



2023

The Oak & the Mailbox: The Social Impacts of Tree Loss

Madeline D. Fabian

University of Massachusetts Amherst, mfabian@umass.edu

Follow this and additional works at: https://scholarworks.umass.edu/sustainableumass_studentshowcase



This work is licensed under a [Creative Commons Attribution 4.0 License](https://creativecommons.org/licenses/by/4.0/).

Fabian, Madeline D., "The Oak & the Mailbox: The Social Impacts of Tree Loss" (2023). *Student Showcase*. 44.

Retrieved from https://scholarworks.umass.edu/sustainableumass_studentshowcase/44

This Article is brought to you for free and open access by the Sustainable UMass at ScholarWorks@UMass Amherst. It has been accepted for inclusion in Student Showcase by an authorized administrator of ScholarWorks@UMass Amherst. For more information, please contact scholarworks@library.umass.edu.

The oak & the mailbox: The social impacts of tree loss
By Maddie Fabian

Somewhere in the woods, only a quarter mile behind Sylvan Residential Area, but worlds away from the bustle of campus life, stands an oak tree and a mailbox. A sturdy trunk supports the oak's long, meandering branches, which extend outward toward a nearby field. Hanging from one branch is a wooden swing, slightly worn down from years of human contemplation beneath the tree's comfortable shade.

Today, the oak's commanding presence attracts the gaze of a young woman sitting cross-legged on the ground in front of the mailbox. Painted a hazy azure at the top, the black metal box looks meek in comparison to the large oak, but enchanting nonetheless; a nearby bush grows underneath and around it, as if reclaiming whatever secrets it holds. Even the grass seems to sneak its blades into the crease where the rusted red carrier signal flag is stuck in an upright position.

The woman is writing something in a black-and-white composition notebook. She tilts her head upward as she lifts her pen to her chin, then turns to look at the oak once again. Her eyes are glossy with tears as four years of memories cascade through her mind. This tree is where she met her best friend, Helen. It's where she spent Thursday afternoons with a group of fellow humans for a weekly congregation, no matter the weather. It's where she brought her mom, a fleeting boyfriend, her cousin, a friend named Jeremy. It's where she spent rainy days of solitude observing the changing of the seasons.

Today, Jillian Smith is moving out. During her four years at college, Jillian lived across from the oak tree's field in a white house, recognizable by its peace sign on the ivy-covered white wooden fence. For years, she and her roommate Helen dreamt of this tree, of how many people have crossed its path and felt its magical presence. During one daydream, the two friends had an epiphany: the mighty oak should have a notebook where other people could share their memories. It could be a place of community, a place to celebrate the tree and the field, a way to eternalize the tree's magic. After all, neither we nor the tree will be here forever.

...

Trees have been vital to human communities since the beginning of anthropoid existence. In old Norse mythology, Yggdrasil is the "world tree," a giant ash tree with extensive branches and roots which hold the universe together. According to the myth, when Yggdrasil starts to tremble, it indicates the arrival of Ragnarok, the destruction of the universe. During the 13th century, the tree was essential to the Norse worldview. Vikings celebrated and cared for earthly trees as

figures of Yggdrasil, and traditional Norse farmsteads were treated as small-scale replicas of the spiritual cosmos, with a sacred tree at the [center](#).

Sacred trees like Yggdrasil exist across cultures, geographic regions, and religions. In Buddhism, the [Bodhi tree](#) is the fig tree under which Buddha achieved enlightenment. Its progeny is held sacred by Buddhists worldwide. Within the Mahabodhi Temple in Bodh Gaya, India –the place of the original fig and Buddha’s Enlightenment– a descendant of the original Bodhi fig stands and is often frequented on pilgrimages. Another descendant of the tree lives in Sri Lanka and is rumored to have grown from a clipping sent by King Ashoka during 3 BCE. Buddhists worldwide venerate living descendants of the Bodhi fig as direct connections to Buddha.

Today, trees remain central to human life and communion. We plant trees to celebrate births, honor lives lost, and even commemorate graduations. During holidays, communities join together to light a tree in the center of town. Even our day-to-day lives are made better by trees. Couples walk down tree-lined paths, friends share picnics beneath a tree’s shade, and children grow up climbing trees in their backyards with neighborhood companions.

