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Cataloguing information for this publication is available from Library and Archives Canada.

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Issued also in French under the title: "*L'arboretum du Centre de foresterie des Grands Lacs*".

Natural Resources Canada, Canadian Forest Service, Great Lakes Forestry Centre.

Electronic monograph in PDF format.

ISBN 978-0-660-77191-5

Cat. no.: Fo4-161/2025E-PDF

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About the Arboretum

This arboretum is in Sault Ste. Marie, Ontario, at the federal government research facility, the Great Lakes Forestry Centre (GLFC).

An arboretum is a collection of labeled trees to provide enjoyment, relaxation, and education. The labels help visitors identify the many species of trees they encounter, and the collection can be used as a reference when making tree comparisons in other locations. The GLFC Arboretum also provides foliage for insect rearing and plant material for experimental purposes.

The first tree planted was a red maple on Arbor Day, May 2, 1978. During that same spring, 10 tree species were planted in groups of three (30 total trees). The Arboretum continues to add to the collection; however, the most recent additions have been planted as single specimens. The Arboretum now includes more than 90 species of trees representing 34 genera.

Development of the GLFC Arboretum

Plans for an arboretum began in the early 1970s, when the Canadian Forest Service built a new research facility. At that time, the federal government research facilities consisted of the Insect Pathology Research Institute's Cameron Building (known locally as The Bug Lab) at the current site, the GLFC's regional building, several portable buildings on the riverbank, and the entomology laboratories at Church Street.

The original concept was to assemble as large a collection of native trees of Canada as local climate and available space would allow. However, the scope of the plan was broadened to include exotic, or non-native, species to provide an experimental showcase of plant material available and suitable for ornamental use in this plant hardiness zone. A grove of existing trees, with a species composition of mature white elm (*Ulmus americana* L.), green ash (*Fraxinus pennsylvanica* Marsh.), and balsam poplar (*Populus balsamifera* L.) were the only trees on the site.

The soil in the Arboretum was a heavy clay that was seasonally flooded by water from the St. Marys River. The site was filled using materials left over from various excavations around the city prior to 1950, such as asphalt, concrete, and sandstone. These conditions were not conducive to good plant growth, so topsoil was brought in for the planting holes when trees were planted, and site amendments were carried out.

Whenever possible, planting occurred in the spring to allow the maximum length of time for root development and the accumulation of nutrient reserves in the tree before leaf drop, dormancy, and freeze up. A hedge comprising a variety of native and exotic shrub species was planted to define the Arboretum area.

GLFC Tree Cover Management

GLFC's current silviculture objective is to diversify and maintain the forest species cover with native species of Canada and perhaps northern United States, with consideration given to influences from climate warming and threats from invasive organisms. The other objective is to reduce the non-native tree component, specifically, Norway maple (*Acer platanoides* L.) and little-leaf linden (*Tilia cordata* Mill.), as well as invasive shrubs like European buckthorn (*Rhamnus cathartica* L.). Both trees are highly invasive, subject to premature rot, prone to diseases or pests, and are a problem at GLFC. All tree planting and location choices are subject to approval by GLFC facilities and management.



Take a Tour of the Arboretum

How to Get to the Arboretum

Walk southeast from the main entrance of the GLFC to map Stop 1. This is the main entrance to the Arboretum. Welcome to the Arboretum! We hope that you will enjoy the tour.

