



SYCAMORE LAND TRUST

THE TWIG

THE TREES ISSUE // FALL 2021

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FROM THE EXECUTIVE DIRECTOR



Dear Sycamore Friends,

Trees seem to be symbolic of nature as a whole. It's no wonder that when a group of local conservationists formed Sycamore Land Trust 31 years ago, they decided to name their new organization after one of our most distinctive native trees. The smooth, white upper limbs of sycamores reaching over a creek, highlighted by the background of a cold blue winter sky, is a quintessential image of nature in southern Indiana in my mind. The Sycamore name also recalls the giant sycamores and other trees that were once found in Indiana's deep bottomland forests, before our state was largely deforested in the 19th century.

A precious few remnants of old-growth forest remain in Indiana. Sycamore is privileged to be the caretakers of one of them, Hoot Woods in Owen County, thanks to the generosity of the Hoot family. Most of the forest on this 80-acre

property has remained uncut, and has served as a site for scientific inquiry for decades. In this issue of *The Twig*, our Land Stewardship Assistant Ellen Bergan writes about dendrochronology research (tree-ring dating) at Hoot Woods and other Sycamore properties. And at this year's online Annual Celebration, you can join us on a virtual tour of Hoot Woods to see this living example of Indiana's natural past.

Along with facilitating research, Sycamore's stewardship of Hoot Woods includes regular monitoring and ongoing invasive plant control. Fortunately, the old-growth portion of the woods is in good shape, although we've found and removed a few invasive Japanese barberry shrubs and must remain vigilant. Invasive plant control is a major part of Sycamore's efforts to improve and maintain the ecological health of the 50+ nature preserves

entrusted to us. Removing invasives opens up room for native plants, which form the base of the food web that feeds an entire natural community, from the smallest insects to bald eagles and bobcats.

Planting trees to create the mature forests of the future is also a significant part of Sycamore's land stewardship work. We've planted over 85,000 native trees so far, and have three major tree planting projects in the works for 2022 – all in our Beanblossom Creek Bicentennial Conservation Area. Our restoration efforts are supported by many conservation colleagues including the Indiana Department of Natural Resources, the Natural Resources Conservation Service, the National Wild Turkey Federation, Ducks Unlimited, American Forests, and private contractors including Habitat Solutions, Eco Logic, Wagner Forestry, and Stanger Excavating.

There's an especially critical partner in Sycamore's work – YOU! Dr. Seuss, in his book about trees and conservation, *The Lorax*, said that "Unless someone like you cares a whole awful lot, nothing is going to get



In 1928, this huge American sycamore (*Platanus occidentalis*) was one of many measured in Gibson County. It measured 15 feet in diameter and was 160 feet tall.



better. It's not." Your support, and the support of people like you who care for the trees, forests, and nature of southern Indiana, allow Sycamore to make things better. Thank you!

John Lawrence
Executive Director
Sycamore Land Trust

OUR MISSION

Sycamore Land Trust is a 501c3 nonprofit conservation organization founded in 1990 to preserve the beauty, health, and diversity of southern Indiana's natural landscape through strategic land conservation and environmental education.

We protect 121 properties totaling 10,319 acres.

Learn more at sycamorelandtrust.org



BRANCHING OUT

“White oak.”
 “Shagbark hickory.”
 “Red oak.”
 “Red oak? Sure that’s not a scarlet oak?”

Northern Red Oak
Quercus rubra



I crane my neck to look up the tree trunk rising above me. Pale furrows in the bark run in ski track patterns down the tree’s otherwise darker exterior.

“Nope, definitely red oak.” I say, shaking my head. “The bark’s not scaly enough at the base to be a scarlet.”



This towering white oak (*Quercus alba*) at Trevlac Bluffs Nature Preserve is a “wolf tree,” an exceptionally old and large tree that grew and spread its branches while the surrounding land was kept open. | Abby Henkel

I look over at Chris Fox, Land Stewardship Director and my tree ID accomplice, as he nods in agreement. We continue walking over the forested ridge as we finish up our annual monitoring visit of this Sycamore property, calling out the names of trees as we go.

Tree identification has become a pastime of Chris’s and mine while doing stewardship fieldwork, helping keep our minds occupied while trekking miles of off-trail property. As I’ve become more familiar with the native tree species of our southern Indiana forests, learning to recognize the particular bark, leaf, or habitat that characterize certain tree species, the way that I see our forests has also changed.

The trees I pass are no longer passive pillars of wood; rather, the forest is a collection of unique individuals, ones that I can recognize and call by name. I am by no means an expert in dendrology (the study

of trees), and scientific names still escape me, but there’s a comforting familiarity to the forests I walk through now.

Names, after all, are a foundational building block of relationships, allowing us to forge connections to both each other and the natural world. In her book *Braiding Sweetgrass*, writer and scientist Robin Wall Kimmerer discusses the disorientation and disconnection that can come with not knowing the names of the plants and animals around you. She calls the resulting isolation “species loneliness,” describing “a deep, unnamed sadness stemming from estrangement from the rest of Creation, from the loss of relationship.”

The roles of names and relationships in nature was an introduction into the importance of how we view the world around us — and the complexities of trees and our connections to them go far beyond species identification. The roles trees play in our lives



ON THE COVER

6th graders in Sycamore’s Environmental Education Program hug a tree in 2010. | Carroll Ritter

and communities, how trees form communities of their own, and how much we can learn from trees themselves give invaluable insight into the relationships among ourselves and nature.