But trees are in trouble. In 2018, the [US Forest Service reported](#) an estimated 36 million trees lost annually in urban/community areas between 2009 and 2014. This equates to around 175,000 acres of tree cover loss, or about 208 Central Parks each year, while impervious cover like pavement increased at 167,000 acres per year. Meanwhile, dead and decaying trees spewed tons of CO₂ into the atmosphere, rather than sucking it into their trunks. Tropical forest loss alone led to the release of [2.5 Gt of carbon dioxide](#), equivalent to India’s annual fossil fuel emissions.

Even in the Northeast, trees are at risk. Here in Massachusetts, around [5,000 acres](#) of forest are lost each year, equal to about half the size of Provincetown. Sugar maples, beeches, and pine species –all trees with a long, mighty lifespan– are in jeopardy of longer, hotter growing seasons which are increasingly inhospitable for the vitality of these species. The Asian Longhorn beetle has wiped out over 30,000 urban trees in Worcester alone, and other invasive species like the spotted lanternfly and emerald ash borer pose a threat to trees each day. Human construction projects, even well-intentioned environmental ones like solar farms or wind turbines, threaten the health of nearby trees. People also cut down trees for the risk they pose to property, or simply because they desire more light or don’t appreciate arboreal aesthetics. The list of threats is unremitting.

[According to the U.S. Department of Agriculture Forest Service](#), forest loss has caused an estimated \$96 million loss of benefits from trees and their processes each year. Environmentally speaking, the loss of trees is a contributing factor to climate change, soil erosion, flooding, and desertification, among a host of other problems. The [World Wild Fund for Nature](#) reports that

forest damages and losses account for around 10% of the climate crisis. And as for the living world, trees are home to more than half of Earth's land-based animals and plants.

While, for good reason, the environmental and economic impacts of our disappearing trees are frequently discussed, the social impacts are often ignored. Trees and humans are beautifully interconnected. Without trees, our social world faces a whirlwind of psychological, communal, and physical burdens.

The term "[biophilia](#)" describes the natural inclination that humans have toward nature. According to Edward O. Wilson, the American biologist and writer who coined the term, biophilia is a "biological-based need integral to our development as humans" to seek a connection with nature. While the human mind is shaped by the modern world of technology and media, its structure is principally adapted to the natural environment, as a product of evolution. Essentially, when humans are deprived of nature, they are deprived of a biological need that has undergone thousands of years of evolution.

"You and the tree in your backyard come from a common ancestor. A billion and a half years ago, the two of you parted ways. But even now, after an immense journey in separate directions, that tree and you still share a quarter of your genes." ~ Richard Powers, The Overstory

...

Back in the woods, Jillian sits on the ground, pencil to her chin, looking pensive as she slides the notebook into the mailbox gifted by her Uncle David. She reflects on her days in the field. She remembers a blossoming spring day when she observed a ladybug exploring the veins of an oak leaf. She remembers the changing of the seasons, how the snowflakes which coated the ground one day would vanish the next. She remembers the baby birds she became acquainted with from the time of their hatching until the day of their departure. Most of all, she feels connected to the tree, to the earth, and to those who came before. Today she leaves the oak behind, but she will forever hold close its memories.

Months after Jillian moves away, the notebook is half-full of poems, artwork, journal entries, and love stories left by passersby. What the entries all have in common is a universal appreciation, even need, for the comforts of nature, and particularly for the peace and solitude of the sturdy oak tree.

"Nature is the greatest gift we have" ~ B, the notebook

...

Rick Harper is an Extension associate professor and an urban forestry researcher. During our Zoom call, he wears a blue plaid flannel tucked underneath a burnt orange fleece, and sets his background to look as though he's sitting beneath a mass of bright yellow leaves on a blue-skied day, despite the fact that it is, in fact, cold and raining. It's clear within the first few minutes of talking that Harper thinks the world of trees.

“Oh, I have the best job in the world. No doubt. For sure. Trees are very exciting.”

In urban environments, trees face a myriad of challenges. The hustle and bustle of thousands— or in some cases, millions— of people hastily traversing roads, sidewalks, and buildings stands opposite to the slow, stable lives trees are designed to live.

“Among all of that contrived environment, we have trees that are endeavoring to grow, with compacted soil, pollution, vandalism, and all sorts of challenges,” says Harper. “You have trees that after the winter is over, they may have missing pieces of bark on the trunk because the snowplow hit them... So the urban environment is fraught with challenges.”

