THE SHADE TREE

A BI-MONTHLY BULLETIN DEVOTED TO NEW JERSEY'S SHADE TREES

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This Issue Presents…

DIRECTOR'S DISCOURSE

By Richard Wolowicz

Are we nagging? It's not intentional, but we want to make sure that everyone knows that this year is the 100th Annual Meeting of the NJ Shade Tree Federation. It will be held at Harrah's Conference Center, Atlantic City, NJ on October 16 and 17.

If you are on the fence, consider that we have a featured speaker traveling from Spain, one speaker is coming from Georgia and one from Oregon. This is not to downplay our local talent pool. They are numerous and experts in their fields. They want to share their expertise with you.

Putting on a conference like this is no easy task. The Federation Board, the Education Committee, President Neil Hendrickson, Vice-President George Meglio and representatives from Rutgers University and the State Bureau of Forestry who all put in countless hours devoting themselves to contributing ideas, reaching speakers and taking care of the numerous mundane (is it ever?) tasks that make this event a success.

We have many exhibitors, from equipment representatives, to nurseries, to consultant services and tree companies willing to discuss options and to listen to your needs and/or suggestions. We have the honor of receiving generous sponsorships from vendors which assists the Federation in providing an excellent experience to the attendees in marking this centennial year. Take a look at this year's Centennial Program Book. There is a much historical information found in those pages.

As you noticed we are moving to keep up with technology. This is seen from the registration process and the improved CEU tracking reports.

Nothing ever goes as planned 100% of the time but I need to acknowledge the unwavering dedication of Emily Farschon, our Membership Outreach Coordinator. Emily keeps us on track with an uncanny ability to keep track of the

Continued on Page 66

BULLETIN OF THE NEW JERSEY SHADE TREE FEDERATION
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DIRECTOR'S DISCOURSE

Continued from page 65

large and little details that are required to make this event possible. Words cannot describe her dedication and unwavering drive.

So, should you be there? Definitely. This is a historic occasion where you have the opportunity to learn new ideas and to connect with many new and old faces.

DOES PLANTING TREES REALLY HELP COOL THE PLANET?

News.UCR.edu/articles 2025

Replanting forest can help cool the planet even more than some scientists once believed, especially in the tropics. But even if every tree lost since the mid-19th century is replanted, the total effect won't cancel out human-generated warming. Cutting emissions remains essential.

In a new modeling study published in Communications Earth & Environment, researchers at the University of California, Riverside, showed that restoring forests to their preindustrial extent could lower global average temperatures by 0.34 degrees Celsius. That is roughly one-quarter of the warming the Earth has already experienced.

The study is based on an increase in tree area of about 12 million square kilometers, which is 135% of the area of the United States, and similar to estimates of the global tree restoration goal of 1 trillion trees. It is believed the planet has lost nearly half of its trees (about 3 trillion) since the onset of the industrialized society.

"Reforestation is not a silver bullet," said Bob Allen, a climate scientist at UC Riverside and the paper's lead author. "It's a powerful strategy, but it as to be paired with serious emissions reductions."

While previous studies have largely focused on trees' ability to remove carbon from the atmosphere, this research includes another critical dimension. Trees also have an effect on the chemical makeup of the atmosphere in ways that amplify their cooling effect.

Trees naturally release compounds known as biogenic volatile organic

Continued on Page 67

DOES PLANTING TREES REALLY HELP COOL THE PLANET?

Continued from page 66

compounds of BVOCs. These interact with other gases to form particles that reflect sunlight and encourage cloud formation, both of which help cool the atmosphere. Most climate models do not account for these chemical interactions.

"When you include these chemical effects, the net cooling impact becomes more significant," Allen said. "It's a crucial part of the picture."

The benefits of reforestation, however, are not evenly distributed. The study found that tropical forests produce strong cooling effects with fewer drawbacks. Trees in these regions are more efficient at absorbing carbon and produce great amounts of BVOCs. They also have less of the surface darkening effect that can cause warming by trees in higher latitudes.

Beyond global temperature, reforestation can also affect regional air quality. The researchers found a 2.5 percent reduction in atmospheric dust in the northern hemisphere under their restoration's scenario.

In the tropics, increased BVOC emissions were a mixed bag of terms of air quality. They were linked to worse air based on particulate matter associated with enhanced aerosol formation, but improved air quality based on ozone measurements.

These localized effects, the researchers say, suggest that reforestation efforts do not need to be massive to be meaningful.

