

# PETAWAWA RESEARCH FOREST

## THE PETAWAWA RESEARCH FOREST ARBORETUM

*By Robin Cunningham, Chair of the Board of the Friends of the PRF, Renfrew County Chapter*

I have this itch to collect and grow trees. As a retired forester, a naturalist, and occasional part-time teacher, I want to capture diversity and rare species. My hobby nursery at home competes for space with my wife's vegetable garden. Our home is on a nice, wooded lot but with few places to plant trees. I am currently the Chair of the Friends of the Petawawa Research Forest (PRF), and the PRF gave me a place to expand my collection of diverse and rare tree species. The following highlights what we are doing to create a special arboretum at the PRF.

Over the years we have been giving tree identification sessions at the PRF to various groups. I would bring potted trees of species not on site. I asked Peter Arbour, then Operations Manager at PRF, for a place to plant. He said: "Why not an arboretum?" and he had a site in mind—the old town site of the Petawawa National Forestry Institute. Closed in 1996, the buildings were removed and bulldozed, and the town site had since sat idle.

There is reasonable soil on this level site (we noted sugar maple, white ash, and basswood were seeding into the vacant lots); however, where the buildings and driveways were removed, rough fill materials would be difficult to dig and likely poor for trees. I might need help, but we could make it work. I started in 2013.

I wanted to plant our native Ontario species: all of the trees in our Great Lakes - St. Lawrence forest region (which also includes the boreal forest trees), but also species from southern Ontario - the Carolinian Zone. Many of these we know can grow here (i.e. black walnut, pin oak, and hackberry- we see them in our towns and parks), but others may never have been attempted (i.e. black oak and hickories). With climate change/global warming, our climate might be improving for species not thought to be hardy. And with losses of several of our tree species to alien pests (Dutch elm disease, emerald ash borer, butternut canker, and more on the way), assisted migration may be needed to restore forest diversity. Observing performance of southern trees in our Arboretum makes it a research experiment.



*Welcome sign for visitors at the Arboretum at Petawawa Research Forest.*

Restricting selection to Ontario trees only might have been preferable, but we inherited some exotics-commercial trees and plants that former townsite residents planted that have persisted and spread (some examples: crab apples, Amur cork tree and Siberian peashrub). As well, there are some exotic trees that have seeded in from forestry



*The author, Robin Cunningham at the 2023 U of T Master of Forest Conservation Winter Field Camp.*



experiments (such as Japanese and European larch). Some of these plants may be undesirable, but we will accept them, and our broader collection will be a teaching tool.

We are planting other species of interest to forestry such as from farther south in the eastern U.S., western North America, and Europe and Asia. We are avoiding species that can become invasive (i.e. Scots pine, Norway maple and Manitoba maple). We are not looking for more non-native ornamental or fruit trees. But although horticulture is not a prime objective here (as it is in other arboreta), visitors might well look at what we are growing to inspire their own tree plantings, whether for home or field.

Since the beginning I did not want to purchase expensive, large nursery stock. This would normally be required in an urban park where there are so many risks of damage from people traffic and park maintenance equipment. I knew we would not be having large numbers of visitors at the PRF, and we do not want to do intensive lawn maintenance. As well, purchasing large caliper trees of species with questionable hardiness is risky and ill-advised. Therefore, I have been planting inexpensive, smaller stock and home-grown trees. They are “more bang for the buck” and less painful to lose if they don’t make it. There are advantages to tree growth and survival in planting smaller trees, especially for species that are difficult to transplant, such as hickories and beech.

My tree sources have been:

- Nurseries selling small (i.e. forestry) stock: Ferguson Forest Centre (Kemptonville), PineNeedle Farms (Pontypool), St. Williams Nursery and Ecology Centre Forest (St. Williams). I am finding species from farther away from TreeTime Services (Alberta) and Nutcracker Nursery (Quebec). (Note that for forestry and naturalization purposes the local nurseries are probably the best sources, but I’m experimenting.);



*Arboretum at the Petawawa Research Forest.*

- Some nursery-garden centres;
- Many species of nuts and seeds collected in my travels and grown at home;
- Transplanted from home, areas within the PRF, and a few from roadsides. Often these species are not available commercially, so I nurse them at home for a couple of years, before bringing them to the arboretum; and,
- Gifts of trees from friends with similar interests.

I’ve arranged tree species in groups of like species for comparison. The field near the back (that used to have a small apartment building) has many Carolinian trees, including a collection of oaks—13 kinds so far. Another lot has our collection of conifers.

So far, we have planted 187 trees of 85 species. We have lost a few and are seeing some winterkill. Perhaps some species may not be hardy here at all—or else the climate hasn’t changed enough yet. I have more trees in my mini-nursery at home coming along, and I keep shopping. I am asking PRF staff for more space to plant.

We have used picks and shovel to dig holes, and this old guy has really appreciated student help. Some topsoil

and soil amendments were brought in and incorporated. Mulch mats and mulch (including shredded ‘biomass’ from a PRF research project) were placed around each tree. I water at the time of planting and, for the newest planted trees, during dry spells. I also installed rabbit guards on many of the young hardwoods, at least for the winters.

Weed control has been a challenge. On one occasion we spot sprayed with glyphosate (with licensed PRF staff). Perhaps we should have done more of this, especially for the young hardwoods. As the forest gradually fills in these lots (along with some of those aliens), we have had to do brush control. A few large dead trees have fallen. However, Friends of the PRF Board member Frank Knaapen and his Algonquin College students have been practicing their chainsaw skills for us.

We have been lucky that not many of our trees have been eaten. We have not seen deer browsing; I believe the annual controlled deer hunt at the PRF has kept the population down enough. Other parts of Renfrew County have large numbers of deer and landowners see significant browsing on young trees—even on red and white pines. There has been amazingly little mouse damage. I am so glad we



do not have cottontail rabbits here. There has been minor insect feeding; I often rub caterpillars off young trees by hand, but I've avoided spraying.

I have chosen to use inexpensive labelling for now. I print labels on paper, with species name in English, French, and Latin (the scientific name), along with QR codes that lead to species descriptions on the internet. I laminate signs and attach them to 2'x2" posts. These labels are not long-lasting but are easily replaced.

The Arboretum is used by Algonquin College Pembroke classes (Forestry Technician, Arboriculture, Adventure Naturalist, and Environmental Technician programs). I volunteer to help teach tree identification (and of course, to show off my trees). Other groups visiting include high school teachers (on the CIF Teacher Tours), Friends of the PRF members, Renfrew Chapter OWA members, Pembroke Area Field Naturalists, and Deep River seniors' groups. PRF staff mow some lawn to facilitate these tours (and probably reduce the risk of ticks). We've installed some bench seats for rest and relaxation- especially for me.

The Friends of the PRF and I have not had to spend big money for this project. Along with the pre-existing trees

on site, the Arboretum is becoming a useful collection for education and a fine place to visit.

Thanks to all who have helped out: the many friends and student volunteers and the Friends of the PRF for funding. The PRF staff have been very supportive. The Arboretum is growing better every year. 🌱



*Tulip tree (Liriodendron tulipifera), will it be hardy here?*



*Robin speaking to a group of students at the Petawawa Research Forest.*

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