

Forests *of our* future

Trees are hardy and resilient,
but can they adapt to long, hot summers?

BY CAROL JANKOWSKI

PHOTOGRAPHY BY TOMASZ ADAMSKI

Climate change and invasive pests like the emerald ash-borer show us what lies ahead, not only on a global scale, but in our cities, parks and backyards.

With few historic models of global warming on which to base scientific tree research, it's difficult to know for certain how our trees will be affected, says certified arborist Phil Dickie, manager of Kitchener-based Fast Forest, whose speciality is transplanting large trees.

"If plant hardiness zones do change, there is the possibility of a shift of typically more southern trees being able to survive in more northern areas," Dickie said in an interview. "Here in southwestern Ontario, we could see more Carolinian tree species becoming more prevalent. Some researchers predict our temperate and boreal forests will shift north ... expanding into the tundra.

"I would hope that if climate change occurs slowly and is not severe, our oaks and maples might be capable of adjusting over a period of time. Trees can be quite resilient to slight changes in their environment."

Municipalities insist on having a variety of trees planted in newly developed subdivisions and commercial properties, says John

Albrecht, vice-president of John's Nursery in Waterloo.

No one wants even a small-scale version of the disaster still scarring the slopes of British Columbia's northern mountains where, between 1990 and 2005, the invasive mountain pine beetle destroyed 18 million hectares of pine trees, leaving only woody skeletons behind.

Albrecht points out that in the 1940s and '50s, so many Norway maples were planted in Ontario that they account for one-third of the province's forests. Since all living organisms have their own pest or disease, such over-dependence on one species of maple leaves Ontario forests vulnerable.

Today, biodiversity is essential. The planting plans that get speedy approval feature native or native hybrid species such as scarlet and Freeman maples, basswood and hackberry trees, all of which are found in the Carolinian forest that ranges along the eastern edge of North America from the Carolinas to Waterloo Region on its northern edge.

Many species are available, but "Ontarians are programmed to plant maples," Albrecht says. Although John's Nursery recommends a preliminary soil test to determine which species would grow well on a particular property, 70 per cent of the trees they sell



This 'Worplesdon' Sweet Gum, along with other trees illustrating this feature, was photographed at John's Nursery in Waterloo.

are maples.

But not just any maple. He no longer stocks Norway and silver maples. However, he does like Freeman maples, which do well even in the poor soil conditions of most new subdivisions, and also the newer Autumn Blaze maple. Both species tolerate hot, dry weather.

Ron Wu-Winter, who holds a master's degree in forest conservation and manages watershed forests and planting for the Grand River Conservation Authority, points out that "southern Ontario is so dominated by humans that forests have already been shaped and influenced by that in the last 200 years."

The conservation authority plants 250,000 to 300,000 trees every year, half of them on private land. "Part of the trick is we are planting in current climate, but also must look 40 to 50 years down the road," Wu-Winter says. Already, more southerly sycamores, hackberry and Kentucky coffee trees "can do OK in an urban or sheltered area here."

To ensure it has a variety of trees and shrubs available, the conservation authority operates its own nursery in Burford, near Brantford. The nursery was originally in Belwood, but was moved to take advantage of Burford's sandy soil that young trees love.

While climate change has influenced tree-planting decisions at the conservation authority for at least 15 years, another factor is the growing number of foreign insects and diseases introduced through increased international trade.

Dutch elm disease was an early example. More recently, the emerald ash borer arrived in wood shipping crates from Asia. Beech and walnut trees have their own imported diseases, and "the hemlock insect is on our doorstep, coming from the southern United States," Wu-Winter says.

Indeed, the woolly adelgid, which infests and eventually destroys hemlock trees, is already at work in the northeastern states and first appeared in Niagara and Toronto



KENTUCKY COFFEE TREE



NATIVE TULIP TREE (CAROLINIAN)



'REDMOND' AMERICAN LINDEN/BASSWOOD



'AUTUMN BLAZE' FREEMAN MAPLE

in 2013. The insect, less than 1.5 millimetres long, produces a wool-like wax to protect eggs it deposits on the underside of needles at the tips of branches. When affected trees were spotted in Ontario, they were destroyed to try to stop the pest from spreading.

The conservation authority typically plants three to 10 hectares at a time with a selection of trees ranging from maples to white pine and spruce trees that are easily established.

Although the conservation authority is particularly proud of its sugar maples, Wu-Winter says these trees likely won't do as well when our summers become longer and hotter. As for spruce, this region is already at the species' southerly edge.

"We're expecting a lot of variability, with early spring that may be hit by late spring frost," Wu-Winter says. Byng Island and Elora trees already show some vulnerability.

"It's important to maintain or restore areas in the watershed," he says. "Nature can work with even a few species if some trees are lost. We might be surprised by what we'll discover."

Tanya Olsen, Royal City Nursery's third-generation owner/operator, believes consumers already look at trees with more than aesthetics in mind.

