

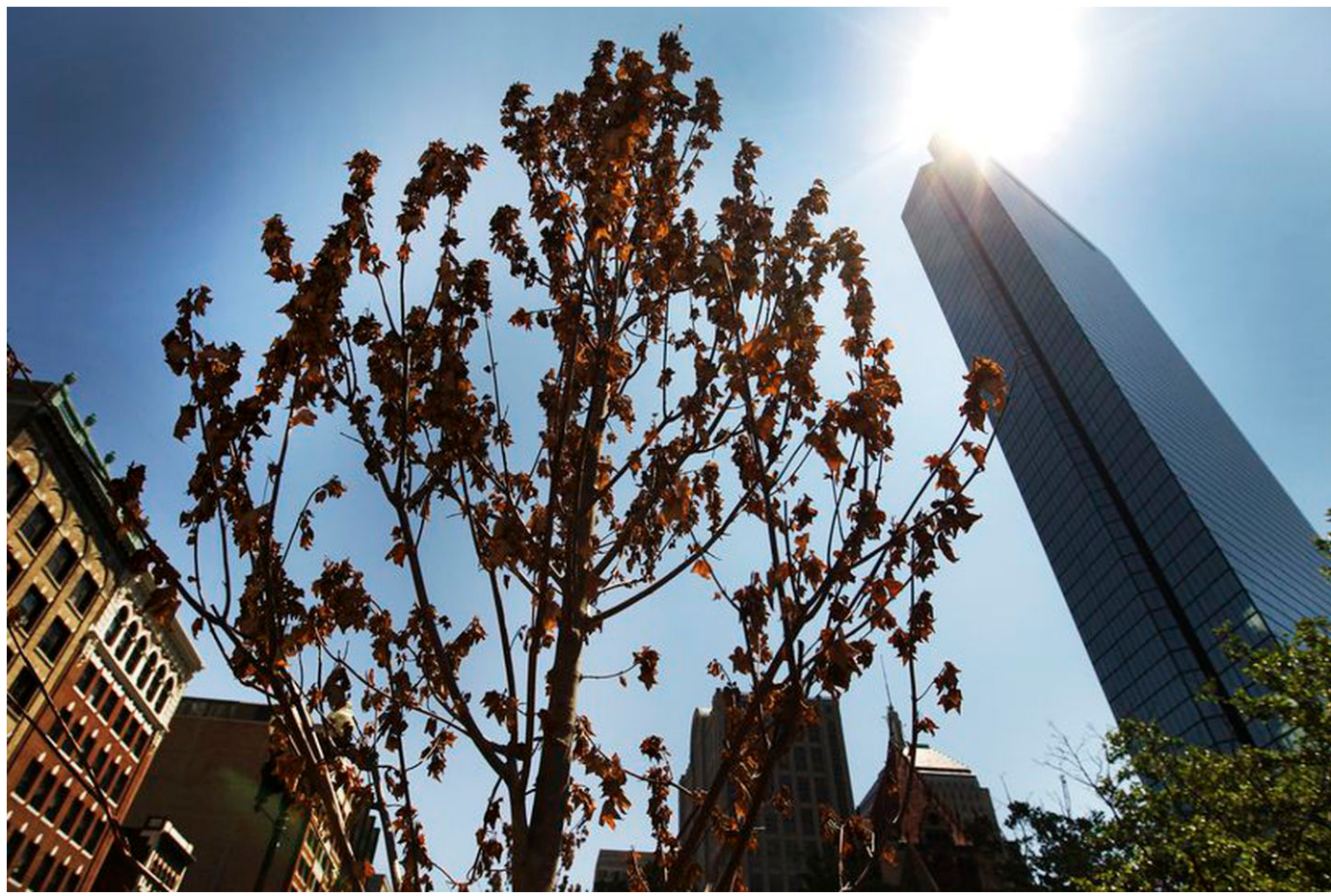
● **BREAKING** AT LEAST 12 US SERVICE MEMBERS,
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IDEAS | AMY CRAWFORD

Urban forests are crucial for combating climate change, but planting more trees is easier said than done

By Amy Crawford August 16, 2019, 10:51 a.m.



Boston is not the only city where a thriving urban forest — and the so-called ecosystem services it provides — may prove crucial in the coming decades. DAVID L RYAN/GLOBE STAFF/GLOBE STAFF

In 2007, Boston marked Arbor Day with an announcement by then-Mayor Thomas Menino that the city would plant 100,000 new trees by 2020. But despite the fanfare that accompanied an initial deployment of saplings, within a few years the ambitious goal was quietly abandoned. Officials chalked up the failure to the city's dense development and trouble maintaining the trees already growing on public land.

That's a shame, says David Meshoulam, co-founder and executive director of the non-profit Speak for the Trees, Boston.

"Trees are not only a nice thing to have, they're actually a critical thing for a city to have," he says. "We're a city that sits right on a harbor — we're going to be dealing with flooding, all sorts of new climate patterns. In my mind, this is a really existential issue for Boston."

