

Massachusetts Department of Conservation and Recreation

THE CITIZEN FORESTER

Urban & Community Forestry Program

FALL 2024 | NO. 264

INSIDE THIS

Engineering Urban Soils	P.1-7
Forester Focus	P.8-9
Climate Resiliency	P.10-13
Species Spotlight	P.14-15
UCF News	P.16-22
On The Horizon	P.23

Soil Volume and TreesProviding the room for roots

How often do you consider what is going on under your feet? Maybe when there is an earthquake, a sink hole, or when you are standing on a grate as The T rumbles past, but in general, not too often. We take for granted the complex structure of natural soils and the critical role they play in plant health.

We plant trees in urban fill, haphazard mixtures devoid of nutrients and microorganisms, and expect them to develop naturally. The surrounding areas are typically covered in impervious material such as sidewalks, driveways and roads. Remaining porous areas, are walked on so often, they form a





Massachusetts

(Continued from page 1)

compacted material, difficult for water to penetrate. Luckily, several options have become available to improve the urban land below your feet.

If you were standing out in a forest, you could dig a hole and find what is considered native soil. To understand it, you would look at its physical properties, such as the composition of sand, silt and clay. Are the particles coarse, fine, or mixed? Next come the biological properties, such as organic content and the microorganisms living in the soil. Soil chemistry is also a very important and complex part of the native soil, with a variety of chemical elements that sustain plant health. Soil pH (how acidic or basic it is) determines what nutrients are available for plants. Soil drainage can also be assessed and may change based on topography and other factors. Overall, what you find is a complex system that is well suited to support plant growth. It is important to understand that these principles of soil science are interrelated and a change in one property might cause a change in the others. As human activities take place, the more disturbed the soil becomes, and the less likely it is to support healthy plant growth.

Over the centuries, human activity has changed soil properties. Unfortunately for trees, there is very little remaining native soil in urban areas. What we typically find when digging a planting hole is a far cry from original native soil.



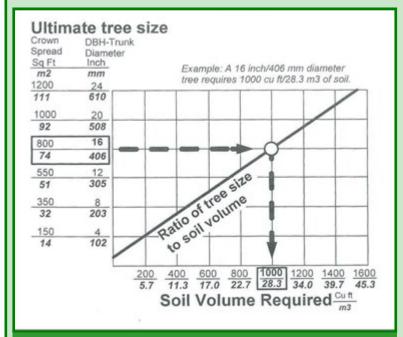
An example of a potential discovery when planting trees in urban soil.

Planting trees in poor soil conditions leads to tree health issues, decline, and ultimately death. For many years, the solution has been to repeatedly replant, without improving growing conditions.

Successful tree plantings fundamentally come down to the amount of soil volume available to the tree. According to James Urban "soil volume is the principle that links soil quality and tree growth... growth is directly related to the soil volume available for root growth." There are now calculations for

(Continued from page 2)

minimum soil volumes required to sustain trees of different sizes in the urban landscape.



Soil volume chart from: Urban, James *Up By Roots* 2008

Additionally, the key to improving growing conditions is to not only provide increased soil volume, but to provide access to non-compacted soil. Compaction breaks organic bonds holding the soil structure, which pushes soil particles together and fills the pore spaces. As these pore spaces are lost, space for air and water is lost, and roots must push harder to get through the soil. Trees with less access to water can grow fewer roots, compounding tree health issues. In high quality natural soil, minerals make up about 50% of the soil volume. Usually less than 5% is

organic material, and the remaining 45% consists of pore spaces within the soil structure, which contains the critical mix of air and water. In compacted urban soil, minerals make up about 70-80% of the soil volume. Less than 1% is organic material, with only 20-30% pore space. Finding ways to improve tree root access to noncompacted soil is a critical component to successful urban tree planting.

When looking for solutions, a variety of specialty product options have been developed. Each one requires installation prior to creating the impervious layer. These products are broadly classified as raft systems, structural growing media and crate systems.

<u>Raft systems</u> are designed to sit on top of existing root systems and dissipate vertical load forces, so the underlying soil is not compacted. They consist of either plastic ties that can be filled with soil, or a honeycomb shaped cellular mattress that is filled with a washed granular material. These rafts are then covered with a geotextile membrane before surface construction takes place. Their principle value is restricting further compaction to existing roots, rather than expanding soil volumes. Raft systems do not have the structural qualities found in other systems.

Structural growing media are

(Continued from page 3)

manufactured substrates that have been designed to be load-bearing and resistant to compaction, and therefore able to provide an environment that does not physically limit root development. Structural growing media tend to fall into three main categories: sand-based, medium-sized aggregate, and large-stone skeleton substrates. Sand-based substrates use sand as a load-bearing matrix that holds the organic matter and clay for water and nutrient retention. It can be used where relatively low surface loads are expected, such as a footpath. Medium**sized aggregate substrates** use an angular matrix of stones from 25-100 mm in size, which holds organic matter and clay soil components. A widely used product called **CU Structural Soil** is an example of this. Large stone skeleton substrates use larger stones 100-150 mm in diameter as the matrix. A combination of good quality soil and biochar is then flushed with water into the large voids. A bearing layer of smaller stone is added on top of the larger stone base, followed by a geotextile layer. All three types of structural growing media are valuable tools for root development, but if proper specifications are not followed, material may cloq soil pores, reducing aeration and drainage. It is essential to use a very specific and narrow range of

particle sizes to prevent this.

Crate systems rely on modular structural cells to provide the loadbearing capacity that prevents soil compaction. In comparison to structural growing media, crate systems hold a much larger quantity of good quality soil. Around 90% of the crate volume can be filled with soil that is protected from compaction. The system's modular design fits irregular urban conditions. As with all belowpaving options, structural cells function best when the tree opening is made as large as possible.