ROOTED IN COMMUNITIES

For many of us, communities center our identity, acting as a source of support and belonging and emblematic of our connections to each other. Sometimes, our arboreal neighbors become integral parts of these communities.

When officials in Melbourne, Australia, created a program that assigned email addresses to the city's trees for citizens to report damages, they did not expect the trees to, instead, become recipients of thousands of personal letters from human admirers. These messages ranged from

poetic declarations of love and appreciation — expressing endless gratitude for the shade, oxygen, and natural grace provided by the trees — to queries about dendrology and discussions of global events. People posed existential questions to the trees, or asked if, like them, the trees were tired of neighborhood construction or city traffic.

“Dear Moreton Bay Fig,”
one person wrote.

“You are beautiful. Sometimes I sit or walk under you and feel happier. I love the way the light looks through your leaves and how your branches come down so low and wide it is almost as if you are trying to hug me. It is nice to have you so close, I should try to visit more often.”

The program became a stunningly sweet demonstration of the relationships people create with the trees around them. With every letter, people expressed that trees meant more than landscaping ornaments; they were a part of the community and played a recognized, cherished role in the lives of its human members.

The place of trees in our communities stretches back

The giant American beech (*Fagus grandifolia*) “wolf tree” in the bottomland woods of Trevlac Bluffs Nature Preserve. | Ellen Bergan

much further than modern-day emails, however. In the forests of the eastern and Midwest United States, looming “wolf trees” act as physical placemarkers of human communities.

Wolf trees, characterized by their large circumference and low, broad, and often gnarly branches, are results of the forest clearing that came with European colonization. Most of Indiana's forest was cut down for timber and to clear land for farming. A few trees were allowed to grow in these open areas, often along property lines or to provide shade for livestock in pastures. Surrounded by open space and ample light, they had the opportunity to spread their branches into a sprawling canopy. As farmland and settlements have been abandoned, wolf trees have come to stand out as exceptionally large and wide-spreading anomalies within the returning younger forest.

We can see these wolf trees in our backyards, such as the white oak with its swooping



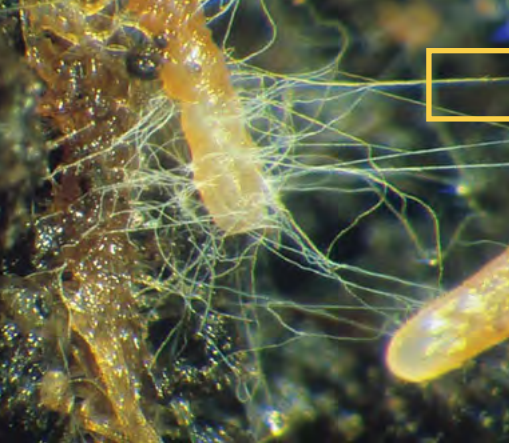
lower branch along the trail at Sycamore's Touch the Earth Natural Area, or this girthy beech nestled within the bottomland woods of Trevlac Bluffs Nature Preserve. These gnarled, elder giants are points on a map of the past, reminders of communities that used to inhabit that space.

While we have incorporated trees into our own communal systems, trees have long been sustaining active communities of their own. Complex ecological connections among trees show that they are capable of forming and sustaining relationships, communicating, and protecting one another. This “wood-wide web,” as it's been called, is actually a subterranean network of mycorrhizal fungi.

Dear Tree...

Love helps everyone grow big and strong. Do you have a favorite tree on Sycamore's preserves? Send them a love letter to letters@sycamorelandtrust.org.





Mycorrhizal fungi, the “wood wide web.”

If a tree is sick or dying, it can dump its remaining resources into the network for other trees to use. There is even evidence of kinship among trees. Older trees, sometimes dubbed “mother trees,” share nutrients with their nearby seedlings to give them a better chance of survival.

Much of our understanding of forests has operated under the pretense that trees are solitary individuals, and that competition drives the survival train in ecosystems. It’s now recognized by scientists that while there is definite conflict in forests, there is also collaboration, interactions of a complex living system that operates on degrees of caretaking, nourishment, and informational exchange. Trees need their communities to survive. A single, isolated tree cannot create the moderated climatic and sheltered conditions that allow it to grow to an old age as well as a forest can. A seedling cut off from the fungal web is more likely to die than those that are networked into the complex, connected system. By communicating and working together as interdependent parts of a community, trees help one another survive and strengthen the resilience of the whole forest.

Mycorrhizal fungi act as extensions of the plant root system and, in a symbiotic relationship that is hundreds of millions of years old, give trees water and nutrients from the soil in exchange for carbon. But that’s just the beginning.

Scientific research shows that the web of fungal threads links nearly every tree in a forest to each other. Trees use these underground connections to communicate and share resources, a sort of arboreal altruism. The fungal network acts as a messaging system, allowing trees to send news and distress signals through chemical compounds and electrical impulses via their roots. If a tree is under attack, it can send out chemical alarms to prepare its neighbors for danger. If a tree is under stress, other trees transfer water, carbon, and other nutrients to help it, sometimes even nourishing stumps for centuries after the tree was felled.

