Massachusetts Department of Conservation and Recreation

THE CITIZEN FORESTER

Urban & Community Forestry Program

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INSIDE THIS ISSUE:

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dcr Massachusetts

Trees and Health

Green Spaces for Healthy Communities

Finding time to get outside wasn't much of a concern for humans until recently. In the past, humans spent their days hunting, gathering or farming. Everything they needed existed in the world around them. As buildings and cities developed and occupations became specialized, resources were brought in from further and further away. The natural world that humans evolved with was slowly being eroded away and replaced with increasingly dense urban development.

For centuries, people were drawn to the opportunities that cities provided. For example, London's population grew steadily from a few thousand people in medieval

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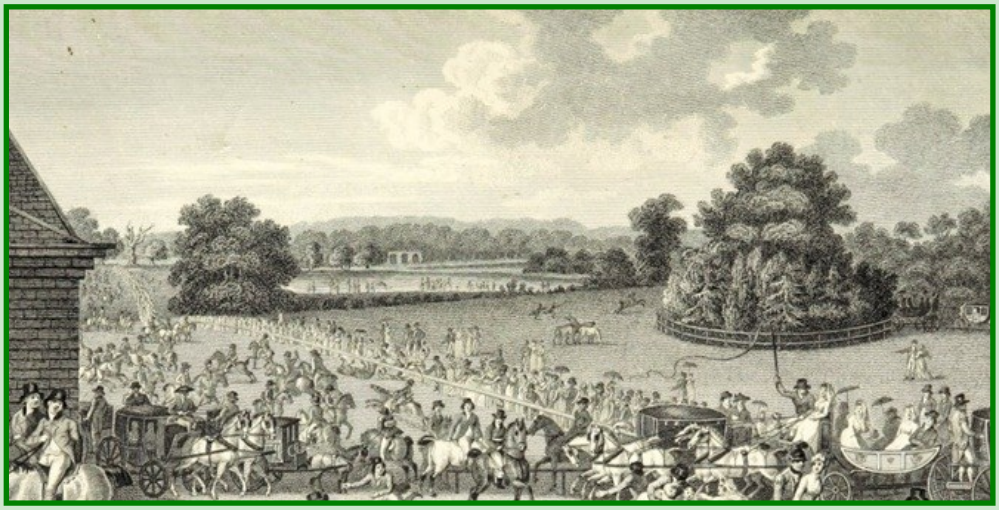

times, to around half a million by the late 1600's. By 1850, London had become the world's largest city with a population exceeding 2 million. The overcrowding of cities and lack of sanitation lead to unhealthy conditions that plagued society. Up until that point, intentional green spaces in cities mostly meant the private garden retreats of the wealthy. As industrial cities grew in the early nineteenth century, workers built new houses quickly, with no centralized plan. Concern about germs and disease, particularly in highly populated areas, was becoming much more commonplace. A customary prescription was to seek fresh air, and the elite began promoting parks as a civilizing influence where workers could exercise, improve health and find the pleasure of the natural world that had been removed from their lives. Natural spaces were considered hygienic and enabled men and women alike to take part in recreation and socialization.

The first manifestation of the public park was likely the town square, which had existed in civilizations and societies worldwide. As towns grew, the town square evolved to eventually hold monuments, fountains, and flagpoles. Some of them continue to serve as market or commercial gathering spaces to this day. The first officially recorded public park in Massachusetts was Boston Common, a public space created in 1634. Boston Common has had many purposes over the years, serving as a shared pasture and later becoming an area where civic gatherings, parades, and other community activities were held. The

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use of common lands for shared benefit was certainly not novel to Boston or the United States. Communities around the world have been sharing land in this way for thousands of years.

In Victorian era England, it was quickly realized that with growing urbanization, green spaces were disappearing in cities. Suddenly, natural open space was a commodity. During this time there was a great surge in the creation of city parks, pleasure grounds, and cultural parks.

Park designers would often replicate a rural setting to give opportunities for city dwellers to have a retreat from city life. Notable features in many of these parks included groves of trees, rolling meadows, lakes, and pathways. Some of the first zoos, formal gardens, music pavilions, and museums were also created during this time period. The public park was seen as part of a collective desire to escape the troubles of the world. Many of the most famous and greatest parks were built by the late 1800s and are a legacy that still exists today.