"Smaller efforts can still have a real impact on regional climates," said Antony Thomas, graduate student UCR's Department of Earth and Planetary Sciences and co-author of the study. "Restoration doesn't have to happen everywhere at once to make a difference."

The researchers acknowledge that the scenario modeled in the study is unlikely to be realized. It assumes trees could be restored to all areas where they once grew, which would require reclaiming developments such as housing as well as farmland and pastures. That raises questions about food security and land-use priorities.

"There are 8 billion people to feed," Allen said. "We have to make careful decisions about where trees are planted. The best opportunities are in the tropics, but there are also the areas where deforestation continues today."

The researchers highlight Rwanda as an example of how conservation and economic development can align. There, tourism revenue tied to forest protection is reinvested in local communities, providing incentives to preserve land that might otherwise be cleared.

Continued on Page 69

DOES PLANTING TREES REALLY HELP COOL THE PLANET?

Continued from page 67

The study began as a project in Allen's graduate-level climate modeling course at UC Riverside. It eventually evolved into a collaborative research paper, drawing on Earth system modeling and land-use data to explore what large-scale reforestation could realistically achieve.

Its conclusion is cautiously optimistic: forest restoration is a meaningful part of the climate solution, but not a substitute for cutting fossil fuel use.

"Climate change is real," Thomas said. "And every step toward restoration, no matter the scale, helps."

MORE THAN 1 IN 3 TREE SPECIES ARE AT RISK OF GOING EXTINCT, NEW ANALYSIS SHOWS

By Rachel Ramirez, CNN
Published 2:20 PM EDT, Mon October 28, 2024

The world's trees are in critical danger, with a staggering number of tree species teetering on the brink of extinction, according to a new global analysis released Monday.

The decade-long project found that more than one in three tree species are threatened with extinction, underscoring the scale of the crisis facing our planet's ecosystems.

The report for the International Union for Conservation of Nature's Red List, which dropped during the two-week UN biodiversity conference in Cali, Colombia, revealed that of the 47,282 tree species assessed, at least 16,425 are at risk of going extinct — more than double the number of all birds, mammals, reptiles and amphibians threatened with extinction combined.

Planet-warming fossil fuel pollution is threatening the trees, which suck that pollution out of the atmosphere, meaning their loss is exacerbating the climate crisis.

Some of the major threats trees face also include deforestation for urban development, agriculture, invasive species, diseases, as well as sea level rise and more intense storms, researchers say.

The list reveals how "the loss of trees directly threatens thousands of other species, plants, fungi and animals, demonstrating how deeply interconnected our natural world is," Grethel Aguilar, IUCN Director General, said during a Monday press briefing in Colombia.

Continued on Page 70

MORE THAN 1 IN 3 TREE SPECIES ARE AT RISK OF GOING EXTINCT, NEW ANALYSIS SHOWS

Continued from page 69

"Trees are the barometer of life," Aguilar added. They produce the oxygen humans breathe, provide food and shelter for wildlife, give medicine and sustenance to Indigenous peoples, and absorb heat-trapping carbon pollution from the atmosphere.

The highest portion of threatened trees is found on islands like Fiji, Cuba and Madagascar. In South America, which is home to the Amazon Rainforest, 3,356 out of the 13,668 assessed tree species are at risk of extinction due to deforestation for crop farming and livestock ranching.

The Red List is considered the most comprehensive global source for threatened species and extinction information. The index categorizes species by those that are of least concern, near threatened, vulnerable, endangered, critically endangered and extinct. These classifications are based on the species' population size, distribution, habitat loss, and other threats such as the climate crisis.

Being listed as a threatened species means that the species faces the risk of extinction, sending a serious warning sign that calls on governments and organizations to take urgent conservation efforts to prevent a species' extinction. Those efforts need to start with trees, Aguilar said.

"Can you imagine a planet without trees?" she added. "We, humans, are capable to reverse this and save these trees that we depend on, so the task that we have is huge."