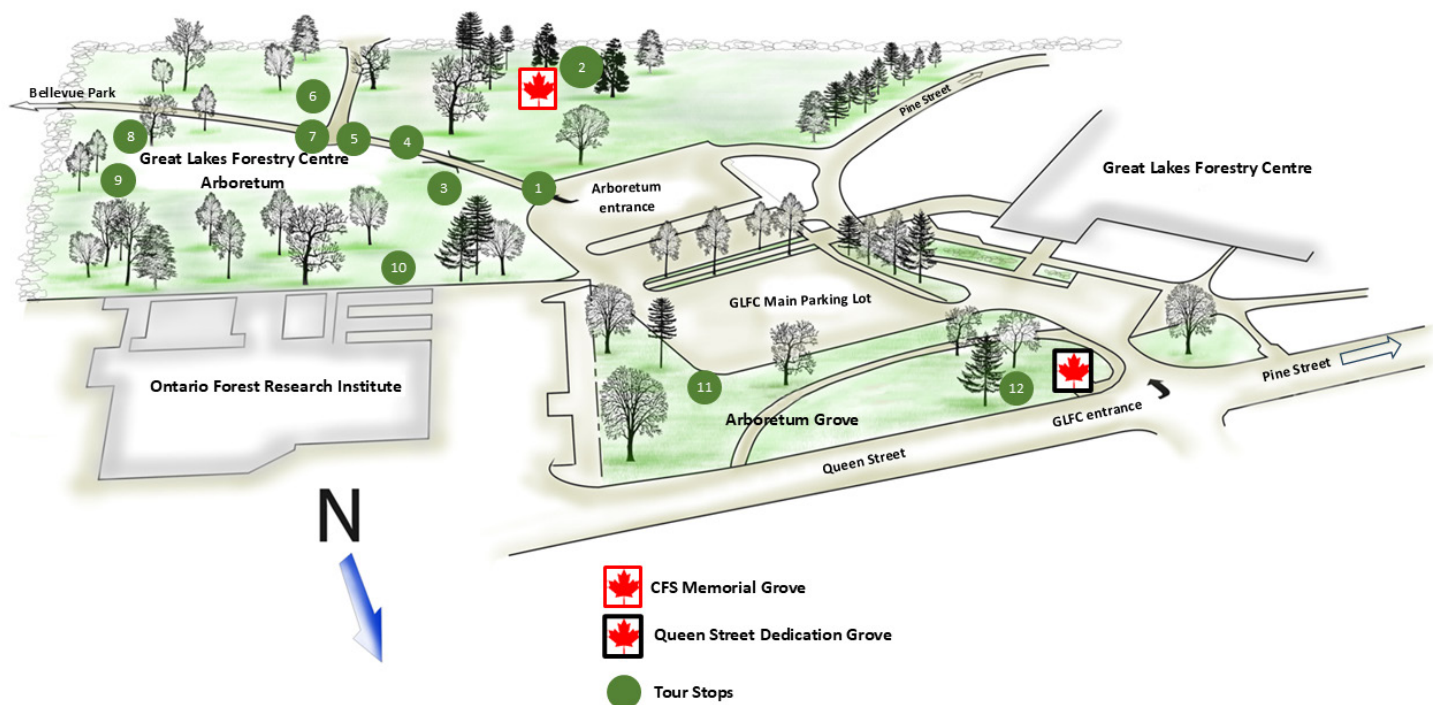


Figure. The Arboretum Site and Tour Stops

Stop 1: The Entrance Sign

Welcome to the Arboretum! We hope that you will enjoy the tour. At the entrance, mugo pine (*Pinus mugo Turra*) and emerald cedar (*Thuja occidentalis* L. var. *Smaragd*) have been planted and you will see eastern redcedar (*Juniperus virginiana* L. var. *virginiana*), red oak (*Quercus rubra* L.), and yellow-cypress (*Callitropsis nootkatensis* [D. Don]) nearby. The most prominent element at this stop is the sandstone boulder with a plaque attached that dedicates the Arboretum to Dave Kennington, who was instrumental in the development and maintenance of the Arboretum.

Walk southwest from Stop 1 towards the St. Marys River to get to Stop 2.





Stop 2: CFS Memorial Grove

You will notice trees in this grove that have been dedicated to former GLFC staff and important events. A memorial plaque for an individual is a significant honour. This is the only area designated at GLFC for these memorial plaques and space is limited. To receive a memorial plaque, you must be an employee of the federal government, have worked at the GLFC, and made a significant achievement in the advancement of science for Canada. A white pine (*P. strobus* L.) was planted in memory of Dr. Peter de Groot, an entomologist from GLFC who passed away in 2011. This tree has been dubbed "Peter's pine." Another tree, closer to the parking lot, is a swamp white oak (*Q. bicolor* Willd.), which has been dubbed "Gary's oak" and was dedicated to Dr. Gary Grant, a GLFC scientist who passed away in 2011.