Recently, parks and green spaces are being rediscovered in the era of pandemics, as society struggles with a new wave of issues. Cities are more populated, and hotter than ever before. An influx of new information from researchers around the world is pointing to the importance of trees and parks in urban areas for health benefits.

Metro nature - including trees, parks, gardens, and natural areas - enhances the quality of life in cities and towns. The experience of nature improves human health and well-being in many ways. Urban forests reduce a variety of health issues,

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including respiratory diseases and skin cancer, and promote an active lifestyle, which can reduce obesity. Health is not just an outcome of what goes into your body, but what is experienced outside of it as well.

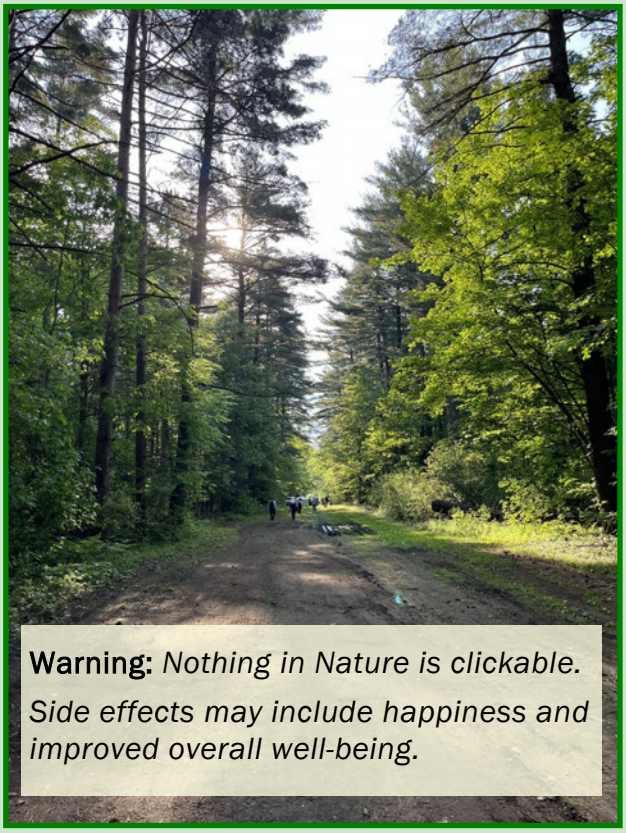
A literature review of 201 authoritative studies about trees, green spaces and human health can be broken down into three categories:

Building Capacities: Facilitating conditions of wellness for both individuals and communities, such as encouraging physical activity and providing settings for social interaction.

Reducing Harm: Mitigating conditions that can compromise health, including air pollution, noise, and extreme heat.

Restoring Capacities: Promoting improved psychological and physiological functioning, including stress recovery.

Green spaces in communities address current issues, by helping to reduce stress, social isolation, and time spent in front of a screen.



Spending time outside can also improve volunteerism, civic engagement, and social connectedness. Trees and green spaces have the added benefit of improving air and water quality and reducing urban heat islands. Even intentionally planting vacant city lots can have a powerful effect on humans. The Pennsylvania Horticultural Society's Land Care Program plants trees and grass in

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blighted areas, generating measurable reductions in violence. A recent study showed that

remediation of abandoned buildings had a 39% reduction in firearm assault, and remediation of vacant lots had a 5% reduction in firearm assault. (Branas, et al. (2016) Urban Blight Remediation as a Cost-Beneficial Solution to Firearm Violence. *American Journal of Public Health* 106(12):2158-2164.) Adding green spaces, with a typical cost of $1600 per lot and $180/year in maintenance returns $26 in net benefits to taxpayers for every dollar invested.

Data and research continue to show the benefits of urban greening, but there is still much to do. For example, greening is not a "one size fits all" solution. There are many factors to consider, and there is a complex interaction between residents and governments to navigate.