WHAT TO DO ABOUT A SIDEWALK DAMAGED BY TREE ROOTS

By Cote Perry
Home & Garden
April 4, 2025

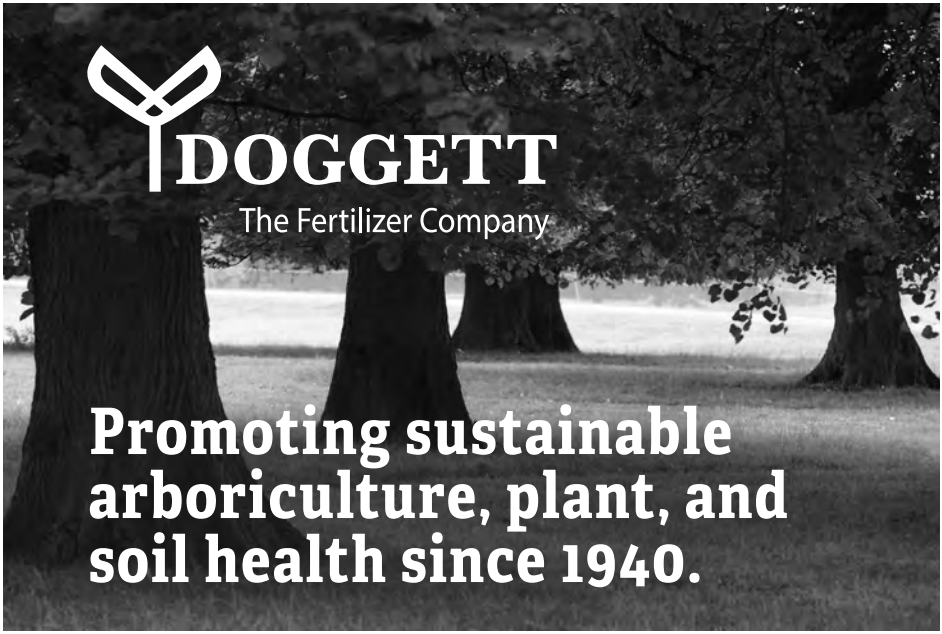
When tree roots and concrete collide, it's a frustrating and potentially hazardous situation. Sidewalks and driveways can crack and buckle as the roots expand, creating trip hazards. Further, some solutions, like root pruning, could kill the tree if done incorrectly. Keep reading to learn how to make your sidewalk safe again without harming the tree.

Bear in mind that not every sidewalk section may be your responsibility to repair. If a city-maintained sidewalk on your lot has root damage, you should notify your local public works department.

How Tree Roots Damage Sidewalks

Trees often grow surface roots that spread out from the trunk and expand

Continued on Page 72



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What to Do About a Sidewalk Damaged by Tree Roots

Continued from page 70

over time. As they grow wider in search of water and nutrients, they can push up against your hardscaping. Moisture beneath the concrete, paired with a sidewalk's warmer temperature and linear design, make them ideal for roots to burrow under.

You should be on the lookout for telltale signs of root damage, including these:

- Buckling from upward root pressure
- Cracked and uneven sidewalk sections
- Trip hazards where sections lift up
- Widening gaps between sidewalk joints

If the troublesome roots are near buried plumbing or wiring, they could also cause water leaks, backups, and cut connections. It's better to take care of the damage early to prevent the problem from spreading further.

Options for Repairing Sidewalks Damaged by Roots

There are a few different solutions to repair root-damaged sidewalks. The choice often depends on the severity of the damage. However, if you want to keep the tree, you'll also have to think about how long you want the solution to last.

Quick Fixes for Moderate Damage

For mild to moderate damage, these quick repairs can help:

- **Grinding**: A concrete company can grind down raised sidewalk sections to get rid of trip hazards. However, this won't stop further root growth.
- **Patching:** To patch cracks, a crew will clear debris and fill them with fresh concrete. For larger cracks, you may need to replace the sidewalk section entirely.
- **Mudjacking:** A mudjacking company can drill a few holes in the affected sidewalk section and pump concrete slurry underneath. This can slow the roots' progression if done right.

Each option gives you short-term relief, but it doesn't address the underlying root problem. You may need to redo them as the tree keeps growing.

Root Pruning

Root pruning involves cutting off the ends of invading roots to limit problem growth and prevent tree roots from breaking the sidewalk. If a licensed arborist does this technique properly, it can eliminate sidewalk damage while saving the tree.

As a rule of thumb, arborists won't remove more than 25% of the roots. This is for a few different reasons:

Continued on Page 73

What to Do About a Sidewalk Damaged by Tree Roots

Continued from page 72

- Cutting many large roots triggers rapid new growth, which may restart and accelerate your sidewalk woes.
- Large, intact roots keep mature trees upright. Cutting key support roots increases the risk that a tree falls.
- Roots supply water and nutrients, and removing too many of them could starve the tree.

For your and your home's safety, you should never try to prune a tree's roots yourself. Improper or excessive pruning can destroy vital support roots and destabilize the tree.

