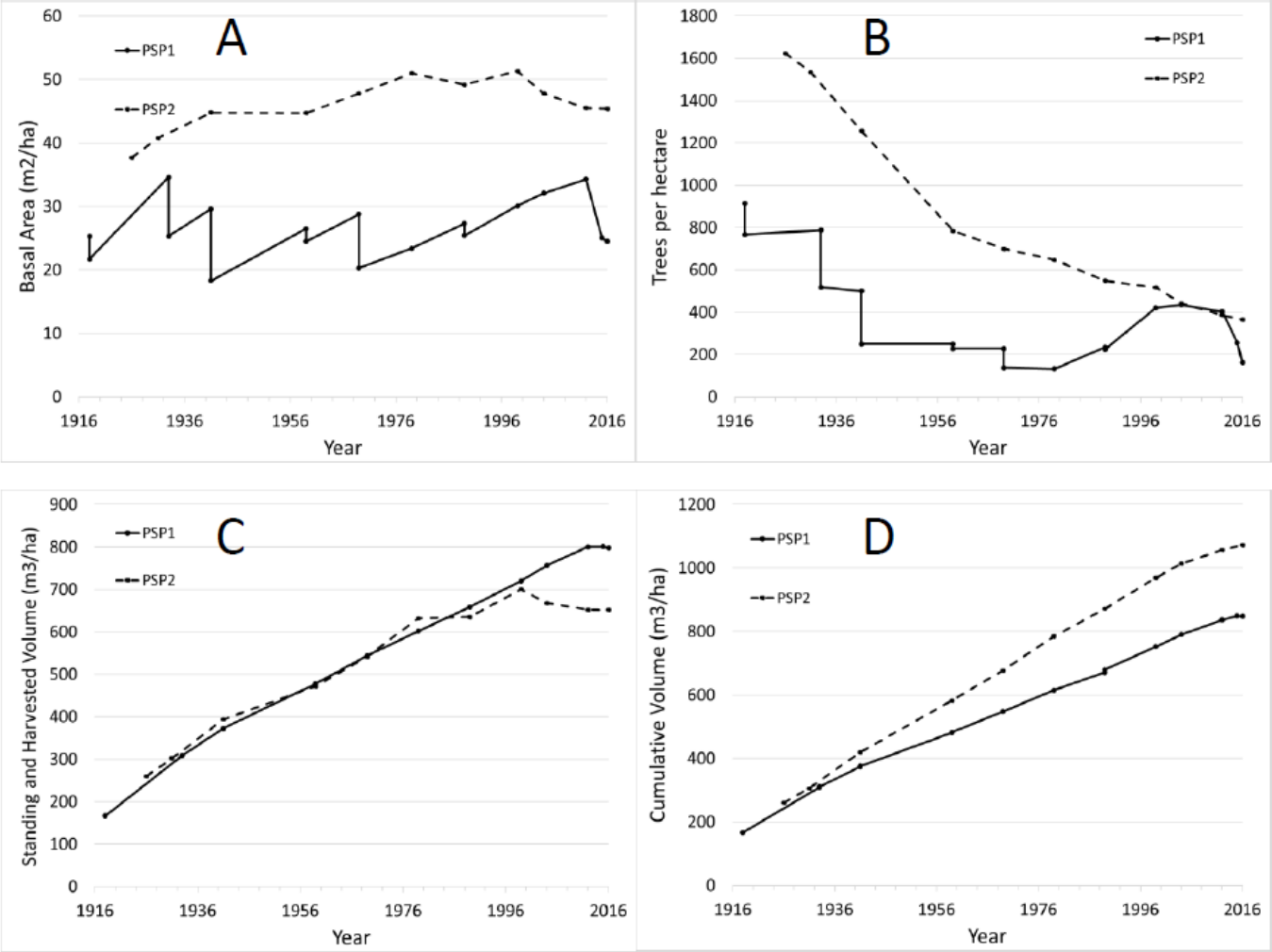
Stand Characteristics of PSP 1 and 2 Based Upon Measurements in 2016

Attribute	PSP 1 (Managed)	PSP 2 (Unmanaged)
Diameter at Breast Height (DBH)	59 cm (over story 55-75)	40 cm (over story 25-55)
Periodic Annual Increment (PAI) (1999-2016)	5.7 m^3/ha/year increasing	-2.8 m^3/ha/year declining
Initial Volume	Year established 1918-167 m^3/ha	Year established-1926-260m^3/ha
Harvested Volume	Harvested 445 m^3/ha (7 harvests)	No harvest
Volume 2016	Standing 335 m^3/ha	Standing 604 m^3/ha
Downed Wood measured in 2016	23 m^3 /ha	183 m^3 /ha
Mortality measured plot establishment to 2016	50 m^3 /ha	420 m^3/ha
Basal Area (B.A.) per hectare	24 m^2/ha (81% AGS)	45.5 m^2/ha (62% AGS)
Tree per hectare	190 stems/ha.	400 stems/ha.
Mean Tree Sawlog Volume	5.1 m^3	1.6 m^3

AGS (Acceptable Growing Stock)- Trees that exhibit good quality, vigour, and healthy characteristics
UGS (Unacceptable Growing stock)- Trees that exhibit poor quality and unhealthy characteristics
B.A.- Basal area per hectare of the total cross-sectional area of stems at 1.3 metre height
Morality- Total volume of stems dying from natural causes between 1918-2016
Cm-Centimeters
Ha- Hectares
PAI- Periodic Annual Increment (Volume Added – Volume lost due to mortality) over a given time period

The Harvested Stand Continues to Exhibit Positive Net Growth, The Un-Harvested Stand Exhibits Negative Net Growth

It appears the unharvested plot has reached the age of senescence where mortality exceeds growth since 1999, when the stand was approximately 120 years old. The periodic annual increment (PAI) from 1999-2016 was negative 2.8 m^3/ha/year for PSP 2. Conversely, in PSP 1, the plot partially harvested 7 times, exhibited positive net growth during this same time period with a PAI of 5.7 m^3/ ha/year from 1999 to 2016. Based only on growth rates, the trees of PSP 1 remain a carbon sink since 1999 while PSP 2 has become a carbon source.

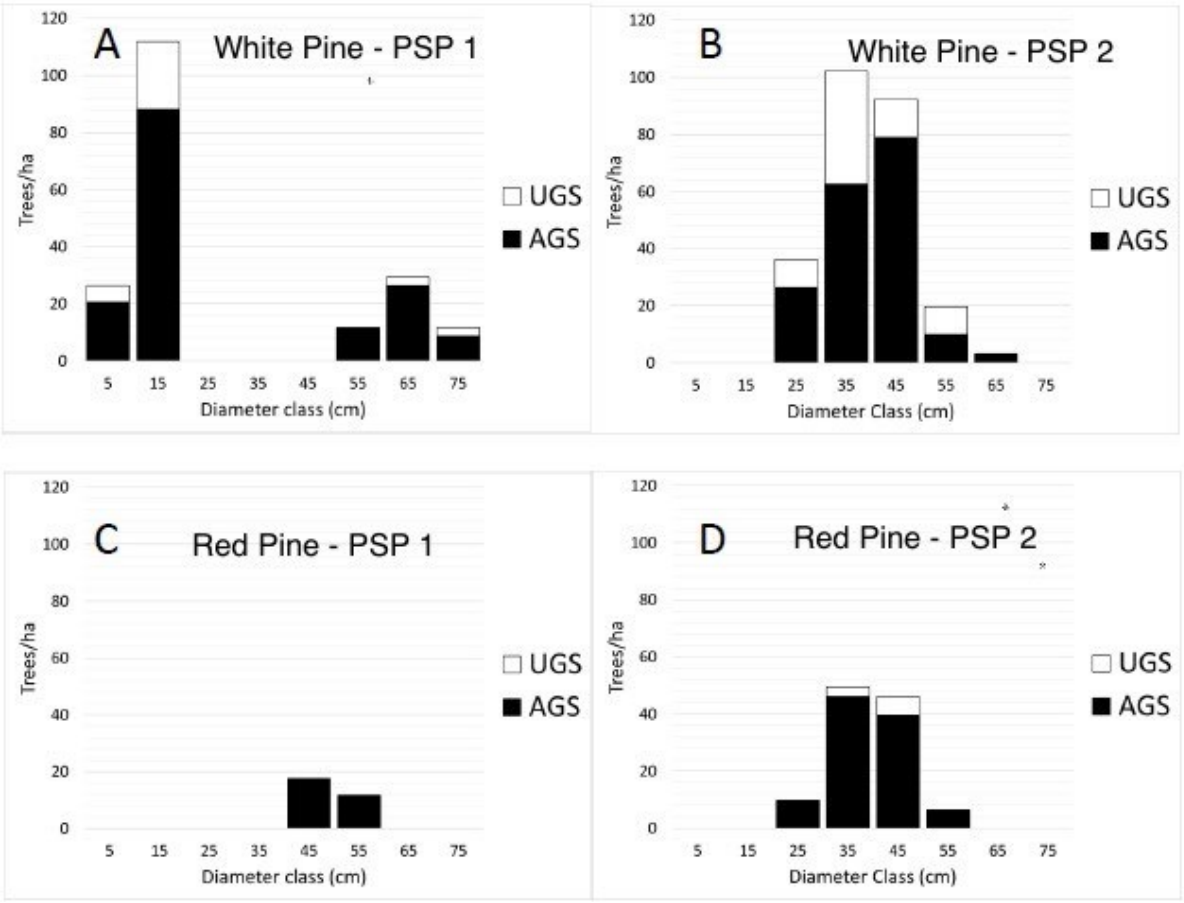


Stand characteristics of the two permanent sample plots A = Basal area (m2/ha). B = living trees/ha. C = Standing plus harvested volume (m3/ha) and D = Standing plus harvested volume – natural mortality of stems (m3/ha)

Harvesting Influences Structure and Diameter

There are vast differences in diameter and forest structure observed between these two plots. The harvested plot exhibits two distinct cohorts of diameter classes. These have resulted from the partial harvest treatments; these treatments stimulated an understory of white pine regeneration that currently has an average diameter at breast height (DBH) of 15 cm. Meanwhile, the overstory in PSP 1 has a very large average DBH of 59 cm with a range of 55-75 cm DBH. The unharvested plot (PSP 2) has just one structure cohort of overstory trees with an average DBH of 40cm and a range of 25-55 cm DBH. The much larger average tree size in the harvested plot can be attributed to a common partial harvest silvicultural practice of thinning from below. This practice targets the removal of small diameter trees with each partial harvest intervention.

Diameter Distributions Red and White Pine (PSP 1 and PSP 2)



Diameter distributions of white pine (A) and red pine (C) in PSP1 before site prep in 2016; diameter distributions of white pine (B) and red pine (D) in PSP2 in 2016. PSP1 and PSP2 were the first two permanent sample plots at the PRF, established to study white and red pine management. Tree classified as acceptable growing stock are shown in black and trees considered unacceptable growing stock are shown in white. Diameter classes 5, 15, 25, 35, 45, 55, 65, and 75 are <1-, 10-<20, 20-<30, 30-<40, 40-<50, 50-<60, 60-<70, and >70 respectively.

Differences in Downed Wood

There were significant differences in observed downed wood between the harvested and unharvested plots. The unharvested plot had 182 m^3/ha of downed wood. As well, the unharvested plot contained all the decay classes including advanced decay classes. After mechanical site preparation to prepare a seed bed for white pine, the harvested plot had 23 m^3/ha of downed wood present. Additionally, there was no downed wood in the advanced decay classes of 4 and 5. The downed wood in the harvested stand post-harvest (but pre-site preparation) was 40 m^3/ha. Downed wood is a reservoir for arthropod, fungal and plant biodiversity, the unharvested sample plot has 7.9 times more downed wood than the harvested PSP, and it is in a more advanced decay condition. The natural disturbance regime for this forest type is fire. The fire is usually a low intensity fire that predominantly burns in the understory leaving many of the thick-bark overstory trees alive after the fire. The typical fire cycle for this forest type is between 80 to 100 years. Fire has been excluded in both sample plots; however, fuel loading is much higher in the unharvested PSP 2. In this plot there is currently 182 m^3 of downed wood per hectare. The fuel loading in the harvested PSP 1 is much lower at 23 m^3 per hectare. This would lead to a much more intense fire crown fire in the unharvested plot if fire were to be introduced.

Stocking and Quality Differences

The unharvested plot had a much higher number of stems per ha (10 cm DBH and larger), at 400 stems per ha., while the harvested plot had 190 stems per ha. after harvest in 2015. The basal area was also very different between the two plots. The harvested plot had a post-harvest basal area of 24 ^{m2}/ha while the unharvested plot had a basal area of 45.5 m^2/ha. The quality of the trees present in 2015 was also vastly different between the two plots. Quality is defined by the percentage of trees that are considered acceptable growing stock (AGS). AGS trees are high quality trees that are in a healthy condition. In the unharvested plot, 62% of trees were identified as AGS. Meanwhile, in the harvested stand, 81% of trees present after harvest in 2015 were identified as AGS. The stocking and quality differences can be attributed to the partial harvest silvicultural tree marking practices. The harvested stand had a trained and certified silvicultural tree marker select trees for removal to target a residual crown closure conducive to regenerating white pine, thus resulting in a targeted lower residual stocking. In addition, where possible, partial harvest tree marking targets retention of AGS trees. Therefore, this would contribute to the higher quality in the residual trees in the harvested plot.

White Pine Acceptable Growing Stock (AGS)

White Pine (forked) Unacceptable Growing Stock (UGS)

Economic Values

In PSP 1 there have been seven harvest treatment since 1918. These treatments captured a volume of 445 m^3/ha. Additionally, the standing volume of remaining trees in 2015 was 335 m^3/ha. In total, the accrued volume was 800^{m3}/ha. The residual trees on PSP 1 are also very large with the over story diameters (DBH) ranging from 55-75 cm. Conversely, PSP 2, where there has been no harvesting, had a current standing volume of 604 m^3/ha. Additionally, the overstory trees in this plot have a much smaller diameter ranging from 25-55 cm DBH. The mean tree sawlog volume in PSP 1 is 5.1 ^{m3} and in PSP 2 the mean tree sawlog volume is 1.6 m^3. Large trees have a much higher economic value that small trees. This is because as tree size increases logging costs are reduced, and lumber recovery increases with tree size. Based on the increased volume and tree size from PSP 1 it is estimated that the existing standing volume and accrued volume would be worth approximately $56,000/ha on the stump. PSP 2 with smaller diameters and a lower total volume per ha produced would be worth an estimated $24,000/ha. These estimates are in 2022 dollars and do not account for the fact that some additional value from PSP 1 was earned decades earlier.

Social Values

One of the most important values provided by old forests are the social values that they represent. This is a difficult value to quantify, as the definition of old forests and the important values they represent vary widely. For some, the definition of old growth is simply an age. For others, it is a forest condition. Many associate the old forest definition with large, tall trees. Regardless of one's definition of old growth, PSP 1 represents a forest with larger, straighter, trees that have large crowns that might stimulate feelings of awe compared to PSP 2. The overall state of PSP 2 has declining wood volume since 1998. However, PSP 1 continues to produce positive net growth and has 81% healthy AGS trees that were continuing to store carbon, while PSP 2 had become a carbon source. PSP 2, however, has more downed woody material which will lead to higher biodiversity of species that thrive on decaying wood.

PSP 1 Canopy

PSP 1 Canopy (photo credit: Jen Dickman)

PSP 2 Canopy

PSP 2 Canopy (photo credit: Jen Dickman)

Summary
PSP 1 and 2 in the Petawawa Research Forest allow a long-term case study of different management of an eastern pine forest. The rigorous scientific methodology, following growth and mortality of tagged trees, over a 104-year span, allowing us to report on two very different paths of stand development.

Acknowledgments
This information bulletin has been made possible by analyses done by Margaret Scott in her capstone paper for the University of Toronto Master of Forest Conservation program. To collect and analyze data in a forest setting for 104 years is an incredible accomplishment. Many generations of researchers, forest technicians, and students have contributed to this effort. The original plots were established in 1918 by W.M. Stiell, others that maintained the analysis and measurements are Darwin Burgess, Craig Robinson, Steve D'Eon, Peter Arbour, Margaret Scott, Elizabeth Cobb, Jay Malcolm, and Mike Hoepting. Also, there are many unnamed forestry staff that deserve recognition for their dedication and efforts in the maintenance, measurement, and analysis, of these plots for the past 104 years.

