

## Toronto's urban forest is ailing

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***Trees, in all their green glory, become more valuable the longer they stand. It will take a sea change in attitude to cure it. Do we have the will?***

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In March 2007, Mayor David Miller announced that one of the key goals of the city's new green plan is to double the canopy cover of Toronto's urban forest, from 17 per cent to 34 per cent, by 2050.

This is not an easy task: growing an urban forest will take a lot more than sticking trees in the ground. It'll take a drastic change in our relationship with nature: a willingness to forgo the new pool in favour of a sugar maple, and to exchange prime downtown parking spaces for fertile beds of soil where tree roots can thrive.

Are Torontonians prepared for this? Do politicians have the will to stand behind their bold promises with strong regulations and the resources to accomplish their goals?

Within the city, trees become more valuable the longer they stand – other than land, they're the only amenity the city has that appreciates over time. A recent study completed by the City of New York concluded that the city enjoys us \$5.60 (U.S.) in benefits for every \$1 (U.S.) spent caring for its trees.

There are an estimated 7 million trees growing within Toronto's borders, at least half of them on private property. In the recently released Our Common Grounds report, city staff here estimate that Toronto's street trees alone are valued at nearly \$2 billion.

The greater the number of trees in Toronto, the greater the benefits to its 2.5 million inhabitants:

Strategically placing three broadleaf trees around a house can reduce cooling demands in summer by 40 per cent.

People shopping on a tree-lined commercial street are inclined to spend more and shop longer.

The appropriate mix of trees can filter out 85 per cent of air pollution in a park and 70 per cent in a street setting.

An average tree produces nearly 260 pounds of oxygen in a year.

Trees slow down rainfall and absorb water, reducing the amount of rainwater that must flow through our sewers.

Most importantly, trees make our city a healthy, beautiful place to live.

When I started working as an arborist, I got to climb big trees with ropes, pulleys and other shiny gadgets. I got to know trees first-hand and spent whole days working within their canopies. But the job wasn't always as idyllic as I'd hoped. I often winced as homeowners explained why they wanted to cut down their trees or expounded on the importance of keeping nature in check.

I'll never forget the guy who asked that I prune his birch tree in the shape of an umbrella. I tried to explain to him that birches don't grow like umbrellas, but he wouldn't hear anything of it. Then there was the nice elderly man who asked us to cut down his large and healthy elm tree because he didn't like raking leaves.

The hardest to stomach, however, was the friendly couple in Hoggs Hollow who asked that we cut down a bunch of 100-year-old sugar maples so they could have a view of the CN Tower 20 kilometres away. These experiences made me realize that urban forestry has as much to do with sociology as it does with ecology. One of the largest threats to the trees in our city is the attitudes of humans and the actions these attitudes engender.

Developers are humans with attitude. When looking at a piece of land, they often see a blank slate, regardless of what presently exists. In a way, it's hard to blame them: they're only trying to meet our ceaseless demand for new housing, and are often wooed by politicians eyeing the increased tax base. This is how suburbs are built.

Recently, while working as a consulting arborist, I was asked to prepare an inventory of trees for a proposed subdivision in a rapidly sprawling Toronto suburb. When I visited the site, the level of destruction I witnessed made my heart sink. Every living thing had been cut to the ground. A marshy creek that once flowed through the property ended abruptly in a muddy mess of bulldozer tracks and torn-up roots. In one corner, the remnants of tree stumps were stacked in a pile.

Unfortunately, the process in Toronto is not much different. Many developers, architects and engineers view trees as a hindrance to their plans rather than as a valuable resource worth preserving. I can't count the number of times I've been presented with plans for a site with the location of proposed buildings laid directly on top of existing mature trees. One example I witnessed was a magnificent 25-metre American elm that once stood in front of Wellesley Hospital. When the hospital was demolished, the tree was cut down. There's now a continuing-care facility in its place. The building is a valuable contribution to the neighbourhood, but with some creativity, the tree could have been preserved.

