

# THE SHADE TREE

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

**Volume 94 — May - June 2021 — Issue 5 & 6**

## *This Issue Presents...*

Director's Discourse

Get to Know the NJSTF Board Members

Why You Should Plant Oaks

Plant Trees or Let Forests Regrow?



## **DIRECTOR'S DISCOURSE**

By Donna Massa

Wishing each and every one of you continued health and wellness as we begin to return to a “new normal” routine. With hopeful hearts and with a continued awareness of the health and wellbeing of our membership, our speakers, and our staff, we plan to bring to you a LIVE NJ Shade Tree Federation Conference! SAVE THE DATE! The 96th Annual Conference will be held at The Crowne Plaza Philadelphia/Cherry Hill Hotel in Cherry Hill, NJ, Thursday/Friday, October 21-22, 2021.

The beauty of the NJ Shade Tree Federation conference is that it brings together municipal shade tree commissions and professionals in the industry whose services are needed by the commissions. With that in mind, the two-day conference will continue to have a General Session in the morning and two break-out tracks in the afternoon allowing attendees more opportunities to select an afternoon session that best suits their interest.

This year's program includes exceptionally talented speakers who have graciously agreed to share their thoughts and talents with us. We welcome Dr. Linda Chalker-Scott, Professor and Extension Urban Horticulturist from Washington State University who will open our program each day and share with us a two-part discussion on “Horticultural Myths Surrounding Trees & Shrubs.” We also welcome Dr. Peter Del Tredici, Senior Research Scientist, Emeritus from the Arnold Arboretum of Harvard University who will address the General Session on “Street Trees - The Struggle for Survival” and then join the LTE/LTCO track to address “Urban Nature/Human Nature.” Dr. Suzanne Simard, author of *Finding the Mother Tree: Discovering the Wisdom of the Forest* will teach us “How Trees Communicate,” Dr. Richard Hallett, Research Ecologist with the NYC Urban Field Station will address “Trees Can Do the

**BULLETIN OF THE NEW JERSEY SHADE TREE FEDERATION**

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**DIRECTOR'S DISCOURSE**

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Dirty Work of Waste Cleanup” and introduce the concept of phytoremediation and planting species of trees in phases. Dr. Gregory Dahle, program coordinator for Forest Resources Management at West Virginia University will discuss “Co-Dominant Unions: One Reason to Prune Trees Early.” Emelie Swackhamer from Penn State University will bring us up-to-date on the Spotted Lanternfly, Michael Galvin from SavATree will share with us his thoughts on “Wood Waste Utilization and the Urban Wood Workbook,” and Rosa Yoo from the New Jersey Forest Service will enlighten us with “Hot Topics surrounding Insects and Diseases in New Jersey.” Phillip Kelley, lead instructor from Rowen Tree Training, will offer a session relative to “Safety on the Job” and Paul Cowie, president of Paul Cowie and Associates, will assume the role of “CSI Tree Guy” and teach us how to diagnose/read the landscape. Carrie Sargeant, coordinator of NJ Urban and Community Forestry Program will introduce “New Management Plan Guidelines” to our municipal members and there will be a panel of municipalities ready to share their success stories made possible by grants from the NJ Urban and Community Forestry Program. This year’s program is packed with educational information that we are all sure to absorb and enjoy! Plan on joining us for both days of the conference!

During the conference on Thursday evening, October 21st, join us at our Conference Dinner as the NJ Shade Tree Federation celebrates 96 years of serving you, the municipalities and tree care professionals throughout the State of New Jersey. The dinner is in the evening of the two-day conference. The Conference Dinner is a networking event that offers an additional opportunity to interact with other shade tree commission members and professionals in the industry both of whom have also been entrusted with the same task of enhancing the care of shade trees. There will be giveaways, door prizes, and entertainment as we recognize specific municipalities and individuals who have excelled in the industry. A “complete” registration for the conference includes the Conference Dinner.

Look for more detail on the upcoming conference via our website at [njstf.org](http://njstf.org) and in upcoming issues of “The Shade Tree”. Plan now to attend the entire conference. We look forward to the end of our isolation and to being together once again as a community at this year’s conference.

# GET TO KNOW THE NJSTF BOARD MEMBERS!

In an effort to bring our members together throughout the year, the NJSTF will be posting periodic video chats with some of our membership so that we can get to know each other better.

The most recent interview with NJSTF Board members and Rutgers professors Jason Grabosky and Frank Gallagher is ready for viewing.

Visit our website to watch the video: [www.NJSTF.org](http://www.NJSTF.org)

Please subscribe to our NJSTF YouTube channel while you are there to be sure to catch all the videos as they are posted.

