BY **TAYLOR LAMBERT** ILLUSTRATIONS BY **CRISTIAN FOWLIE**

SEEING THE TREES

More than just landscaping, Calgary's urban forest is an environmental asset that the City wants to grow.

We generally don't think of urban areas as forested. Cities have trees, of course. But in the urban environment trees often feel more like objects than a forest — singular and static rather than a living collective, a decorative afterthought amongst the buildings and pavement.

But trees offer more than just shade and autumn leaf-raking opportunities. They sequester air pollution and help fight climate change. They significantly reduce the "heat island" effect of large cities, thereby reducing the amount of energy used to regulate building temperatures. Trees mitigate the destructive effects of stormwater, provide wildlife habitats and serve as noise buffers in the cacophonous urban landscape. Research has demonstrated the positive effects of trees on psychological well-being and general health. They are also tools for urban design, increasing walkability and decreasing traffic speeds.

Trees are vital but underappreciated parts of any city, our living infrastructure.

A 2014 TD Economics study in Toronto found that every dollar invested in an urban forest sees a return of $1.35 to $3.25 in benefits and cost-savings, everything from stormwater management,

air quality, energy savings and carbon sequestration. Think about that for a moment: not only are trees something everyone loves, they are a net fiscal gain.

Here on the prairies, trees are not exactly a defining feature. Most of the trees in Calgary were planted by people, making our urban forest, in a way, as unnatural as the rest of the built city.

"When you consider what this place was maybe 150 years ago, it was just prairie. There were just a few trees along the river," says Alex Nagy, an urban forestry technician with the City of Calgary. "If you go up on Nose Hill, you can see how green the city is, especially the inner city and established communities. It's the outskirts, the newly developed communities, where you notice less canopy coverage."

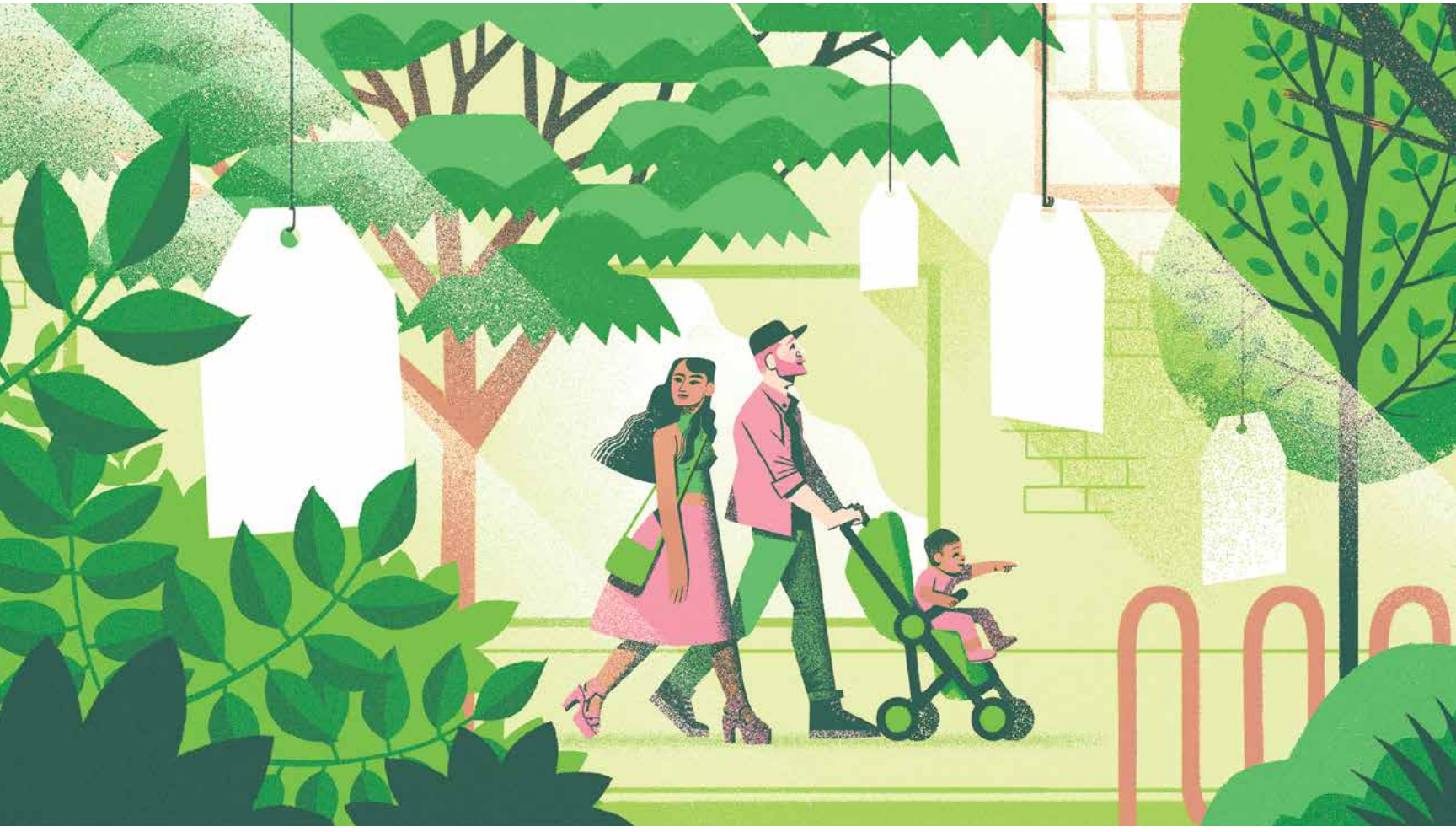
The sun is warm, bordering on toasty, and walking across the shadeless sections of Riley Park is nearly enough to break a sweat. Bird chirps sweeten the distant sound of light traffic as Nagy leads me and Julie Guimond, the City's urban forestry lead, to a pair of trees near the southeast corner of the park.