When we consider the overlapping connections between our communities and those of trees, it is not difficult to blur the boundary between them. Ecologist Aldo Leopold re-imagined our place in ecological systems, arguing that we, too, are part of the greater interdependent community of the natural world. As part of this broadened community concept, we are members of a biotic team, a role that comes with a responsibility to love and respect our fellow members of the land — including the soils, lichens, rivers, and, of course, trees that reside alongside us.

And trees, as any wise, long-lived community member, have a lot to share with us — and we have much we can learn from them.

THE (TREE) CORE OF IT

Look at a cross-section of a tree in any temperate forest, and you’ll see rings expanding, in alternating light and dark bands, from the center of the tree to its bark. Each ring marks a complete cycle of seasons, one year, in the tree’s life. The abrupt shift in a previous year’s darker latewood formed in the

A tree core from the rare stand of old-growth hemlock trees at Trevlac Bluffs Nature Preserve. | Ellen Bergan



Native eastern hemlock trees (*Tsuga canadensis*) are found naturally in only about two dozen places in Indiana. Hemlocks are now a more northerly species and the stands at Sycamore’s Trevlac Bluffs Nature Preserve and Laura Hare Nature Preserve at Back Creek are remnants from the cooler early post-glacial climate of thousands of years ago. | Ellen Bergan





This black gum tree (*Nyssa sylvatica*) at Hoot Woods was found to date back to the early 1600s. Tree cores are sampled using an increment borer, a tool that extracts a narrow core without harming the tree. | Ellen Bergan



fall to the lighter earlywood from the more recent spring creates the distinct ring boundary that separates one year from the next.

Trees grow from the inside out, where the outermost ring near the bark marks the most recent growing year, and the innermost ring, the very center of the tree, is the oldest. When we know the year of the youngest ring, we can count back to the center and know the age of the tree, as well as the exact year each ring was formed. The study of these annual growth rings to date and interpret past events is called dendrochronology.

However, the counting and dating of rings just scratches the surface of dendrochronology, as tree rings provide much more than solely an age. The widths of rings also show how much the tree grows in a year, reflecting the environmental conditions of that corresponding year. Tree rings are wider when conditions favor growth and narrower when conditions do not. The

pattern of narrow and wide rings in a tree, then, can show variations in climatic conditions, such as precipitation and temperature, as well as discrete geologic or environmental events that have occurred throughout the tree's lifespan.

Using samples from multiple trees, the climatic patterns of tree rings and their corresponding years can be cross-dated to create an even more extensive tree-ring chronology, providing the data to reconstruct thousands of years of past climate. Through tree rings, we gain a window to the past, capable of seeing droughts, hurricanes, fire events, volcanic eruptions, glacial movements and avalanches, and even atmospheric air pressure fluctuations through time.

Climate reconstructions from trees also show how climate has changed throughout history, with temperature proxies revealing unprecedentedly — and increasingly — high temperatures beginning in the 20th century, far above any paleoclimatic global warming flux. Moreover,

the conditions we can obtain from the past can be used to make more accurate models for predicting how climate will continue to change in the future.

Dendrochronology research on Sycamore Land Trust preserves provides a fascinating peek into the data our protected trees contain. As part of an extensive project looking at hemlock across the United States, IU dendrochronologist Justin Maxwell sampled a few trees from Sycamore properties to see how Indiana's relict populations of eastern hemlock, disjunct from the species's main range, are responding to climate change. Trees from our Hoot Woods preserve, one of the few remaining tracts of old-growth forest left in Indiana, extend our region's tree-ring chronology even further back in time.

Last fall, a black



Bald cypress trees (*Taxodium distichum*) can live from 600 to thousands of years and play an important role in their wetland communities. Their extensive root systems minimize wind disturbance and provide flood mitigation by slowing and spreading flood waters. They are uniquely deciduous conifers that turn bright orange and lose their needles in fall. This stand at Sycamore's Eagle Slough Natural Area is at the very northern edge of their range. | Jaime Sweany

Woods was found to date back to the early 1600s. I remember watching in humbled awe as Justin removed the core from the immense tree, which had been here well before any Europeans had set foot on the land that would become Indiana, and may be here long after the group of us who sampled it are gone.

THE FORESTS FOR THE TREES

Exploring Indiana's Lower Wabash Valley in the late 1800s, ornithologist Robert Ridgway wrote that the forest was "so thick that the trees had to grow upward toward the sunlight . . . it is no wonder that many species grew to a height that seems impossible to some people." Sycamores and bald cypresses