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PINUS STROBUS—The Narrative

By: Roger Miller and Fred Holmes

***Pinus strobus* or Eastern White Pine.**

Editor's Note: Part 2 of the Narrative is scheduled to appear in Forestory, Volume 14, Issue 2, Fall, 2023.

In 2017, Roger Miller and Fred Holmes published *Pinus Strobus, The Commercial Pine Sawmills of the North Channel and Georgian Bay, 1852-1930's, A Chronology* that followed 24 sawmill sites from their birth to cessation. With prompting from Laurentian University Professor Mark Kuhlberg, here is our Executive Summary as a *narrative*.

The Thompson Sawmill at Sturgeon Bay set the motion of entitlement that contributed to the early sawmills being erected. Samuel Jarvis, former Indian Superintendent (1836-1845), and member of the Family Compact bought lots from War of 1812 veterans to accumulate 200 acres on which Charles Thompson built a water powered sawmill about one mile up the Sturgeon River in 1848. Following Jarvis' death in 1857, his widow later sold the mill to successor owners from Batavia, New York. The sawmill eventually became owned by James Playfair of Midland and in 1891 it was destroyed by fire. A shingle mill replaced it but by 1899 it was dismantled and moved to Midland. In 1874 on adjacent lands, Wm. Tanner of Fonthill, Ontario, built a steam sawmill on the eastern side of Sturgeon Bay and operations continued through successor owner, Manley Chew, until it was destroyed by fire in 1913.

Mill at Port Severn, 1895.

Port Severn's sawmill began as a water powered sawmill built by the Province of Canada government in 1830 for the First Nation living on the Coldwater Reserve. This was part of the experiment to change the First Nation people from their way of life. By 1836, the First Nation surrendered the sawmill and it sat vacant until purchased in 1850 by Wm. B. Robinson of Toronto. Operated by various parties, it continued until hit by lightning in August 1896 with the resulting fire destroying the sawmill, store, and storehouse. With only an estimated two-year log supply remaining, it was not rebuilt. Sadly, the road warriors on the southern Ontario to Muskoka-Parry Sound cottage run likely have no idea what a large operation once existed on both sides of Highway 400 at the Severn River overpass. Schooners, tugs, and long wharfs once defined the waterfront and, on an island, upriver of today's locks, sat the sawmill and its old beer bottle shaped burner.

The first sawmills were built in Canada West before the Dominion of Canada was constituted on July 1, 1867. J.W. Keating, Indian Agent and a Provincial Land Surveyor (PLS) was described by Rhonda Telford, PhD. in a Carleton University Library holding as a *corrupt sycophant*. Keating was also a member of William M. Robinson's team negotiating the Robinson Huron Treaty of 1850 and in

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Collins Inlet Sawmill.

Dr. Telford's words, the man responsible for changing the treaty text word *leagues* to *miles* thus shrinking the size of each First Nation reserve. Keating obviously knew Samuel Jarvis, a man whose name adorns a major artery in Toronto.

As a PLS, Keating was well familiar with the north channel shoreline, reserve boundaries and streams that could power a sawmill. Though his motivation was not understood, Keating and partner Davis of Chatham built and operated a water powered sawmill on the Beaverstone River which emptied into Beaverstone Bay on today's Small Craft Route Chart 2204, the Byng Inlet to Killarney run, west of Point Grondine. Keating had applied for a timber license in February 1851, just months after the signing of the Robinson Huron Treaty. Timber licenses for the north shore were not granted until 1871, but this was Canada West and Keating acted as if he had a license. The Diary of Duncan Macdonald, a man of many hats over his life, noted that the timber was on First Nations land. A spring freshet took out their dam and a sale to Wadell and Murray of Goderich gave these men a sawmill and no power. They promptly moved the sawmill machinery west to adjacent Collins Inlet at the mouth of the Mahzenazing River and by 1855 were exporting lumber to U.S. ports. Ownership of the sawmill changed hands often through to 1918 when the sawmill and box factory were destroyed by fire and not rebuilt by then owner, Collingwood's Charles Pitt.

In today's world of plastic bags/containers and cardboard it is easy to forget that wood boxes preceded these. Box factories used wood leftovers from making lumber to construct boxes that contained staples such as fresh iced fish, apples, eggs wrapped in sawdust etc. Most sawmills would have constructed a box factory at some point with some including a shingle mill.

Was he a dabbler? William Basil Hamilton (First Mayor of the Town of Collingwood, 1858) acquired timber limits on the Musquash River with a mill first located near the first falls in 1853. Situated deep in the Cognashene area north of Honey Harbour, these falls disappear when Georgian Bay rises in its cycles. Local cottagers and recreational boaters are familiar with this sawmill site and snorkelers can swim over the sunken vessels left behind when the mill closed in 1895. Cris Kohl's book *Dive Ontario* gives vessel specifics for the curious. Hamilton sold in 1857 to Charles Kelly of Hamilton but imagine Kelly's shock when he learned that Hamilton had not bought the land the mill stood on.

River Drivers Near Blind River.

I suggest Hamilton was a dabbler, not the first in those early years of harvesting *Pinus strobus*. Eventually this location became known as Muskoka Mills and continued through various owners before being forced to close due to sawdust pollution affecting fish spawning grounds. This sawmill had no sawdust burner and instead filled back bays, letting some get dispersed by the

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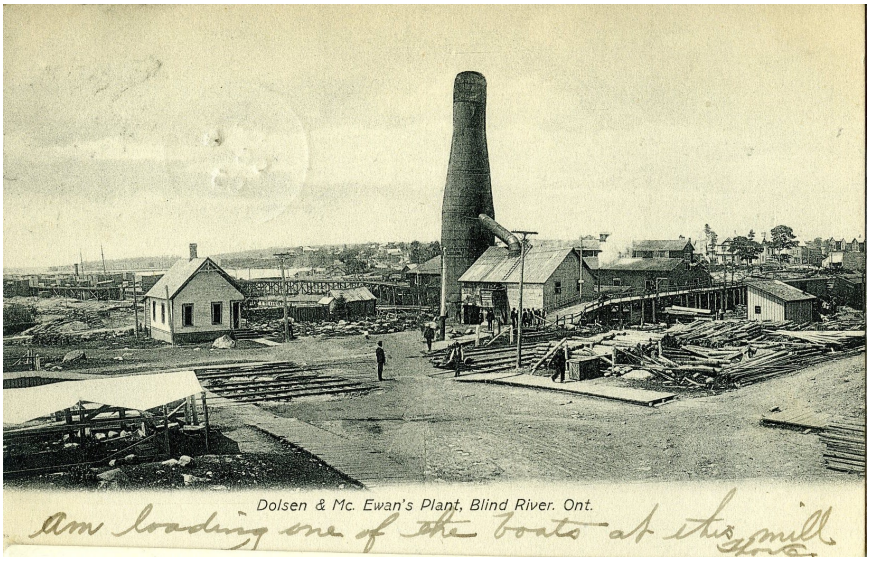
Musquash River current.

Blind River was another early sawmill, starting in 1853 with production output sold to the copper mining community at Bruce Mines. With a few hiccups, Blind River grew with multiple owners and in 1899, an influx of Americans built a sawmill on the west branch of the Blind River, the 1853 sawmill and successors being on the east branch. Today, this American built sawmill still stands and sits idle as a visual testament to Blind River's past. Its iron burner attracts the curious, especially those who have never seen a real burner. Logs came down the Mississagi and Blind Rivers. The American built mill was, by 1936, Canadian owned and operated to 1969, giving Blind River a span of 116 years inclusive of short stoppages.



Blind River Dolsen & McEwan Mill.

In 1856, two surveyors, Wm. & James Gibson were granted 100 square miles of timber on the Sequin River in lieu of payment for survey work. They opened a water-powered sawmill at the river mouth and created the community of Parry Sound. In 1863 the Gibsons sold to James & Wm. Beatty of Thorold and the Beattys put Parry Sound on the map. To prevent liquor consumption, the Beatty covenant was added to each deed in the town site which prevented the sale of liquor on the premises. This mill in its final form was closed in 1910 and destroyed by fire in 1917 and not rebuilt. Two other sawmills continued before closing in 1915 and 1921.

In 1860, a sketchy operation commenced on the Serpent River, upstream from the north channel. Surveyor records and a community "newspaper", the Bush News, noted dwellings at the first bend of the river and by 1866 the bark *Thermutis* had unloaded 2 million board feet at Detroit. With the Indian Office, Ottawa, running a timber auction October 31, 1871, it was obvious by 1872, that this sawmill owned by Walsh & Lovey had not secured timber licenses. The Census of 1871 confirmed a 40 hp steam sawmill cutting 11,000 logs. By 1872 the owners abandoned their sawmill.

Thessalon Mill F

Also in 1860, Wm. Hall of Hamilton built a steam powered sawmill at Waubaushene which was to become the future headquarters of the Georgian Bay Lumber Co., an empire to be formed by American citizen alphabet A.G.P. Dodge, Anson Green Phelps Dodge. Dodge had visions of a lumber consortium and began his moves, initially by building a steam powered sawmill in 1869 on Byng Inlet's south shore, aptly named Byng Inlet. Then he started to buy into existing sawmill enterprises

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commencing in 1869 when he bought out Peter Christie at Port Severn, July 1870 when he bought out Wm. Hall at Waubaushene, April 1871 when he bought out Laramy & Co. at Sturgeon Bay, August 1871 when he bought into Collingwood Mills and 1872 when he bought into the Parry Sound Lumber Co., becoming its President.

The lumber market crashed in 1871 and by 1873, Dodge was in sufficient dire financial straits that his father, Wm. Earl Dodge, took over his son's affairs to protect his own financial interests. The need for financial liquidity led to the sale of the Dodge's Sturgeon Bay interests in 1874, the Parry Sound interests in 1877, the Byng Inlet interests in 1892, and the Collingwood interests in 1894, leaving only Port Severn and Waubaushene as the active sawmills by the end of 1894. With the 1896 loss of the Port Severn sawmill, only Waubaushene remained in production until 1920 when it ran out of logs.

Ignoring those sawmills whose life was cut short by fire and not rebuilt, the typical operating sawmill lifespan was between 51 and 68 years. Owen Sound was unique, operating for 78 years with one sawmill remaining under the same family name for the full duration, being Harrison.

A Typical "Brag Load" Webbwood.

Sawmills powered their saws by either water turbine or steam driven engines. Eight Samson Turbine Water Wheels manufactured by Dickey, Neil & Co. of Toronto powered the Port Severn sawmill. On its fourth floor, Science North in Sudbury has a user activated plexiglass model of a turbine water wheel. The "old country" water wheels captured in so many paintings couldn't supply the necessary horsepower to hungry lumber entrepreneurs needing quantity in a short season to sustain their business model. The prevalent power source became steam driven engines using the refuse from their cuttings and their sawdust, and, in later years, coal.

Getting timber to our 24 sawmills involved water, either rivers or log towing tugs. Graves, Bigwood & Co. (Byng Inlet) in its later years also used rail cars to bring logs in from their Pointe au Baril holdings.

Chew Mill Fire.

Tugs were first owned by individual sawmill owners and as the years progressed, pooling among them became common. This led to outsourcing of towing and a James Playfair affiliate company became very active post 1900. The tug *Strathbogie* was a prominent name among the fleet.

Outside of Blind River and Owen Sound, all the other sawmills had

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ceased operation by the early 1930s. Some went violently by fire although the timing appeared suspicious in retrospect. The game was changing, coal became the fuel of choice, freighters were migrating to steel hulls and bulk cargos, wooden schooners were relegated to being towed as barges and the First World War depleted manpower, horses and directed iron firstly to the war effort. We often forget that horses were a significant ally in the war effort in Europe but for the lumbermen, the sawmills couldn't operate without them. Horses were frequently auctioned off by the rail car load each spring from sawmills such as Blind River from 1912-1915, Spragge selling 400 bush horses in 1914, Byng Inlet auctioning 20 horses in 1920 at the Union Stock Yards Horse Exchange in Toronto, and Midland's Mason & Co. in March 1923 selling 60 bush horses. The loss of horses due to accidents such as drowning after breaking through the ice or a stable going up in flames as happened in Owen Sound, May 1908, killing 17 heavy draught horses had the power to significantly reduce a sawmill's cut if not close the mill temporarily.

G-B Mill Byng Inlet.

Graves-Bigwood 1912 Mill Fire F2.

Fire consumed many mills that were then rebuilt with a number only to burn again. Nine of our 24 sawmills succumbed to fire and were not rebuilt: Port Severn (1896), Sturgeon Bay (1913), Algoma Mills (1918), Collins Inlet (1918), John Island (1918), Parry Sound (1921), Cutler (1923), Brennen Harbour (1924) and Spragge (1933). Other reasons to close were: too costly-Blind River, Aird Island; ran out of timber sources-Little Current, Michael's Bay, Owen Sound, Waubaushene; more return on investment through coal, shipbuilding-Collingwood, Midland; not profitable-Byng Inlet, French River, Penetanguishene, Thessalon, Victoria Harbour. Muskoka Mills was a forced closure and Serpent River was a sketchy

A sorting jack on an unknown Ontario river.

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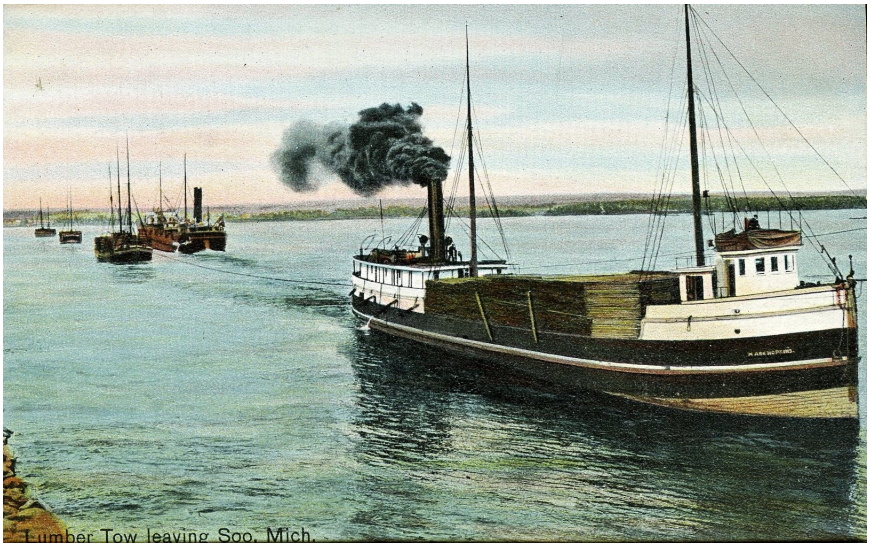
operation. Given the remarkable run of Blind River at 116 years, one needs to note the rise of J.M. McFadden who weaved through various sawmill ownerships and continued Blind River's sawmill after all the others were no longer in business. What was behind the closures? McFadden found timber to cut. Could it be the lack of succession planning? Was it the *Income Tax Act*, that initially was called a temporary tax?

I read the minutes of several slide and boom companies and many minutes of Graves, Bigwood & Co. In many instances, I found William E. Bigwood expressing concern that his personal incentive to run the business had been undermined. Did this tax contribute to his 1923 stroke, a stroke that forced him to stay in Toronto away from his sawmill? Was it the loss of his son Paul in 1917 during WWI? The Business Profits War Tax Act of 1916 taxed companies with accounting periods in 1915-1918 inclusive and taxed individuals from 1917. Both taxes continued thereafter under the *Income Tax Act*.

Among their many income producing sources for the sawmill barons was their shared ownership of slide and boom companies. Constituted under the *Timber Slide Companies Act*, slide and boom companies were formed to build dams with log slides/chutes on rivers their timber limits bordered on. Non-members were forced to pay a toll on each log that came down the particular river and sorted based on log stamp found on the log end. Slide and boom companies included Blind River and Slide Co., Mississagi River Improvement Co., Muskoka Slide Dam and Boom Co., Sable Spanish River Boom and Slide Co., and Spanish River Booming Grounds.



Steamer & Escorts F1.

Some of these companies held their Annual General Meetings (AGM) in December and January each year at the Queens Hotel in Toronto. Photos suggest this hotel was as big as the surviving Royal York Hotel. Before it was torn down, I had the opportunity to attend a corporate Christmas party at what then survived of the Queens Hotel and its former opulence was still evident. The minutes of the various Slide and Boom companies followed a pattern of 10 am morning meeting, 2 pm afternoon meeting, 3 pm drinks with a full course lunch served between meetings. Two companies held their AGM each day and it was quite the old boys club as evidenced by the rotation of President and Vice President titles culminating with the distribution of profits and the setting of tolls for the next season. Little wonder that Wm. E. Bigwood was worried about the *Income Tax Act*-his piggy bank was being raided!

