Of course, money doesn’t grow on trees, as the old saying goes. Urban forests repay us not with cash but with a host of social, economic, environmental and health benefits. According to a 2012 review that looked at 115 research papers, some of the more common ways urban forests impact our lives include: providing shade on those hot summer days and reducing temperatures and urban heat island effects; moderating storm water runoff and flooding; increasing property values and aesthetics; and lowering energy use in our homes and businesses.

Perhaps most importantly, urban forests play a crucial role in keeping us healthy. They sequester carbon, filter the air and remove pollutants — such as carbon monoxide, ozone, nitrogen dioxide and particulate matter — that can cause or worsen health issues, including asthma, bronchitis and other respiratory problems.

“I think people get it that trees are good for urban environments,” Hauer said, “but they are often surprised by the magnitude of those benefits.”

For example, a 2014 study estimated that urban forests in Wisconsin removed more than 7 tons of air pollution in a year, with an associated value of about $48 million. According to 2013 figures from the U.S. Forest Service, Milwaukee’s urban forest saves the city $15 million a year by reducing storm water runoff. And the public trees in the Fox Valley area

**Appreciating assets**

The maples, oaks, ashes, honey locusts and other trees that line Wisconsin streets and shade our backyards are very different from the mango, tamarind, plumeria and coconut trees I grew up around in Kolkata, India. But whether in a giant tropical metropolis or a small Wisconsin village, urban forests provide a bounty of health and social benefits, far beyond what it costs to plant and maintain them.

“The money and resources spent on urban forests is repaid with interest,” said Richard Hauer, a professor of urban forestry at the University of Wisconsin-Stevens Point. “Trees are the only assets in an urban environment that appreciate with time, and while it may take 10 to 20 years for a tree to pay off the initial investment, on average, every dollar spent on urban forests is repaid three times.”
save the cities in that region — Appleton, Greenville, Kaukauna, Kimberly, Little Chute, Menasha and Neenah — almost $1.5 million per year in energy costs.

I wanted to get a more personalized estimate of the value an urban tree brings. There is a beautiful black walnut tree right outside my bedroom window, and I used an online tool at itreetools.org/ to calculate how much value it provided last year.

Turns out, this single tree contributed $167 in storm water, pollution and energy savings, not to mention giving me the gift of waking up to the gentle swish of green leaves swaying and fluttering in a warm summer breeze.

A deadly emerald
So, go urban forests, right? Absolutely yes, and Wisconsin does have fairly extensive urban forests. The DNR’s “Urban Forests of Wisconsin, 2012” report found there were about 42.8 million trees in Wisconsin’s urban forests — that’s nearly 11 trees for each person living in census-designated urban areas in the state.

But we can’t miss the trees for the forest. While the size and extent of urban forests are undeniably important, some tiny new visitors to America’s shores have made it vital that we take a closer look at how best to plan for both healthy and diverse urban forests.

One of these international interlopers is smaller than a penny, yet it can kill trees that are thousands of times its own size. The emerald ash borer (EAB) is a jewel beetle, native to the forests of northern China, Mongolia and eastern Russia. It probably arrived in the United States as a passenger on shipping pallets or packaging material.

Adult emerald ash borers are an iridescent green and are relatively harmless, chomping on ash leaves for dinner; their larvae are another matter entirely. The EAB lays its eggs in cracks and crevices of the bark of ash trees. When the eggs hatch, the larvae bore through the bark into the living tissue of the trees. Their feeding creates long, serpentine tunnels that disrupt the ability of trees to transport water and nutrients.

In areas where the EAB is native, ash trees have coevolved with it, and the two are able to coexist. But in North America, emerald ash borers have been cutting a swath through the native ash populations, tunneling them into nonexistence.

There are millions of ash trees in Wisconsin. The DNR’s 2012 “Urban Forests” report estimated that 7.6 percent of trees in the state’s urban areas were ashes. In Green Bay, ash trees made up more than 21 percent of street trees in 2009, and about 900,000 of the Madison-area’s urban trees were green or white ashes as of 2015.

The effect of the EAB will only become more apparent with time, Slocum said. “We don’t always notice ash trees, but this spring there were many ash trees that didn’t leaf in Madison, and now we notice them.”

Strength in diversity
Devastation by an invasive species is not new, though. In the 1950s, streets in towns and cities across the United States were lined with majestic elm trees. Then came Dutch elm disease, and within a generation, the elms were gone.

“I remember the tree cathedrals over our local streets,” Jay Weiss of Cambridge said, “and I remember what the Dutch elm disease did to them.”