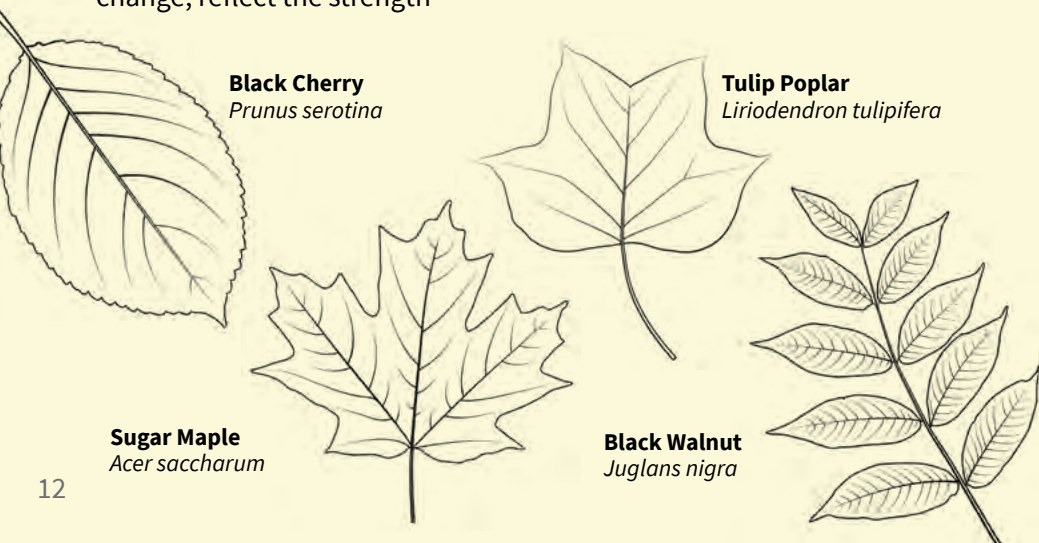
stretched 15 feet in diameter, and heavy hardwoods extended in unbroken continuity for miles. Of the original 20 million acres of forest that covered Indiana, fewer than 2,000 acres of old-growth forest remain intact.

Though these forest landscapes of the past are gone, their legacy lives on through Sycamore's work. From rare old-growth tracts to bottomland woods to rolling hardwood hills, Sycamore's protection of Indiana forests is a promise that will last forever. These forests will never be timbered and will, at some point, begin resembling the towering landscapes that once grew here.

Trees have lots to teach us — about climate change, historical land use, and fungal ecology, but also about *resilience*. The connective fungal threads that sustain forests, allowing them to adapt through millennia of change, reflect the strength

found in communities. When we're cognizant of the deeply-rooted interconnections between ourselves and nature, our communities become that much greater, giving us the appreciation for the natural world and our responsibility to care for each other.

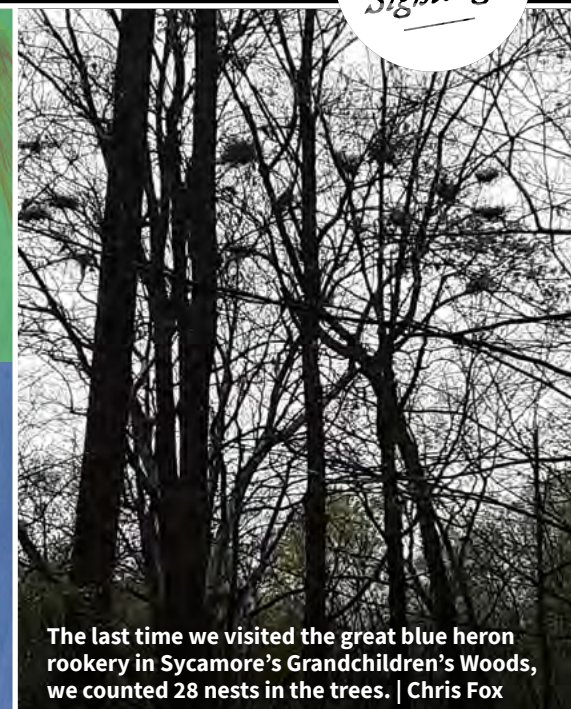
The trees I pass under while working remind me that we are not alone. Their names are a rolling rhythm through the hills, calls of *sugar maple*, *black cherry*, *sassafras*, *black oak*, *tulip poplar*, *American beech*, *hackberry*, *black walnut*, *eastern red cedar* echoing with every footstep, a communal network expanding across species and ecosystems. The trees stand steadfast in the soil, their cambium transcribing changes in the world around them, their sun-seeking branches reaching out, connecting and rooting us in protecting the land we all share.



Our "Dam Cam" at Beanblossom Bottoms Nature Preserve captured a video of this bobcat family crossing the beaver dam. Check out our social media to hear Mom calling to her kittens!



Sycamore
Sightings



-THE-
GROUNDWELL
FALL 2021

121
PROJECTS

10,319
ACRES

Habitat Solutions, a local forestry contractor, planted 30,000 native tree seedlings for Sycamore in 2018 to reforest this 50-acre field at our Touch the Earth II Preserve. | Chris Fox



Putting Down GOOD ROOTS

“Acts of creation are ordinarily reserved for gods and poets, but humbler folk may circumvent this restriction if they know how. To plant a pine, for example, one need be neither god nor poet; one need only own a shovel.”

ALDO LEOPOLD

One of the most rewarding parts of my job is planting trees. As Land Stewardship Director at Sycamore, I get to live out my dream of emulating a Johnny Appleseed or even J. Sterling Morton (visionary for the first Arbor Day) by helping plant trees, sometimes hundreds or even thousands of trees. Sycamore has been involved with tree planting for decades,

from giving away trees at Arbor Day each April, to volunteer efforts, to hand-planting small fields, to large-scale reforestation projects planting tens of thousands of seedlings.

Regardless of the size of the planting, choosing the right tree is one of the most important decisions that will help determine the success of the planting.

As responsible stewards, we must take into consideration many variables when selecting trees. To assist with that process, we often consult with experts to help us determine the best trees species for our projects. Amy Spalding, Forester with the National Wild Turkey Federation, works closely with the Natural Resources

Conservation Service (NRCS) and has provided technical assistance for us on many tree plantings. Amy says, “When putting together a plan I consider the purpose of the planting, soil types and site conditions to determine what native trees will be the best to fit. One species that is always included in my designs are oak trees. Oak trees support a large amount of wildlife.”