Editor's Note: Part 2 of the Narrative is scheduled to appear in Forestory, Volume 14, Issue 2, Fall, 2023

Mel Swart: Legislative Guardian of Southern Ontario's Forest

By: John Bacher

To a remarkable degree the tripling of forest cover in southern Ontario from a disastrous 9.7 per cent in 1943 over the course of two decades was the work of a handful of dedicated people many of whom were close personal friends. Among these was the Ontario legislator Mel Swart, who worked closely with a band of remarkable visionaries. These included the long time Chief Forester of Ontario, Edmund Zavitz, the long time Norfolk Chamber of Commerce President, Monroe Landon, and one of the most conservationist Premiers of Ontario, John Robarts.

While Mel Swart told me that from his childhood days on farms near London and Smithville Ontario, he had been a "nature lover", what caused him to champion the recovery of forests was a report of the committee of the Ontario legislature. This was the Report of the Select Committee on Conservation published in 1950. Swart kept a copy of the report close at hand throughout his long political career and carefully marked it with his comments.

The Report of the Select Committee on Conservation was released the year before Swart began to serve as a Thorold Township councilor and a perennial candidate for the Co-operative Commonwealth Federation (CCF). Campaigning many times for the CCF and then after 1963 the New Democratic Party (NDP), Swart was eventually able to be elected to the provincial legislature in 1975. He served until 1988 when he retired from politics on his doctor's advice to combat heart problems.

The Select Committee's report was full of dramatic photographs by Edmund Zavitz, which featured images of former desert wastelands transformed into healthy forests. It also gave positive accounts of Conservation Authorities and tree protection by-laws which were growing in the province following enabling legislation passed in 1946. When the report was released none of these institutions existed in the Niagara peninsula. Swart would be inspired by the report's vision to bring them to his community. [1]

Mel Swart was also shaped in his conservationist passions by the attitudes of his employer, Ontario Paper, and its remarkable President, Arthur Schmon. Ontario Paper was owned by a newspaper, the Chicago Tribune, and was located far away from the source of most of the timber for its Thorold mills, which was in Quebec. The company encouraged reforestation in southern Ontario to obtain a closer source of fibre for its operations. For this reason, it bought all the thinnings from trees harvested in afforestation projects, which substantially reduced program costs. [2]

During the time Swart served on Thorold Township Council, (from 1949 to 1965), Thorold Township had many of the problems associated with severe deforestation which were described in the Report of the Select Committee on Conservation. These problems were also found throughout Welland County, on whose Council he was able to serve from his position as either Reeve or Deputy Reeve of Thorold Township from 1952 to 1965. In 1961, for one year, he served as Warden of Welland County Council.

The situation that Swart faced in Thorold Township was summarized well in a 1954 Geography Thesis for McMaster University, written by Ralph Redway. He found that only two per cent of the largely rural township was in forest cover, and most of this was confined to the "very restricted Short Hills area of the Niagara Escarpment." Redway found that there was an extensive "cut over area"

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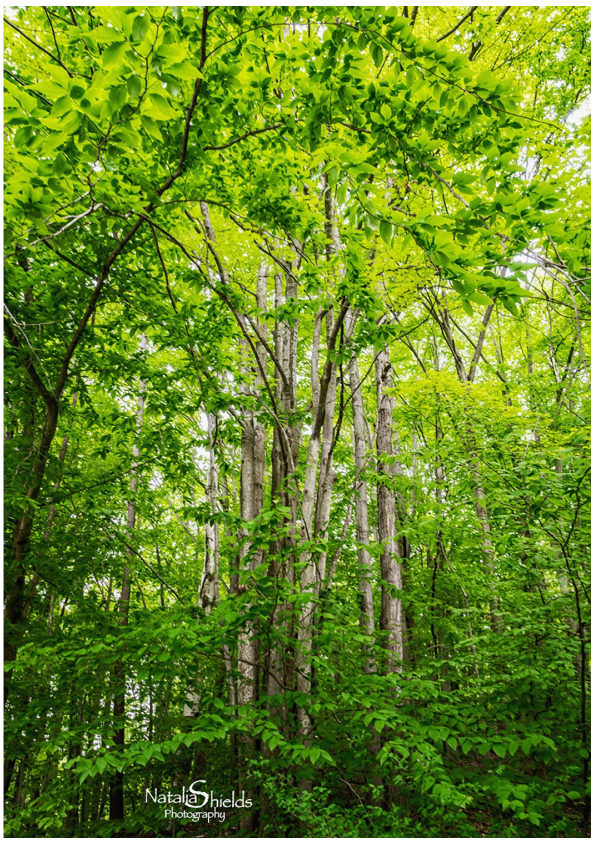
where "severe erosion has wiped away most surface soils." He found that the last cold water stream with brook trout habitat in Niagara, the Twelve Mile Creek, was imperiled. Along its banks Redway found "severe erosion has occurred". He found it had been damaged by "clear cutting in all but the most low-lying areas." [3]

Swart found that low forest cover also plagued Welland County. The Welland Tribune, which was supportive of his conservationist efforts, estimated that forest was, at the time, only six per cent of Welland County's landscape. When he became the Warden of Welland County Swart deplored how this situation "was one of the lowest in Ontario." [4]

Swart was instrumental in a major afforestation project in what later became the City of Welland, it was originally part of Thorold Township, on Merritt Island. The island which now has 50 different tree species recorded, was created as a barren wasteland of fill between the Third Welland Canal (later moved here by the Welland by-pass channel) and the Welland River. Its greening, which later accelerated with the construction of a bicycle trail in 1980, began when Swart organized children to plant 10,800 tree seedlings obtained from the St. Williams Nursery. [5]



Forest at St. Johns Conservation Area in early May. Photo Credit: Natalia Shields

Park creation was an important part of Swart's 16 years as a municipal councilor. As a politician in a rural township near the expanding urban areas of the Town of Thorold and the City of Welland, he was able to rescue two pockets of mature woodlands in the nadir of forest cover in his region. Richmond Street Park in Thorold rescued what had been known as McCartney's Bush, while Maple Park in Welland saved a three-acre forest surrounded by a new subdivision. [6]

Swart's first success in protecting a forest in what would remain a rural settling was in the headwaters of the Twelve Mile Creek in Thorold Township. It is an important groundwater discharge area for Niagara's only remaining cold water brook trout habitat. In 1963 it eventually became an eighty-acre park of the Niagara Peninsula Conservation Authority, known as the St. Johns Conservation Area. The park has fine examples of old growth forests, perpetuating tall Carolinian super stories dominated by white pine and tulip tree. It provides a refuge also for old growth hemlock, sugar maple, red oak, and pignut and bitternut hickory. Here are found 18 species of native ferns. It provides breeding habitat for the endangered hooded warbler. Among the rare species found here are Indian pipe. [7]

St. Johns Conservation Area Woodland Path in Fall.
Photo Credit: Natalia Shields

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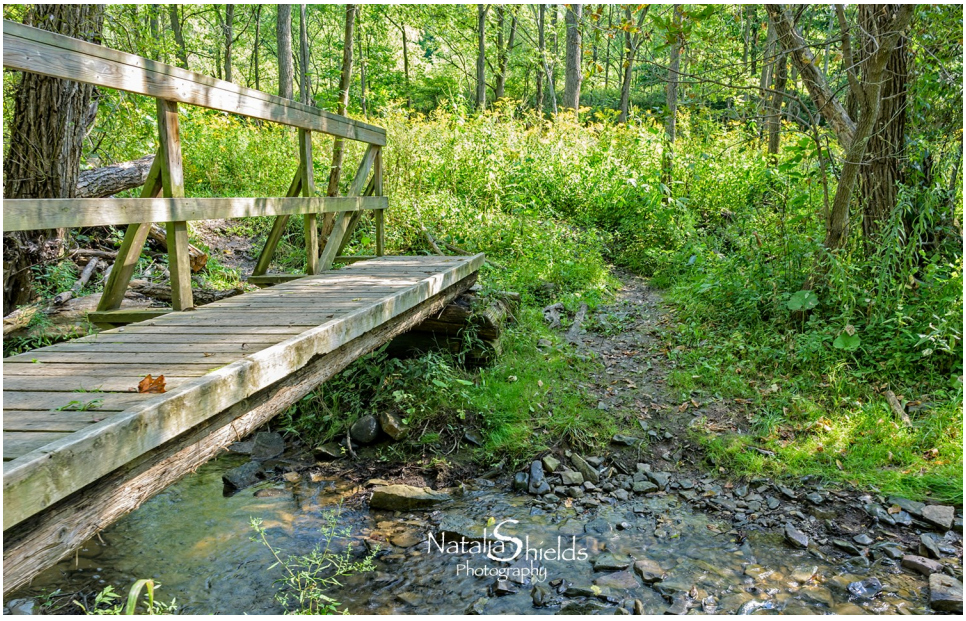
Swart's role in the creation of the St. Johns Conservation Area was tied to his bringing zoning controls made possible under the *Planning Act* of 1946 to Thorold Township. While zoning controls had been commonly applied to cities in Ontario since the early 20th century through special legislation, no such legislation had been applied to the rural townships which, until the emergence of regional governments in the early 1970s, governed virtually all rural agriculturally dominated lands in southern Ontario. When Thorold Township's comprehensive zoning by-law was approved by the Ontario Municipal Board (OMB) in 1959, it was the first such regulation to be established in an Ontario Township. Earlier efforts in other townships were so poorly drafted as to be rejected through judicial appeals. [8]

Tulip Tree at St. Johns Conservation Area. Photo Credit: Natalia Shields

The OMB's approval of Thorold Township's comprehensive zoning by-law on October 14, 1959, was the culmination of an intense six-year process for Swart, while he served as Reeve of Thorold Township. It began on December 11, 1953, when he sent a handwritten appeal to the Ministry of Municipal Affairs. Here he warned that, "We have a large, fast growing urban development in our township that is presenting us with many problems." [9]

After receiving Swart's appeal public servants at both the federal and provincial level acted quickly to work with him to make Thorold Township a model of effective rural land use planning for Ontario. GR Trewin of the Ontario Water Resources Commission (OWRC) sounded the alarm, "That sewage is running all over the township." Working positively with the Minister then in charge of the OWRC, John Robarts, who would subsequently help Swart with other issues, notably the creation of Short Hills Provincial Park. [10]

In the winter of 1959 Swart became greatly relieved that zoning controls were being established in Thorold Township. He received an anonymous tip that a "major pits and quarries operator" was planning to purchase the headwaters of the St. John Branch of Twelve Mile Creek. He immediately summoned an emergency meeting of the Thorold Township Council on January 19, 1959, on a single topic. The Township Council passed three motions. The first was to approve a by-law to "regulate the location of pits and quarries and prohibiting the same in certain areas of the Township of Thorold." This by-law 447 was passed and read three times at this meeting of Council. Secondly, he secured approval from the Township



Footbridge Over Twelve Mile Creek. Photo Credit: Natalia Shields

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Council to purchase land in this area. He was authorized to contact the Chair of the Niagara Peninsula Conservation Authority (NPCA), Francis Goldring, to accept this land in the future for donation for a conservation area park. [11]

Four years following the emergency Council meeting all of Swart's goals for the protection of the St. Johns headwaters area had been achieved. The zoning by-law amendment was approved after public meetings and debate. A full OMB hearing was averted.

Terrace Creek Falls in Short Hills Provincial Park.
Photo Credit: Natalia Shields

The town acquired the 27 acres and transferred it to the NPCA. It used the donated land to create, augmented by its own purchases, the new St. Johns Conservation Area. What proved critical to success was the proper drafting of the zoning by-law prohibiting aggregate extraction. This discouraged the quarry operator from triggering what would have been an unpredictable OMB hearing outside the lands purchased by the Township. [12]

Hikers at Short Hills Provincial Park.
Photo Credit: Natalia Shields

Swart eventually succeeded in protecting significant lands downstream from the St. Johns headwaters through the creation of Short Hills Provincial Park. This was encouraged by his successful collaboration with Francis Goldring on Welland County Council from 1952 to 1958. During these years Goldring was Deputy Reeve of Pelham Township and in in this role served with Swart on Welland County Council.

On April 17, 1956 Swart moved and Goldring seconded a historic motion on Welland County that was carried. It asked, "that we notify Mr. Greenwood of the Department of Lands and Forests that the property of the Short Hills is for sale at a reasonable price and that we ask that steps be taken by the Department or the newly formed parks committee to acquire the land as it contains some of the best waterfalls of the Short Hills." [13]

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Shortly after Welland County Council's motion was approved Greenwood did a survey for the Department of Lands and Forests to acquire lands for the creation of Short Hills Provincial Park. While Swart and Goldring could not convince the government of Premier Leslie Frost to acquire the land, they succeed after John Robarts became Premier in 1961. While the park was not officially established until 1985, acquisition of the 660 hectares, (1,630 acres) began shortly after Robarts became Premier. Now the park is regarded as significant not only for trout, but the now endangered American eel. The park has several stands of Carolinian old growth forests comparable to the upstream St. Johns Conservation Area. Its former farmlands are undergoing natural succession to a black walnut dominated forest [14]

One of the most grueling efforts that Swart undertook to protect forests in Welland County involved his persistent efforts to bring municipal tree by-laws under the *Forestry Act* of 1946 to Welland County. He began these efforts on April 22, 1954, through introducing a Notice of Motion to introduce a tree protection by-law. The idea soon provoked opposition from the Crowland Ratepayers Association. Under the leadership of Horace Killam, the Reeve of Pelham Township, the by-law was also opposed by the Welland County Council Liberal machine. [15]

To counter the intense opposition to the tree cutting by-law, Swart worked closely with his brother-in-law, a successful farmer, Russel Yungblut. This helped to secure support for the regulation from the Welland County Chapter of the Ontario Federation of Agriculture. (OFA). Support for the by-law became the focus of the Welland County OFA's annual picnic held in Welland's Chippewa Park. [16]

As part of his three-year campaign to have Welland County councilors pass a tree protection by-law Swart went to the St. Williams tree nursery. Here he met with Edmund Zavitz and Monroe Landon. After three years of debate, the Welland County Tree By-law was approved on October 17, 1956. [17] After the by-law was passed it was implemented in a similar fashion to the way it was carried out in Norfolk County by Monroe Landon. Regulations were published. Three full time by-law enforcement officers were hired and given generous mileage allowances to patrol and respond to complaints of violations. It was found that the great majority of rural landowners, who were either farmers or owners of rural residential estates, respected the law. [18]

Two years after the passage of the Welland County Tree By-law it was recognized that there was one important way in which it could be improved. It was discovered that three groups of landowners did not respect the spirit of the law but attempted through circuitous ways to undermine its intent to protect existing forest cover. These objectors were golf courses, quarries, and subdividers.

