

TREE Fund

Cultivating Innovation in
Arboriculture and Urban Forestry





Our Roots

Founded to shape the future of trees and the arboriculture profession.

Tree Research and Education Endowment (TREE) Fund was founded in 1976 as the International Society of Arboriculture Research Trust. In 2002, the Trust and the National Arborists Foundation merged, reincorporating as TREE Fund. Governed by a national board of trustees, we now fund work globally from our office in Naperville, Illinois.

Dedicated to discovering and disseminating knowledge in urban forestry and arboriculture.

TREE Fund awards grants for research, scholarships and educational programs to enhance awareness and management of tree populations in urban settings, thereby improving community health, beauty, value and sustainability. We empower arborists, urban foresters, landscape architects, municipalities, businesses and citizens to work collaboratively, ensuring that healthy, mature trees will remain integral to our common future.

Invested in neighborhood trees to preserve lasting benefits for generations to come.

Because trees are long-lived organisms, today's decisions will shape their health and impacts for many generations. Current research into soil quality, plant establishment, biomechanics, and urban forest ecology is critical to developing appropriate strategies for managing urban and community forests. ~80% of the U.S. population now lives in developed areas and that number is expected to increase to ~90% by 2050, mirroring global trends in urbanization.

Quantifying the Benefits of Trees

Thriving urban forests are essential to community health and prosperity, providing overwhelmingly positive impacts on individual wellbeing and the aggregate health of cities and suburbs around the world.

Scientifically quantifying the benefits of trees to the economy and environment makes it easier for governments, businesses and private citizens to justify and project their return on tree care investment. Each dollar spent on planting and caring for a community tree will typically yield benefits that are two to five times that investment over the life of each tree.

Increasing investments in urban forests will improve public health, while also providing economic and social benefits that increase the wellbeing of families and the vibrancy of communities around the world. TREE Fund works to fully leverage the benefits of urban and community forests.



ECONOMIC:

- Mitigate storm water damage
- Prevent flooding and soil erosion
- Reduce carbon emission
- Reduce the effects of climate change through carbon sequestration
- Reduce energy costs and consumption
- Increase property values
- Attract skilled workers and new industries
- Increase retail sales



HEALTH:

- Reduce air pollution
- Cool communities by providing shade and releasing water vapor into the air
- Purify water
- Provide wind and sound barriers
- Reduce ultraviolet radiation
- Enhance student learning
- Accelerate patient recovery
- Reduce stress
- Increase newborn birthweights



SOCIAL:

- Provide gathering places
- Reduce crime
- Foster a stronger sense of common ownership
- Activate community development
- Motivate urban relocation
- Inspire creative work



Innovative Research

TREE Fund research helps ensure that healthy, mature trees remain integral to our communities for generations to come. The gains made through TREE Fund-supported research are significant, as our work has helped:

- Define strategies for enhancing tree disease suppression and insect resistance;
- Develop production, planting, fertilizing and soil amendment strategies to enhance tree growth and long-term survival;
- Develop more environmentally-sensitive methods of plant management; and
- Produce genetically superior trees that can withstand the stress of urban environments.

TREE Fund has empowered these gains by awarding nearly **\$3.2 million in grants since 2002**, with ~\$2.9 million to primary research and ~\$300,000 to education efforts. These funds are leveraged as industry professionals widely implement our findings around the world. In 2016, TREE Fund issued a one-year record ~\$550,000 in new grants, and intends to continue this trend in years ahead, thereby ensuring our ongoing global impact.