Once we determine which trees will be incorporated in the mix, we then place our order with Vallonia State Nursery, one of two nurseries managed by the Division of Forestry. The Indiana Department of Natural Resources, Division of Forestry, began offering tree seedlings to the public in 1907. Nearly 1 billion trees later, they are still offering a wide selection of quality tree seedlings to the public. Currently, they grow 52 species and distribute over 3 million bare-root seedlings annually.

While planting a tree is a fairly quick process, the job is far from over once the seedling is in the ground, Dan Shaver,

An aerial view of the tree planting at Touch the Earth II Preserve in 2021 after a few years of growth.



Restoring OAK-HICKORY FORESTS

Many forests in southern Indiana are dominated by oak and hickory trees and wildlife has adapted to depend on their acorns and nuts for food. But oak-hickory forests are aging out and not regenerating themselves, which could decimate many wildlife populations.

Oak and hickory sprouts need sunlight to reach the forest floor to take root and fire to reduce competition, allowing them to grow into mature trees. Prior to European settlers arriving in southern Indiana, natural disturbances including wind, lightning-set fire, and mortality due to insects and disease created openings in the forest. Native Americans also created disturbance by harvesting trees, burning, and grazing animals.

To prevent the loss of oak-hickory forests, we must actively manage for disturbance with tools such as prescribed fire. Purdue's Hardwood Ecosystem Experiment is a 100-year collaborative study to determine what types of forest management can help. Learn more at heeforeststudy.org.

Shagbark Hickory
Carya ovata



State Forester with the NRCS, explains. "Tree planting is a long-term proposition. Over time a tree plantation will need to be thinned to keep the plantation healthy and select for diverse mix of high quality nicely formed trees. Keeping invasive plants at bay during the life of the tree plantation is important to allow native flowers, shrubs and young tree seedlings to grow and develop."

I am already well into planning next year's tree plantings and I can't help but think about the future. What challenges will those seedlings face? Floods, droughts, disease, tornadoes? How many storms will pass as those seedlings become saplings and then eventually a forest? How will our world look in 10, 50 or 100 years? There undoubtedly will be many difficult times ahead, but there will be many good times as well. Times of adequate rains and warm sunny days. Times to grow and put down good roots. And while we may not know for certain what the future has in store for our trees, or ourselves for that matter, we can have faith that if we plant a tree there is hope for a better tomorrow.



He who plants a tree, plants a hope.

LUCY LARCOM

Saved from LOGGING

BY ROB MCCREA,
LAND PRESERVATION DIRECTOR

Earlier this year, Sycamore Land Trust became the owner of 56 acres of land in Brown County next to our Laura Hare Nature Preserve at Downey Hill. This is an important acquisition for Sycamore because of the opportunity to add to the overall protected acreage at Downey Hill, increasing the size of this nature preserve to 655 acres — over one square mile!

This is a property that was being sold on the open market. On the day that I inspected the property with our appraiser, the real estate agent for the owner was actually showing the property to another prospective purchaser. After our appraisal was completed, and Sycamore's offer to purchase the property was accepted, the real estate agent expressed utter joy that the land was going to be protected. They stated that there was a lot of interest amongst prospective buyers because of the value of the timber on the property and

that it would likely be logged if Sycamore was unable to purchase it.

Sycamore Land Trust's role in conserving Indiana's forest by owning and protecting lands with high quality forested areas is obvious. What is less obvious is how our ability to act quickly, and the cooperation of land sellers, enables this. Actively communicating with the owners of high priority parcels and planning for land acquisitions years into the future helps, but so does the willingness of our supporters to move quickly. We all need to give a special thanks to the Laura Hare Charitable Trust for making the pledge of support that allowed Sycamore to acquire this property on short notice.

This shagbark hickory (*Carya ovata*) and many other trees were saved by Sycamore. Other interested purchasers wanted to log this property due to the value of its timber. | Rob McCrea





Nature's BEST HOPE

After a sudden and massive tree die-off began last year, the trails in the San Francisco Bay Area where I took my daughter on her first hikes now have huge swaths of hillside with no surviving trees. Over 150 million trees have died in my home state of California since its epic drought began in 2011, weakened by thirst, record temperatures, and parasites. Dead trees burn faster and hotter than living forests, creating a terrifying scenario for surrounding communities. In 2020 alone, more than 4% of California's land burned. It now looks as though 2021 will be even more destructive. "Every acre can and will burn someday in this state," the director of Cal Fire admitted this summer.

The West's fires might feel far away here in Indiana. But the smoke that has traveled across the country to darken our skies this summer is a reminder that none of us can turn away from our environment's cry for help. Climate despair weighs heavy on us these days. What can we possibly do to turn the tide of so much destruction?

Nature's Best Hope — the newest book from Douglas W. Tallamy, a professor in the Department of Entomology and Wildlife Ecology at the University of Delaware — reminds us that habitat restoration is a fundamentally hopeful activity we can engage in to improve the condition of our world, a concept at the

The spiny oak slug is one of over 450 species of caterpillars that depend on oak trees. | Andy Reago & Chrissy McClarren

heart of Sycamore's mission. Our individual actions count and they add up to counteract fragmented landscape that threatens the survival of life on our planet.