From the experience of the by-law's operation in Welland and in other parts of Ontario the need for one strengthening of the law became obvious. This was spelled out in a May 1, 1958, report of the Welland County Conservation Committee. It found that a need for a "tightening of provisions for clear cutting, golf courses and subdivisions by requiring the applicant to produce a registered plan which is to be filed with the County Clerk." Following this report Swart initiated a draft by-law to have such features. The Province however, refused to grant municipalities the power to impose such a tightened by-law. It refused requests despite repeated protests to the Welland Centre MPP, Ellis Morningstar. [19]

Swart was never able to prod provincial governments to increase municipal powers to reduce forest cutting by developers until the first NDP government of Ontario which did so much to bring about implemented changes to the *Municipal Act* in 1993. No longer requiring ministerial approvals, the by-laws commonly prohibited tree cutting by developers until their subdivisions were registered. [20]

The alliances Swart built up to secure approval of the Welland County Tree By-law were again

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employed by him in a successful effort to launch the Niagara Peninsula Conservation Authority (NPCA). It was begun as soon as the tree by-law was finally passed and took a similarly long patient three-year campaign to realize. A presentation in support of a Niagara authority was made by Landon in a brief presented to Welland County Council, on behalf of the Norfolk County Chamber of Commerce. On January 10, 1957, Welland County Council passed a motion by Swart that urged the creation of a local conservation authority since "many of the waters of the County have become nothing but open sewers." [21]

Swart's resolve to create the NPCA intensified when following a meeting that he and Francis Goldring had with McMaster Geography Professor Lloyd Reeds he realized that creating an authority would provide provincial funding to acquire parkland. He subsequently made a successful appeal to Lincoln County Council, and then representatives from 41 municipalities held a conference at the Welland County Courthouse on March 28, 1947. As with the Tree By-law earlier Swart and Goldring experienced intense opposition from the Welland County Liberal party machine, tightly disciplined by Pelham Township Reeve Killam. This opposition fostered intense debate on municipal councils, some requiring two votes after original opposition was challenged by public pressure. Finally on December 12, 1958, the approval under the *Conservation Authorities Act* of two-thirds of municipalities within the new authority's boundaries was secured. The NPCA's first achievement was the acquisition of an old growth forest tract along the Niagara Escarpment, which became designated as the Balls Falls Conservation Area. [22]

Swart's close connections to Edmund Zavitz, Monroe Landon, and the community of professional foresters emerged in 1969 when with the Ontario Professional Foresters Association and the Bertie Township Historical Society he spearheaded efforts to have a commemorative plaque placed there in Zavitz's honor. [23]

Both Swart's long conservationist battles and his experience in current disputes around land use planning provided excellent training for his 13 years of service in the Ontario legislature which began in 1975. His centrality in the Niagara Escarpment Plan, whose ultimate success when it was achieved a decade later, was helped by a fortunate combination of circumstances. His role in the legislature as the champion of the plan was boosted by his upholding of the legacy of the plan's sponsor, former Ontario Treasurer, John White, on the public servant he had put in charge of the process, the land use planner Cecil Louis. White retired from politics in 1975, serving afterwards as the provincially appointed Chair of the Ontario Heritage Foundation. [24]

Swart's role as the conscience in protecting and enhancing a forested belt from Georgian Bay to the Niagara River along the Niagara Escarpment was boosted by his emergence at the time of his election to the legislature in land use controversies in the Niagara Region. Central to his was securing a buffer for the Short Hills Provincial Park, which was at risk of being surrounded by urban development. Shortly after being elected to the legislature, Swart played an important role in the formation of the Preservation of Agricultural Lands Society (PALS). He played an important role in two key early victories by PALS at the Ontario Municipal Board (OMB), which led to the defeat of proposals for urban zoning of 1,350 acres adjacent to the western boundary of Thorold and the Short Hills Provincial Park. [25]

Swart becoming the defender of a forested belt along the Niagara Escarpment emerged in response to the long-awaited Preliminary Proposals for the Niagara Escarpment Plan. The Preliminary Proposals, released on February 11, 1978, called for the protection of forests in a large area comparable to the current Ontario Greenbelt designation and the Bruce peninsula. Rather than duplicating urban zoning maps the preliminary plan sought to restrict future development to existing "urban envelopes." The plan would have protected large blocks of forest of at least 100 acres throughout its area, and those at least 20 acres along the Escarpment Scarp. [26]

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Unlike the province's environmental groups who were shell shocked by the protest that exploded when the Preliminary Proposals were released, Swart was prepared for the subsequent attack by development interests. The uproar was like what he had experienced as a Welland Councilor through the machinations of Killam's political machine against the Tree By-law and creation of the Niagara Peninsula Conservation Authority (NPCA). Swart addressed a rally of the hastily formed Niagara Escarpment Landowners Association held in Orangeville on May 5, 1978. Here Swart expressed his support for "a continuous Bruce Trail along the Niagara Escarpment" and his belief that "in interdependent societies land rights are not absolute." [27]

Despite Swart's determined defence standing up to thousands of carefully assembled protestors, Ontario Premier Bill Davis, two days after the Orangeville protests, announced a 63 per cent reduction in the Niagara Escarpment Plan area. The most important period of Swart's political life would be the seven years between the reduction of the plan area and the final adoption of the Niagara Escarpment Plan in 1985.

With the support of fellow legislator Stephen Lewis, Swart encouraged the formation of the Coalition on the Niagara Escarpment (CONE), under the leadership of Lynn MacMillan. She had earlier been disgusted at seeing municipal councilors who had been fully involved and supportive during lengthy consultations on the proposals cower when the landowner protests were unleashed on them.

Swart worked closely with CONE to shepherd the proposals put forward by Louis through a torturous seven-year scrutiny. The proposals went through a 26-month hearing to a hearing tribunal of three adjudicators who were members of the Ontario Municipal Board (OMB). Development interests frequently disrupted the hearings and police were frequently brought in to maintain order. CONE employed a paid director, Robert Leverty, to organize local environmentalists to support the proposals in hearings conducted throughout the plan area. During the hearing, the OMB panelists displayed contempt for the principles of Escarpment Planning, confusing Candidate Nature Reserves with a national rail line. Some of them slept during hearings. Viewed as the three stooges by CONE they recommended that the Escarpment Plan be gutted by following existing municipal plans. [28]

To discredit the opposition to a strong Escarpment Plan, Swart wrote open letters to major Ontario newspapers, eventually electing editorials that supported his position. In the legislature, he also championed the reappointment to the Niagara Escarpment Commission (NEC) of conservationist commissioners Robert Bateman and Ray Lowes. The greatest difficulty Swart had was in keeping wayside pits and quarries out of the Niagara Escarpment Plan area. Swart worked closely with Eric Salmon, Chair of the Foundation of Aggregate Studies.

What was crucial to Swart's ability to create a strong Escarpment Plan was the favorable window of opportunity created by the short-lived minority government of the Progressive Conservative Premier of Ontario, Frank Miller. Following the General Election of May 2, 1985, Miller had the largest number of seats in the Ontario legislature and formed a minority government which served until June 26, 1985. The final approval of the Niagara Escarpment Plan on June 12, 1985, which was 16 years in development, marked the culmination of an unbroken 42 years of PC government in Ontario.

Throughout late May and early June of 1985, Swart was involved in detailed negotiations with the Minister of Municipal Affairs, Dennis Timbrell. Miller, as Premier, made an important cabinet shuffle which facilitated the final approval of a strong Niagara Escarpment Plan.

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Timbrell had developed a Progressive reputation as Minister of Health and Minister of Agriculture and Rural Affairs in the cabinets of Premier Davis. During most of Davis's tenure as Premier, the critical land use planning power rested with the Minister of Municipal Affairs and Housing, Frank Miller. Premier Miller gave Bennett a post with no land use planning responsibilities, Tourism and Recreation. Bennett's six years as Minister of Municipal Affairs and Housing were the scene of acrimonious legislative battles over Escarpment issues with Mel Swart.

Bennett had the reputation as a champion of the most conservative elements in the governing PC party, which was enhanced by his long confrontations with Swart over Escarpment and other land use planning issues. Of these the most serious were two resort complexes planned to be built on the Niagara Escarpment. One of these battles, the Cantrakon project in Peel Region, had by the time of the Niagara Escarpment Plan's approval, been successfully resolved. Another, the Epping Commons, proposed for Grey County, was still under debate through the finalization of the Escarpment Plan. The Epping Commons was a proposed 300-acre resort on the Escarpment scarp which is now traversed by the Bruce Trail. Its proposed sewage lagoon was perilously close to a cold water stream which provided brook trout habitat.

The Cantrakon development was a proposed 483 acre "Executive Retreat", which is now entirely within the borders of the Forks of the Credit Provincial Park. Swart was helped in the defeat of the development by the circumstances of a minority government of Premier Frank Miller. Although the Liberals under their leader, Stuart Smith, had previously weakened the proposed Niagara Escarpment Plan, they allied with Swart and the NDP legislative caucus on this issue. It was revealed that the project's sponsors had made a $500 campaign contribution to Bennett. To express opposition to the development the NDP and the Liberals voted to reduce Bennett's salary to one dollar. Bennett subsequently relented and the area became protected from development through an Escarpment Natural designation. [29]

Swart and Bennett also had herculean battles in the legislature over the Epping Commons development. It was proposed to be located in the Beaver Valley area of the Niagara Escarpment in Bruce County. Both the Forks of the Credit and the Beaver Valley, had been identified as "Priority Number One" by land use planner Len Gertler's 1968 report to Premier John Robarts. Gertler stressed, "the whole of the Beaver Valley should be under land use planning controls to prevent haphazard development." He saw the valley as "renowned for its scenery" and apple growing lands. [30]

On December 8, 1980, Swart exposed how Bennett had encouraged Grey County to use its official plan process to secure development approval before the Escarpment Plan could be finalized. He read an October 21, 1980, letter from Bennett to the OMB. It pointed out that although he had earlier turned down the Epping Commons development as a result of hearings carried out under the *Niagara Escarpment Act*, he had done so "with the provision that my decision was without prejudice to consideration of an application under the *Planning Act*." The Minister suggested that it would be "appropriate" if the OMB considered the proposal. Swart charged these actions were "bizarre" and showed that Bennet was "very biased towards developers in the area." [31]

During the course of several meetings with Timbrell Swart secured 26 modifications to the Niagara Escarpment Plan. Among these were the removal of language for "wayside" pits and quarries, and designating the area proposed for the Epping Commons as Escarpment Natural. Swart termed the outcome a "tremendous victory", which he had "felt very good about" since he had been working on it "for the past 12 years." MacMillian, speaking on behalf of CONE, termed the plan's approval by cabinet on June 12, 1985, a great "red-letter day for the Escarpment."

Soon after the approval of the Escarpment Plan on December 16, 1986, the Ontario Heritage Foundation, now Trust, acquired the site of the proposed Epping Commons development. It is now

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known as the Herman McConnell Memorial Forest in memory of a local conservationist who worked closely with Swart and Leverty to protect the area. Leverty bestowed a CONE award to Swart for his work on Escarpment protection at a 30th anniversary celebration of the Preservation of Agricultural Lands Society, held on April 6, 2006. [32]

Struggles to protect southern Ontario's forests have been difficult and dramatic. In his role of fostering a continuous forest corridor along the Niagara Escarpment to the Niagara River, Swart secured many s victory in the process, comparable to the great forester he took advice from and admired, Edmund Zavitz.

Endnotes

1) Personal conversation with Mel Swart, Mel Swart "Conservation Achievements in Which Mel Swart played a Role", document in author's possession.
2) Conservation with retired employees of Simcoe County Forest at ceremony for 40th anniversary of Simcoe County Forests.
3) Ralph Redway, "Thorold Township", Fourth year Geography BA Honor thesis, McMaster University, 1956, passim.
4) Welland County Tribune editorial on forest protection, June 21, 1961
5) Report of the Welland County Conservation Committee, Minutes of Welland County Council, 1955.
6) Mel Swart, "Conservation Achievements" loc.cit., 1-5.
7) Ibid. 7-10.
8) Ibid, Minutes of Thorold Township Council, 1954-1954, City of Thorold Municipal Office.
9) Letter from Mel Swart December 11, 1953, to Minister of Municipal Affairs, Public Archives of Ontario, Municipal Affairs Collection, (Box 47-57)
10) Minutes of Meetings Between Thorold Township and Municipal Affairs, Public Archives of Ontario, Municipal Affairs Collection, (Box 47-57), Minutes of Thorold Township, 1955-59.
11) Minutes of Thorold Township Council, January 19, 1959.
12) Minutes of Thorold Township Council, 1959-1961.
13) Minutes of Welland County Council, April 17, 1956.
14) Short Hills Provincial Park, Ontario government website, Wikipedia.
15) Personal interview with Mel Swart, Minutes of Welland County Council, April 22, 1954
16) Reports of Conservation Committee Welland County Council, 1955-1957.
17) Minutes of Welland County Council, October 17, 1956.
18) Reports of Welland County Conservation Committee, 1957, 1958
19) Report of Welland County Conservation Committee, May 1, 1958.
20) Minutes of Welland County Council, January 10, 1957.
21) Personal interview with Mel Swart
22) Interview with Beverly Jewsen, long time activist, Bertie Historical Society.
23) Escarpment Planning Background File, Personal Papers Mel Swart, Archives of Ontario.;
24) OMB Preparation Materials, Papers of Preservation of Agricultural Lands Society, Brock University Archives.
25) Copy of Preliminary Proposals, Niagara Escarpment Plan in St. Catharines Public Library.
26) Speaking Notes to Niagara Escarpment Property Owners Rally in Orangeville, in Mel Swart Papers, Public Archives of Ontario.
27) Interview of Cecil Louis for History of Niagara Escarpment Plan for Environmental History Project Taken by Environmental Commissioner of Ontario, Gordon Miller.
28) Personal Interview of Mel Swart.
29) File on Cantrakon Mel Swart Papers, Public Archives of Ontario.
30) Leonard Gertler, Niagara Escarpment Study, 1968, passim.
31} Speech by Mel Swart on Epping Commons development, December 10, 1980, Ontario Legislature Hansard, Epping Commons File, Mel Swart Papers.
32) Item on Herman McConnell Memorial Forest on website of Ontario Heritage Trust.
32) Personal Interviews with Mel Swart, Robert Leverty.

June 9, 2023
9:30AM-3:30PM

THE REWARDS OF PLANTING TREES

A forest history tour through the St. Williams Conservation Reserve and Backus Woods.

The St. Williams Forest Station was established in 1908 to grow tree seedlings for reforestation purposes and to stop the encroaching blow sands by growing permanent forests. The Turkey Point Forest Station was started in 1927 to grow permanent forest cover on the Charlotteville blow sands. Backus Woods is a spectacular older-growth forest, one of the best remaining examples of Carolinian forest in Canada.

Registration is required. Cost is $40 for members and Norfolk County residents, $60 for non-members and $20 for students, and fees are payable by e-transfer or cheque to Forest History Ontario. Lunch will be provided. Please indicate any dietary needs.

Please register by June 2. Fees are non-refundable after this date but can be substituted. Participants must be able to walk up to 20 minutes a few times, on imperfect forest trails. We will travel by school bus, seats are limited.

Meet at 849 Charlotteville Road 1, St. Willliams. (It could also be found as 849 Concession Road 1). This is a large sand parking area visible from the road less than a km. west of Turkey Point Road.

For more information contact: Terry Schwan 519.362.2098 or schwell1@rogers.com.

To register, please contact: Brooke McClelland at (416) 803-3177 or bmcclelland@forestsontario.ca.

This tour is hosted by the Forest History Ontario, and made possible by the generous support of our sponsor, Norfolk County. Proceeds go to support the activities of Forest History Ontario.
www.ontarioforesthistory.ca

The Rewards of Planting Trees
A Forestry Tour
Through York and Durham Forests

Friday June 17, 2022

Part 2 Durham Region

In 1938 the Counties of York and Durham held a Forestry Field Day. It involved a driving tour to various forest and tree sites in and around the Oak Ridges Moraine of these two Counties. This tour and accompanying Program was one of many used to promote the reforestation efforts around central and southwestern Ontario in that time period. Although the author is not mentioned, most of these tours were written by, or produced under the supervision of, Arthur Herbert Richardson

In 2022, after 84 years, we plan to follow in the footsteps of that tour as closely as possible. We will travel by bus to many of the sites as well as sites that explore the Indigenous history and the forest industry.

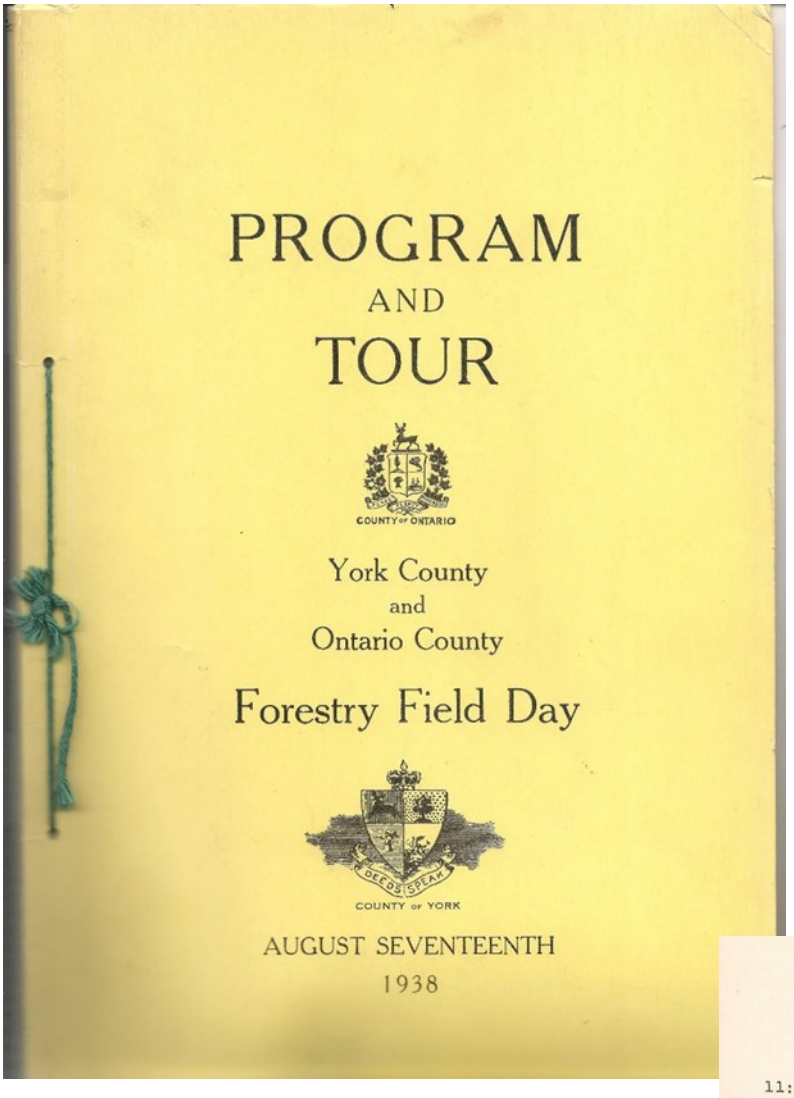
Terry Schwan, R.P.F. (Ret.)
Ed Borczon, R.P.F. (Ret.)
Patricia Baldwin, B. Sc. F.