"These," he says, gesturing, "are apricots."

Calgary, as any green thumb knows, is a hard place to grow anything. Unpredictable weather, huge temperature swings, the dry climate and soil more suited to sustaining grasslands than growing gardens — it's a tough life for gardens and gardeners.

And yet, apricot trees. Yes, real apricots, the ones

On the prairies, trees are not exactly a defining feature. Most of the trees in Calgary were planted by people, making our urban forest, in a way, as unnatural as the rest of the built city.



you're thinking of: *Prunus armeniaca*, also known as Armenian plum. Nagy estimates these trees are well over 50 years old. "I know some people in Varsity who have apricot [trees] in their backyard and they get so much fruit on them, it's crazy," he says.

Few would think of Calgary as a place to grow stone fruit. But urban forests hold many surprises for those who take time to appreciate them.

Calgary has about seven million trees, and the City estimates the value of the publicly owned urban forest at more than $1.3 billion. Those are pretty big numbers. But a more revealing figure is 8.22 per cent. That's the estimated tree canopy coverage over the city. While other cities have current or targeted canopy figures of around 40 to 50 per cent, Calgary is aiming for a whopping 16 per cent.

That might not sound like much, but such a comparatively low goal is not for lack of ambition. In fact, reaching that target, effectively doubling the current canopy coverage, is a spectacularly lofty objective. Trying to compete with other cities with friendlier tree climates would be quixotic.

"Trees have a hard time here on a good day, because of our soils and the lack of moisture," says Nagy. Calgary also has a sprawling footprint, which means it requires more trees to move the canopy coverage number since the figure is a percentage of the city's total area. As with other civic infrastructure such as the transit system and fire department, our urban forest would be more effective and dollar-efficient if we didn't live so far apart from each other.

When the City plants a tree, it factors in the cost of five years' worth of watering, a necessity for a young sapling in our dry climate. This means it probably costs more to establish a healthy tree here than in more tree-friendly climes. Trees are also typically the last thing planned in a new development so they get the leftover space, which isn't always ideal for growing.

Can we really place an amount on the years it took a tree to grow, the time and resources it would take to raise a replacement, the heritage pedigree of an old tree? You bet we can.

If our urban forest fades into a pleasant backdrop most of the time, September 2014 brought it sharply to the fore.