"Climate change feels overwhelming," Tallamy says. "If I asked you to go out and solve it tomorrow, you wouldn't be able to do it. But if I say 'go out and plant an oak tree tomorrow,' it shrinks the problem into something manageable for each one of us."

Tallamy calls on us to recognize our collective power to turn our backyards and shared public spaces into conservation corridors to preserve wildlife and our planet for future generations. Gone are the days when conservation can focus only on wild areas. 85.6% of the United States east of the Mississippi is privately owned and what remains is not enough to provide sufficient wildlife habitat. Our new conservation centers must include residential areas, gardens, roadsides, power line and railroad rights-of-way, airports, golf courses, and other human-dominated landscapes.

A UN report predicts that one million species face extinction



Keystone Species:

OAKS

Keystone species are the glue that holds a habitat together, on which other species in their ecosystem largely depend.

Oaks are a keystone species because they produce "mast," meaning they are a source of food that wildlife depend on. Oaks are a top choice for Sycamore's tree plantings because of their acorns.

Hickories and wild cherry are other keystone trees we plant that produce mast to support wildlife in southern Indiana.



Pin Oak
Quercus palustris



Bur Oak
Quercus macrocarpa



White Oak
Quercus alba



Swamp White Oak
Quercus bicolor



Planting trees at Rogers Elementary School in 2019 as part of Sycamore's Environmental Education Program. | Shane Gibson

in the next 20 years, mostly insects. A rapid decline in insect populations due to habitat loss, misguided herbicide and pesticide use, and climate change has been termed the "Insect Apocalypse." Life as we know it depends entirely on these "little things that run the world," vital pollinators and recyclers of ecosystems at the base of food webs everywhere. If insects disappear, so will most of our flowering plants, food webs that support animals including humans would collapse, and our biosphere would rot.

"To save nature, we must change the way we landscape."

DOUGLAS W. TALLAMY

You and I are nature's best hope. If we fill our human-dominated

landscapes with ecologically-productive native plants that support the food web, we can regenerate habitat that supports all life. Recognizing this urgent call to action, Sycamore's habitat restoration efforts this year have included pollinator plantings in powerline rights-of-way and fields adjacent to parking lots at a number of our preserves, partnering to convert open space next to the Columbus Municipal Airport to wildlife habitat, and feathering the edges of residential tree stands with beneficial native species. And each year our Arbor Day Tree Giveaway helps friends like you extend conservation goals into your own yards.

Tallamy advises we start with the most important species of nature, the building blocks that all others rely on. Caterpillars are key to rebuilding the food web as they transfer more energy from plants to other animals than any other plant eater. Selecting native plants for landscaping is essential, but just 5% of our native plants make up 75% of caterpillar food. "The question is no longer simply whether natives are better than nonnatives,"

he explains. "It's whether ecologically-productive plants are better in our landscapes than ecologically-destructive plants."

While a ginkgo tree will not sustain even one species of caterpillar, oak trees make food to sustain over 450 caterpillar species. Oaks are the most powerful keystone plant that we have and a great place to start.

At the National Wildlife Federation's Native Plant Finder at nwf.org/nativeplantfinder, you can search by zip code to find plants that host the highest number of butterflies and moths to feed birds and other wildlife where you live.

This approach empowers each one of us. "It's a cure that will take small actions from a lot of people, but those actions will deliver enormous physical, psychological, and environmental benefits to everybody," Tallamy

says. If together we convert only half of the lawn "deadscapes" currently in the United States to include keystone plants, we would have a 20-million-acre Homegrown National Park.

These days I spend a lot of time in Sycamore's pollinator plantings watching bees and butterflies. Each one we attract feels like a small victory for a brighter future.

As I water the red oak seedlings my family received from Sycamore on Arbor Day, I imagine them nourishing generations of butterfly and moth caterpillars that will make their home in my backyard. I'm grateful to Tallamy for shrinking the problem into something manageable for me. And I'm thankful that Sycamore provides a way for us to be a part of critical habitat restoration work, empowering us all to be a part of this shared hope for the future.



Join us for "Nature's Best Hope," a virtual lecture with Douglas W. Tallamy hosted by Sycamore Land Trust on January 27, 2022, at 7pm. This event is free for Sycamore members and \$5 for non-members.

Sign up at sycamorelandtrust.org/hope

Restoring HEALTHY NATIVE FORESTS

Succession and Management on Sycamore Preserves

Sycamore Land Trust nature preserves cover a range of landscape features and habitat types in southern Indiana. As much of southern Indiana has previously been disturbed by logging or agriculture, the habitats on Sycamore's nature preserves are also in various stages of forest succession. Forest succession refers to the progressive change of plant species that thrive in a given area over time. Some preserves, like Hoot Woods, are in a steady state or climax

phase of succession. These preserves are characterized by mature old growth forest. Other nature preserves, like Touch the Earth, represent habitats of earlier successional stages and are dominated by plant communities that thrive in recently disturbed areas.