In 2022, three plaques were dedicated. The first plaque was placed at one of the Rocky Mountain Douglas-firs (*Pseudotsuga menziesii* var. *glauca* [Beissn.] Franco) in memory of Dr. John Cunningham, for his work at the GLFC in pioneering the operational use of insect viruses against defoliating forest insect pests. The second plaque was placed at a black walnut (*Juglans nigra* L.), which was planted in memory of Dr. Fred von Althen, a prominent GLFC hardwood research scientist. A third plaque was placed at another Rocky Mountain Douglas-fir in memory of Dr. Fred Beall, a GLFC research scientist who was a plant physiologist and hydrologist and a strong advocate for all staff and their research.

At the southern edge of this area, a bench has been placed within the conifer stand in memory of Tony Silc, a GLFC technician who passed away in 1982.

Other plantings in this grove include a sugar maple (*A. saccharum* Marshall), planted in recognition of the 100th anniversary of the Canadian Forest Service in 1999; a hackberry (*Celtis occidentalis* L.), donated by the Ontario Horticultural Association and planted to mark the 2002 Provincial Convention; and a sugar maple, which was planted in 2012 to mark the 100th anniversary of the City of Sault Ste. Marie.

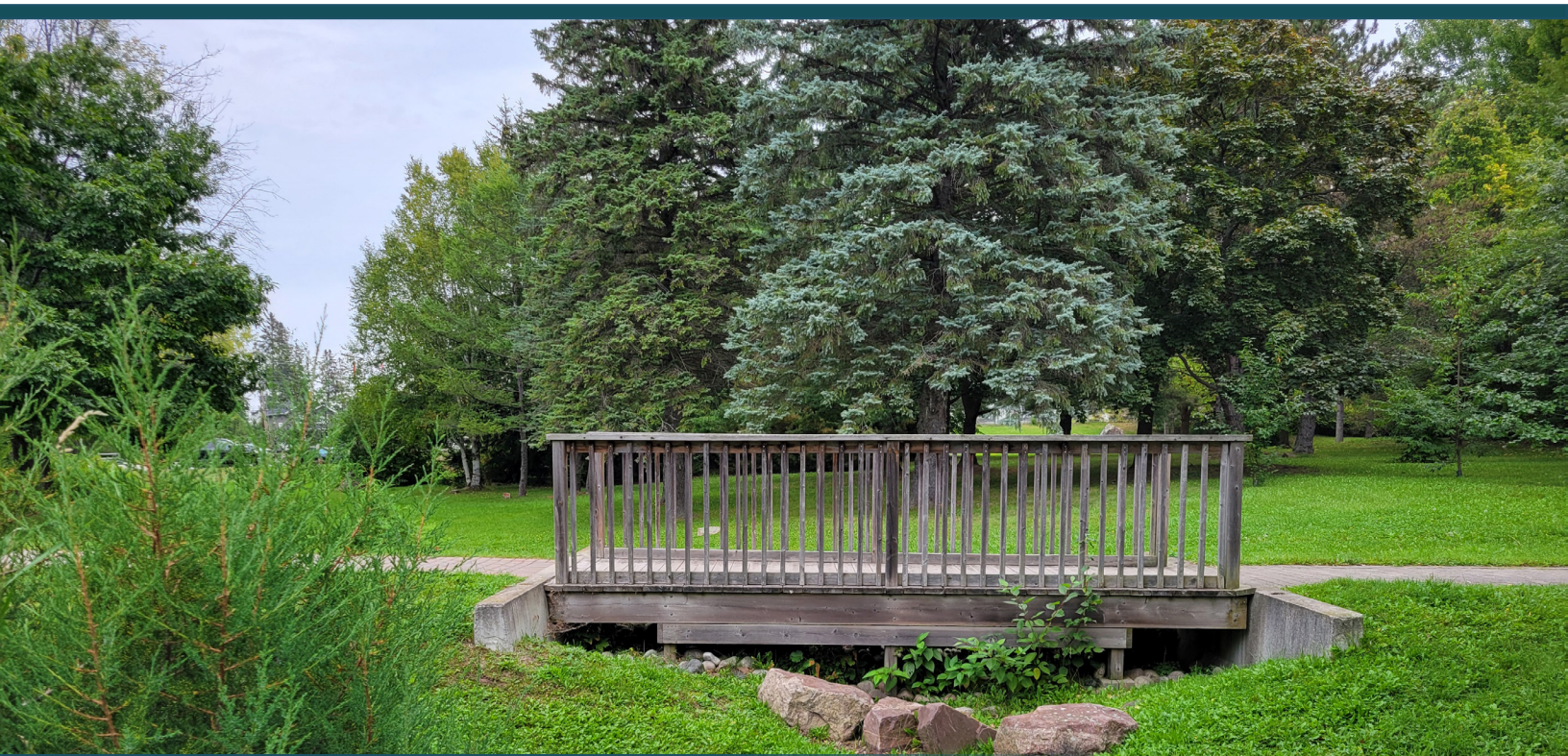
Approximately 150 metres to the west of the main Arboretum, there is also a bench and a Freeman maple (*A. ×freemanii* A.E. Murray), a hybrid red and silver maple tree that was planted in memory of John Graham from Fisheries and Oceans Canada who passed away in 2011.