TREE Fund research shapes industry best practices, improves workforce safety and contributes to the long-term sustainability of our communities in the following crucial ways:



IMPROVING

the quality of nursery grown trees and overall tree survival through the development of hardier, drought- and disease-resistant species



STOPPING

diseases and pests while reducing pesticide use with the evolution of integrated pest management programs



ENHANCING

public and workforce safety with advanced tree risk assessment techniques and greater knowledge about why and how trees fail



QUANTIFYING

the benefits of trees which makes it easier for governments and businesses to project their return on tree care investment



CONNECTING

youth with nature to promote environmental stewardship in the next generation and inspire them to consider careers in green industries



REVOLUTIONIZING

global best practices for growing strong, healthy landscape trees

Building our Endowment

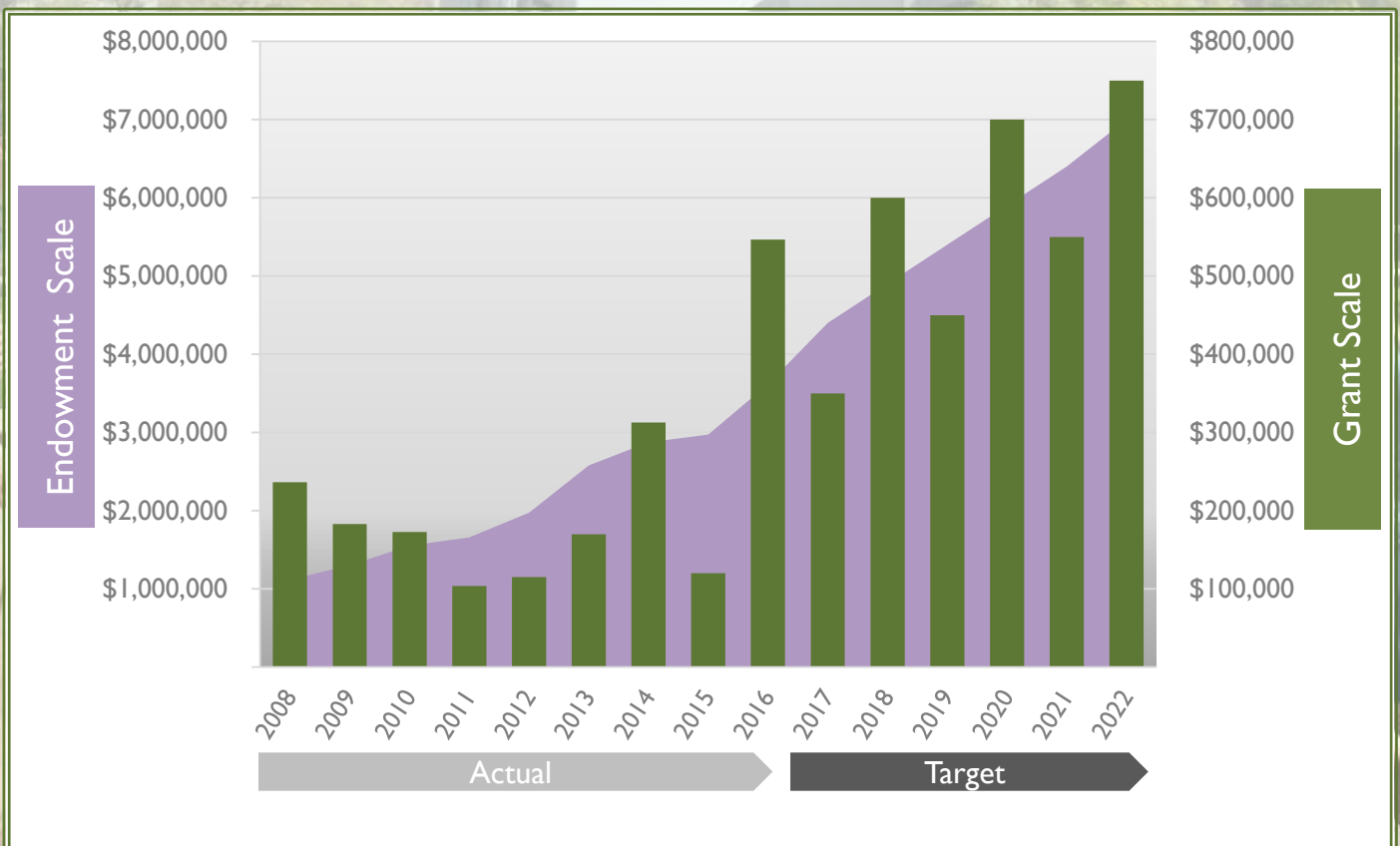
Trees provide countless benefits to our families and communities. However, these benefits are realized only when trees are established and mature. Because trees are such long-lived organisms, meaningful tree research takes time. Endowed funds ensure that such research projects have stable, ongoing financial support to produce scientifically rigorous results.