As Sycamore has grown, our ability and means to strategically acquire land has increased. We actively pursue land acquisitions to protect high quality natural areas. Protecting land that

increases the size of existing nature preserves or adds to the overall connectivity in a complex of nature preserves is also a high priority. In these situations, the conservation value of the properties we seek to protect lies in their adjacency to other protected areas with the goal of connecting them. This is land protection on the landscape scale and the complex of Sycamore's nature preserves in the Beanblossom Creek Bicentennial Conservation Area that now total more than 1,600 acres is an example of this. The value of protecting these areas is realized over time as connectivity between nature preserves and protected acreage increases.

Land that adds to the overall connectivity within a preserve complex may not contain the

best natural features at the time we acquire it. In many cases, these lands are abandoned agricultural lands and contain a plant community in an early successional stage. Rather than let these areas go through successional stages on their own, Sycamore actively manages these sites to guide the successional process. The best example of this work is our tree plantings. Since 1990, Sycamore has planted over 85,000 native trees. Over the next two years, Sycamore will plant over 35 acres of additional trees at nature preserves in the Beanblossom Creek Bicentennial Conservation Area, including Grandchildren's Woods, Sam Shine Foundation, and Fix-Stoelting Nature Preserves.

Eastern red cedar (*Juniperus virginiana*) is one of the first tree species to repopulate disturbed areas. It provides habitat for species like the cedar waxwing that depend on early successional forests and enjoy its blue "berries," which are actually tiny cones.

Forest Succession

If left undisturbed, non-forested lands in areas that were previously forested typically undergo a predictable series of vegetation growth stages, eventually becoming mature forests again. | Illustrated by Mary Connors



Pioneer Stage
First 5 years

Shrub Stage
After 3-10 years

Young Forest
After 15-30 years

Mature Forest
After 50-100 years

In his article on forest management in this issue of *The Twig*, Sycamore Advisory Board Member Burney Fischer mentions the importance of understanding the landowner's objectives when managing a forest. Sycamore Land Trust's objective as owner and steward of our nature preserves is ecological. We manage the properties we own for the health of the land and the health of the ecosystem. Our tree plantings seek to reclaim empty fields in order to turn these areas into healthy native forests.

Tree plantings on the old field sites in the Beanblossom Bottoms area seek to replicate the bottomland hardwood forest that existed here previously. This plant community originally occurred in the wetland areas in south central

Indiana. The stewardship team at Sycamore will guide this process and plant tree species that are native to this area. This has many benefits when compared to allowing these areas go through the successional process on its own. Foremost amongst these is directing the species composition of the plant community and minimizing the colonization of invasive plant species to the site.

Not all of the land Sycamore acquires is a high-quality natural area or mature forest. This is especially the case for properties we acquire that add to the connectivity within a priority area for land conservation. For the open fields we acquire, native tree plantings help us direct the successional process so the bottomland hardwood forest will thrive at these sites again.

This red-headed woodpecker at Beanblossom Bottoms Nature Preserve is one of the many species of birds that nest in the cavities of dead and dying trees, including prothonotary warblers and barred owls which are also found at the preserve.

At home in bottomland hardwood forests, red-headed woodpeckers depend on forest openings and edge habitats as well as dead trees for foraging and nesting. Populations have been declining due to habitat loss and will benefit from targeted forest management. | Steve Gifford



Sycamore's Board of Directors and Advisory Board includes many experts in forest ecology who help guide our work. A member of our Advisory Board since 2009, Dr. Burnell Fischer is a clinical professor emeritus at the Indiana University Bloomington Paul H. O'Neill School of Public and Environmental Affairs (SPEA) specializing in urban and community forestry.

HOW ONE *Looks and Thinks* ABOUT FORESTS IS IMPORTANT!

BY DR. BURNELL "BURNEY" C. FISCHER,
CLINICAL PROFESSOR EMERITUS AT INDIANA UNIVERSITY

"You can't see the forest for the trees" is an idiom in the English language used to describe a case in which one is so focused on the details of a given project that he cannot see or understand the whole issue.

I recently was connected with a Minnesota botanist, a retired physician, who volunteers to serve on teams of researchers who are re-measuring historic forest inventory plots on state parks which were established in the 1950's and are measured every ten years. He knew I was both a forester and an academic. He recounted his many experiences of visiting a plots untouched by man since their establishment and identifying

understory plants rarely seen in the state. He is fascinated with this very detailed look at a forest, literally one plant at a time. He asked if I had ever done these kinds of measurement, which I have, and how I looked at and thought about forests. My answers both surprised him and generated a spirited discussion to explain what I think about when I look at forests.

I told him that I look at forest as a series of forest stands (a stand is a contiguous community of trees sufficiently uniform in composition, structure, size class, spatial arrangement, condition, site quality, etc.) and never really look at individual trees or plants. Stands usually meet a minimum size/area and are delineated



Burney and his catch, a 21" smallmouth bass which he released back to the lake for future anglers. "It's what I do these days in Minnesota," he told us.

from neighboring stands. A forest holding can be a single stand (think pine plantation) but more likely is a series of stands of trees of different composition and structure. When I look at a forest stand my thought process is always to ask a series of questions — How did the current stand get to its current state? How might the stand develop forward in time, say over the next 10-20 years? And, what might I as a forester do to influence or change the future development of the current stand.

My graduate school training is in silviculture — which can be defined as “the theory and practice of controlling the establishment, composition, growth and quality of forest stands to meet the objectives of ownership.” Ownership objectives can be ecological, economic or social or more likely a combination of all

three. It is very important to a silviculturist that the ownership objectives are clearly and completely stated in writing.