Root Barriers

A more lasting solution is to use root barriers that redirect future growth away. These strong sheets may use any of the following materials:

- Deep-driven metal or vinyl edging
- Fabric barriers in segmented sleeves
- Flexible PVC panels
- Rigid molded plastic barriers

Fabric and flexible barriers are easy to install next to sidewalks and foundations. Rigid panels, while stronger, require professional installation.

If you decide to place barriers, you'll still need an arborist's help to do some root pruning. Once the problematic roots are cut away and the barrier is in place, your concrete company can help repair the sidewalk to last.

Sidewalk Replacement

If your sidewalk has particularly severe damage from tree roots breaking the sidewalk, you may need to replace it entirely. Options like flexible asphalt and pavers adjust more readily to root growth and can be more resilient to future problems. However, both options also cost more upfront.

Professional Tree and Sidewalk Repair

It's better to consult arborists and concrete contractors rather than tackle a large DIY root damage repair. These licensed companies can accurately diagnose the damage using tools like ground radar. They can also determine to what extent a tree would tolerate root pruning and handle the job properly.

It's true that professional repair may be more expensive, but many homeowners find that it completely solves their issues. Besides, if something goes wrong with a DIY repair, you may have to pay much more. DIY attempts without proper experience may ultimately cost more if complications arise.

Continued on Page 74

What to Do About a Sidewalk Damaged by Tree Roots

Continued from page 73

Plant Trees in the Right Place

Prevention is always better than the cure when it comes to root damage. One of the most effective ways to keep your sidewalks intact is to plant trees in the right place from the start. Here are some key considerations:

- **Keep up with tree maintenance:** Proper watering, fertilizing, and pruning can encourage healthier root growth patterns and reduce the likelihood of surface roots causing damage.-front, this often provides safer long-term solutions that protect both your trees and sidewalks.
- **Keep a minimum distance from hardscapes:** When planting new trees, ensure they're at least 3–4 feet away from sidewalks, driveways, and other paved surfaces. For larger tree species, increase this distance to 6–8 feet or more.
- **Install barriers when you plant:** Install root barriers around newly planted trees to guide root growth downward and away from hardscapes.
- **Choose the right species:** Select tree species with less aggressive root systems or deeper root structures. Avoid placing trees like silver maples, willows, and poplars near sidewalks, since they have particularly invasive root systems.
- **Consider the tree planting strip width:** If you're planting a tree in a narrow strip between the sidewalk and street, choose a type that's appropriate for the space. Columnar varieties or smaller ornamental trees may be better suited for tight spaces.
- **Check for buried utilities:** Before planting, always check for underground utilities to avoid future conflicts with pipes and cables.
- **Plant in good soil:** Ensure the soil is well-drained and rich in organic matter. Poor soil conditions can encourage roots to spread out in search of nutrients, risking more damage to nearby structures.

WHY PEOPLE REJECT CITY TREES

By Arno Rosenfeld and Basil Waugh
University of Vermont Gund Institute for Environment

Study explains why thousands of Detroit residents rejected city's tree planting efforts. The Shade Tree Vol. 23. No. 10, October 1950

Trees are a hallmark of vibrant neighborhoods. So why did nearly one-quarter of eligible residents in Detroit, Michigan, turn down free street trees? That's the mystery University of Vermont researcher Christine Carmichael solves in one of the first studies to explore opposition to city tree planting programs.

As cities from New York to L.A. embark on major tree planting initiatives, the research helps to explain why more than 1,800 of 7,425 eligible Detroit residents – roughly 25% – submitted "no-tree requests" between 2011 and 2014 alone.

"This research shows how local government actions can cause residents to reject environmental efforts – in this case, street trees – that would otherwise be in people's interests," says Carmichael, a postdoctoral researcher at UVM's Gund Institute for Environment and Rubenstein School of Environment and Natural Resources.

The study was published January 7 by Society and Natural Resources journal.

Carmichael found that the opposition in Detroit resulted primarily from negative past experiences with street trees, particularly in low-income neighborhoods grappling with blight from vacant properties. In 2014 alone, the city had an estimated 20,000 dead or hazardous trees, following the contraction of Detroit's once-massive tree maintenance program from budget cuts and population decline.

For many long-term residents, wariness of the new trees was driven by past experiences of caring for vacant properties in their neighborhood. They believed responsibility for maintaining the trees would eventually fall to them. "Even though it's city property, we're gonna end up having to care for it and raking leaves and God knows whatever else we might have to do," said one woman interviewed for the study.