While endowment growth has increased our current capabilities for long-term research, it is not sufficient for TREE Fund to continue meeting emergent research needs brought on by climate change and rapid increases in global immigration and urbanization. **TREE Fund seeks to secure an additional \$3.0 million in philanthropic support to sustain long-term funding for emergent and ongoing tree-related research and education** by the end of 2020.

A ~\$7.0 million endowment at the end of such a campaign would allow TREE Fund to:

- Achieve financial stability and sustainability
- Meet targeted increases in annual award levels to maximize our impact
- Reduce operating expenses associated with annual fundraising activities

An investment in our endowment now will promote the healthy growth of urban forests to sustain our communities for decades to come. You can ensure that our community trees remain healthy and vibrant by helping us to build TREE Fund's endowment.



Managing Diseases and Pests

In an increasingly interconnected world, community forests around the globe are at greater risk of damage from invasive insects and diseases. Studies of the life cycles, migration patterns and damage potential of emerald ash borer (EAB), gypsy moths, Dutch Elm disease and other threats support informed decision-making by municipalities, commercial and consulting arborists, and the general public in dealing with these problems. With the cost of removing diseased trees at an estimated \$10.7 billion, preventative and informed management can save millions of trees *and* dollars.

TREE Fund's investments in tree disease prevention and pest management have empowered the following findings:

- Identifying beetle species responsible for transmission of oak wilt fungus, thereby facilitating more effective response.
- Enhancing understanding of drippy blight's effects on red oaks, including the associated bacteria and how it spreads.
- Increasing understanding of EAB, thereby allowing municipalities to plan and budget responses, slowing its spread.

Your Impact

Investment in pest and disease research results in incalculable financial returns from reduced tree loss, fostering greater financial stability for communities and property owners. With Federal and state funding for arboriculture research becoming increasingly limited, TREE Fund's support is more important than ever.



Leading Utility Arboriculture Research

Tree related outages are both inconveniences and safety concerns for utility companies and customers. Identifying a deficit of research in the field of utility arboriculture, TREE Fund partnered with the Utility Arborist Association (UAA) in 2010 to establish the Utility Arborist Research Fund (UARF). Once fully funded at \$1.0 million, the UARF endowment will provide a minimum of \$50,000 per year in perpetuity for new utility arboriculture research projects.

In 2017, TREE Fund, in collaboration with Pacific Gas & Electric and UAA launched a project to examine various integrated vegetation management techniques on powerline rights-of-ways. This study seeks to investigate and document:

- Impacts of herbicidal and mechanical management approaches and related effects on wildlife and plant communities.
- Variances between different ecosystem types, including locations where wildfire risk is a concern.
- Ways in which power line corridors can accommodate and encourage pollinators and other native wildlife.

This initial project sets the stage for a long-term research effort that will be funded for many years to come by UARF, contingent upon completion of TREE Fund's endowment building campaign.

Your Impact

If UARF-funded work generates even a 1.0% annual reduction in tree related outages, customer complaints and emergency tree work, then the financial, public relations and worker safety returns on investment will be immense. An ever more stable utility infrastructure can then empower economic reinvestment of savings by municipalities, businesses and private citizens.



Growing Healthy Trees at Every Stage

TREE Fund awards grants to improve tree growth and survival at every stage of a tree's life, from proper propagation through site planning, planting, and continued maintenance, up to and including smart, well-planned end of life removal decisions. Identifying better techniques throughout a tree's life cycle will result in healthier urban forests and related cost savings for municipalities, companies and homeowners. TREE Fund research has resulted in industry-wide improvements in a variety of decision points in trees' life cycles.