The botanist was fascinated with this idea of looking at the forest (the stand) rather than individual trees. He said it gave him a new perspective for his next field day measuring forest plots.

Now, to carry this discussion a bit further, I explained that I have spent the last 15 or so years of my professional life working in urban forests. Most city foresters are really city arborists, with their training achieved post schooling from the International Society of Arboriculture. They are very individual tree oriented because that is what is important in the day job — taking care of individual trees along street, in yards or parks that need to be evaluated for tree care and/or removal. My approach as an urban forester based upon my silviculture background is to see the city as a forest that can be divided into stands. A particular type of urban forest stand that interests me the most are urban forest patches that have “survived” development to the

present. I ask the same type of questions that I expressed earlier — What are the ownership objectives for the patch? How did the patch arrive at its current state? How might the patch develop over the next 10-20 years? And, what management practices might be considered to better meet the ownership objectives?

I know that my forest thoughts focus on management. However, we all know that “management” might be to do nothing — let the forest develop as it will, or maybe management means focusing on protecting native species and controlling/removing invasive plants, or many other possible scenarios. “You Can’t See the Forest for the Trees” is commonly used in non-forest situations, but maybe we have ignored its use with something we all love — forests?

Future Plans:

22,000 MORE TREES

Since 1990, Sycamore has planted over 85,000 trees. In 2022, Sycamore will plant over 22,000 more trees in three projects in our Beanblossom Creek Bicentennial Conservation Area: Skylar’s World Forest, Sam Shine Foundation Preserve, and Fix-Stoelting Preserve.

These plantings will prioritize keystone tree species like oak and hickory to provide food and habitat for wildlife. Other species will include American plum, black walnut, black chokeberry, blackgum, eastern redbud, gray dogwood, Kentucky coffeetree, ninebark, pecan, persimmon, sweetgum, and more.

This effort will be funded by Skylar’s family and friends, who made Skylar’s World Forest a reality with help from Salesforce and American Forests, and the Natural Resources Conservation Service’s Environmental Quality Improvement Program (EQIP). To help fund future tree plantings and restore more habitat, contact Ann Connors, Development Director, at ann@sycamorelandtrust.org.

Planting trees at Powell Preserve in 2006.





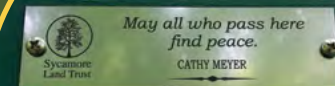
SHARING A LOVE OF NATURE and HONORING LOVED ONES

Cathy Meyer at the center (holding Alexandra)
and friends and family celebrate her bench.

During the dedication, Cathy read a poem she wrote
for the 2003 memorial for her grandmother:

*A tree grows from a small seed.
Nourished by rain, sun, and the soil,
It grows tall and offers shade and shelter from storms.
Birds and insects find refuge in its crown.
Its leaves fall and enrich the soil nearby.
In time it blooms and sets seed.
Some of these seeds fall close to the tree and begin to grow.
Others are carried farther away.
The seedlings are small,
Sheltered from the blazing sun and pounding rain
Nurtured by the founding tree.
Over the years, the old tree begins to decline,
Gradually losing limbs to storm or disease.
Shrinking back from its fullest height,
It is still the focal point of the forest.
As the young trees grow up,
They block the wind and protect their parent,
Shading the soil, breaking the rainfall,
Carrying the load of snow.
Eventually the old tree falls from the canopy,
Leaving an empty space.
The surrounding trees eventually fill the gap,
But to someone who can truly see
The place of the old tree is always visible,
Because it has shaped the growth of those around it*

For information on naming a Sycamore
bench, pollinator garden, trail or preserve, or
to honor or memorialize a loved one, please
contact me at ann@sycamorelandtrust.org.



In July, Cathy Meyer, her daughter Holly, son-in-law Nick and granddaughter Alexandra, a number of Cathy's friends, Ellen Bergan, and I celebrated the dedication of a bench on the trail at the Laura Hare Nature Preserve at Downey Hill in Brown County.

Cathy received an inheritance from her father and wanted to use some of it to support conservation at Sycamore by donating to name the new bench. And she hoped that people, seeing it, would be inspired to support Sycamore. She explained:

"Nature has been my inspiration and solace, my home and my hope. When Sycamore Land Trust was first organized, I was eager to join with others who shared my passion to preserve and protect the natural places in southern Indiana. Stewardship of these resources is important for biodiversity and protecting habitat for wild things, but is also important for people.

Being in natural places makes us better people — calmer, kinder, thoughtful, creative, and at peace. So, when I had the opportunity to support the work of Sycamore through a donation to preserve these special places, it was an easy way to honor those who came before me and to give to future generations."

Cathy grew up near the Indiana Dunes, and played in the woods, swamp and the Little Calumet River, as well as at her grandparents' farm. She said that her family, along with 4H and Girl Scout leaders, and many teachers, encouraged her interest in, and love of, nature. And this led to her career as a Naturalist at the Bloomington Parks and Recreation Department, where she shared the wonders of nature with others of all ages. She said now, she is also able to see the world through the eyes of her young granddaughter, and share her excitement as she learns and discovers the world around her.

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ANNUAL CELEBRATION**

OCTOBER 21 • 7PM

Join us on Oct. 21 for "Taking Care," a virtual celebration of our land stewardship and habitat restoration accomplishments featuring:

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