Carmichael also found that skepticism of the program was tied to wider distrust of the city government and outside groups in parts of Detroit. As a result, residents wanted greater decision-making power in selecting which trees to plant in particular locations, adds Carmichael who completed the three-year study for her PhD with co-author Maureen McDonough of Michigan State University.

Greening Detroit

Urban greening projects offer health benefits to residents, from improved

Continued on Page 77

WHY PEOPLE REJECT CITY TREES

Continued from page 76

air quality to decreased crime, and seek to boost the typically lower amount of tree cover in low-income neighborhoods, Carmichael says.
For these reasons, many cities have launched major tree planting initiatives in recent years, including MillionTreesNYC, Grow Boston Greener, The Chicago Tree Initiative, and The Greening of Detroit.

To avoid past mistakes in the city's tree planting and maintenance approach, staff at The Greening of Detroit, a non-profit contracted by the city to plant trees, selected tree species that could survive in urban environments and guaranteed maintenance of trees for three years after planting.

However, the group relied primarily on educating residents about the benefits of trees and their program, which failed to address people's concerns. "By not giving residents a say in the tree planting program, they were re-creating the same conflicts that had been happening in the city for a long time," says Carmichael.

Carmichael says simple steps, such as allowing residents a choice over which kind of tree will be planted in front of their home, can reduce tensions. Investing more effort in follow-up communication with residents who receive trees would also help to ensure that trees are cared for, and residents do not feel overburdened with tree maintenance.

One man interviewed for the study said, "I've left several messages. My tree was planted last August. My wife loved it. I was told that they would come back out and either water it or fertilize it. Haven't seen anyone. So, I've been doing the best that I can. Where do I go from here?"

Lessons for non-profits

Monica Tabares of The Greening of Detroit says that increased spending by the City of Detroit's forestry department, as well as a change in the organization's leadership, has led the group to focus more on community engagement.

Since Carmichael presented her findings to The Greening of Detroit, the organization has instituted community engagement training for the youth they hire to water street trees and interact with residents. "As a result of our refined focus, [our program] has brought thousands of residents together to not only plant trees, but gain a greater understanding of the benefits of trees in their communities," says Tabares.

Carmichael's study is gaining attention from city planners across North America hoping to learn Detroit's lessons. Local governments and non-profits in Austin, Denver, Indianapolis, Sacramento, Toronto and Vermont have reached out for help implementing her research.

Continued on Page 78

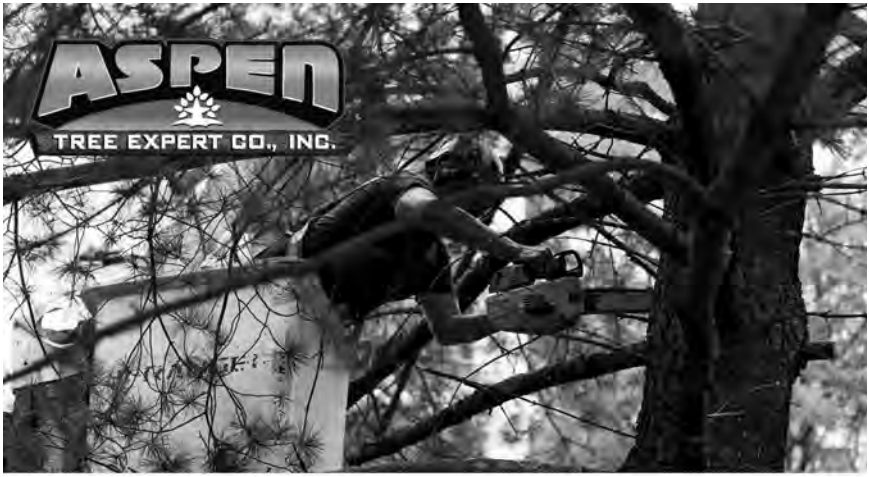
WHY PEOPLE REJECT CITY TREES

Continued from page 77

The study also offers lessons for how non-profits and donors measure successful outcomes, Carmichael says.

With limited resources and watchful donors, some non-profits often focus on narrow outcomes -- such as the number of trees planted per year – without also prioritizing deeper community engagement, which might slow the immediate work of planting trees, but create more a sustainable outcome.

"We need to broaden the measurable outcomes that we can gauge success by," says Carmichael. "Healthy urban forests cannot be measured just by the number of trees planted. We also have to capture who is involved, and how that involvement affects the well-being of people and trees in the long-term."



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