Trees can suffer a variety of diseases and destruction from invasive species — the photo below shows the damaging bark tunnels of emerald ash borer larvae — which is why diversity in planting is so important.
Now, Weiss is working to make sure the Cambridge urban forest is more resilient in the face of the emerald ash borer’s onslaught. He founded the Cambridge Tree Project, which provides affordable trees to the public and uses profits to bolster the urban forest in the parks, schools and streets of Cambridge and nearby Rockdale.

The project has greatly increased the diversity of the village’s urban forest: In 2006, maple and ash trees comprised 70 percent of the Cambridge community forest. Today, that number is down to 22 percent, which means that a single pest or disease will not be able to wreak large-scale destruction.

“We now have over 100 species planted throughout our village: sassafras, persimmon, bald cypress, tupelo and 14 different oaks, to name a few,” Weiss said. “It’s basically an arboretum experience at every turn, with each block and park dotted with interesting trees.”

Street trees or trees in public places make up only a part of the urban forest. In Madison, for example, “the majority of ash trees — maybe as much as 70 to 75 percent of them — are on private properties,” Jeremy Kane, associate director of the Urban Tree Alliance, said.

The Urban Tree Alliance has been providing free trees to residents of several neighborhoods in Madison and neighboring Fitchburg to expand the canopy cover and increase the diversity of trees on private properties.

“We work with individuals and take into account the planting area and surroundings to choose appropriate trees,” Kane said. “People really value that they are able to have a say in choosing what tree they want.”

Greening Milwaukee is a Milwaukee nonprofit with a similar goal: making the Cream City greener. It has various programs it says are designed to “promote greening activities that improve the urban environment, educate and train citizens, and increase community wealth.” Through its Adopt-a-Tree Initiative, Greening Milwaukee provides one free tree every growing season to residents and property owners in Milwaukee.

A more diverse urban forest is more resilient not only to pests or diseases but also to environmental factors, such as ice storms.

“Black walnut trees, for example, are coarse-branched and better able to withstand damage from ice storms than, say, elm trees,” Hauer said. “And I think we can all agree that ice storms can be a huge factor in Wisconsin.”

**Partnerships pay off**

The onslaught of the emerald ash borer and a renewed interest in maintaining and expanding our community forests has led to a slew of partnerships between citizens, government bodies and organizations. Municipalities across Wisconsin are finding that these partnerships can help balance budgets while allowing them to continue to manage and diversify their urban forests.

For Kevin Westphal, city forester for Cedarburg, near Milwaukee, canopy retention was the best choice to deal with the EAB.

“We calculated that it’s cheaper for Cedarburg to keep our ash trees alive than replace them,” he said. “So whenever possible, we are trying to keep alive healthy ash trees with good growing space, and the majority of our ash trees are surviving with treatment.”

But Cedarburg and Westphal realized the municipality could not do it by itself...
A community tree tell-all

The recent launch of an online tree map, part of the Wisconsin Urban Forest Assessment Program (WisUFA), allows access to a wealth of information about urban forests in participating communities. The searchable map identifies every inventoried tree with information such as species, diameter and health condition as well as street view photos. Did you know, for example, that Freeman maples dominate West Wisconsin Avenue near Milwaukee's Marquette University campus, or that a vast majority of Appleton's 490 white oaks are found in the city's Pierce Park? Onalaska has 228 blue spruce on record, most of them in the Onalaska Cemetery, and Chippewa Falls has documented 1,150 green ash trees and just two Scotch pines. The Community Tree Map lists nearly 425,000 trees — including the recently mapped State Capitol Park grounds — in inventoried areas, all managed by municipalities with data now available on the Wisconsin Community Tree Map. You can find out easily with a quick web-based search. To access the map and learn more about DNR's WisUFA program and other urban forestry initiatives, go to dnr.wi.gov and search “urban forest inventory.”

Jeff Roe, DNR urban forestry team leader, said the map is an excellent resource for informing the public while aiding communities in urban forestry efforts. "This new tool will help explain the value of urban forests and their ability to improve air quality, reduce energy use, increase property values and control storm water," Roe said. "This will help communities make data-driven decisions for their urban forest management strategies.” The Wisconsin Community Tree Map is a work in progress, with more tree data to be added as it becomes available. Communities that want to upload or update their inventories, or are interested in creating one, can contact DNRUrbanForestryAssessment@wisconsin.gov. To access the map and learn more about DNR's WisUFA program and other urban forestry work, go to dnr.wi.gov and search “urban forest inventory.”

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Adityarup “Rup” Chakravorty has a Ph.D. in cellular and molecular biology. He works as an associate university relations specialist at the University of Wisconsin-Madison’s Waisman Center, and as a freelance science writer.

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Evan Slocum of the Urban Tree Alliance, left, and author Adityarup Chakravorty plant a Kentucky coffeetree sapling in the Bram’s Addition neighborhood of Madison. The Urban Tree Alliance is among a growing number of groups dedicated to improving Wisconsin’s urban forests.