The sudden storm popularly known as Snowtember (although I greatly prefer Treepocalypse) dumped as much as 45 centimetres of heavy wet snow on some Calgary neighbourhoods in one day. If the volume of snow was a nuisance for the city's human residents, it was truly devastating for trees, whose still-green leaves allowed masses of snow to accumulate in the canopies, causing branches to snap.

The snowfall affected large, mature trees in particular. The storm damaged hundreds of thousands of public trees — an estimated 50 per cent — and as many as 1.5 million private trees. The City's 311 line received more calls that day than during the 2013 flood.

In response, the City injected new funding into urban forestry, creating the ReTree

YYC program to restore canopy coverage, increase the resilience to future storms and repair the damage to affected trees. The new funding also allowed the City to purchase its first bucket trucks — previous work requiring them had been done by contractors.

Perhaps most important was the creation of a new computerized system for tracking the City's tree inventory. Using a GPS-enabled tablet, workers can immediately access and update data for individual trees — when each was last watered or pruned, for example. "We definitely took that infusion of money as a big gift and took advantage of it," says Guimond. "We weren't correctively pruning. We didn't necessarily have our inventories as up to date as we should have."

Nagy says the app helped change the basic perspective of the City's urban forestry program from reactive to proactive. Even for veteran tree hands like himself, the Treepocalypse was a huge learning experience. "I used to think green ash were the most indestructible tree we had in this city," he says with a touch of sadness. "I don't think that anymore."

I could sit here and list all the wonderful attributes of trees and the value they add to cities, both obvious and covert. But ours is a capitalist society that ascribes value with a dollar sign. So what is a tree worth? Can we really place an amount on the years it took to grow, the time and resources it would take to raise a replacement, the heritage pedigree of an old tree? You bet we can.

The Guide For Plant Appraisal, published by the International Society of Arboriculture, is the widely used handbook to evaluate trees. In valuing trees, the City's parks department considers several factors, such as trunk diameter, location, condition and species.

We put dollar values on things to literally put a price on them, to buy and sell them. The value placed on public trees is no different: it's primarily to determine the bill if the tree is damaged or has to be removed.

It's hardly surprising that we form emotional attachments to trees... They are living things inhabiting the same space as us. In a word, they are our neighbours.

If a developer's plans include cutting down a public tree, they have to pay the City the value ascribed to that tree in addition to the cost of removing the tree and stump. If someone inadvertently damages or destroys a public tree, the appraisal value determines the amount on the bill they receive. "I don't want to say 'sell,' but quite often we have no choice but to authorize a tree's removal based on approvals by others, whether it be from root loss or half the canopy is being removed because the building footprint is expanded," says Nagy.

Whether you think of it as the sale price, the cost of development, or a penalty for harming a living asset, the fee pays for the City to plant a replacement tree in the same or similar location. Of course, a half-century-old elm gets replaced by a thin, young sapling. But it's better than nothing.

In addition to proactively valuing trees as a "deterrent" to them being cut down, Nagy and his colleagues have input on develop-

ment permits that endanger trees. "We review plans when they're submitted by [the planning department], and then we make suggestions to try and save the tree, whether it be relocating a sidewalk or underground utilities, underground sprinkler systems — anything that might impact the tree. We provide those comments to the park generalists, and they apply them to the release of the [development permit]. We're kind of their eyes and ears when it comes to urban forestry," Nagy says.

On the City's urban forest management interactive map, you can browse select data from the digital database used to track the tree inventory. It displays data from neighbourhood level (Inglewood's 3,827 trees are worth $14 million) to street level (that tree outside my apartment is a Japanese lilac with a trunk diameter of 12 cm and an assessed value of $796.21).

This is a wealth of information, but it's designed for browsing not searching. It doesn't lend itself to finding, say, the oldest or most valuable tree in the city. Although he notes there are some 400-year-old Douglas first off of Sarcee Trail that the City hasn't valued yet, Nagy guesses the title of most-valuable belongs to the Stampede Elm, which he figures could be assessed at between $100,000 and $125,000. He'd know — part of his job is testifying as an expert witness in court cases about the value of specific trees.