Head east from Stop 2 to reach Stop 3.

Stop 3: The Bridge

This wooden bridge is a popular setting for wedding photography during summer months.

Head along the path towards Bellevue Park to get to Stop 4.





Stop 4: Arboretum Centre

At the intersection of the two walkways, you will be in the centre of the Arboretum. From this point, it is possible to see black cherry (*Prunus serotina* Ehrh.); ironwood (*Ostrya virginiana* (Mill.) K. Koch.); little-leaf linden; chinquapin (*Q. muehlenbergii* Engelm.), white (*Q. alba* L.), and black oak (*Q. velutina* Lam.); Smith's (*Salix × smithiana* Willd.) and white willow (*S. alba* L.); blue spruce (*Picea pungens* Engelm.); bitternut hickory (*Carya cordiformis* [Wangenh.] K. Koch); red maple (*A. rubrum* L.); and basswood (*Tilia americana* L.).



Stop 5: The Sandstone Rock Garden

On the north side of the path, you will find sandstone slabs that were unearthed during the planting hole excavations. The shrub bed at this stop is made up of exotic plants including euonymus, potentilla, smoke tree (*Cotinus coggygia* Scop.), royal purple smoke tree (*C. coggygia* Scop. 'Royal Purple') and *Forsythia* Vahl.

Stop 6: The Black Ash Tree

Take the south stone path towards the St. Marys River. Here you will see a group of three ash trees on the left, easily recognized by their compound leaves. The furthest south tree is a black ash (*F. nigra* Marsh.). It is one of our native trees and has a range that extends from eastern Manitoba to Newfoundland. For many years, Indigenous Peoples have made baskets from this species by pounding a block of its wood when it is thoroughly wet until the annual growth rings separate into slats fine enough to weave.

Of late, these trees are experiencing serious decline from the effects of emerald ash borer (*Agrilus planipennis* Fairmaire) infestation. In time, these trees will be removed and replaced with new species of trees.

Head back towards the Sandstone Rock Garden (Stop 5), turn to your right on the path, and walk three metres towards Bellevue Park.



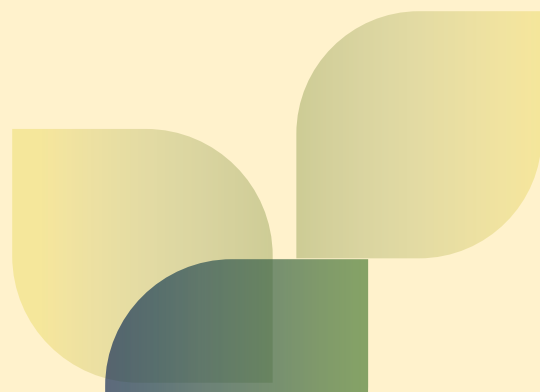


Stop 7: The Ginkgo Tree

About three metres from the path on the north side is a tree that is a long way from home: the ginkgo or maidenhair tree (*Ginkgo biloba* L.) of China. Ginkgo is the only known tree of its genus, and was unknown to European botanists until 1690, when it was discovered by a surgeon employed by the Dutch East India Company. The ginkgo is sacred in many Asian countries and is often found planted in the grounds of Buddhist temples and palaces in China, Korea, and Japan. In fact, it may owe its present-day existence to the Buddhist belief in its sacred significance, and the traditional temple plantings of this species. There are no known truly wild specimens of ginkgo to be found in its native China, indicating that temple cultivation may have saved this species from extinction.

