

Unconventional Trees in the Halifax Streetscape

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Most people are aware, having seen the evidence in the streets of their neighbourhoods, that any new trees planted streetside are invariably rather large saplings that arrive with their roots in a ball surrounded by burlap and a wire net. These saplings are grown in commercial nurseries (our stock mainly comes from Ontario) where they are pruned several times between seedling stage and the time of sale. The pruning is done to make sure each tree has good structural integrity with a strong single trunk and branching appropriate for the species (for example, elms are quite different from oaks). So while we can get considerable variety across tree species and cultivars, the physical condition of the planted stock is pretty much the same from tree to tree.

Sometimes, though, there are circumstances during the life of the tree in its streetside home that cause the tree to grow in unintended ways. Mostly this has to do with some sort of physical injury to the stem, and that could happen at ground level or higher up in the crown. The injury could be natural, as in the case of storm damage, or it could be done by humans, as in the case of vandalism or professional cutting. In other situations, a tree may find its way into the tree lawn by means of the owner or occupants of the adjacent residence. In this article I will feature examples of street trees and near-street trees on the Halifax peninsula that are growing in rather interesting ways. I rather like this form of diversity because I find a steady diet of perfectly shaped, broad-leaved street trees to be a tad boring. I hope these peculiar trees, especially the young ones, have long and happy lives, and I encourage you to visit them and take in their diverse beauty.

1. A Linden “Snag” Springs to New Life

Water sprouts are new branches that grow from dormant buds in the trunk or large branches of a tree. The branches are usually small but they can be abundant. In Halifax you will see them frequently on elm trees. Arborists generally eschew water sprouts for a variety of reasons and when they visit a tree to prune it, they take off all the water sprouts. I recently chatted with an arborist studying for his PhD on tree biomechanics and he is adamant that water sprouts should stay on the tree – they do more good than harm.

There is a noteworthy linden tree on Quinpool Rd. at the front door of Superstore. The tree was starting to show signs of decline so the HRM Urban Forestry group decided to fell it a few years ago. The felling of large street trees is often done in two stages - first the top and branches are removed, thus rendering the sidewalk and street environment under the failing or dead tree safe for people. That leaves the main trunk to be removed later when the crew can return with a special truck onto which the large log(s) can be laid for transport to the wood yard. Most of the time the trunk (we could call it a snag now, which is what we call still-standing dead trees in the woods) and roots die, but occasionally what's left of the organism does not die and water sprouts appear on the trunk. This shows the tree's power to stay alive, something it cannot do without leaves, of course.

As the photo shows, the Quinpool linden has a consistent crop of water sprouts all along the stem which I estimate to be about eight metres tall. I have discussed this tree with Urban Forestry staff and encouraged them to leave this specimen standing for as long as it is safe to do so. If and when Quinpool Rd. gets a much-needed rebuild through this busy section between Robie and Oxford, this tree will doubtless have to be sacrificed and removed. But in the meantime, it continues to provide a range of ecosystem services and gives at least me great delight about the power of some trees to stay alive. I marvel at this tree every time I saunter past it (I live in this neighbourhood so I see the tree frequently).



2. The Cultural Techniques of Pollarding and Coppicing Trees

Before looking at more examples of interesting trees in Halifax, let us make a small diversion and delve into two tree-growing techniques that take advantage of the fact that tree root systems

and trunks - particularly among the angiosperms (trees with enclosed fruits rather than cones) - can remain alive even when the entire crown of the tree is lost for some reason. This continued life depends, though, on immediate growth of new crown components (stems, branches, and leaves).

If a tree is cut at ground level and the stump (or stool) is expected to grow a new crown, we call that a coppice. If the trunk is cut significantly above ground level (say, two metres or higher) and a new crown is expected to grow from the site of the cut, that is called a pollard. It is my understanding that these tree-growing techniques were developed many centuries ago in Europe to perpetuate a continuing supply of small wood. In other words, you can get new stems faster by coppicing or pollarding certain tree species than you can by starting with seeds and seedlings. This is a consequence of there being a huge root system that grew with the original tree and that root system can service a new crown so much better with water and nutrients than the small root system associated with a new seedling.

Trees generally grow toward some kind of balance between the abundance of roots and the abundance of shoots. When the root-to-shoot ratio is way out of balance, the tree grows in such a way as to try to regain a semblance of balance. Looking at a new balled-and-burlaped sapling for planting streetside, the process of removing the sapling from the nursery necessitated leaving much of the sapling's root mass behind. So, when the sapling is planted, the organism works toward restoring the root-to-shoot balance. The hope is that the crown stays largely alive while the root system grows as fast as possible. Sometimes though, the crown exhibits dieback and that may be a result of the crown mass adjusting to the root mass.