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## WHY YOU SHOULD PLANT OAKS

By Margaret Roach

The New York Times, In the Garden • March 31, 2021

When I arrived years ago at the piece of land I now garden, I saw it as a blank canvas and set about madly planting things, imagining my efforts would bring every square foot to life. I did not understand then that the heavy lifting had already been done — and probably by some blue jay, or maybe a squirrel.

Douglas W. Tallamy, an entomologist and longtime professor at the University of Delaware, would have known right away what the giant old oak trees along the front property line meant to the place — and to any place.

“There is much going on in your yard that would not be going on if you did not have one or more oak trees gracing your piece of planet earth,” he writes in his new book, “The Nature of Oaks: The Rich Ecology of Our Most Essential Native Trees.”

Oaks support more life-forms than any other North American tree genus, providing food, protection or both for birds to bears, as well as countless insects and spiders, among the enormous diversity of species. Oaks also supply more of what he calls “fascinating interactions,” intimate details the book chronicles, month by month.

It was caterpillars — especially the larval stage of moths — that Mr. Tallamy credits with alerting him to the power of the genus *Quercus*. With 90-plus North American species and about 435 worldwide, *Quercus* is the Northern Hemisphere’s largest tree genus, made up mostly of trees that are very large and very long-lived, two factors among several that help explain the oak’s power.

When Mr. Tallamy began research 12 years ago to compare the relative ecological effect of native and nonnative plants, his team searched historical



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scientific records and made lists of host-plant genera, tallying how many caterpillar species were dependent on each. Why record caterpillar interactions? Not just because Mr. Tallamy likes them — he calls them “repurposed leaves that can walk” — but because caterpillars fuel the food web.

Oaks led by far, an insight that made them characters in his previous books, including the 2020 best seller “Nature’s Best Hope.”

“They are so important, critically important, in running our ecosystems, and that’s what attracts me,” he said. “Oaks are not just another plant.”

Consider a few of the oak’s credentials; Oak trees support 897 caterpillar species in the United States. At Mr. Tallamy’s 10-acre property in southeastern Pennsylvania, he has recorded 511 — dwarfing the number supported by other native trees there, including maples (*Acer*, interactions with 295 caterpillar species), ironwood (*Carpinus*, 77) and sweetgum (*Liquidambar*, 35).

Of the food eaten by insects, birds and other animals, 75 percent comes from a few key genera — and oaks lead the list.

Birds forage longer in oaks (which, again, is often about caterpillars — high-value food especially during breeding season, when they are prime baby food).

An oak can produce three million acorns in its lifetime — tons of protein, fat and carbohydrates — and a mature tree can drop as many as 700,000 leaves every year. The resulting litter is habitat for beneficial organisms, and the tree’s canopy and root system are important in water infiltration, helping rain percolate instead of running off, and purifying it in the process. Oak trees also sequester carbon.

As Mr. Tallamy puts it: “A yard without oaks is a yard meeting only a fraction of its life-support potential.”

Yes, he’s aware: We have objections. Oaks are too big. They produce all those leathery leaves that don’t decompose fast enough for our neatnik liking. And in those years when the acorn crop is particularly heavy — known as mast years — we can’t walk anywhere near the trees without losing our footing.

But Mr. Tallamy seeks to quell those reservations, so that we’ll make room for at least one tree (or better still, two or three).

When Mr. Tallamy and his wife, Cindy, moved to their home 20 years ago, the land had long been mowed for hay, a practice they discontinued. No longer suppressed by the tractor, invasives emerged, and the couple began

removing them. The next spring, they noticed that in many disturbed spots created by the uprooting they had done of unwanted multiflora rose and autumn olive, oak and beech seedlings had sprung up — but from where?

“We had no white oaks or beeches on our property and no mature trees nearby from which squirrels could have moved seed,” Mr. Tallamy writes.

A chance magazine photo of a jay flying with an acorn in its beak sent him digging into the literature. And sure enough, the ancient mutualism between jays and oaks was well documented.

Oaks and jays evolved together about 60 million years ago, in what is now Southeast Asia. Jays grew so adapted to life alongside oaks that a small hook at the tip of their bill “is designed to rip open an acorn husk,” Mr. Tallamy writes.

The bird’s expanded esophagus (a gular pouch) can hold up to five acorns — each one buried in a different spot, to be eaten later. Except some are forgotten and never retrieved. And you know what comes next: Mighty oaks from little acorns grow.

#### *An Ode to Oak-Leaf Litter*

Because they contain concentrations of lignins and tannins, natural chemicals that retard breakdown, oak leaves decompose slower than most tree leaves. Mr. Tallamy hopes gardeners see them as “priceless litter,” not debris to vacuum, shred or, worse, burn.