How can cities and towns set measurable targets to ensure trees and greenspace are being located equitably around communities? Cecil Konijnendijk, of the Nature Based Solutions Institute, recommends the 3-30-300 rule, where residents would have access to a view of at least 3 mature trees from their homes, live in an area with at least 30% tree canopy, and have access to a park or greenspace at least 300 meters (about a 5 minute walk) from them. (Konijnendijk, Cecil. (2021). The 3-30-300 Rule for Urban Forestry and *Greener Cities*. 4.) He states that nature-based solutions, ranging

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from planting a single tree to the development of green infrastructure for an entire city or urban region, are needed to tackle the grand challenges that human society is facing. They are natural solutions to urban problems.

planted near people (3 trees viewed from a home) but struggled to provide 30% canopy cover across a neighborhood. Providing green spaces within 300 meters was more successful than canopy goals, but less successful than 3 trees near a home. (Croeser, et al. (2024). Acute canopy deficits in global cities exposed by the 3-30-300 benchmark for urban nature. *Nature Communications*. 15. 10.1038/s41467-024-53402-2.)

The table shows results from major cities when compared to the 3-30-300 rule

	3 trees visible	30% canopy	300m walk
Amsterdam	205,607 Buildings 52.3676° N, 4.9041° E 3 Trees Visible: 102758 buildings 50%	Pass Fail 30% Neighbourhood canopy: 0 buildings 0%	<300m walk to a park 106551 buildings 52%*
Denver	300,892 Buildings 39.7392° N, 104.9903° W 3 Trees Visible: 115199 buildings 38%	Pass Fail 30% neighbourhood canopy: 53383 buildings 18%	<300m walk to a park 92586 buildings 31%
New York	1,092,832 Buildings 40.7128° N, 74.0060° W 3 Trees Visible: 1,000,451 buildings 92%	Pass Fail 30% neighbourhood canopy: 14386 buildings 1%	<300m walk to a park 295,186 buildings 27%
Seattle	185,913 Buildings 47.6062° N, 122.3321° W 3 Trees Visible: 182194 buildings 98%	Pass Fail 30% neighbourhood canopy: 83921 buildings 45%	<300m walk to a park 72680 buildings 39%

The 3-30-300 metric is important for assessing urban nature because it is easy to understand, highly local, and sets a pass/fail benchmark for green infrastructure. Many cities have adopted this approach, and recently there was a review of the progress. Many cities had success getting trees

The researchers used datasets of over 2.5 million buildings in eight cities and showed that most

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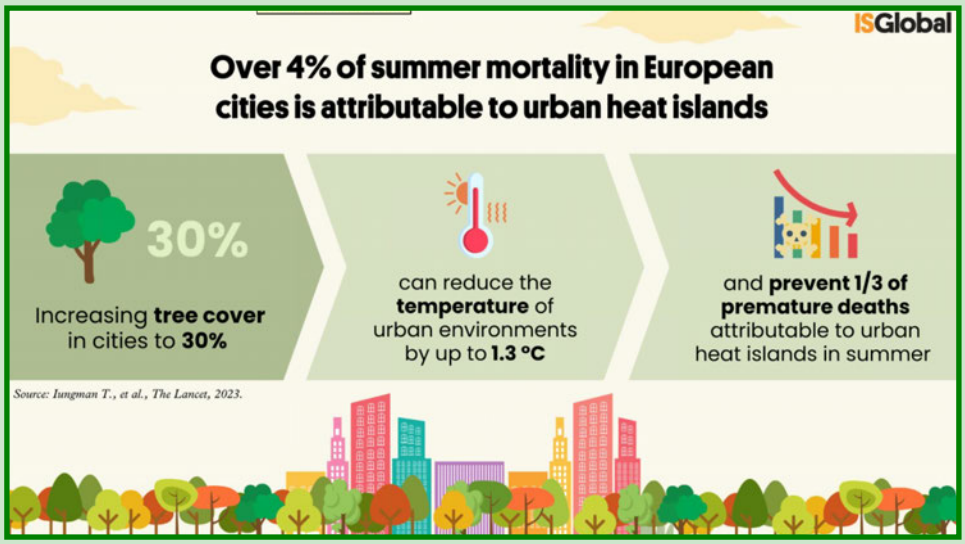
buildings fail the 3-30-300 rule due to inadequate tree canopy. They recommended that cities should invest in improving planting conditions to support tree growth and enhance governance to reduce premature removals and excessive pruning.