Anyway, in pollarding and coppicing, the opposite occurs. The crown is removed and a huge root mass is left without a crown. If the organism has the right genetic makeup and suitable physical environment, it will try to re-establish a root-to-shoot balance by growing a new crown as fast as possible.

Why might medieval people have wanted small wood for their use rather than the large wood we associate with today's preferred timber production? I can see three reasons. First, their tools for procuring wood from the forest were crude and it was much easier for them to cut small wood rather than large wood. Second, small wood was already of a size width-wise for use in farm and building applications. Today we can easily saw big logs into usable lumber, but many centuries ago this was impossible. Finally, cattle and other livestock were often raised on fodder of new tree growth, and coppicing and pollarding were ideal methods for high production of the best fodder available from trees.

Coppice and pollard techniques are still in use today in certain situations. I visited eucalyptus plantations in Portugal some years ago. The plantations were established with seedlings with the expectation of harvesting about two hundred cubic metres per hectare at about 12 years of age. Then the plan is to coppice the stand four times at intervals of 12 years, each time expecting a yield similar to the previous one. I was told that this 60-yr cycle would begin again with a planting of new seedlings.

I have not seen pollarding in contemporary forest practice except in urban areas. I think the

reason to use pollarding instead of coppicing in days of yore would have been to keep the new shoots out of reach of wild herbivores and the livestock that would have grazed the woodlands. Anyway, pollarding is abundant in some cities in Europe (and perhaps elsewhere, but I don't have much experience observing urban forests beyond Canada and Europe). During a few-month stay in Bordeaux some years ago, I was fascinated by the pollarding culture there in relation to the London plane trees (which I reckon account for way over 90% of the trees in that city). I have included two photos of these trees, one where the pollarding was stopped and the crowns allowed to grow fulsomely, and the other where the pollarding is frequent. Apart from custom and habit, I fail to understand why such pollarding techniques are continued in contemporary urban-forest management. The only reason I can come up with is that shorter trees are more windfirm than taller ones so the pollarding would decrease potential windthrow. I hypothesize that many of the ecosystem services we expect to get from city trees would be much lower over time from pollarded trees than from "normal" trees.



3. A Catalpa Stump Intent on Remaining Alive

The second last tree along Charles St. on its west end was a mature northern catalpa (sometimes called a bean tree because the fruits are long beans). Mature catalpas are uncommon in Halifax so I have made a point of casually monitoring the few in my neighbourhood whenever I walk by them. The tree in question seemed to be doing well in its maturity until Hurricane Dorian ripped out most of its canopy. Probably less than ten percent of the canopy remained, rather high up on the stem. I thought that was the last of this catalpa.

To my delight, in 2020 the canopy showed signs of a rebound. The canopy that was left sprang to life in June and July (catalpas leaf out really late) and even seemed to expand and thicken. Despite the sadness I felt seeing one of our rare catalpas damaged so severely by a storm, I was relishing the opportunity to observe over the next years whether this tree could survive such significant damage. Then, to my dismay, in spring 2021 the tree was cut down and stump grinding scheduled. Thankfully the grinding did not take place (there's a backlog of stumps to grind all over the city) and out of the stump popped a slew of suckers (coppice sprouts).

According to the homeowner adjacent to this tree, somebody (of unknown identity) came by in early summer and cut off all the suckers. The tree was not about to give up and immediately grew a new set of suckers. I communicated with both the HRM urban foresters and the homeowner to see if everyone would be comfortable with me pruning out all but, say, three suckers to see if we could grow a new, multi-stemmed catalpa crown from the stump. The urban foresters warned that the resulting tree would not be as windfirm as the original, but despite that gave me the go-ahead. In October 2021, I executed the pruning (see the photo below). Then, in winter 2022, somebody pulled down all the remaining stems. Needless to say, I was discouraged by this. The stump then responded in spring that year by sending up new sprouts. Again I pruned out the smallest and left three to continue to grow. I also put orange-topped stakes around the stump and affixed a rope to them to indicate a "please do not disturb" zone. I really hope that we can engage in a pseudo-experiment to see if coppicing is a technique for urban-forest regeneration that might be used in special circumstances. For the time being, we have a no-cost tree in a spot where stump grinding and planting a new tree would together cost well over a thousand dollars.