Other Contributions to this program include Danijela Puric-Mladenovic, PhD, Assistant Professor, Daniels Forestry, U of T.; Colin MacDonald, R.P.F. York Region Forest; Phil Davies R.P.F. and Cory Byron R.P.F., Durham Regional Forest; and Ken Elliott, R.P.F.

We are grateful for the contributions of Doug Drysdale Forest Manager in the mid 1950s; Keith Folker Forest Tech in the 1970s; and Dave Puttock, R.P.F., present day Manager.

This tour is hosted by the Forest History Society of Ontario and made possible by the generous support of our sponsors, The Regional Municipality of York, and the Ontario Woodlot Association.

Editor's Note: This is a complete reproduction of the second part of the program from the June 17, 2022 tour. Part 1 (York Region) appeared in the fall, 2022 issue of Forestory.



PROGRAMME.
(Standard Time)

11:00 A.M. Registration. Pine Grove, Vivian Forest.

12:30 P.M. Luncheon - Jos. Rennie, Chairman.
Address of welcome - The Chairman.
Greetings from:

Col. W.P. Mulock, M.P.
Morgan Baker, M.L.A.

Address - Dr. G.J. Christie, President,
Ontario Agricultural College.

2:00 P.M. Tour of Vivian Forest in sight-seeing trucks.

3:00 P.M. Leave on tour to Uxbridge Forest in private cars.

6:00 P.M. Banquet, Music Hall, Uxbridge.
Chairman - C.P. King.

7:30 P.M. Address of welcome - The Chairman.
Greetings from:

Hon. Gordon D. Conant, K.C.
J. Frank Kelley, M.L.A.
E.J. Zavitz, Provincial Forester.
W.H. Porter, London.

Presentation of gavels to Wardens -
A.M. Richardson.

Replies from:

Warden Lyman Gifford,
Ontario County.

Warden Harry Corner,
York County.

Reforestation address:

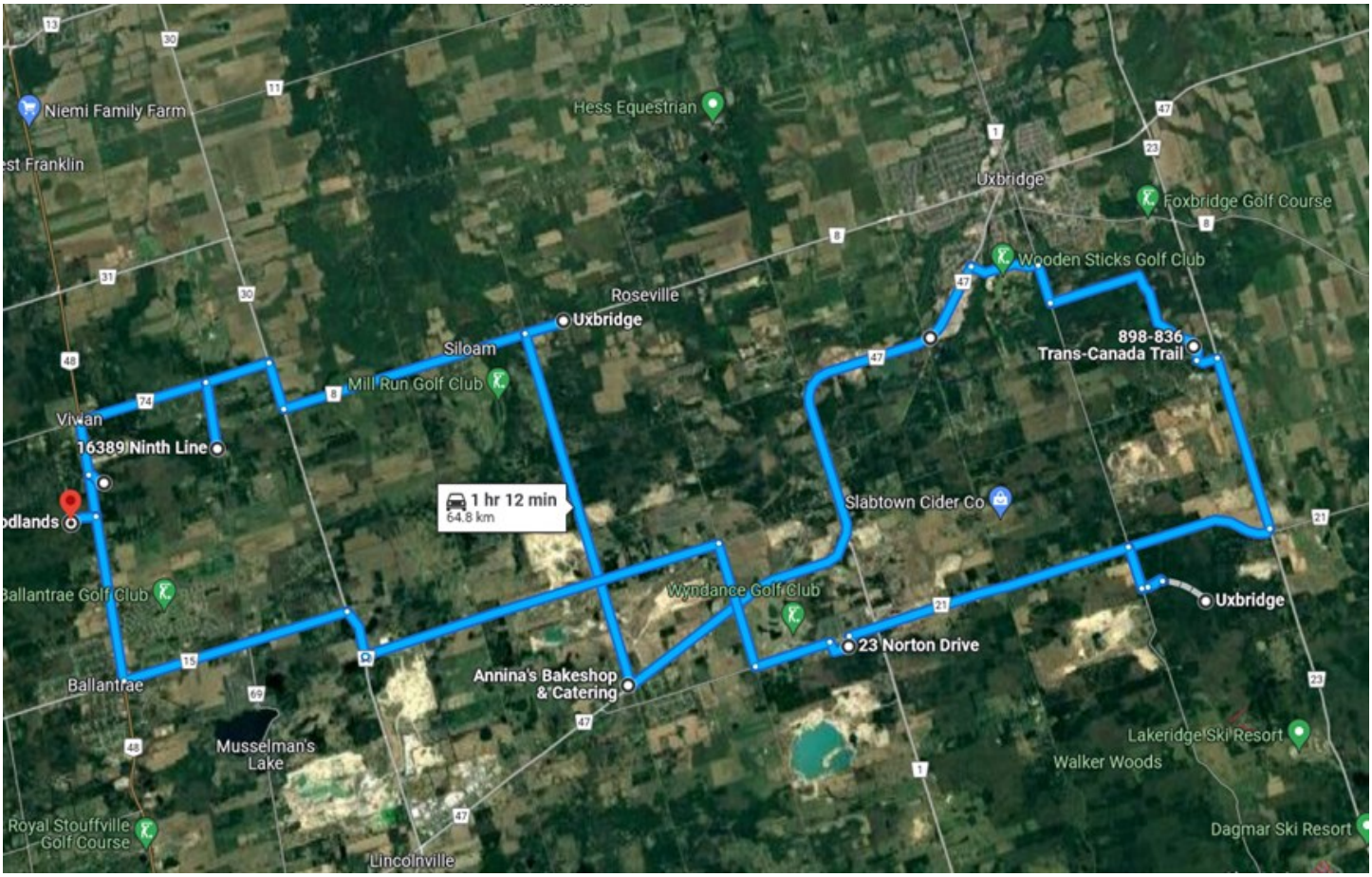
Hon. E.C. Drury, Barrie.

GOD SAVE THE KING.

Program 2022

9:30	Gather at Eldred King Woodland, York Regional Forest Travel to Hollidge Tract, Bill Fisch Forest Stewardship and Education Centre Hollidge Tract at Ninth Line Roadside stop at Frankish property
12:10	Lunch at Annina's Bakeshop and Catering, Goodwood
13:00	John Weir mill site, Uxbridge Township Durham Regional Forest Main Tract Norton Tract DRF
15:30	Arrive back at Eldred King Woodlands

Tour Map



Land Acknowledgement

Today we will be visiting or discussing sites that were originally settled by early agriculturalists, ancestors of the current Huron-Wendat, an Iroquois speaking group. These people, which can be called Ancestral Wendat, occupied the general area from 1300 to 1600 A.D. prior to European settlement and long before any treaties were signed by Canada's native people and the British government.

The land was then used by the Haudenosaunee, also an Iroquois speaking people, for hunting and fishing purposes. The Mississauga, gradually replaced the Haudenosaunee by the early 1700's, less than a century before the first European settlers arrived. It wasn't until 1923 that a Treaty was negotiated with the Mississaugas of the Credit First Nation and the First Nations of the Williams Treaties who are: the Mississaugas of Alderville, Curve Lake, Hiawatha, Scugog Island; and the Chippewas of Beausoleil, Rama, and Georgina Island. These tribes are all Ojibway speakers.

I might note that land we will visit today was surveyed by Augustus Jones, a White settler partnered with a native woman. His son, Peter Jones, became a chief of the Mississaugas of the Credit First Nation. He was a man of importance in negotiating indigenous rights, well aware of the problems of land disputes between the native and European populations. His history was written in the Fall 2019 issue of *Forestory* as the "The Reverend Peter Jones: First Defender of Canada's Terrestrial Ecosystems" by John Bacher.

And with that, I hope we can better appreciate the lands we will be visiting today.

Patricia Baldwin

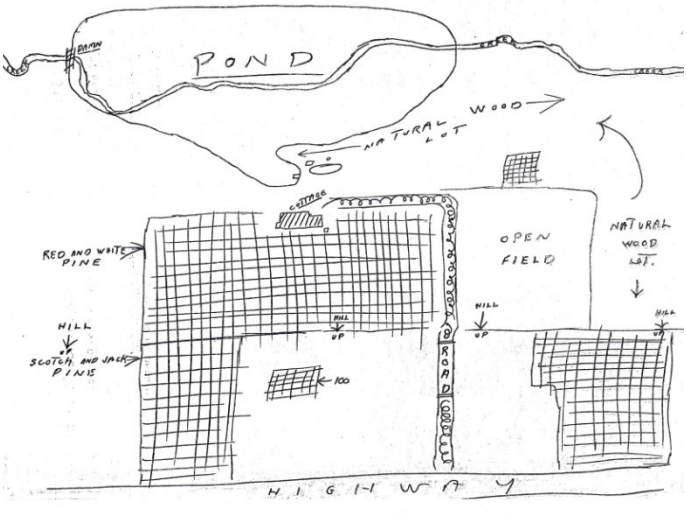
Thompson Beverly Frankish Plantation

The first planting began in the spring of 1912. We put out 2,600 Scots pine in 33 rows from north to south situated east and south of where the old cottage now stands. These plantings were expressed from St. Williams Forest Station, Norfolk County, in the wicker basket now suspended from the roof of the old woodshed.

The following year (1913) and starting on the west side of the first planting, were planted 3,000 white pine, many of which died then and the following year. At this time (1922) the surviving trees give promise of great growth in the future. Those that died during the first and second years were replaced by Scots, red and white pine.

In the year 1914, continuing on the west were planted eastern white cedar, black walnut, white ash and a few bull pine. The next year's planting (1915) finished out the field to the west, including the long rows extending to the public road to the south.

In 1916 that portion of the level land at the north limit of the estate was planted with Scots pine, red pine and butternut. There are today a few surviving plants of each and we are still filling in the vacant places with oak and butternut, but up to this time (1922) the results have been rather disappointing. In this year to the west of the Children's Colony 275 elm plants were transplanted and also to the west of thereof oak, white ash and black walnut.



In 1917 a few hickory, Scots pine, oak and soft maple, about 400 in all, were put out in the southeast corner of the estate on the east side between the old bush and the road to the south.

In the years 1918 and 1919 we continued westerly in this field with oak as far as the lane to the Cottage and in the years 1920, 1921 and 1922 crossing said land to the west were put out oak, pine seed and come black walnut. It was in the fall of 1922 that your dear grandmother Frankish died, and in this year we put out 25 trees each for the ten grandchildren.

Written and map drawn by T.B. Frankish 1922.

John Weir Mill Site

John Weir Jr. purchased a sawmill which he nick-named 'So Ho' from Duncan McKeracher in 1867. Two years earlier, he had established the "Weir Settlement" in the Uxbridge area. The mill burned down in 1870 but must have been rebuilt as John Weir is said to have operated his mill until he died in 1890. He was also a town councillor in Uxbridge from 1880 – 1885. He sold wood to the locals on credit but ran into financial difficulties when his customers could not pay him back. It appears that finances were difficult during this era.

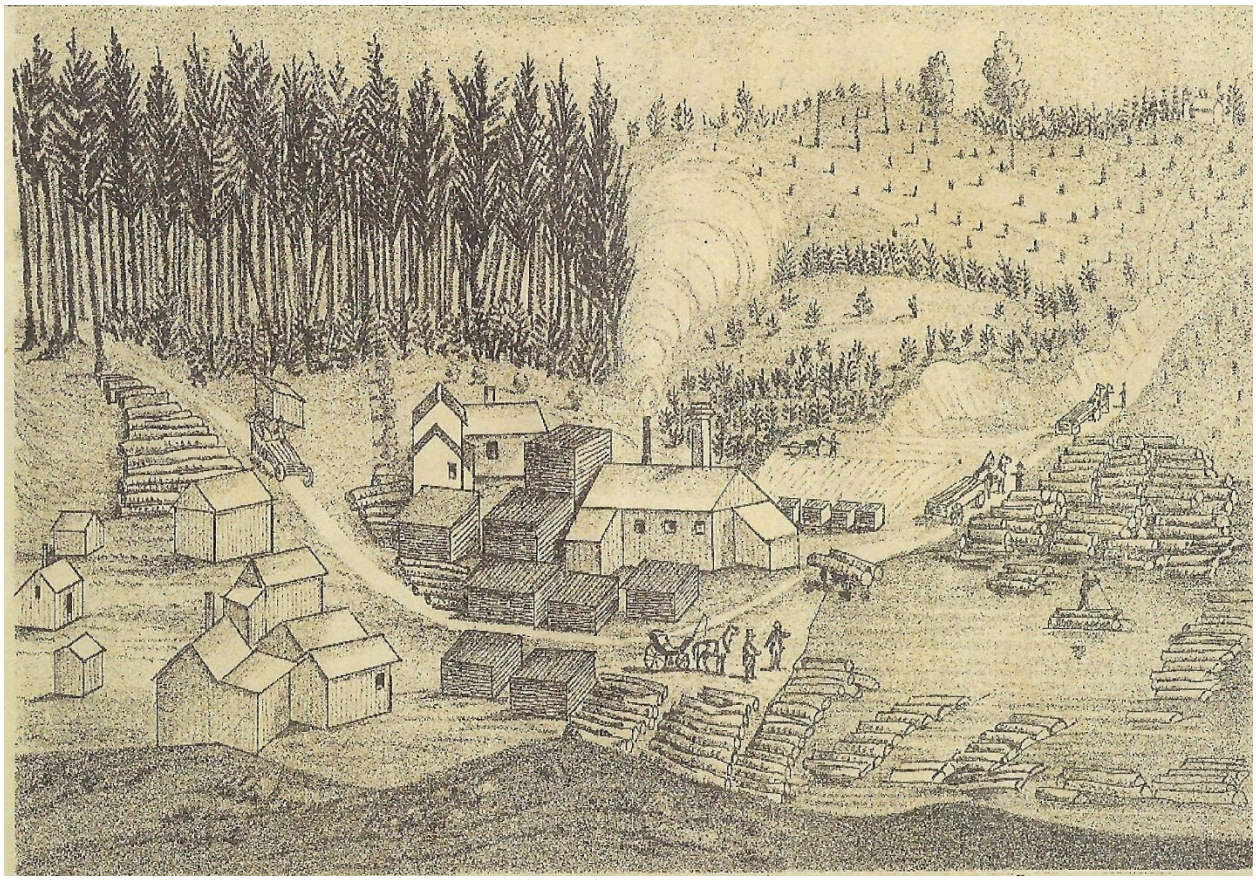
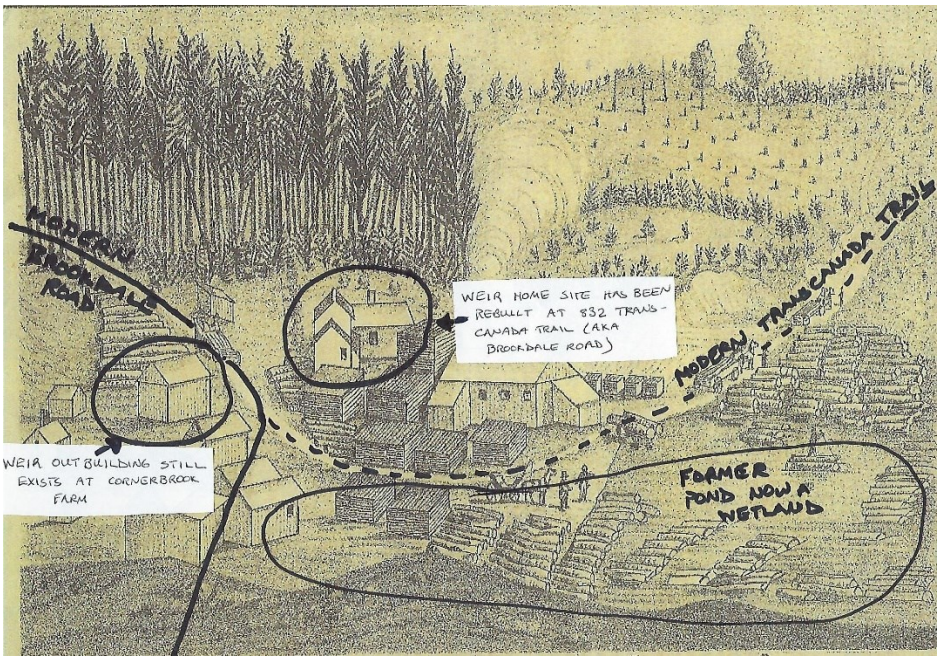


Figure 1a. Courtesy of the Royal Ontario Museum, ©ROM (Image has been reversed for clarity)

Some of the Weir property is now *Cornerbrook Farm* at 869 Brookdale Road (a.k.a. TransCanada Trail) which still uses one of the original outbuildings, although renovated, on the property. It is west of the old original Weir residence site.