Ginkgo is also thought to have several medicinal properties, the best known of which are the improvement of blood circulation and improvement of memory. The roasted seeds, when eaten, are thought to aid digestion, and according to Buddhist monks, diminish the effects of drinking wine. Ginkgo tea is, by tradition, said to be good for nervous disorders.

From Stop 7, walk towards Bellevue along the stone path, looking on the north side, for a bush with large, heart-shaped leaves.





Stop 8: The Catalpa Tree

The northern catalpa (*Catalpa speciosa* Warder) is not truly hardy enough for successful establishment in this plant hardiness zone, and the shrub-like form of this specimen was the result of the almost-annual freezing damage. In southern Ontario, the Catalpa grows in a truer tree form than the individual seen here, and will produce a single, branchless stem. Its orchid-like flowers make it a spectacular addition to any garden. Interestingly, with a warming climate the Catalpa is growing larger but likely will never fully grow into a tree after years of suppression by damaging winter conditions.

Flowers usually appear in late June or early July. Very few seed pods have been produced by this tree to date, but if you look carefully a few weeks after flowering has finished, you may see some of the long green seed pods that give Catalpa one of its common names, Indian bean.

To reach Stop 9, walk towards Queen Street, parallel to the hedge on your right.



Stop 9: Eastern Hemlock

The eastern hemlock (*Tsuga canadensis* [L.] Carrière) was once a commercially important species due to the high tannin content of its bark. This graceful tree is very shade tolerant, and because of its leaf form and branching habit, can support greater amounts of snow than any other eastern Canadian tree species.

This attribute makes it important to wildlife, especially white-tailed deer. The deer will gather in large groups, known as deer yards, in an area of dense evergreen trees when extreme cold and deep snow threaten their survival. The canopies formed by evergreens, particularly stands containing a high proportion of eastern hemlock, intercept as much as 60% of each snowfall, providing an insulating blanket overhead with an area of shallow snow beneath.

Continue towards Queen Street through the grove of mixed pines and turn to your left.

Stop 10: Sandstone Boulders

Just beyond the eastern white pine, Ontario's official provincial tree, you will see three large boulders. These are fragments of Paleozoic Cambrian sandstone that were uncovered during construction excavations for the Ontario Forest Research Institute. They may not have originated on this site but are of interest because they are part of the Jacobsville formation, which underlies the Sault Ste. Marie area.

The excavation of the Sault Locks (now known as the Sault Ste. Marie Canal Historic Site) provided much of the sandstone used in the construction of some of the most historically important buildings in Sault Ste. Marie, including Precious Blood Cathedral, St. Luke's Cathedral, the Sault Ste. Marie Museum, and Mill Market Square. Unquarried sandstone was also used in the building of Charles Ermatinger's home and fur trading post, the Old Stone House, the oldest stone building west of Toronto), and the Bishop Fauquier Memorial Chapel at Algoma University.

Head northwest to the low area between the GLFC parking lot and the Ontario Forest Research Institute to arrive at the Arboretum Grove.





Stop 11: Arboretum Grove

This area comprises trees that were on site at the time of the construction of GLFC. The oldest and largest trees in the stand are the white elms. Precautions were taken to prevent Dutch elm disease (*Ophiostoma ulmi*), using a chemical injection system developed and patented by GLFC scientists. Despite these efforts, the GLFC has seen the loss of several large white elm trees in recent years.