The Stampede Elm is also one of the oldest trees in the city at over a century. It was probably once a feature in someone's Victoria Park yard, but now it stands in the middle of a sprawling parking lot on 12th Avenue S.E., rising from the asphalt in defiance. Yet still it thrives, likely because it has a deep root system that can reach the water table. It only recently became a public tree when the land it sits on was transferred to the City for the new arena project. Nagy believes the Stampede Elm still has untold years of life in it. "It's still actively growing, it's putting on new buds, it's got good shoot elongation, there's not a lot of pests or diseases in it. That tree is a survivor."

The Stampede Elm was probably once a feature in someone's Victoria Park yard, but now it stands in the middle of a sprawling parking lot, rising from the asphalt in defiance.

The City and UCalgary are working to see if there's a way to save the tree by moving it, but it is by no means clear if that will be possible. Seedlings and clippings have also been taken to propagate offspring. No matter what, the Stampede Elm will not be on the Stampede Grounds for much longer.

Trees don't have to be famous to be beloved. When someone illegally cut down two decades-old spruce trees in Britannia, the community was outraged. A similar response arises for sanctioned tree removal: when the City abruptly removed several trees in preparation for constructing the new zoo bridge, the outcry from Inglewood residents forced officials to pause and meet with the community.

It's hardly surprising that we form emotional attachments to trees, particularly those in our immediate environment. They are living things inhabiting the same space as us. In a word, they are our neighbours.

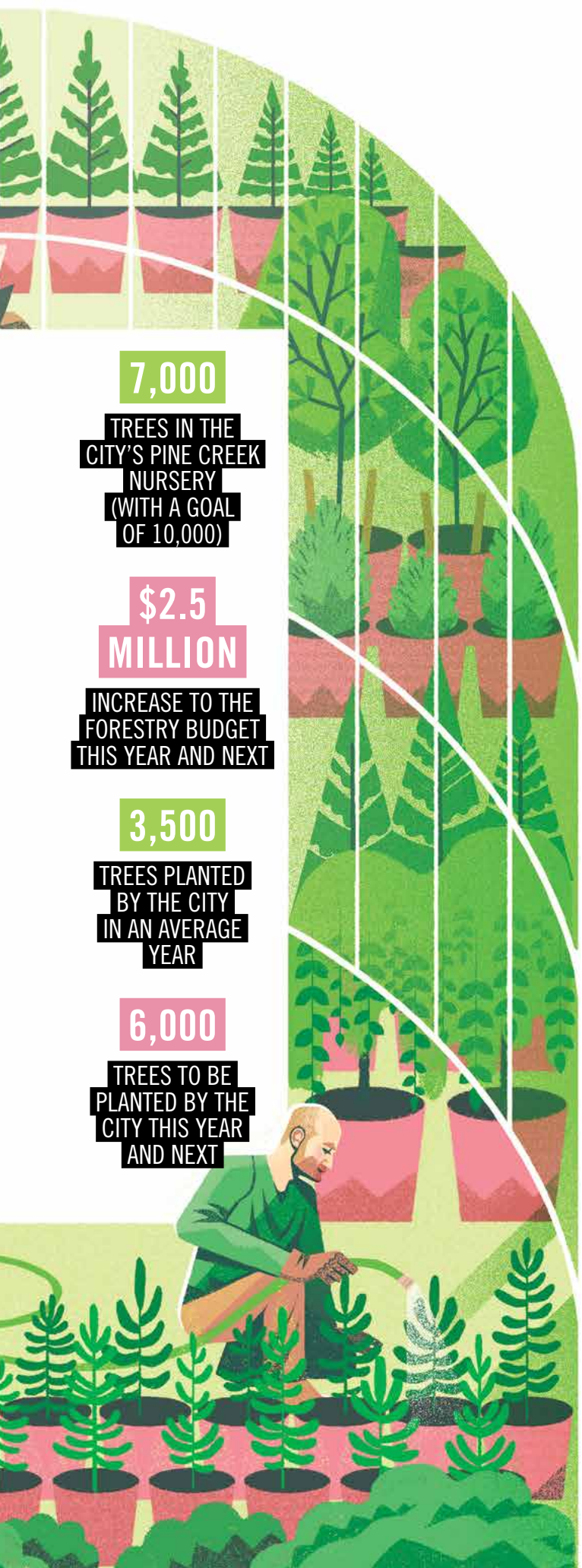
Pine Creek Nursery is tucked alongside the Bow river just before it turns east. The only entrance is from a faraway side road off 194th Avenue that twists and turns and runs for so long you have plenty of time to wonder just how lost you are.