Across the street at 832 Brookdale Road is a second portion of the Weir property where there is a home renovated on the original footprint of a Weir residence built in 1895, 5 years after John Weir's death (possibly built by John's daughter but may have been the site of John's original home).

Figure 1b



Brookdale Road has been altered over the years. The righthand section shown in Figures 1a and 1b, is no longer a road but is now part of the TransCanada hiking/biking trail route which is marked with a sign near these two properties. The original road however, once extended to Lakeridge Road. It ran north and east of the southern pond shown in Figure 2, off the Weir property. This pond now exists only as a wetland which is located close to the start of the TransCanada Trail entrance. The single cart in Figure 1a and 1b, followed a path which is most likely the current Brookdale Road. The property

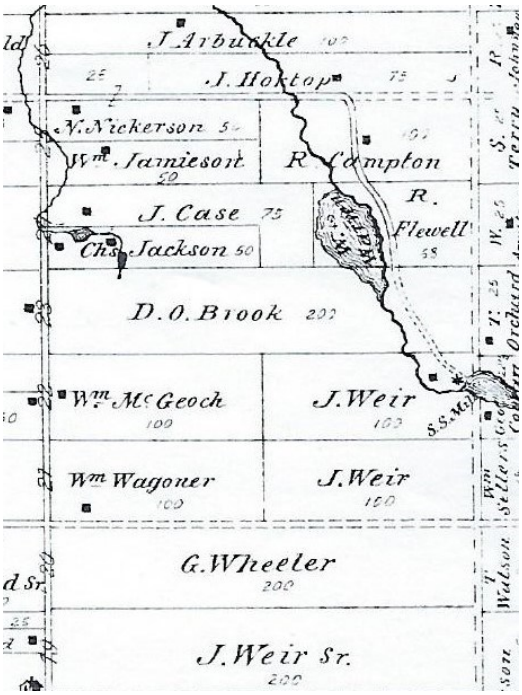


Figure 2

with the dried-up pond has recently been purchased and the site will be altered again in the near future. Brookdale Road now runs south of the Weir Pond.

This wetland can be seen on Google Maps at: https://goo.gl/maps/FV59XmP9Y12NxCbf8

There was another sawmill built by 1860 at a second pond in the village of Brookdale which was owned by John Plank. John Plank's mill site and pond may be found on the property of 791

Brookdale Road, Uxbridge. In about 2015 the property was sold and a new home was built there. You can see the pond on Google Maps at:

https://goo.gl/maps/aEYcpKhix3BgHBGr5

Forestry Meets Archeology - Patty Baldwin, B. Sc. F.

While doing a directed studies course through U of T, Faculty of Forestry, I was assigned to give a forest history of land near to the Durham Regional Forest. I had just finished reading a MNR publication indicating that pine-oak forests are favoured by periodic burning. I soon found a pine-oak forest on a map, recreated from 1809 survey records (see Map 1) for my assigned area. I wondered if periodic burning had been a factor in the development of this forest. Europeans had just arrived to this region so I anticipated that burning was most likely conducted by Aboriginal inhabitants as the Mixed Forest region is not usually associated with periodic fires. My research led me to discover that a number of archeological sites in this part of Durham Region were described to be a people known as the Ancestral Wendat who practiced slash and burn agriculture. One site in particular caught my interest. The Draper site in north Pickering was examined in the 1970's. Carbon dating wasn't available to estimate the date of occupation so one archeologist used surviving survey records of exceptionally large white pines near the Draper site to first estimate their age and therefore estimate the date that the site had been abandoned. Recent use of carbon dating now gives a more accurate method of dating.

This led me to wonder if archeologists could use trees for dating purposes, could foresters use archeology dates for estimating tree age if the trees had already been harvested without such records? The pine-oak forest in my area of interest was approximately bound by Mast Road and Lakeridge Road in Durham township. The name of Mast Road alone would indicate that large white pines were extracted from this area. I applied this theory to the area and estimated the trees could have been close to 3 or 4 centuries old as modern archeology lists a nearby Uxbridge Ancestral Wendat burial site to date from circa 1490. The settlers arrived in the early and mid 1800's, and the forests began to be cleared, with the John Weir sawmill shown to be actively harvesting in 1877. The Ontario extension notes for White Pine list these trees as having a life expectancy of up to 450 years. The theory seemed possible to me that the pines of this forest could have been very old.

The Ancestral Wendat (who became Hurons), Haudenosaunee (often known as Iroquois), Chippewa and Mississauga all appear to have accessed the area in subsequent years but records indicate it was most probably for hunting and fur trading purposes, although burning could also have been used for such purposes as hunting. Close to Mast Road, the Central Lake Ontario Conservation Authority acquired a property which includes a native burial site. It has not been examined by archeologists yet but it may have been marked with rocks from as far away as Midland. This is curious as once the Ancestorial Wendat left Uxbridge they were reported to have relocated to the Midland area. Exploration of this burial site may provide further evidence that the forest composition is the result of human activity which resulted in the growth of massive pines which were then harvested by the British Navy.

Historical versus modern maps of the area

Map 1 Pine oak forest area marked with diagonal lines - map created using 1809 survey records to show the forest. Map created in 1978. From Heritage Studies on the Rideau-Quinte-Trent-Severn Waterway, Study Map No. 2, 1981.

Map 2 Pine oak site on modern map from MapArt.com 2022

LEGEND:

1. John Weir sawmill site
2. Durham Regional Forest
3. Mast Road
4. possible Ancestoral Wendat burial site
5. Town of Ashburn, established to burn the dense woodlands to make ashes and manufacture potash for the soap and candle industries.

Historical illustrations of pioneer properties sometimes show a presence of large white pine the forest super story in the Durham area. The above picture is from the Illustrated Historical Atlas 1877, Ontario County edition.

For more information regarding this research see: p10 https://ontarioforesthistory.ca/files/fhso_journ_vol_8_issue_1_spring_2017.pdf

Nearby Town of Ashburn
Although this tour will not include a stop to Ashburn in north Whitby, it is useful to note that not only were large white pine harvested from the local regions of Durham Forest, but this town was established to burn the local woodlands and make ashes. This is how the town got its name. Ashes were in turn used to create potash for soap and candle making. It was sometimes possible to use potash in lieu of cash in the early days in southern Ontario when cash was in short supply. The town consisted of almost exclusively Scottish settlers, many who lived in poor conditions and needed cash to purchase supplies. Wood for potash provided a much-needed source of revenue.

Durham Regional Forest

The first settlers in the Uxbridge area were Quakers who arrived around 1806. As the area filled with settlers every lot was cleared to the extent possible. This included the "oak ridge", the height of land, with its sandy and gravelly soils that in hindsight should never have been cleared for farming. These areas were mapped by E.J. Zavitz in his report on the Wastelands in Southern Ontario. While understanding the need for reforestation for a few decades, finally in 1920 Owen Davies, Deputy Reeve of Uxbridge Township became interested -'fired his imagination'- after hearing and reading presentations on the subject, that he formed a motion to County Council in January 1920, recommending the purchase of land for reforestation purposes in the Township of Uxbridge. Despite this, it was not until 1924 with John Nesbitt as chairman of the reforestation committee, that options were secured on 973 acres including a good brick house and some valuable timber land for $10,350.

In 1926, the options were accepted and the Minister of Lands and Forests and the County of Ontario entered into agreement to reforest the acquired lands. This property was called the Main Tract and included 875 acres. In 1929, the County purchased another 100 acres and named it the West Tract. Together they were called the Uxbridge Forest.

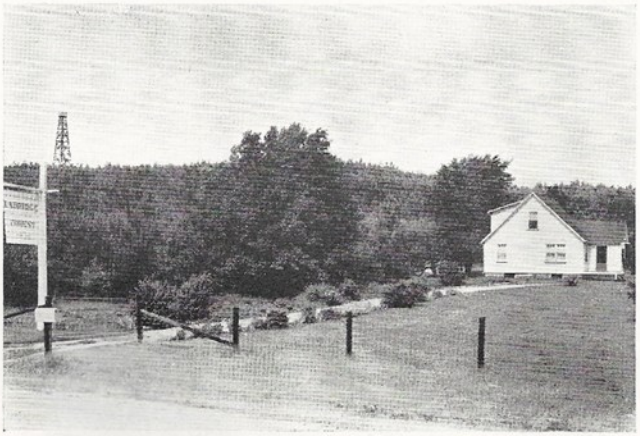
Today, the Durham Regional Forest (DRF), located in Uxbridge Township, consists of 596 ha (1,473 ac) of forested lands in six individual tracts that are owned by Durham Region (the Region), and managed under agreement by Lake Simcoe Region Conservation Authority (LSRCA). These lands were obtained and continue to be managed to provide a range of benefits. These include providing flood protection for the sub-watersheds that flow from the properties; protecting fragile moraine soils from erosion; contributing to watercourse base flows and groundwater recharge by protecting vital recharge areas; offering a wide variety of education and wilderness recreation opportunities; contributing to climate change adaptation and mitigation; and contributing significant wildlife habitat opportunities for resident and migrating species. Managed as a working forest, significant economic benefits have also been realized by the local economy as the management process has created employment and forest products.

For most of the Forest's history it was managed by the Ontario Ministry of Natural Resources (MNR), and its predecessors, under the Agreement Forest Program. In June of 1992, and due to financial constraints, lack of public involvement, and the Ministry's changing role with respect to active management, the MNR initiated a review of the Agreement Forest Program. MNR involvement in the DRF effectively ended in approximately 1995 as budget cuts and staffing levels were reduced and the forest management plan that was initiated by the MNR in 1993 was never completed.

In 1998, a Memorandum of Understanding (MOU) was signed between LSRCA, the Durham Land Stewardship Network (DLSC), and the Region to jointly manage the Forest. Activities from 1998 to 2001 concentrated upon immediate safety concerns associated with increasing levels of public use,

View of a part of Uxbridge Forest at the time of purchase in 1926.

View of a part of Uxbridge Forest looking south from the fire tower.



Caretaker's house, Uxbridge Forest, showing fire tower in the distance.

as well as some limited management operations. Without benefit of a current management plan, operations were generally reactive, and budget and annual work planning was difficult.

An updated management plan was initiated by LSRCA in 1999 with the gathering of historical files and data, and the updating of the forest resource inventory. This document was the culmination of Stage 1 of that effort and provided the necessary outline and background information for the completion of the Durham Regional Forest Management Plan (DRFMP). A Draft FMP was completed in 2005.

Aerial Photograph Sequence
Durham Regional Forest

1927, prior to reforestation

1954

1978

1997

Note that the 1997 photograph was taken during April, prior to the development of deciduous leaf

Amelioration of degraded soils under red pine plantations on the Oak Ridges Moraine, Ontario

T. S. McPherson and V. R. Timmer

Faculty of Forestry, University of Toronto, 33 Willcocks Street, Toronto, Ontario, Canada M5S 3B3 (e-mail: vic.timmer@utoronto.ca). *Received 28 November 2001, accepted 12 April 2002.*

CONCLUSIONS

Soil degradation and amelioration were studied by examining changes in morphological, physical and chemical properties of soils along a chronosequence of old-growth forest, abandoned fields, and young and mature plantations of red pine on the Oak Ridges Moraine. On the sandy outwash soils of the study area, degradation involved the following major regressive pedogenic processes:

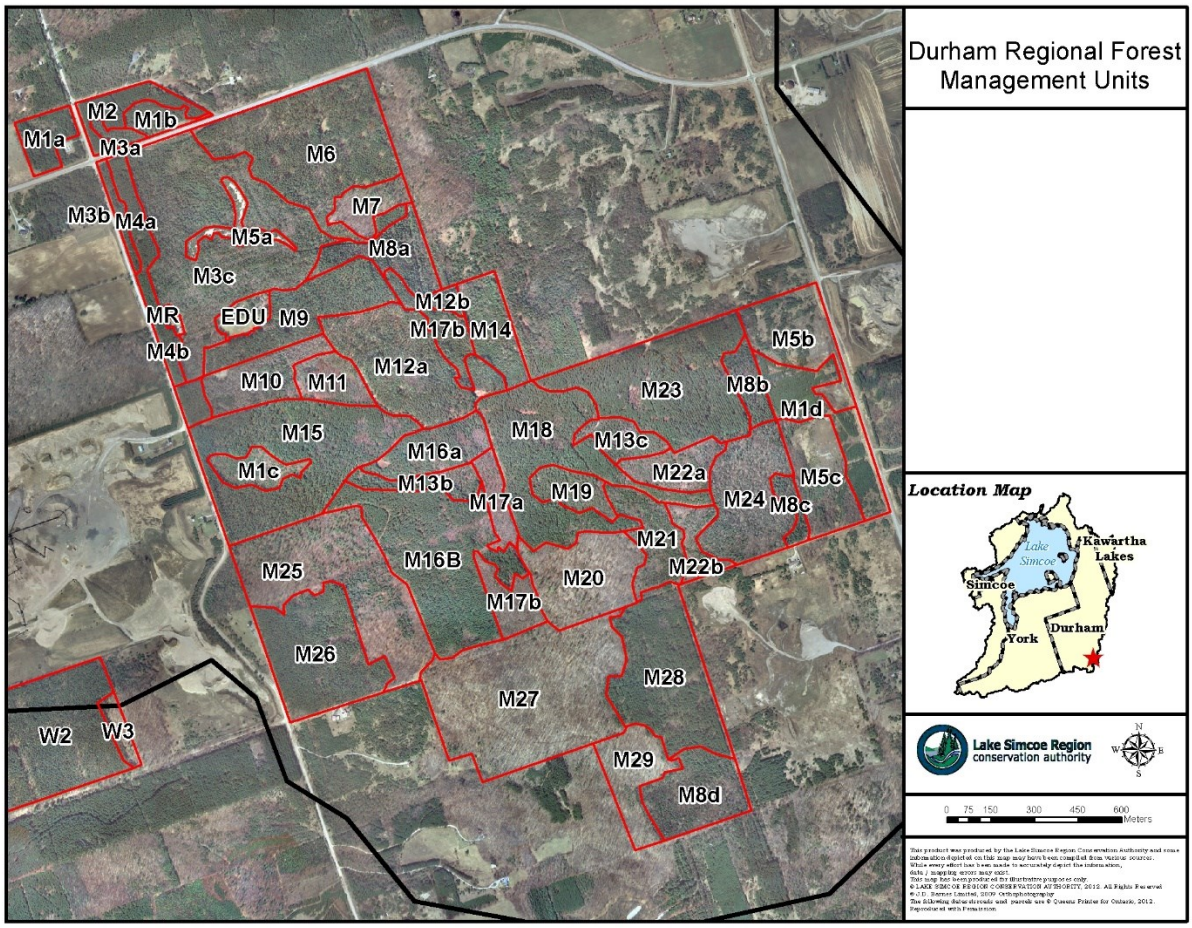
1) profile simplification, i.e., haploidization, resulting in less distinct horizon sequences, commensurate with organic matter and nutrient losses, increased surface soil bulk density, and higher pH and base-cycling on fallowed sites and;
2) localized deflation of unprotected areas, resulting in truncated soil profiles associated with increased bulk density, higher soil pH and nutrient removals.