4. Prolific Linden Coppices near Bell Rd. and along University Ave.

Some tree species are prolific stump-sprouters, as noted in section 2 above. Lindens are among them. In fact, most lindens around the city (and we have lots of them in the streetscape) routinely send out hundreds of stump sprouts each year. These are rather unsightly, collect windblown garbage, and reduce important visibility between the street and the sidewalk. So the sprout growth is regularly cut back either by the city or by adjacent property owners.

Like the catalpa discussed above, if a live mature linden stem is cut down for whatever reason and the stump is left, it will probably send up a wild profusion of stump sprouts the next growing season. This has happened at a few locations around the Peninsula. Two of these are: (a) along Bell Road at the south end of Citadel High School, and (b) on the south side of University Avenue just to the west of South Park St. The original trees may have been casualties of Hurricane Juan. I have been observing these coppices for two decades.

By nature, a coppice will self-thin over time. The more robust sprouts will dominate and the weaker ones will succumb. I have been visiting a red-oak coppice in Point Pleasant Park since just after Hurricane Juan. The coppice started out with, by my estimate, over a hundred stems. Today, I think it is down to about 15-20 stems. Probably in another couple of decades, it will be down to under ten stems.

Humans can intervene in the life of a coppice and thin the stems early so that growth is concentrated on a few stems that will most likely survive for a long time. The coppices along University Ave. have been thinned; those along Bell Road have not.

Coppices are rarely managed in urban settings in Canada. There is a strong tendency to favour new, single-stem trees. Stump-sprout regeneration is abundant in the woods of Nova Scotia following cutting or natural disturbances, but rare in the city (except for places like Point Pleasant Park which saw about three-quarters of its trees blown over by Hurricane Juan).



5. The Ash that Keeps On Giving

Some trees seem to defy the odds against their flourishing and keep on living and providing joys of various kinds to passersby as well as various elements of biodiversity. I marvel at the ash tree in the middle of the dry stone fence in front of Howe Hall at the corner of Coburg Road and Le Marchant St. Its trunk is wider than the fence at about a metre in diameter. If you examine the trunk on the sidewalk side, you'll see that the interior of the stem is rotting away (this is common in large old trees and is not a concern unless the tree was grown to provide lumber).

In summer when the tree is in full leaf, it almost looks like a normal tree that for some reason does not have a single stem. However, if you examine it carefully and up close, you can see that the entire crown of the tree was cut back a few decades ago. The tree is essentially a pollard (see section 2). I have no idea why the tree was cut back – it may have been in poor health at the time, or damaged in a storm – who knows. You can see the cuts on the original stems as well as the

new growth that sprang from twigs near the cuts. Despite the severe challenges to life that this tree has endured, it still keeps on giving. Let's hope that the emerald ash borer that is now in Halifax doesn't find this tree!



6. Clandestine Street Trees: Questionable Species Choices

It is a violation of city bylaws to plant your own tree on municipal property. Mainly I am referring to the verge (or tree lawn, or boulevard) between curb and sidewalk. “Administrative Order Number 2020-014-OP Respecting Boulevard Gardens” prohibits the public and property owners from planting trees in the verge. Despite this, it happens. And when it happens, one might be puzzled about the species the planter has chosen to install.

My favourite is a row of four trees on the west side of Chestnut St. at Coburg Rd. There are two white birches and two spruces. Neither of these types of trees is planted by HRM in the tree lawns around the city. White birch is generally not thrifty in the streetside environment and is relatively short-lived. When open-grown, spruces keep their lowest branches – sometimes at ground level – for a long time, and this impedes important visibility between the street (where

cars are) and the sidewalk (where pedestrians are). Nevertheless, these four trees are so far thriving in their urban home, and I marvel at their uniqueness.



7. Evergreen Conifers in the Streetscape

Urban foresters almost never prescribe the planting of evergreen conifers in the street environment. This for sure has to do with visibility issues between the street and the sidewalk, but doubtless also some considerations of low tolerance for some of the vicissitudes of urban street life such as wind and road salt. However, now and then one sees conifers planted streetside. My favourite example is along the northwest branch of Stanfield Ave. past St. Clair Ave. (see photo below). Here is a set of about ten native conifers – white pines and spruces. I have yet to inquire with the residents along this street about how it came to be that the street is lined with conifers. In this residential setting, I see no issues with this species choice.