Overall canopy cover, with a threshold of 30%, can reduce the temperature of urban environments by up to 1.3C (2.4F) and prevent 1/3 of premature deaths attributable to urban heat islands in summer. Research on the correlation between tree canopy cover and various health indicators also showed that 30% canopy cover was an important threshold for improvements to general health, mental health and sleeping patterns.

There have been several studies that have found that exposure to the natural environment is associated with lower non-accidental mortality. For example, a 2020 study of tree planting in Philadelphia, PA estimated that 403 premature deaths overall could be prevented annually in Philadelphia if the city were able to meet its goal of increasing tree canopy cover to 30%. (Kondo, et al. (2020) Health impact assessment of Philadelphia's 2025 tree canopy cover goals. *Lancet Planet Health*. 4 (4):e149-e157)

Unfortunately, overall canopy goals are the hardest of the three to obtain and once reached, require constant maintenance and replanting to sustain. That's why tree protection and tree preservation are so critical to the success of urban forestry.



A study in Northern California found a significant inverse association between

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higher levels of residential green cover and lower direct healthcare costs. Individuals living in areas with the highest residential green cover had adjusted healthcare costs of $374.04 per person per year less than individuals living in the least green residential areas. This shows that green cover was associated with lower direct healthcare costs, raising the possibility that residential greening can have a significant healthcare cost impact across a population, when trees are strategically planted to benefit the most vulnerable residents. (Van Den Eeden, et al. (2022) Association between residential green cover and direct healthcare costs in Northern California: An individual level analysis of 5 million persons. *Environment International*. 163. 10.1016)

Lastly, a study stated that neighborhoods are one of the key determinants of health disparities among young people in the United States. While neighborhood deprivation can exacerbate health disparities, amenities such as quality parks and greenspace can support adolescent health. Existing conceptual frameworks of greening health largely focus on greenspace exposures, rather than greening interventions. The researchers develop and propose a Greening Theory of Change that explains how greening initiatives might affect adolescent health in deprived neighborhoods. (Kondo et al. (2024) A greening theory of change: How neighborhood greening impacts adolescent health disparities. *American Journal of Community Psychology* . 73(3-4):541-553.)

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It is great to see more attention and research around the important benefits that our trees and greenspaces provide us, each and every day. For many years, these places have been sought by residents for a variety of reasons, and it's important to preserve and protect what we have. While the urban improvements of the past are greatly appreciated, it's not enough for the huge urban populations we have today. Let's look to advocate for and create new green spaces in our cities and towns. Bringing nature back to the places where we live will restore the connections that we've lost along the way and help to fill the needs for health and wellbeing that we can't get from a device or screen. Head outside, nature is waiting.

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Forester Focus

A deeper look into today's Urban Forestry topics

Earth Week 2025!

Earth Day and Arbor Day around MA

It was a great time during the end of April, when temperatures increased, the flowers emerged and the leaves finally made their appearance. Celebrations were held in cities and towns across Massachusetts for Earth Day and Arbor Day, collectively known as Earth Week!

Students get their hands dirty planting trees in C. Della Russo Park in Revere

Revere Mayor Patrick Keefe Jr. joins DCR planting trees with the students of Paul Revere Innovation School

DCR planted in Lynn at the Bennett School with Mayor Jared Nicholson and Urban Forester Erica Holm

Arbor Day was celebrated in style with DCR and the Fitchburg Housing Authority

DCR in Holyoke participates in an event at Heritage State Park

For more information, visit:

https://www.mass.gov/info-details/urban-and-community-forestry

Photos: DCR & Tyler Garnet

CLIMATE RESILIENCY

DCR Celebrates Arbor Day with over $150,000 in Grants to Expand Tree Canopy

Boston – In honor of Arbor Day, the Massachusetts Department of Conservation and Recreation (DCR) today announced the agency has awarded more than $150,000 to 10 municipalities and nonprofit organizations to create, expand, and protect urban forests across the state. Growing the urban tree canopy brings positive environmental, public health, and energy efficiency benefits to residents living and working in these communities.

“As temperatures rise, we are empowering municipalities and nonprofits across Massachusetts to significantly expand our urban tree canopy,” said **Energy and Environmental Affairs Secretary Rebecca Tepper**. “This funding gives communities the means to plant new trees, maintain existing ones, and create green spaces that benefit everyone.”