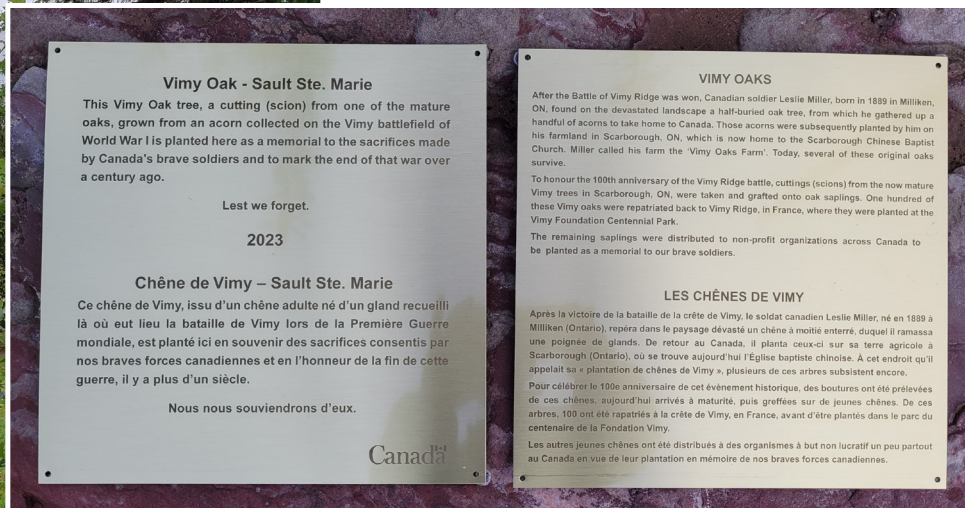
Treatment and monitoring of the white elm will continue in efforts to preserve this species of tree at the GLFC.

Green ash is also present in the canopy, and like the Arboretum, the ash are in decline from the infestation of the Emerald Ash Borer.

As a result, in 2017 new species of trees were planted to diversify the tree cover in this area, including shagbark hickory (*C. ovata* [Mill.] K. Koch), bur oak (*Q. macrocarpa* Michx.), and black maple (*A. nigrum* F. Michx.). The objective of these tree plantings is to make the area more resilient to change brought on by climate warming and invasive species.

Head west along the paved pathway from Stop 11 to reach Stop 12.





Stop 12: Queen Street Dedication Grove

This area has many trees dedicated to honour special occasions in Canadian history, including commitments to collaborations between our First Nation partners in research and understanding.

There have been two sugar maple trees planted in this area. The first tree honours the renewal of collaborative relationships between NRCan, CFS, GLFC and Batchewana First Nation and the second honours a similar relationship with Garden River First Nation.

One of the most significant trees in this area is the Vimy oak (*Q. robur* L.). This tree holds special significance to all Canadians because it has been planted in recognition of the significant losses and injuries resulting from World War I. This tree is a cutting (scion) from one of the trees in Scarborough, Ontario, which were grown from acorns collected from the battlefield by a Canadian soldier following the Battle of Vimy Ridge in 1917. This battle holds special significance to Canada because it was the first time that all four Canadian divisions fought together, and the soldiers represented all regions across Canada. The GLFC applied and was granted the honour of planting this tree here.