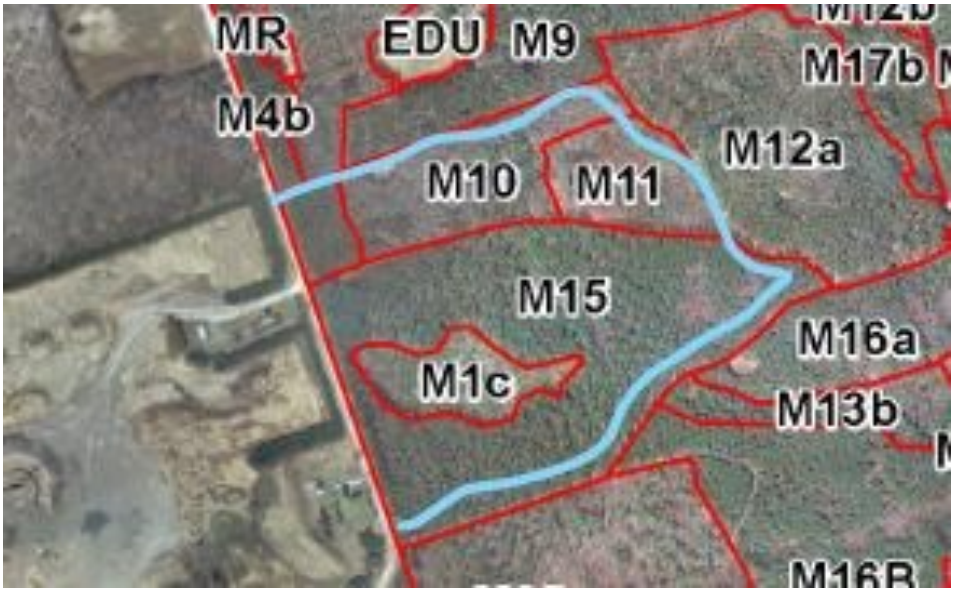
After reforestation with red pine planting stock, progressive pedogenesis took place reversing soil degradation and promoting restoration. Soil restoration induced by tree planting was associated with the following major ameliorative processes:

1) cessation of erosion due to development of tree and litter cover;
2) soil horizon redefinition on non-eroded, fallowed sites, and horizon development (horizonation) on deflated sites;
3) bulk density reductions due to soil organic matter accretion and increased root and faunal activity and;
4) increased fertility and acidification (reduction of pH towards values of undisturbed forest soils) of the topsoil associated with nutrient pumping and higher deposition and decomposition of organic material.

Following land abandonment, chronofuctions of soil properties indicated that reforestation led to substantial recovery of soil fertility during plantation development on fallowed soils. As such, soil remediation close to corresponding natural forest conditions was achieved within 75 yr of initial reforestation. In contrast, low resilience was evident on the deflated, calcareous sites that delayed soil restoration well beyond the period of plantation maturation. The susceptibility of deflated sites to severe degradation and the limited potential for recovery soon after reforestation exemplifies the environmental sensitivity of forested soils

Main Tract Durham Regional Forest





1938 tour description in italics. Present day inventory follows

You come to the Uxbridge forest on your left – with the 64 ft. wooden outlook tower plainly visible. A short distance beyond and the gate with the sign "Uxbridge forest" is reached.
Passing the gate, we continue…to a sign reading "Improved Woodlot". Then turn left in to forest through a gate. The improved woodlot consists of 20 acres and contains pine and hardwood and was thinned in 1928.

M25 to the south (hardwood)
- Natural
- Pw5Or2Mr1Mh1Oh1
- 1985 selection thinning, basal area 24m^2/ha at that time

On the left opposite the woodlot is a plantation of red and white pine 10 years old.

M15 to the north
- (Pr9Pw1) planted 1928 (94 years old today)
- 1961 pruned
- 1984 and 2001 selection thinning (MNR)
- 2016 selection thinning (LSRCA)
    - Pr7Pw2OH1
    - 25m tall
    - 32m^2ha BA before, reduced to 24m^2/ha
    - 1,420 trees harvested, average DBH 35cm, used as hydro poles

Old Landing to the SE, natural regeneration, some planted red pine to deter unsanctioned trail use

M16a
- Pr9Pw1 planted 1928 (94 years old today)
- 1961 selection thinning
- 1992 selection thinning (poles and boltwood)

A short distance further on, the road divides and we take the left fork and proceed down a sharp grade until we come to a black cherry plantation on our left.
At this point we make a hairpin turn, the black cherry plantation on our left and a plantation of red and white pine 9 years old on the right.

Stop at double track corner at bottom of hill to discuss black cherry trees

M12a to the east
- Pr7Or1Pj1OH1
- Selection thinning in 1988

Just before reaching a long grade, we have a Scotch pine plantation 11 years old on our left.
Climbing the grade, which is a blow sand area planted with jack pine 12 years old, we come to the top.

M11 to the west
- Pw3Ps1Pj1Pt1Or1Bw1OH2, records indicate natural
- 1974 Selection thinning
- 1982-1984 selection thinning
- 1992 Selection thinning

And on our left, we note a plantation of European larch 10 years old, while on our right we have a plantation of red and white pine 9 years old.

M10
- Le10, planted 1961
- 1973 selection thinning
- 1988 selection thinning from 35-22, sawlogs

Coming to an intersection we turn left. On our right, a plantation of red and white, on our left the same, 11 years old.

M9
- Planted 1927, Pr9Pw1
- 1973 selection thinning
- 1977 pruned
- 1988 selection thinning (BA reduced from 40 to 24, poles and sawlogs)
- 2004 full row and block removal

The tour continued on to the caretaker's house, now gone, and a view of the fire tower (also gone).

Norton Tract - Durham Regional Forest

Consists of 2 plantations (white pine and red pine)
- White pine:
  - Planted in 1949 = 70yrs, 53m^2/ha and 30cm DBH
  - Row and selection thinning occurred in 1994 (25yrs ago)
  - BA reduced from 39 to 23
- Red pine
  - Planted in 1962 = 57yrs, 64m^2/ha and 24cm
  - Majority of block split into 20 areas for MNRF study. See below

- Stand Quality + Prescription
- White pine
  - Heavily impacted by weevil, red ring rot, many forks, crooks, leans, thin crowns, spike knots
  - Crop tree selection for retention
  - Remove 20% BA, focusing on poor, unhealthy stems
  - Some natural regen
  - Poor quality saw logs
- Red pine
  - High height to diameter ratio but generally healthy
  - Establish skid trails for access + remove 33% of BA in entire stand.

- Skid Trails established east-west to protect artificial regeneration
- All stick nests retained (outside breeding bird window, assessed as <75cm, likely broad winged hawk or American crow, unoccupied, no sign of activity
- Crop trees, important regeneration and nests marked in blue paint; removal trees marked in yellow, black paint used to "erase" paint

Norton Tract: A study of managing succession in conifer plantations
The study area is a 3.2 ha red pine plantation established in 1962. Red pine was planted at 1.8-m X 1.8-m spacing in a north-south direction. In 1993, the overstory was pure red pine with average basal area (BA), height and diameter of 55 m2/ha, 14 m, and 16 cm respectively. The soils are of the Pontypool soil series with fine sandy loam with moderately fresh moisture regime and with rapid drainage. The A horizon is a plough layer.

Initially there were 20 plots (30-m X 32-m). These plots were subdivided in half along and east-west line. Following thinning the southern half of each plot was planted as described below. The northern half of each plot was left to measure ingress of natural regeneration.

Thinning Treatments

Single row thinning – removed first of four row to decrease BA by 25%
Double row thinning – removed the first two of five rows and reduced BA by about 40%
Selection thinning - combined single row thinning with removal of25% of the trees in the three adjacent rows. And reduced BA by about 44%.
Canopy Gap (G1) - 7-m canopy gaps created in in plots that also received the selection treatment and reduced the BA by about 46%
G2 plots were thinned using the Canopy Gap treatment with planting described below.

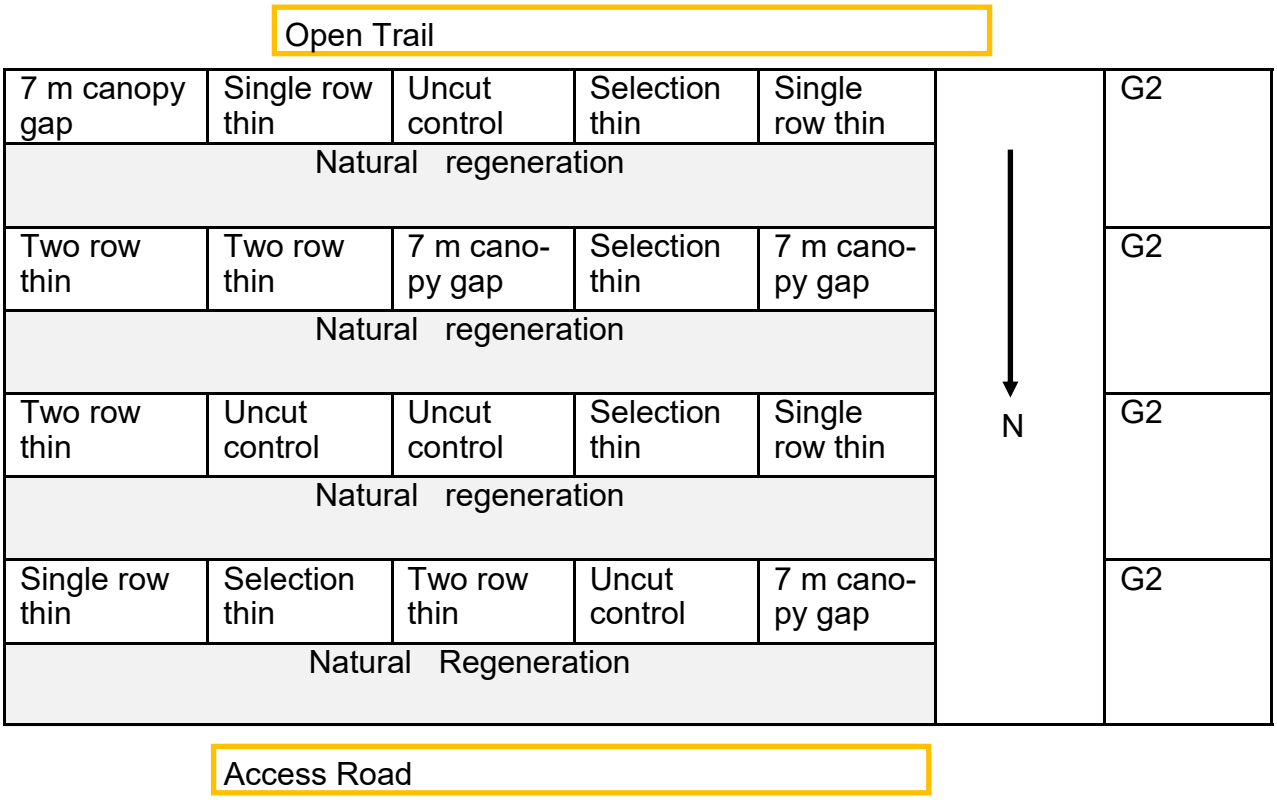
Harvest was conducted in 1994 using a feller processor and a wheeled forwarder. All row thinnings were in a north-south direction.

In 1995, the 20 plots were planted in east-west planting rows in the southern half of the 30-m X 32-m plot. From north to south the first 3 rows were always planted with white pine, red oak and white ash. The fourth row was seeded with red oak acorns, five acorns planted in a 10-cm X 15-cm planting spot. All seedling were 2+0 bareroot. There was a 3-m spacing between rows. A single species was planted in each row, with 1.2-m spacing between planting spots.

The four G2 plots were planted within the circular canopy openings. Five seedling per species and five groups of four acorns were planted randomly in this opening.

Height, basal stem diameter and survival of the underplanted seedling were measured annually from 1995 to 1999 and in 2005.

A comprehensive botanical survey of all understory plant species was conducted in 1999. Leaf area index and percent crown closure were estimated in each treatment plot.



Pertinent Results

Light (% of full sunlight) – pattern of removal increases light penetration
Control (6.7%) > **1 row** (13.3%) > **Selection** (16.1%) > **Gap 1** (16.8%) > **2 row** (17.7%) > **Gap 2** (gap only 33.5%) – Note: with G1 planted rows did not sample gap very well, G2 was created in order to have planted trees entirely within the gap

Growth Rates of Artificial Regeneration – pattern matters again
Gap 2 > 2 Row > Gap 1, 1 Row, Selection, Control
- **Seedling diameter and height 50% larger and volume four times larger in the 2 row vs. selection treatments – despite similar residual BAs**
- Appears to be directly related to the increased light in gaps and "extended gaps"

White pine had the best growth rates by species.
Planted and seeded red oak had similar growth rates – seeding requires at least 5 acorns per planting spot due to loses from predation

White pine regeneration with a skid trail shown to the right. Efforts were made to design and plan skid trails to limit damage to regeneration.

Natural Regeneration
- 113 species with 25% being exotic
- tree regeneration was quite limited with under 30% cover across treatments
  – concluded that this was mostly due to the limited local seed sources
- species richness increased with increasing openness – Gap 2 treatments had similar richness to 70-year-old multiple thinned red pine in the Main Tract
- cryptogam (ferns, mosses, liverworts, lichens, algae, and fungi) richness was greatest in the sheltered understory of the Control plots

Conclusions and Recommendations

1. "early" thinning of red pine plantations can help produce high-value timber and enhance artificial and natural regeneration of native tree species
2. If merchantability is not a concern and conversion is an objective, thinning can begin soon after crown closure – residual BAs of 16 to 21m2/ha maybe a reasonable compromise for timber and conversion objectives
3. Treatments that include: row removal for access, underplanting and/or scarification, selection thinning and gap creation all benefit early establishment of artificial and natural regeneration and other vegetation
4. Where windthrow is not a problem consider 2 row removal with selection in the remaining three
5. Gap creation as part of a 4^{th} row removal and selection thinning would advance success quicker especially with planting in the gaps – no more than 25% of the remaining area should be in gaps and the gaps should be linked to the removal rows.
6. Thin approximately every 10 years and consider controlling exotic species.

Erik Jorgensen Remembered

Members of the former Ontario Shade Tree Research Laboratory commemorated the ten-year passing of Erik Jorgensen with the planting of an ironwood in the courtyard of the Earth Science Centre at the University of Toronto. David Balsillie and Stoney Baker spoke at the event, with Mike Rosen acting as Master of Ceremonies. The poster (left) was hung in the Centre near the "Wood Wall" where 12 new inductees were celebrated after the Jorgensen event. There were also commemorations to a few who had passed in recent years (this was the first event post-COVID), including Prof. D. N. Roy (himself part of the Shade Tree Lab) and Amelia Veneziano, a long time Administrator at the Faculty as well as retirement announcements during a reception at the Faculty Club after. It was also an opportunity to understand where forestry fits in the Daniels Faculty – it is now called the Institute of Forests and Conservation, Sandy Smith is the Director.

Members of the Shade Tree Lab and the University of Toronto (l-r): Dr. John Purdy, Stoney Baker (granddaughter of Erik Jorgensen), Dr. Ian Nadar (aka Ayyam Perumal), Dr. David Balsillie, Mike Rosen, Dean Juan Du, Dr. Sandy Smith (Director of Institute of Forests and Conservation), Dr. Marie Roy (wife of D.N. Roy).

Sylva Recap

The Ontario Department of Lands and Forests for many years published a journal titled "Sylva". The purpose of this journal was to highlight changes in policy, ecology facts, information about the activities of the Department, contributions of individuals and the comings and goings of staff. "Sylva" contains nuggets of Ontario forest history. One "nugget" from "Sylva" will be selected for each edition of the Journal. The following was provided by Sherry Hambly.

The World's Largest Fire Fighting Organization
Reprinted from Sylva: Vol 7 (4): 12-17, 1951

By G.E. Ponsford

The present Division of Air Service, with a complement of 45 aircraft, grew from a very humble beginning in the year 1924. Prior to this time, fire patrols were made by canoe, motor vehicle, railway car observations, tourist observations, or whatever means were at hand, and the Department had to depend, to a considerable extent, on the reports of those who were in the immediate vicinity at the time of a fire outbreak. There was no radio communication and grounded circuit telephone lines were lamentably inefficient when compared with our present facilities; towers were few and far between; communications scarce; and it is quite conceivable that fires, starting under these conditions could reach the out-of-control stage before their existence was even known. It is obvious, therefore, that there was wide scope for improving the methods by which fires were to be detected and reported.

For some time aircraft had been used in the Province of Quebec for this purpose. The policy of timber management there differs from that in Ontario in that Quebec leases large areas to private companies and holds them responsible for fire protection. In Ontario the Crown accepts and discharges that responsibility itself. The Quebec operators felt that aircraft could not only cover their holdings much quicker but much more effectively and such was actually proven in use. Fires were found in their early stages and preventive action organized immediately to the end that losses and fire fighting costs were substantially reduced.