Adjacent to the Pine Creek Wastewater Treatment Plant, the nursery has something of an industrial park vibe. Trees notwithstanding, it's not designed to be a pleasant

Calgary's Urban Forest By the Numbers

7 MILLION
TOTAL ESTIMATED TREES IN CALGARY

$1.3 BILLION
TOTAL ASSESSED VALUE OF PUBLIC TREES



7,000

TREES IN THE CITY'S PINE CREEK NURSERY (WITH A GOAL OF 10,000)

$2.5 MILLION

INCREASE TO THE FORESTRY BUDGET THIS YEAR AND NEXT

3,500

TREES PLANTED BY THE CITY IN AN AVERAGE YEAR

6,000

TREES TO BE PLANTED BY THE CITY THIS YEAR AND NEXT

Like the trees, most of us are transplants to this region. We live out our lives not knowing which of us will grow old and which will fall victim to disease or destruction.

park to stroll in. It's designed to efficiently grow trees to transplant elsewhere and create pleasant parks to stroll in.

Gary Dillon is one of the "gardeners" here, though that seems too small a word for all he does to care for this little forest of baby trees. In November, 2020, City Council approved a $2.5 million increase in the forestry budget for this year and next, enough to allow the department to plant around 6,000 trees a year in 2021 and 2022 (an increase of about 2,500 trees from past years). It takes three to four years for a baby tree to be big enough to graduate from the nursery. Because of the need for trees, and because Pine Creek is a fraction of the size of commercial nurseries with only around 7,000 trees, the City purchases around 40 per cent of its trees from other regional growers.

Driving around the nursery in a work truck, Dillon points out aspens, poplars, larches. Guimond notes that the most important characteristics for a good Calgary species are a great root system, sturdy build and the ability to withstand big temperature swings — attractiveness helps a lot, too.

There are 17 species and 31 cultivars in the nursery, some of which are tried and true, such as green ash and Manitoba maple. "If you can put native plants back into where they grow best, you've got a better chance of success," says Dillon, but with only three native trees, that's difficult.

Diversity in the urban forest is important for its health and survival. Back when Dutch elm disease struck North America, many cities were primarily populated with elms. As the disease spread across Canada from east to west in the mid- to late-20th century, many cities lost a tremendous portion of their canopy, (although Alberta was largely unaffected.)

With an eye to diversity, the City participates in trials with other nurseries to test novel species. "They want to know how they work on the prairies, because their climate is so different," says Dillon. Of course, it's called a nursery for a reason. "We babysit these trees," he says. "They get watered every time they're supposed to, they get fertilized twice a year." The nursery even plants wildflowers that attract the bugs that eat the bugs that prey on a given species.

Once they get planted in the real world, it's up to the trees to prove their mettle. How well a tree can roll with the punches over the years determines whether it survives to grow large enough to provide shade for picnics or a home for wildlife.

There are also things beyond the tree's control: most significantly, us. No matter how well or how long a tree serves us, no matter how big and beautiful it becomes, its life often ends to make way for a new development. This is the tension between the urban and the forest.

Perhaps it's useful to consider our urban forest as a reflection of ourselves, fellow living beings who find a way to live amongst the sprawl and concrete. Like the trees, most of us are transplants to this region. We live out our lives without knowing which of us will grow old and which will fall victim to disease or destruction. We put down roots, try to weather the inevitable storms, and in doing so we collectively create the city itself. Like the trees, our futures are tied to how the city develops and changes around us.

But unlike them, we are responsible for those decisions and in control of not only our future but also theirs. We need them much more than they need us, and so we ought to imagine those futures as inextricably entwined — when our trees thrive, so do we.