Tree and Shrub Species in the Arboretum

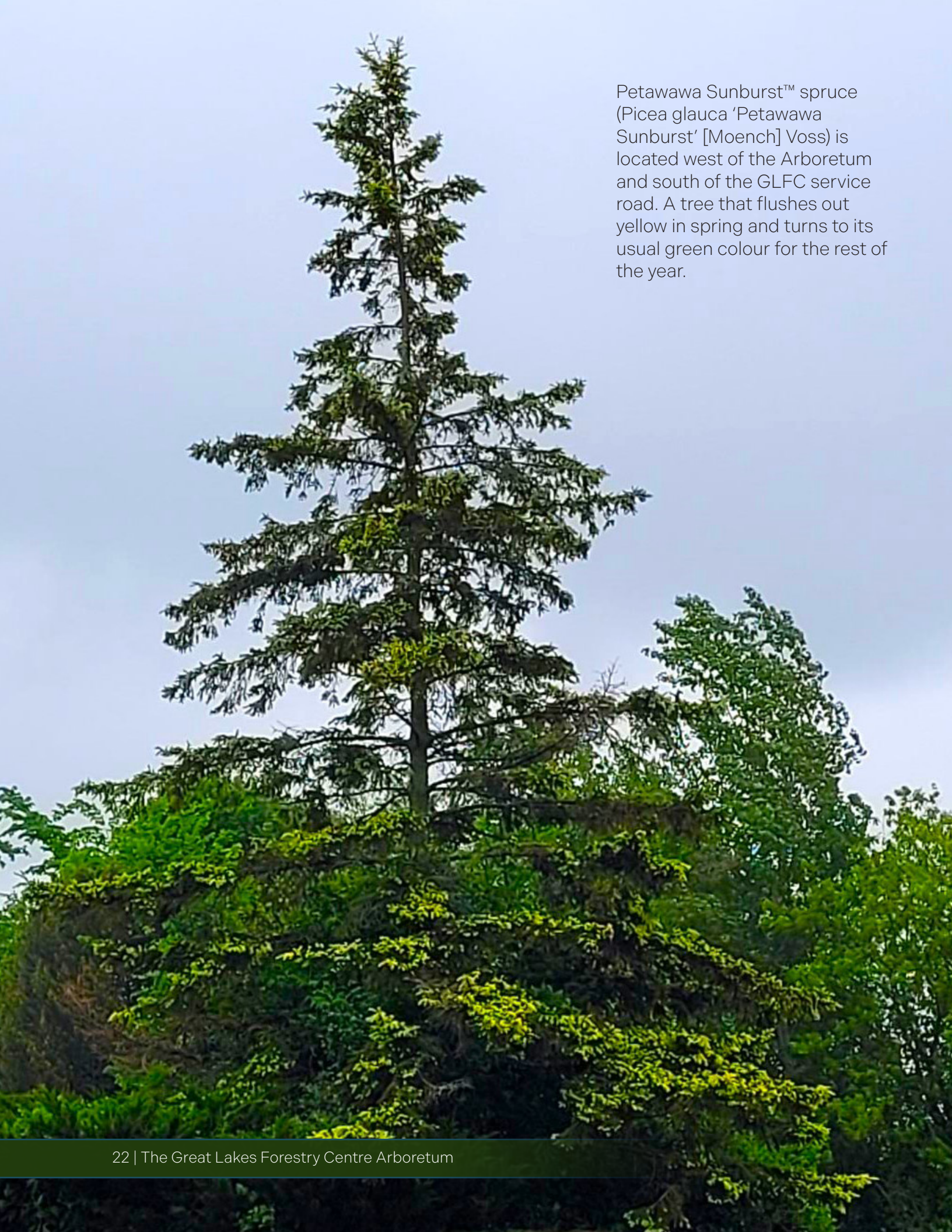
Plant material was obtained by collection from the wild, by rooting cuttings from various plant sources, by producing plants from seed, and by purchase from commercial nursery sources. The Ontario Ministry of Natural Resources also provided a number of both native and non-native species from former, provincial government nurseries in St. Williams and Midhurst, Ontario. Some individuals also donated plant material from their own nurseries and properties.

In 2017, the GLFC Grounds Committee initiated a major renewal effort to maintain the tree canopy, which included the Grove and the Arboretum. As a result, 60 trees were planted, representing 16 new species. Through a generous donation of seedlings from a nursery in northern British Columbia, the Arboretum added whitebark pine (*Pinus albicaulis* Engelm.), yellow-cypress, amabilis (*Abies amabilis* Dougl. ex J. Forb) and subalpine fir (*A. lasiocarpa* [Hook.] Nutt.). Saplings of limber pine (*Pinus flexilis* E. James) and Rocky Mountain Douglas-fir were shipped from Alberta and planted in the Memorial Grove as well. With these additions, the Arboretum now has 10 species of trees from western Canada.



Species Identification

Identification plaques are attached to sandstone blocks beside one representative of each species planted in the Arboretum. Each plaque gives the botanical (scientific) name and the common name of the tree in English and French. The book *Trees in Canada* (2017) and the websites [Canadensys](#) and [EPPO Global Database](#) were used as the nomenclature authority for each of the plant species.



Petawawa Sunburst™ spruce (*Picea glauca* 'Petawawa Sunburst' [Moench] Voss) is located west of the Arboretum and south of the GLFC service road. A tree that flushes out yellow in spring and turns to its usual green colour for the rest of the year.