“The diversity and abundance of the little creatures that reside in the leaf litter that accumulates beneath an oak is astounding,” he writes, “and easily exceeds counts in the millions.”

What are they doing, all those arthropods? Some are overwintering, taking shelter until fairer days (which is why Mr. Tallamy advises us not to start our cleanup too early). But others are detritivores, nature’s cleaning crew, without whom the system collapses. Many fungi, too, make a home in oak-leaf litter.

If leaf litter disappears, so do the decomposers,” Mr. Tallamy writes, “as well as the fungi and bacteria many eat, and the mycorrhizae that enable plant roots to absorb the nutrients they need.”

Oak-leaf litter has other superpowers as well — practical ones that speak to gardeners facing either of two fierce, fast-spreading invasives: Japanese stiltgrass (*Microstegium vimineum*) does poorly in areas with a heavy layer, and oak litter also seems to deter soil-eroding Asian jumping worms.

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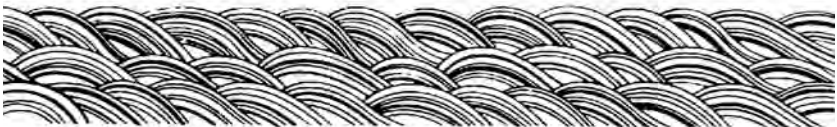
The fastest growing segment of the tree care industry is liquid tree fertilization and Doggett is leading the way. The spectacular growth in this field has come from the fact that the fertilizing method that helps trees the most also helps tree care companies the most.

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*When Leaves Don't Fall*

You may have seen it: an oak tree whose dry, brown leaves stay put all winter. The phenomenon, called marcescence, is more common in younger trees (and also seen in the oak's botanical cousin, the beech).

Why do they hold onto that excess baggage? If you're an animal like a deer or an elk, the dead leaves taste bad and any that do fall will rustle or crunch if you walk on them, alerting predators to your presence. So perhaps those leaves protect new buds on lower branches by discouraging animals from grazing.

But what about the dead leaves on higher branches? Earlier in the oak's 60-million-year history there were taller predators, like mastodons, that may have been deterred as well.

Or perhaps marcescent leaves help oaks growing in poor soil by catching snow, directing more water to the root zones, and eventually falling to create a nutrient-rich mulch just when the trees need it most, as spring arrives. Or all of the above. No one knows for sure.

*The Boom of Mast Years*

If you've seen a wall-to-wall carpet of acorns beneath an oak, you've probably witnessed that individual's contribution to a mast year, not an isolated event. Mast years are often synchronous: In the fall of 2019, red oaks from Massachusetts to Georgia produced vast crops of acorns.

But why? Is it a way of exceeding predators' demands, insuring that some seeds are left to grow? Or perhaps an unpredictable harvest, year to year, controls predator populations, which may surge and then decline when a subsequent crop can't sustain them. Or did masting evolve to improve pollination for these mostly wind-pollinated trees, outsmarting the vagaries of wind by producing so much pollen it can't miss? Again, maybe all of the above.

*Now Go Plant Some Oaks*

Mr. Tallamy's call to action: convincing us to plant oaks, preferably from acorns.

"Acorns are easy, free and plentiful," he writes, "and they will grow into healthier trees than if you transplant established trees."

Or rather than pulling up those volunteer seedlings, why not leave one in place and protect it from animals with a wire cage while it gains a foothold? Several trees spaced 10 feet apart will interlock their roots, forming a grove,



each better anchored than it would be standing alone.

In “Nature’s Best Hope,” Mr. Tallamy coined the term Homegrown National Park — the notion that each person’s contributions of native plantings, led by oaks, could add up to substantial conservation corridors. His new Homegrown National Park website encourages us to add our own efforts to an interactive map; more than 5,000 people already have.

There’s a payoff for the environment, yes, but also for each of us, in the bonds of personal connection. He feels it, down to the last acorn.

“The oaks in my yard are not just oaks, they are vibrant communities of hundreds of species,” Mr. Tallamy said. “We planted them from acorns — so we enabled all this life by planting those oaks, and we did it in just a few years. You really can bring all this life to your yard just by planting this one genus. We really need oaks, and need to treat them with reverence.”

*Margaret Roach is creator of the website and podcast A Way to Garden, and a book of the same name.*

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## **PLANT TREES OR LET FORESTS REGROW? NEW STUDIES PROBE TWO WAYS TO FIGHT CLIMATE CHANGE**

By Gabriel Popkin • Science Sep. 23, 2020

Forests are having their moment. Because trees can vacuum carbon from the atmosphere and lock it away in wood and soil, governments and businesses are embracing efforts to fight climate change using trees.