"Even five years ago we didn't hear customers talking about improving air quality or providing wildlife habitat with their trees. Now more are thinking beyond robins and blue jays. They are more aware now of native species such as red oak, red maple and hackberry."

Olsen, who has a degree in landscape architecture and teaches part time at Humber College, says that years ago, maples represented 50 per cent of the 400 to 600 trees Royal City orders each year. Now maples represent less than 10 per cent of its tree sales.

Trees in urban areas should be chosen to suit not only a property's soil conditions and climate, but also the owners' lifestyle, she says.



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AMERICAN SYCAMORE

RURAL PLANTERS MAY GET ADVICE, ASSISTANCE

Under a program intended for rural property owners, particularly farmers, the Grand River Conservation Authority provides advice and a planting plan to develop a windbreak, hedgerow or shade for a watercourse. On behalf of the owner, it may also hire a private contractor to do the work. There may also be some financial support.

Such plantings range from as few as 50 trees (if the owner is buying larger plant stock) to 5,000 or 10,000 trees.

However, an owner who wants to start with seedlings would need to plant a minimum of 500 to be eligible for assistance.

Source: Ron Wu-Winter

WHAT'S NEW IN NURSERIES

In the last decade, some nurseries, including Meadow Acres, have

purchased more container-grown trees that have a couple of advantages, such as roots that just need to be pulled apart before they are put in the ground, compared to field-grown trees whose roots have to be cut out of the ground.

Also, container-grown trees can be planted at any time, whereas field trees have periods of active growth when they can't be disturbed.

NOT SURE WHAT YOU WANT?

- Landscape architect Tanya Olsen says beautifying your property begins with asking yourself who uses your garden. A couple with small children needs something different than a professional couple.
- Pool owners need trees that won't drop flowers or leaves to clog the pool skimmer. For them, varieties of maple and beech that hold their leaves beyond pool season, sometimes even over the winter, or small-leaved trees, such as the honey locust, are worth considering.
- If you want a smaller tree because you have a small lot, options include dwarf and columnar trees. If you rule out an oak because they grow slowly, you should know that slower growth means they are less messy and drop fewer leaves.
- If you want a showy tree, options include ivory silk trees, catalpas (for their large leaves) and horse chestnuts.
- As for Olsen's favourite trees, she says, "We go six months without leaves so we need something with texture and a nice branching structure."

Her list includes:

- Serviceberry: native, nice structure, flowers in early April before leaves open, adaptable to full sun or dappled shade. Provides edible berries in early June, turns orangey red in the fall.
- Also pagoda dogwood, magnolia, linden, oak.

As for evergreens:

- Serbian spruce has a warming effect in winter.
- Yews and hemlock are shade-loving evergreens.
- Pine, spruce and junipers all love a sunny day.

Passionate gardeners are a minority. Garden centre staff are more likely to hear buyers say they don't want anything that requires frequent care. Therefore, the trees and shrubs they buy should suit their abilities and availability of time. Some people don't want an oak because it grows slowly, but slower growth means these trees are less messy and drop fewer leaves, Olsen says.

"Years ago, tree sales went up and up, then they levelled off, and may be starting to increase again as people better understand the relationship between trees and their lifestyle options," Olsen says. "We can lower electricity bills with trees in the right location."

In Petersburg, Charles Schachinger, owner of Meadow Acres Garden Centre, now in its 33rd year, says customers seek advice about tree selection if they are planting several trees, but likely not if they're buying just one to take home in the trunk of the car.

They'd be overwhelmed if they knew there are hundreds of varieties of trees, he says.

Take Japanese maples, of which there are at least 15 types.

Buyers tend to have both good and bad information, Schachinger says. Some will ask for a tropical plant they've seen in a magazine, unaware that while it might survive in England or the southern U.S., it could not live here.

Tissue culture — cloning — has introduced more variety in trees and produced trees with what he calls more "pop." Like Albrecht, Schachinger likes the Autumn Blaze maple, which is a combination of silver and red (rubrum) maples with the best characteristics of both.

Other popular choices are River and Himalayan birch, both of which have silver-white bark and are relatively immune to leaf miner. Himalayans may be susceptible to borers if they are weakened, but a weakened state means the tree is old.

There are also fads in trees, such as the "Aussie tree" that was briefly in demand 20 years ago. Then the public fairly quickly

lost interest because although it grew 10 feet a year, it was short-lived and essentially no different than a poplar.

Schachinger somewhat regrets customers' requests for smaller trees. Trees take up air space, not ground space, and "a tree like a massive sugar maple gives a neighbourhood a certain ambience. Maybe everybody should have one street tree that towers above the others."

There are also customers who want trees so large they require special equipment to plant them. However, he says buyers who purchase both larger and smaller trees may find the small ones catch up because transplant shock temporarily restrains growth in the larger specimens.

The final thought belongs to Fast Forest's Phil Dickie: "One thing is certain. If the level of carbon dioxide in our atmosphere continues to increase, it will be essential that we protect and continue to plant more trees as they are one of our planet's largest carbon dioxide 'sponges.'" 

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