Boston is not the only city where a thriving urban forest — and the so-called ecosystem services it provides — may prove crucial in the coming decades. According to a growing body of research, planting and caring for trees is one of the best things cities can do to adapt to climate change. As summers get hotter, trees can mitigate the urban heat island effect, reducing dependence on air conditioning. As winters become more unpredictable, trees dampen wind speeds and keep nearby buildings warmer. Their shade can extend the life of infrastructure by shielding it from the baking sun, and their roots prevent storm water runoff, something that will become more and more important as rising seas inundate coastal cities.

Of course urban trees also store carbon — 708 million tons in the United States alone, the equivalent of one-eighth of our annual emissions, according to the US Forest Service. And a recent study by researchers at Boston University's Earth and Environment department suggests that, if well-managed, they may do this more efficiently than rural forests. Although street trees have shorter average life spans, with double the mortality rate of rural trees, once established they grow much faster

(ironically, this is thanks in part to the carbon dioxide and nitrogen spewing from tailpipes).

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“If you have plants that are growing at three or four times the normal rate, you are going to get a much larger bang for your buck by planting a tree in the city than you are in the country,” says Professor Lucy Hutyra, the study’s senior author.

This is all good news for cities, because unlike, say, restricting the use of private automobiles, taking better care of urban trees is within the power of every municipal government (and generally lacking organized political opposition). Still, as Boston has learned, it’s easier said than done. Even as cities incorporate trees into their climate change plans, the Forest Service recently calculated that we are losing as many as 36 million urban trees each year. Many fall to development, while others perish early due to poor maintenance or lack of watering — something that’s especially important when trees have yet to establish their root systems.

The biggest, oldest trees are often removed pre-emptively — which is unfortunate, notes Hutyra, because it’s those trees that actually work the hardest to keep cities cool, shelter wildlife, and sequester carbon. But there are ways to preserve these older trees.

A recent study by researchers at the University of Florida, for example, found that cities in that state with “heritage tree” ordinances, which protect the largest trees from being chopped down even on private land, have canopy coverage 6.7 percentage points higher than similar urban areas.

“Trees need to be managed as green infrastructure,” says Deborah Hilbert, a PhD student who led the study. “It has to go beyond just planting trees.”

The Florida study offered unusually clear evidence of one strategy’s effectiveness, but other creative approaches show promise. City Forest Credits, a new nonprofit based in Seattle, is selling carbon offset credits backed by urban tree planting and preservation projects to companies including Microsoft and Bank of America. And while utility companies typically have an adversarial relationship with trees (which can knock out power when they fall on lines), in Sacramento a long-running partnership between a local nonprofit and the public utility places trees in people’s yards, where they reduce cooling costs — and the accompanying drain on the power grid — by as much as 40 percent within five years of planting.

Still, the most important way to expand the urban forest may involve learning to look at city trees as an ecosystem unto themselves, says Jad Daley, president and CEO of American Forests, a conservation organization that often assists local nonprofits, including Speak for the Trees. “Even seemingly isolated street trees work together to create a forest-like effect, so the way we work with them has to be holistic,” he says.

Managing the urban ecosystem means planting a heterogeneous mix of species — an insurance plan for pests and diseases, like the emerald ash borer, which has been spreading through Massachusetts since 2012. Meanwhile, a crop of healthy young trees must be on deck to replace aging giants, as in a natural forest. All this is easier when you know the landscape, which is why many cities are investing in mapping and cataloguing their public trees. It’s a major undertaking (the public-private partners behind the San Francisco Urban Forest Map, for example, took a year to count that

city's 125,000 trees), but knowing which oaks or elms are growing where can help a city keep track of watering, pruning, and pest control, as well as which neighborhoods could benefit from tree-planting campaigns (poor and non-white areas tend to have fewer trees).

Information will be key in Boston as well, says Christopher Cook, the city's chief of environment, energy and open space, who is looking forward to a new study of Boston's tree canopy, funding for which was recently approved by the City Council. The survey will use plane-mounted LiDAR (for "Light Detection and Ranging"), a remote sensing method that Cook explains is more accurate than satellite imagery because it can determine which greenery is a tree and which merely a bush. After several years of rapid development, the new survey is likely to find a depleted canopy, Cook says. Still, it will be the first step in a more comprehensive approach to Boston's urban forest, one that is more nuanced — and will hopefully be more successful — than Menino's 100,000 tree plan.

Meanwhile, Cook says, it couldn't hurt for Bostonians with hoses — or even buckets — to pitch in and help the city's urban forest survive another long, hot summer. "Even just a few gallons of water from your faucet could help," he pleads. "Trees ask so little of us, and they give us so much in return."

Amy Crawford is a writer living in Michigan. Follow her on Twitter [@amymcrawf](https://twitter.com/amymcrawf).

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