"DCR is committed to increasing the urban tree canopy across the state to promote climate resilience and make our communities healthier places to live

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and work," said **DCR Commissioner Brian Arrigo**. "We are excited that on Arbor Day and during Earth Week, we can provide the Urban and Community Forestry Challenge Grants to communities across the state. This funding will enable these municipalities to improve the lives of residents by mitigating the effects of climate change."

This funding will be used for tree planting and preservation, community engagement and education, developing a forestry workforce, and revitalizing collaborative and community-based management plans of these urban forests. A healthy tree canopy is proven to strengthen resilience to extreme heat, storm-induced flooding, and other climate impacts. Overall, expanding the urban tree canopy positively impacts the lives of those living and working in a community by improving air quality, reducing energy use by keeping homes cool in the summer with shade and warm in the winter by breaking up wind, and providing habitat for local birds and wildlife.

The following communities and organizations were awarded Urban and Community Forestry Challenge Grant funding:

Awardee:	**Funding Amount:**
Town of Andover	$15,000
Town of Bernardston	$7,000
City of Brockton	$40,000
Town of Lexington	$25,000
Town of Longmeadow	$5,691
Town of Maynard Tree Committee	$13,750
Town of Sandwich Historic District Elm Preservation	$4,000
Town of Sandwich Tree inventory Expansion	$21,500
WE Tree Boston	$11,000
Town of West Bridgewater	$8,000

For more information, visit:
www.mass.gov/dcr

Species Spotlight
Hophornbeam, Ostrya virginiana

Hophornbeam is a very tough tree with subtle, often underappreciated, beauty. It is a medium-sized tree in the birch family that has an extensive native range east of the Rockies, from Manitoba to Florida. *Ostrya virginiana* has common names that include American hophornbeam, Eastern hophornbeam, hornbeam, ironwood, and leverwood, to name a few. It is also sometimes confused with the Hornbeam (*Carpinus caroliniana*).

It is a medium sized tree, about 30 to 40 feet tall, that is distinctive for its bark, which looks like thin, evenly spaced, stringy strips lightly exfoliating from the trunk. It has somewhat downward drooping branches. The leaves of hophornbeam are 2-5 inches with an acuminate tip, and their edges are doubly serrated. The distinctive hop-like flowers that give Ostyra its common name are catkins produced in early spring, and most numerous when it has some sunlight, but the tree grows well in light shade, too.

Although it manages dry periods in the shade of the forest, it is not particularly drought-tolerant on the street. Ostrya tolerates a wide soil pH range and is pest-free, making it well worth consideration. It can be difficult to transplant successfully, with small-caliper (1.5 inch) trees showing significant transplant shock in the first year after planting, but then recovered in their second year. B&B trees transplanted better in the spring than bare root trees, while B&B and bare root trees transplanted equally well in the fall. Regardless of production method or season, small-caliper trees would be recommended when transplanting.

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Species Spotlight—Continued

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Ostrya is hardy in zones 3 through 9A. For arborists, the attraction of hophornbeam goes beyond its outward appearance, for it fills a gap in the plant palette where few other native species have similar traits. Because it tolerates a wide range of soil conditions, it's a good candidate for planting in narrow tree lawns, sidewalk cutouts, and parking lot buffers.

Hophornbeam naturally takes on an excurrent growth habit with well-spaced, subordinate scaffold branches. As such, it requires minimal structural pruning and holds up well in storms and busy urban environments. Given hophornbeam's slow growth rate and sensitive transplanting and aftercare needs, this species requires attention and patience.

But once established, hophornbeam has few serious pest or disease problems.

One of the hardest and strongest woods, harder than oak, hickory, locust, and more, it has been used for tool handles and posts. Birds, including quail and wild turkey, eat the fruits. The catkins and buds are the most

important late autumn, winter, and early spring food for ruffed grouse.

The current urban myth is that Ostrya could be suitable for planting under utility lines, which is false. Do not be lured by the slow growth! It is better to respect the potential mature height of these trees.

Photos:

DCR, Virginia Tech & UConn Plant Database

Professor Pricklethorn Returns

Westfield — This April, the DCR U&CF Program and MTWFA once again teamed up with Canadian arborist and tree enthusiast Professor Pricklethorn!