On a larger scale, climate change poses perhaps the biggest threat to the health of trees. Sugar maples, hemlock species, and beeches – all beloved New England species – have evolved to live for long periods of time and want as little change as possible in the ecosystem. Each of these species forms what is known as a “pure stand,” meaning the canopy is made up of at least 80% of the same species. In the stand, the trees try to foster conditions wherein they and their progeny can subsist for a long time.

“When you walk into, say, a sugar maple stand, you'll often find a floor of sugar maple sand carpeted with little sugar maples,” says Harper. “That's because they're very shade-tolerant, and so the idea is it'll just continually replace itself. The fact that they're sort of anti-change, if you will, that's a bit antithetical to what's going on in terms of climate change, where we see the growing season expanding and we see higher frequencies of storms.”

When trees are damaged and killed by climate change, it poses an immense risk to human health, especially when considering health holistically. As defined by the [World Health Organization \(WHO\)](#), “Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity.”

In a Stanford study, researchers looked at nature's effect on rumination, which is associated with depression, anxiety, and mental illness. Participants in the study were split into two groups: the first walked for 90 minutes down a row of trees, while the other group was asked to walk through an urban setting. Not only did the tree group report lower levels of rumination, but it also showed higher activity levels in the subgenual prefrontal cortex, an area in the brain

associated with depression and anxiety when deactivated. In other words, the study observed trees lowering depression and anxiety levels.

When it comes to physical health, trees reduce respiratory and cardiovascular disease rates in human populations because of their air-purifying abilities. Particulate matter (PM) 2.5 – particles with a 2.5-or-less micron diameter– are also known as “fine particles”; because the particles are so small, they are able to lodge deep into the lungs, and even pass into the bloodstream, causing potentially dangerous cardiovascular or respiratory diseases. However, because the undersurfaces of their leaves are moist, as pollutants move through the air, trees [are able to intercept](#) and absorb those pollutants through their leaf stomata, thus removing them from the air we breathe.

In a [2015 study](#), a group of researchers composed of university scientists and USDA Forest Service researchers used data from the Women’s Health Initiative to look at the relationship between tree loss due to the invasive emerald ash borer and cardiovascular disease. The study found that across 15 states, emerald ash borer infestation was associated with around 15,000 cardiovascular-related deaths and 6,000 deaths from lower-respiratory diseases from 2002 to 2007.

...

It’s 80 degrees in October, and I’m delighting in what might be the last balmy day of the year. My boyfriend and I are exploring the winding trails behind Sylvan Residential Area, absorbing the high noon sun’s rays peeking through the branches above our heads. As we mosy along the twig-lined path, we come across an impressive oak, standing at least 50 feet tall. Hanging from one of its muscular branches is a swing– my favorite. I bound towards it and start flying as high as the swing will take me. As I’m transported back to my days of carefree childhood, my eye catches an item at the edge of the path from which I just emerged. It’s a mailbox.

Tucked away inconspicuously between tall blades of grass, the black box painted an ocean-like design at its top is utterly spellbinding. I’m hesitant to open it, for fear that I might break the law or otherwise intrude on someone’s personal mail, but there are no houses nor people within sight.

I step off the swing and cautiously approach the mailbox. The red carrier flag is in an upright position as if reciting the words “open me,” begging for its mysteries to be disclosed. So, I open it. Inside is a black-and-white composition notebook. It is addressed to “THE FIELD ♡♡.”

A marvelous chill runs from my toes to the tip of my nose. I open the notebook, eager to indulge in whatever exists within its crinkled pages. On the first page, I learn that the mailbox and notebook were placed here in August by an artist named Jillian Smith. I devour the poetry,

artwork, and love stories left by strangers over the recent months. While reading, I'm struck by the soulful connection so many strangers have felt to the oak tree.

...

A single tree stays rooted in the same place throughout the course of its lifetime, becoming a feature of the community in which it lives. In many ways, trees foster community amongst humans. They offer people a sense of place, shade under which to rest and converse, and a sturdy disposition to admire.

In her book, "Seeing Trees," Sonja Dümpelmann describes the Neighborhood Tree Corps of 1970s Brooklyn, New York as a grassroots organization that encouraged tree planting as a way to build community and identity, teach children about nature, and improve the overall condition of the neighborhood. Children would knock on neighbors' doors asking for water to use for watering the trees, volunteers collected data, and members planted trees throughout the neighborhood.