- **Tree production and transplanting methods:** Proper growth and development starts at the earliest stage of a tree's life. TREE Fund research has helped to determine optimal production methods, from container sizing, to improving root density, which increases a tree's transplant success and long-term establishment.
- **Planning and planting methods:** Increasing urban population and changes in climate are requiring changes in the way we plan, design and manage urban landscapes. TREE Fund research has explored necessary soil depths, best trees and advances in soil rehabilitation procedures to reduce soil compaction and accelerate growth. Landscape architects, city planners and real estate developers may use these findings to optimize planting decisions.
- **Tree longevity:** TREE Fund research has provided insight into the effectiveness of fertilizers, soil organic matter and soil biology, methods to maintain tree health during construction and superior pruning techniques to increase the ability of the urban canopy to grow to maturity.

Your Impact

Quality research is critical for planting and maintaining healthy trees throughout their entire life cycle. Support for TREE Fund's endowment sustains long-term research on methods for growing trees to full maturity, maximizing their benefits.



Enhancing Public and Workforce Safety

The safety of those who live and work near trees depends on a better understanding of tree biomechanics: the study of why, where, and how trees are most likely to fail. Hundreds of tree care workers are seriously injured or killed each year and the rate of accidents resulting in lost work time is four-to-five times higher than all-industry averages. Ongoing research is necessary to better identify, minimize and educate workers on risks, thus preventing potential hazards. In addition, studying tree biomechanics ensures a greater level of safety for both the general public and property. Toward this end, TREE Fund grants have contributed to:

- More exact tree risk assessments, incorporating study findings that identify how pruning can effect wind loads on trees to how trees move when subjected to stress.
- Use of NASA's ARAMIS digital imaging technology, developed to measure stress in the skin of the space shuttle, for tree risk assessment. NASA's equipment collected and analyzed deformation data from the trunk and root plate of a tree as it moved during lateral winching tests to pinpoint weak areas in trees.
- The study of human factors associated with work injuries as tree care workers respond to various task conditions and requirements. This research provides evidence-based mechanisms that help to design safer equipment and work practices to prevent fall-related hazards from occurring.

Your Impact

Continued investigations into biomechanics, climbing techniques, and tree maintenance practices will ensure that tree care professionals can operate with the utmost safety, thereby reducing risk, saving lives and protecting property. TREE Fund research creates a safer work environment for tree care professionals and the general public they serve.



Connecting People with Nature

As urban populations grow, the need for healthy, resilient urban trees and trained individuals who can care for them will both increase. TREE Fund promotes environmental stewardship among future generations and inspires interest in green careers through scholarships and arboriculture education grants. We have awarded more than \$300,000 in such grants over the years for programs like these:

- Toledo Botanical Garden provided 200 low-income urban students an introduction to arboriculture through field trips and in-class programs exploring selection, pruning, training, pathogen management and fertilization.
- South Dakota State University helped to identify the next generation of industry leaders through curriculum that acquainted students with the opportunities and careers within the field of arboriculture.
- Cornell Cooperative Extension of Ulster County developed a Tree Steward Volunteer Program to train volunteers to plant, care for, and educate the public about urban trees.

Your Impact

Support of education programs and scholarships for future tree care industry professionals is vital. You can ensure the perpetuation of our industry by attracting new talent into the fields of arboriculture, urban forestry and landscape architecture through education programs and undergraduate scholarships supported annually by our endowment.



Thank You

TREE Fund supports tree-related industries and their clients and customers around the world, providing funds necessary to build and sustain healthy trees and communities.

As a partner in our endowment building campaign today, you will further solidify our legacy as a global leader in tree research and prepare us to address the industry's needs well into the future.

Thank you for your consideration.





TREE FUND

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