My experiences as the education and outreach co-ordinator for Local Enhancement and Appreciation of Forests (LEAF), a non-profit organization that raises awareness about urban forestry and plants trees in backyards at a subsidized rate, though generally uplifting, can at times be disconcerting.

While most people care immensely for trees and want them in the city, few understand how they grow or the care they require. When people call to order a tree, for example, some are frustrated to hear they'll need to wait until the appropriate season to have it planted. As consumers, we expect things to be available immediately. People think redoing a backyard can be done in a weekend. It's hard to fault people for not being more sympathetic to the needs of trees, considering how little we're taught about their care.

Trees are part of our shared history and imagination, the subject of books, poetry and art. Tree metaphors are littered throughout our language: putting down new roots, nipping it in the bud, going out on a limb, branching out. But the ubiquity of trees doesn't necessarily translate into understanding or knowledge. Instead, we tend to take them for granted, assuming they'll always be there and they can take care of themselves. The hinterland is so much a part of Canadian mythology that we tend to overlook the nature in our own backyards. Children know more about tigers and sharks than they do about trees, despite the fact that trees are the largest and oldest living things on earth. Considering the pressures facing our trees, this is something we must work to change.

Our urban forest is ailing: according to a study prepared for Urban Forestry Services, it decreased in size by a staggering 24 per cent in the decade between 1994 and 2004. We now have a mere 17 per cent canopy cover for the entire city. Comparatively, studies recently completed by American Forests, a national non-profit urban forestry organization, found that Washington, D.C. boasts canopy cover of 40 per cent, while Ottawa enjoys coverage over 27 per cent of the city.

Many of the large old trees that line Toronto's downtown residential streets were planted nearly a century ago. They're getting old, and many are dying. Walking up Broadview recently, I counted four dead mature silver maples and a half dozen more on the edge of life. Their canopies were sparse and their highest branches were dying back. We've been remiss over the last century in not planting younger trees to eventually replace these old ones. Now we're forced to replace 23-metre trees with 1.5-metre ones that will take decades to grow as large as their predecessors.

The kilometres of forested ravines that wind through our city are not faring much better.

Exotic tree and plant species – like European buckthorn and garlic mustard – brought from other parts of the world have, over past decades, seeded into the ravines. They are wreaking ecological havoc on these green corridors, which contain the city's last remnants of the original mixed hardwood forest that once covered the majority of southwestern Ontario. Exotic species have few natural predators and are able to overtake native plants, starving them of light, water and space to grow. Compounding these pressures are the torrents of stormwater that course off the surrounding pavement, sidewalks and rooftops, washing the fertile soil from the ravine slopes and into the rivers. Walk along almost any ravine trail and you'll see signs of the damage: deep ruts in the soil leading down to the river; large expanses of non-native Norway maples with bare soil underneath, their roots exposed; the hulking trunks of dying old oaks and beeches, the young saplings that should replace them nowhere to be found.

Drought, an increasingly common feature of Toronto summers, is one of the largest killers of trees in the city. Often, during the summer months, weeks pass without rain. Trees growing in forests are protected and can go longer without rain, but those that grow out in the open, amongst baking concrete buildings and roads, quickly dry out and die. Ultimately, though, our growing population and the subsequent increase in urban density are taking the largest bite out of our urban forest. On the upside, building condos, houses and offices closer together curbs urban sprawl, thereby limiting the number of trees lost to new subdivisions. On the downside, however, these new buildings take their toll on the trees already growing within the city boundaries. The good news is that Torontonians care about their trees, and we're ahead of the rest of North America in our willingness to protect them.

The best example of this is Toronto's Private Tree bylaw, which states that, on private property, no tree over 30 centimetres in diameter at breast height (1.4 metres off the ground) can be cut down without permission from the city. A version of this bylaw was passed in pre-amalgamation Toronto in 1994 and was harmonized across the entire city in 2004. Implementing the bylaw took real political will: right-wingers on city council protested that the bylaw was an infringement of property rights and said the citizens of Toronto would never support it, but the backlash never came, despite the efforts of some media outlets to portray the bylaw as "controversial."