Dümpelmann writes on page 104, "Not only was tree planting an act of community building that could turn the neighborhood into a healthier and more sociable place, it left a tangible result and made the neighborhood *look* and *feel* different. It could give the neighborhood a new identity while at the same time recognizing that the street had been and could be a community social space."

In all, [around 1,500](#) trees were planted over the span of just one decade, and the community was impacted for as long as the trees continue to grow.

...

On a chilly October day, Ben Weil is seated in front of a sunny window adorned with blue-painted trim. Behind him is a bookshelf full of literature, and an abstract painting hangs above his head. Weil is a UMass Extension Assistant Professor in the department of environmental conservation. A teacher of energy-efficient building, he is especially interested in studying the social and behavioral aspects of energy efficiency.

In 2008-2010, the invasive Asian Longhorned Beetle was threatening trees in Worcester. To combat the invasion, trees were removed, thereby depriving the beetles of their food source. Because of this mass removal of trees in a concentrated area, particularly the Greendale and Burncoat neighborhoods in Worcester, Weil was able to study some of the differences between neighborhoods with trees and areas experiencing sudden tree loss. In particular, Weil looked at how energy bills were impacted and what happened to the microclimate around them.

As one might expect, trees reduce heat gain on the ground with their shade. But a lesser-known fact of tree cooling has to do with their root system. When they take in water through their leaves and pull it into their roots, they then photosynthesize and evaporate water back into the air.

“Just like when you sweat --you’re cooler-- when [trees] evaporate water they actually lower the air temperature in the surrounding area,” said Weil.

A single tree might lower the temperature by just a fraction of a degree. But collectively, trees can create as much as a 10-degree difference in temperature between an area with trees versus without.

“You can see how in a neighborhood with trees, people are more likely to go out and walk,” said Weil. “Just that half hour of walking a day adds up to years of life.”

In Worcester, Weil and the other researchers found that communities without trees used 40% more electricity for cooling than communities with trees. Individually, the impact was about \$40 a month, but added together millions of dollars were spent on cooling that trees had previously done by simply existing.

Cities and more developed areas experience what is known as the “urban heat island effect.” What this means is that because more of the land is covered in pavement, buildings, or other surfaces that retain heat, surface and ambient temperatures rise. In other words, these unnatural surfaces absorb the day’s heat and retain it for much longer than, say, dirt. So, in areas experiencing the urban heat island effect, trees are a sustainable and efficient way to cool down temperatures.

Energy savings are just one way trees help communities. In other studies, trees have been proven to reduce crime rates. In a [2012 study](#) conducted in Maryland, a team of researchers found that a 10% increase in tree canopy correlated with a 12% decrease in crime, defined as robbery, burglary, theft, and shooting per the study’s parameters.

Trees can even impact retail environments and consumer attitudes. Participants in a [2005 study](#) reported that they would pay between 9-12% more for goods/services in a shopping environment with maintained trees as opposed to one without. According to Kathleen Wolf, author of the study, trees contribute to “atmospherics” in retail marketing, leaving consumers with positive impressions. “The streetscape can be a welcoming, interesting place, and shape consumer expectation before even entering a store,” Wolf writes.

...

It's the first snow of December. The moon illuminates four inches of nighttime snowflakes atop the oak's worn branches. Every so often, a puff of wind sends the top layer of snow into a gentle flurry. As I watch the snowflakes dance to the ground, I wonder how many snowfalls the oak has witnessed, how much icy weight its branches have held, and how much more it will hold as the years continue.

I'm struck with a thought: one day, this tree will be gone. What might end its long mighty life? Might it be a disease? Some unnecessary construction project? A weather event? Will it have to do with climate change?

I'm then struck with another. At the end of this single tree's impressive life, it will have touched the hearts of hundreds of people. I think about Jillian, her friend Helen, and her group of friends, how they'd all been brought together by this "friendship tree," as they called it. I think about the couple I saw enjoying a picnic on a colorful fall day. I think about the elderly woman I briefly spoke with underneath the oak's shade. I think about my own experiences making memories at the tree. All of these human connections, formed in the sanctuary of this one oak's embrace.

"I'm sitting under what appears to be a 240-250 year old white oak... May it stand here & make shade long after we're gone." ~ anonymous, the notebook