Fire is easily spotted from the air as in this aerial view of fire on island in Lac Seul.
H. C. SPEIGHT

Without going too much into detail and history, it is sufficient to say that this Service had its inception in the purchase of seven new and seven used H.S. 2L Flying Boats from Laurentide Air Service in the year 1924. Captain Roy Maxwell, one of the original owners of that company, was engaged to direct the activities of the new enterprise. In the first year only two bases were operated; one at Sudbury, and one at Sioux Lookout, seven machines being assigned to each. The basic staff of pilots and engineers, required to operate and maintain the new Service, were also secured from Laurentide Air Service, and many of those have to-day indelibly written their names in the annals of Canadian aviation.

It must be remembered too, that in

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1924 aviation was only in the cradle stage. Since the first powered flight by the Wright Brothers in 1903 until the start of the First World War, its development had occurred through the efforts of private enterprise and was necessarily very slow. The war itself, through necessity, gave the infant industry a tremendous "shot in the arm" and it grew very rapidly for the period involved. Fighter and reconnaissance aircraft were developed that would do up to 120 miles per hour, but generally speaking, a speed of 100 miles per hour was considered pretty good and the larger and heavier types would do very little more than 85 miles per hour. Neither the aircraft nor the engines could be considered efficient or reliable when measured by today's standards, but they were the best available at that time. It is quite understandable also that many service and maintenance problems would develop, all of which were bound to detract from peak efficiency. In spite of all these handicaps, fire detection by aircraft proved to be the most effective and, when considered in terms of timber losses, the least expensive of any method tried up to that time.

It is interesting to note that the Service was originally organized for detection purposes and its early efforts were confined solely to that field. Observers were carried who spotted the fires and accurately plotted their location on a map. The aeroplane would then return to its base to impart the information to the ground staff and suppressive action would then be organized through the use of canoes, boats, railway cars, trucks, or whatever means were at hand. There was, however, always the feeling that if there were some way of getting men and equipment to the scene of the fire quicker than through the same methods, valuable minutes and hours would be saved and incipient fires could be brought under control in their initial stages rather than after they had reachable sizable proportions.

It was not felt that these earlier types of aircraft were sufficiently efficient to carry loads which would be of much value to fire fighting crews, but as a matter of fact it had never actually been tried at that time. The turning point seems to have occurred one afternoon when a small fire, started by a careless camper on the edge of a lake, was found by an aeroplane on its regular patrol. Being close to the shore, and readily accessible, the pilot landed his plane, taxied up to the shore, and he and the observer proceeded to put it out themselves. This incident, I think, focused the possibility of transporting men and equipment in the aircraft and shortly after, the use of the aeroplane for this purpose was actually put to practical tests. It was found that modest loads could be carried and landed in watered areas reasonably close to the scene of the fire and that by so doing, valuable minutes were saved. The need then changed to aircraft that could carry larger loads, fly faster and land on, and take off from, smaller bodies of water. All this has actually come to pass through the development of the aeroplane itself, but it has been a process that has occupied some 25 additional years. In the fire season of 1949 our fleet actually transported 30,687 passengers and 3,982 tons of freight. The latter alone is equal to a train of 100 cars. About one-third of our activities are still occupied in finding forest fires, but our main purpose to-day is in the transportation of men and equipment to fight them.

Ever ready to fight fires—Beaver aircraft on Opeongo Lake, Algonquin Park.
P. O. RHYNAS

The forest protection work of the Service has several purposes. We know, from recent events, that the demand for hydro-electric power in Ontario is

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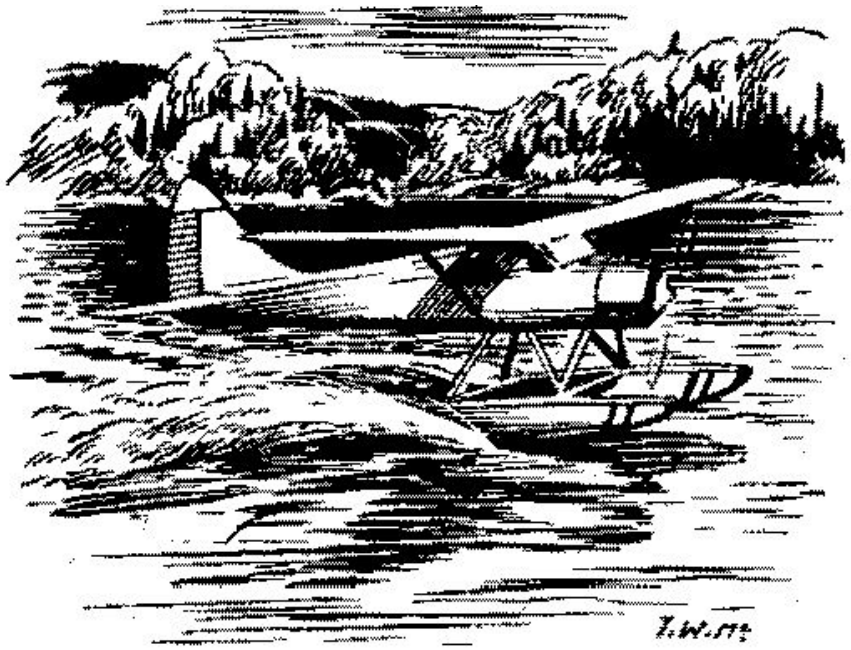
rapidly expanding. We also know that this power cannot be developed without the necessary flow of water. There is only one way that a constant and uniform supply of water can be assured and that is to conserve it at its source. Forested areas retain moisture, and prevent its rapid evaporation by the sun. These same areas also, by their root system, tend to hold the moisture and release it slowly. It is a well known fact that where any area has been denuded of trees, the water run-off is very rapid and is usually accompanied by erosion. The necessity of conserving water at its source is therefore quite apparent, and one of the prime purposes of this Service.

It is also patent that forested areas are essential for the existence and propagation of wild life. These areas provide their cover and their food and without them neither animal nor fish life can survive. The need for their protection against fire, enforcement of fish and game regulations and restocking of waters with hatchery raised fish, is therefore quite apparent.

Another purpose is the conservation of these areas for their own natural beauty. Canada derives many millions of dollars annually from its tourist trade – but if we had nothing but blackened areas, entirely denuded of trees I am afraid there would be little to entice the tourist.

Apart from the above, the Service has made itself useful to all departments of the Ontario Government. We have working arrangements with the Provincial Police and provide rapid transportation for its officers when dealing with suppression of disturbances, investigation of accidents, searches for lost persons and in any other field when time is an important factor. We also work with the Departments of Health, Mines, Highways, Public Works, and to some extent the Hydro-Electric Power Commission. Our arrangement with the Department of Health involves emergency flights as required, and in many serious cases the saving of time has been the sole factor in the saving of lives. It must be most comforting and reassuring to those residing in remote and sparsely inhabited areas to know that this emergency service is available to them.

Those who have not travelled the length and breadth of Ontario can scarcely realize the magnitude of the area involved. In fire protection alone we cover an area of 250,000 square miles, but when we add to this the vast Patricia area to the North, the total rises to over 400,000 square miles. This latter area is not patrolled for fire but is very wealthy in fur. Most of us have a pretty fair idea of the size of a 100 acre farm ut not all of us can think so readily in millions – however, to give you some comparative idea of the area involved, and using the 100 acre farm as a unit of measurement, I may say it would take 2,560,000 of these to equal the area involved.



To handle such a large area a sizable organization is required and because of the distances involved, it has to be made up of small units under the direction of a central command. The headquarters and nerve centre of the Service is at Sault Ste. Marie and from there the operation of 25 sub bases is organized and controlled. In 1950, 32 aeroplanes were in actual operation while the balance were reserves necessary to provide for accidents, minor repairs, and airframe overhaul. Without these necessary reserves the full operating field strength could not be maintained.

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Few people in Ontario are aware of the fact that this is the largest fire fighting organization in the world. This stems from several factors among which are:

(1) Ontario has vast timber resources,
(2) These resources are spread over a tremendous area,
(3) About 25% of Northern Ontario is water and since Nature has provided us with these suitable landing areas for seaplanes, we would be most unappreciative and perhaps even negligent if we did not utilize them. There are few areas in the world similarly blessed and few, therefore, in which this kind of fire protection has a practical application.

With the expansion of our civilization, the use of wood in its many and varied forms is finding a new and broader application. The demand is increasing by leaps and bounds, and although our resources are extensive, they are not inexhaustible. Only through proper management and the protection of this resource until it reaches maturity, can the interests of posterity be assured. Fire is the greatest destroyer of our forest resources, and the enemy against which we must always stand on guard.

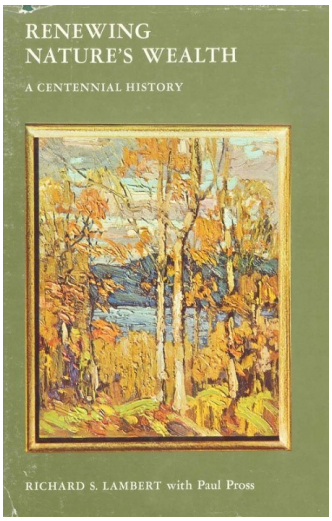
Forest History Project

Are you interested in forest history?
Are you interested in graphic design?
Do you have a soft spot for snail mail?

Roger Miller has begun a collection of logging company logos and business envelope return addresses and is looking to work with someone to expand the research project.

If this is of interest to you, contact Caroline Mach, R.P.F., Editor at editor@fhso.ca.

Renewing Nature's Wealth



(Lambert, Richard S. and Paul Pross. Toronto: The Ontario Department of Lands and Forests. 1967). The book cover describes this book as: "*Renewing Nature's* Wealth, the exciting story of Ontario's natural resources, is described by Premier John Robarts, in his Foreword to the book, as "much more than a history of one of the Departments of the Government of the Province of Ontario: it is a vital component of the history of Ontario", reaching back nearly 200 years to the days of the first surveyor General of Upper Canada in 1794. The book describes the impact made by a civilized people upon the primitive forest that originally covered the land, and the development of its natural resources under public administration from an early state of confusion and waste down to the modern era of conservation and scientific management."

We will provide a précis of one chapter of this book in each edition of *Forestory*.

Chapter 25: The Department in its Wider Setting

The Department of Lands and Forests, at the time of the publication of Renewing Nature's Wealth, was in collaboration or cooperation with fifteen other government departments, eight boards and commissions and two academic or research organizations in Ontario. The activities of these endeavors covered a wide variety of topics outside of its regular operations. The Department was also in contact with governments of other provinces on programs including, primarily, fire fighting and enforcement. The Department was part of a tri-province (New Brunswick, Quebec and Ontario) agreement signed in 1961 related to fighting forest fires. The Department was heavily involved in the response to the severe flood of the Red River in Winnipeg in 1950. In 1961 and 1966 the Department sent equipment and personnel to Newfoundland and Alberta, respectively, to assist in fighting severe forest fires. Ontario and Quebec, in particular, had a close working relationship on a number of topics related to fish and wildlife, junior rangers and fire training.

Early clashes between the federal government and Ontario on matters related to forests eventually evolved into cooperative efforts on a number of fronts. In particular, the federal government provided funds to assist with programs such as settlement of war veterans and unemployment. Meetings in the 1940s between provinces and the federal government led to the enactment of the Canada *Forestry Act* in 1949. This act was intended to promote cooperation among federal and provincial governments and industry in the conservation of Canada's forests – particularly in the areas of protection from forest fires, insects and disease and experimentation. The act led to the development of several "composite" agreements with Ontario including funding for forest inventories and reforestation (1951 – 1964), forest fire protection (1957), construction of roads, airstrips and trails (1958) and stand improvement (1962). Ontario received one million, six hundred and fifty thousand dollars annually through these composite agreements. The Act was repealed in 1960 and the agreements were transferred to the federal Department of Forestry.

Ontario and the federal government signed an agreement in 1952, which was renewed in 1963, to support a cooperative research agenda. This agreement resulted in the establishment of research centres in Maple and Sault Ste Marie. Other cooperative research agreements were also created, including one signed in 1952 (but dating back to 1945) to support the establishment and operation of two laboratories, the Forest Insect Laboratory in Sault Ste Marie and the Laboratory of Forest Pathology at Maple. A third agreement was signed between the Department of National Defense and Ontario in 1951 to allow Ontario to use Camp Borden for research into silviculture. In 1961 Ontario signed a fifty year lease agreement with the National Capital Commission to manage a tract

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of land near Ottawa for forestry purposes.

An increasing focus on conservation led to a federal-provincial conference called "Resources for Tomorrow" in Montreal in 1961. This conference led to the creation of the Canadian Council of Resource Ministers with the intent to improve inter-governmental liaison related to renewable resources. The Council undertook an inventory of all efforts related to renewable resource management. At the time of completion of the inventory in 1964 Ontario was involved in 32 resource agreements, of which the Department of Lands and Forests was involved in 18 – 20 related to forests.

The non-forest agreements covered aspects of resource management such as lands, water, fisheries and wildlife, recreation and agriculture, including:

- lands - building roads on Reserves,
- agriculture - work related to the ARDA (Agricultural Rehabilitation and Development Act) of 1961,
- water - flow regulation on the Ottawa River through the Ottawa River Engineering Board created in 1962,
- fisheries - cooperative research and management of Great Lakes fisheries, leading to the creation of the Great Lakes Fisheries Commission and the continued support of the Great Lakes Institute managed by the University of Toronto
- wildlife - wildlife inventories and fur conservation funded through the Fur Conservation Agreement that was active between 1950 – 1962 and which was superseded by a new ten year agreement that expanded the type of projects supported; other projects included grouse research and the operation of a fur farm on an island in James Bay
- support for the First Nations of northern Ontario including training in fishing, trapping, forest fire protection and tree planting and other types of involvement in First Nations communities, especially during emergencies related to flood and fire.

Informal cooperation (no funds) led to improved understanding of waterfowl populations and the population distribution of caribou. Other informal cooperative efforts included assistance from the Department of National Defense during emergencies, fire protection and weather forecasting.

Ontario has been involved in cooperative arrangements with entities outside of Canada including:

- signing a memorandum of understanding with Minnesota and the United States in 1954 to cooperatively manage forest fires along the international border between Ontario and Minnesota. This agreement was adopted by the United Nations as a model to use internationally;
- the establishment of the North American Forestry Commission in 1962 with Canada, the United States and Mexico as members. Topics of interest included forest fire protection and insect and disease control; and
- attendance at two World Forestry Congresses in 1960 and 1966; various Commonwealth forestry and fish and wildlife conferences; overseas activities through Canada's Programme of Foreign Aid and the United Nations Food and Agriculture Organization; and technical training of international students at Ontario's Forest Ranger School.

Final Comments

Thus ends the condensation of the book **Renewing Nature's Wealth** – a history of the involvement of the Ontario government in the management of the natural resources of the province from settlement times to the mid-1960s.

Forest History Ontario

Membership Form

The mission of FHO is:

"To further the knowledge, understanding and preservation of Ontario's forest history" and accomplish this with the following objectives:

1. To preserve forest and forest conservation history;
2. To encourage and further the development and recognition of forest history;
3. To support research and studies of forest history;
4. To support the archival preservation of records and materials relating to forest history, and
5. To promote the better understanding of forest history through public education.

Forest History Ontario

Projects of the FHO

Catalogue of publications: available on the website, this catalogue includes all aspects of Ontario's forest history and members can submit contributions.

Collections listing: Collections and materials relating to Ontario's forest history are identified and listed on the website. FHO works with established archives such as the Archives of Ontario and several university archives in facilitating the preservation of significant collections.

Forestory Journal: FHO publishes a journal available to its members, the *Forestory*, twice a year – Spring and Fall - containing informative articles on foresthistory In Ontario.

Frank A. MacDougall Forest History Trust Fund: This Fund provides financial support for projects and activities that can further the knowledge and understandong of Ontario's forest history in all aspects. All cheques should be made out to "Forests Ontario" and noted with '*Frank A. MacDougall Forest History Fund*'

Please return this portion to the FHO with your payment to the address listed below.

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*Please note that the FHO only accepts credit card through the online PayPal system. Cheque or cash only by mail- please make membership cheques payable to the Forest History Society of Ontario.

Frank A. MacDougall Trust Fund cheques should be made payable to Forests Ontario to be eligible for a charitable tax receipt. Charitable No. 89857 2862 RR 0001

Payment Information:

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