Individual citizens are also doing their part to help the urban forest. There are hundreds of volunteer groups working in Toronto to nurse our ravines and natural areas back to health. The High Park Volunteer Stewards, a group of over 25 people, have, for the past eight years, spent their free weekends restoring the park to its natural state as an oak savannah. Others are working to grow the urban forest in their own neighbourhoods, along the streets and in yards and local parks.

The secret to growing trees in the city is providing their roots with the space, soil and water to grow. Over 40 per cent of a tree is below ground – the majority of a tree's roots are usually in the top two feet of soil. These roots, which can extend out twice as far as its canopy, suck up the water and nutrients a tree needs, yet they can only survive in fertile soil that has a good mix of organic matter, water and oxygen.

The problem is that space in the city is limited, and finding 90 square metres of fertile soil to accommodate the roots of a mature tree is not easy. This is where we have to make sacrifices. The days of planning new buildings first and taking stock of the trees later must come to an end. We should not only protect existing trees, we should also ensure that the trees planted after construction are given the space and care to thrive.

Likewise, if we want tree-lined streets to walk as we shop, we're going to have to cede trees space. And the areas where we have the most room to spare are those we presently dedicate to cars. Taking out a single lane of traffic on any major street would provide all the room necessary to grow a row of large, healthy trees. The water the trees require could be harvested from the rooftops of nearby buildings and stored in large tanks until the trees require it.

These changes will cost money up front, but once the trees begin to grow, savings will be realized almost immediately: for instance, trees shade buildings, reducing energy demands; they shade asphalt on city

streets from the damaging sun, reducing the need for resurfacing; they cool and protect people, making them less likely to suffer from heat related health problems.

An urban forest cannot be grown in a four-year election cycle. It will take a century. We must explore basic questions before we start massive planting efforts: how many trees do we have? What condition are they in? Are they receiving proper care? Which species need to be pruned, and how often? Where is there room to plant? Who will maintain planted trees?

The city should immediately set up an urban forestry task force that will develop a plan, characterized by clear objectives and measurable outcomes, for how to care for new and existing trees. It should invest the resources to train citizens to care for their own trees and those on public property: we need to get water hoses into people's hands. Facilitating citizen responsibility for the health of trees ensures they are cared for and have vocal proponents for their protection.

The city should also provide homeowners and businesses with incentives, financial and otherwise, to plant trees. For instance, it could offer a reduction in property taxes as the canopy cover of a property increases. In addition to these initiatives, existing tree bylaws must be properly enforced.

At present, bylaw inspectors are struggling to keep up, and people have to wait months to have their building plans reviewed. Inspectors often spend their time reviewing new files and don't have time to go out and inspect if trees are actually being protected. As a result, responsible homeowners and developers who follow the rules have to wait months and spend additional money while scofflaws build their houses in half the time because they completely ignore bylaws – whether by damaging or cutting down trees – with little fear they will be enforced.

The city should make its green development standards, which state that any new development must have a canopy cover of 20 per cent at maturity, mandatory and implement even higher targets for low-density development. Developers and property owners that meet these targets should receive a reduction in taxes or service charges, as a reward for contributing to the betterment of the city.

Finally, programs should be developed to encourage home and business owners to remove hard surfaces such as asphalt and replace them with soil, trees and access to water (ideally rainwater, harvested from rooftops).

Underused corners of parking lots, schoolyards and industrial properties could be easily transformed into fertile spaces for groves of staghorn sumac, stands of oaks or a mix of native maples, beeches and hemlock trees.

We must recognize the full value of the wondrous entities within our midst and provide them with the reverence they deserve. The greater the respect we afford trees, the greater the benefits they provide.