Nations have pledged to plant or restore forests over a combined area larger than India. One corporate-backed initiative has secured pledges to conserve or restore 855 million trees by 2030. Even President Donald Trump, an ardent climate change skeptic, endorsed a trillion-tree planting initiative at the World Economic Forum in January; a companion bill was introduced in the U.S. House of Representatives in February.

Scientists agree that new trees and forests can, in theory, cool the planet. But many have warned that the enthusiasm and money flowing to forest-based climate solutions threaten to outpace the science.

Two papers published this week seek to put such efforts on a firmer footing. One study quantifies how much carbon might be absorbed globally by allowing forests cleared for farming or other purposes to regrow. The other

## **WAYS TO FIGHT CLIMATE CHANGE** *Continued from page 41*

calculates how much carbon could be sequestered by forests in the United States if they were fully “stocked” with newly planted trees. Each strategy has promise, the studies suggest, but also faces perils.

To get a worldwide perspective on the potential of second-growth forests, an international team led by ecologist Susan Cook-Patton of the Nature Conservancy (TNC) assembled data from more than 13,000 previously deforested sites where researchers had measured regrowth rates of young trees. The team then trained a machine-learning algorithm on those data and dozens of variables, such as climate and soil type, to predict and map how fast trees could grow on other cleared sites where it didn’t have data.

In 2017, a TNC-led team had calculated that some 678 million hectares, an area nearly the size of Australia, could support second-growth forests. (The total excludes land where trees might not be desirable, such as farmland and ecologically valuable grasslands.) New forests growing throughout that area could soak up one-quarter of the world’s fossil fuel emissions over the next 30 years, Cook-Patton and colleagues report today in *Nature*. That absorption rate is 32% higher than a previous estimate, based on coarser data, produced by the Intergovernmental Panel on Climate Change. But the total carbon drawdown is 11% lower than the 2017 estimate.

The study highlights “what nature can do all on its own,” Cook-Patton says. Although reforesting the full area of opportunity is unrealistic, she says, reforestation planners can use her team’s results to estimate how much carbon sequestration to expect.

The study represents “a lightning step forward” in precision compared with earlier studies, says geographer Matthew Fagan of the University of Maryland, Baltimore County, who was not involved in the work.

But, Fagan adds, “Natural regrowth is not going to save the planet.” Young forests are easier to cut down or burn than old ones, Fagan cautions, making them frequent targets for farmers and ranchers. Second-growth forests in the Amazon typically last only 5 to 8 years, according to studies, though trees on slopes or near streams often survive longer. Even in Costa Rica, renowned as a reforestation champion that has doubled its forest cover in recent decades, half of regrowing forests fall within 20 years.

In many places, grazing cattle or growing crops is simply more profitable than allowing trees to come back, notes Pedro Brancalion, a forest expert at the University of São Paulo in Piracicaba, Brazil. Policies that promote reforestation and better markets for both carbon and forest products are needed, he says, to give trees a boost. Right now, “Nobody will abandon cattle ranching or agriculture for growing carbon.”

Robin Chazdon, a University of Connecticut, Storrs, ecologist and study co-author, urges conservationists to help farmers grow both trees and crops or



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cattle—a concept, she notes, that has a long history of success. “If you look at the history of Indigenous peoples, you will find many, many examples of how they managed and modified the forest for their own uses,” she says. “It doesn’t have to be completely left alone.”

Some advocates promote expanding tree planting in existing forests. To boost that concept, a team of researchers at the U.S. Forest Service (USFS) quantified how many additional trees U.S. forests could hold. Drawing on a federal inventory, they found that more than 16% of forests in the continental United States are “understocked”—holding fewer than 35% of the trees they could support. Fully stocking these 33 million hectares of forest would ultimately enable U.S. forests to sequester about 18% of national carbon emissions each year, up from 15% today, the team reported this week in the Proceedings of the National Academy of Sciences. But for that to happen, the United States would have to “massively” expand its annual tree-planting efforts, from about 1 billion to 16 billion trees, says lead author Grant Domke, a USFS research forester in St. Paul, Minnesota.

Planting trees might make sense in some places, Cook-Patton says. But she cautions that adding trees in fire-prone areas could increase fire risk. And although tree planting often gets the hype, cheaper natural regeneration usually results in a more diverse mix of species and provides more carbon bang for the buck. “For any given site,” she says, “we should always ask ourselves first: ‘Can the forest regenerate naturally, or can we do something to help?’”

*Gabriel Popkin is a journalist based in Mount Rainier, Maryland.*



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