Pricklethorn, aka Warren Hoselton, spent a few days in Western Massachusetts visiting Highland Elementary School and Westfield River Elementary School in Westfield and three elementary schools in Longmeadow including Blueberry Hill School. He also visited Springfield.

As per the Pricklethron norm, he spent the days entertaining the students while helping them grow their knowledge and appreciation of trees. In Westfield, DCR foresters Rachel DeMatte and Sarah Greenleaf assisted the Professor throughout the day and helped to distribute seedlings and activity books to the participants.

Using his signature props, Professor Pricklethorn brought an engaging, interactive presentation that taught students all about the importance of trees— and the importance of planting the right tree in the right place! The students laughed and sang and had a lot of fun learning about trees for Arbor Day.

Professor Pricklethorn, AKA Warren Hoselton, gives his presentation at several schools in Western Massachusetts.

The Massachusetts Tree Wardens and Foresters Association (MTWFA) and the Massachusetts Department of Conservation and Recreation co-sponsored the effort to bring Pricklethorn back to Massachusetts.

For more coverage: https://thereminder.com/local-news/hampden-county/longmeadow/students-learn-about-tree-importance-for-arbor-day/

U&CF adds First Electric Vehicle

Boston — This May the DCR Urban & Community Forestry Program acquired its first ever all Electric Vehicle! DCR tree planting crews have been using hybrid vans for transportation since 2015, but was able to step up its game with this new addition.

This vehicle is a part of state Executive Order 594, which looks to decrease emissions from state government programs. According to the Department of Energy Resources web page, the transportation sector is the nation's largest source of greenhouse gas emissions and contributes to unhealthy levels of smog and other harmful air pollutants.

Massachusetts has adopted an aggressive, science-based net-zero emissions limit for 2050. Addressing emissions from the transportation sector through vehicle electrification is essential to mitigating the worst impacts of climate change while creating a clean, affordable, and resilient transportation future for Massachusetts.

DCR in total has more than doubled its electric vehicle fleet this year. Be on the lookout for more EV's in parks, reservations and towns near you! It's just another way we continue to GO GREEN with our Urban & Community Forestry Program.

New and Stories from the Northeast Region

The Forest Service Urban & Community Forestry Program provides

Urban Tree News in the Northeast, a collection of articles published in the media that have relevance to urban forestry in the Northeast.

Forest Service layoffs could mean less resilient cities
Will Fertilizing Trees Help Them Grow Faster?
As Heat Deaths Rise, Planting Trees Is Part of the Solution
Lichens keep New England's forests healthy. How will they adapt to climate change?
State and municipal forestry projects in limbo after funding freezes
For plants, urban heat islands don’t mimic global warming
Here’s the (good) reason some Mass. pine forests might get cut
Could Mass. see fires like Calif.? Here’s how prepared the state is

On The Horizon

June 12	**Event:** MTWFA—Western Mass Chapter Dinner Meeting https://members.masstreewardens.org/calendar
June 17	**Event:** Day of Safety—New England ISA, New Hampshire Urban Forestry Center https://newenglandisa.org/events/day-of-safety-nh
June 24	**Event:** UMass—Landscape Pests and Problems Walkabout https://www.umass.edu/agriculture-food-environment/landscape/events
July 22	**Webinar:** TREE Fund — Leveraging Data and Experience for Tree Equity https://treefund.org/webinars
August 14	**Webinar:** UCFS—Mapping the Future of Urban Forests https://ucfsociety.org/events/
Sept 4	**Webinar:** Urban Forestry Today— Safety Update - The New Z133 Standard http://www.urbanforestrytoday.org/
UCFS URBAN & COMMUNITY FORESTRY SOCIETY	**Newsletter:** City Trees — a free bimonthly publication for anyone interested in urban and community forestry at any level. https://ucfsociety.org/city-trees/
THIS OLD TREE PODCAST	**Podcast:** This Old Tree — *Heritage trees and the human stories behind them*. Old trees are awe inspiring links to the past that fire our historical imagination. https://www.thisoldtree.show/

Tree Tip:

Now is a great time for tree care

There seems to be a long list of to-do's when the weather warms and trees come out of dormancy. Focus on **Inspection, Watering, Mulching and Pruning**. Here are some tree tips form the Arbor Day Foundation:

www.arborday.org/perspectives/tackling-must-do-springtime-tree-care

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