All three options can be utilized to allow tree roots to grow under



impervious material, and potentially reach lawn or other unpaved areas. These so called "breakouts" allow pathways for roots to reach larger soil-rich spaces. In areas with limited soil,

(Continued from page 4)

consider connecting tree pits instead of maintaining the status quo of individual tree pits. Connecting trees and creating a continuous soil strip can add magnitudes more soil to a planting project.



DCR Forester Dave Bresnahan using structural soils to improve tree growth in Salem.

Recently DCR & the city of Salem utilized an Energy and Environmental Affairs (EEA) grant to expand tree canopy around an urban heat island parking lot. Trees were placed in a continuous tree belt of uncompacted soil, and existing impervious sidewalks were removed. Parts of the sidewalks were replaced with structural soil, which was then covered with flexi-pave, a flexible porous material that allows water and air penetration for the roots to access.

The material is environmentally friendly and composed in part from



Completed Salem project including a flexi-pave sidewalk covering.

recycled waste tires. It is designed for low speed applications with pedestrian and vehicular use, and bonds without trouble to adjacent construction materials. The pervious composition allows vast amounts of water to flow through, making it a useful solution for urban stormwater management problems. The result is a cooler surface that reduces heat island effects, controls pollution runoff, and enhances groundwater recharge.

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In Chelsea, another EEA grant funded two new tree pits that were constructed over the course of a week. This project utilized a different method, the modular crate system. Here, crews excavated a large space in the sidewalk, and then routed stormwater drains into and out of the pit with an opening at the top to allow more runoff to drain in. Inside the pit they had a gravel base, then layered soil within the modular plastic cells,



before topping it off with more gravel and a finish layer of soil.

The two trees planted were a Hackberry and Hawthorn. When the project was

completed, you couldn't even notice that there was so much more space under the sidewalk for the trees to



develop! It looks just like a regular sidewalk cutout with a protective barrier on the surface. Curbing was also removed, to increase stormwater capture in the new tree pits.

Porous flexi-pave material hasn't only been beneficial for young trees, it has been used to help alleviate hardscape issues with mature trees as well. The city of Cambridge has been replacing trip hazard sidewalks near mature trees, with flexible pavement alternatives with good results.

(Continued on page 7)

(Continued from page 6)

As in most Massachusetts communities, cities inherit mature trees that have outgrown their original planting locations. Large trees have been planted along city streets in absurdly small tree pits, leading to the infrastructure issues we have today.



Removing displaced sidewalks and replacing them with flexible pavement not only removes the hazard, but allow for air and water to enter, essentially enlarging the tree pit while maintaining pedestrian traffic.

As our cities and towns continue to expand, it is good to know that we are

developing solutions to these issues. When funding is available, utilizing these techniques and products can help both with tree establishment and mitigating hazards from older infrastructure conflicts. Planting trees with "Right Tree, Right Place" in mind is still the best option, and fortunately including tree root space in urban planning and development is becoming more and more common. Let's help these trees not just survive, but thrive!

References:

Urban, James *Up By Roots* 2008 Hirons, Andrew D. *Applied Tree Biology* 2018

Grant Information:

EEA Division of Conservation Services

https://www.mass.gov/grant-programs-offeredby-the-division-of-conservation-services

DCR Urban Forestry Challenge Grants https://www.mass.gov/guides/urban-and-community-forestry-challenge-grants

Forester F@cus



A deeper look into today's Urban Forestry topics

Arbor Day Poster Contest

The Annual Student Award Program

This year marked the first inclusion of 3rd and 4th grade entries to the Arbor Day Poster Contest, which had only been open to 5th graders in the past. Students from across the state enthusiastically took up the challenge, and entered 27 total contest submissions.

Prizes were awarded for first place in each grade, with one also selected as the grand prize contest winner.

- Ishana S. of Boyden School in Walpole won Overall Contest 1st Place and 1st Place for 4th graders
- Eva Y. of Bement School in Deerfield won 1st Place for 5th graders
- Danny L. of Clara Barton
 Elementary School in Oxford
 won 1st Place for 3rd graders

The annual Arbor Day Poster Contest is sponsored by the Department of Conservation and Recreation, the U.S. Forest Service, and the Massachusetts Tree Wardens' and



DCR Urban and Community Forestry Coordinator Julie Coop with the Clara Barton Elementary School in Oxford

(Continued from page 8)

Foresters' Association. The goal of the program is to increase students' understanding of their relationship with the urban forest and the trees around them. DCR and our partner educators see this as an important step toward student appreciation of trees and of the environmental benefits they provide our communities.

Help spread the word about this program to the schools in your community! It is a great opportunity to engage our youth around the importance of their natural environment. The children of today will be the tree planters of tomorrow, continuing to pass on the gift of trees to following generations.

Poster Contest Rules:

- All entries must be the original artwork created by a student who is currently in the 3rd, 4th or 5th grade. A student may enter the contest only once.
- The poster must be related to the contest theme in some way. The current theme must be on the poster. All words must be spelled correctly and be written clearly.
- Entries must be no smaller than 8.5 x 11" and no larger than 14 x 18."
- Entries must be done on paper that will allow for duplication, display, and framing.



Submit your school's entry to DCR's Urban and Community Forestry Coordinator, Julie Coop, as described on the "School Winner Report Form" on page six of the application.

For more information, visit:

https://www.mass.gov/guides/annual-arbor-day-poster-contest

Photos: DCR



CLIMATE RESILIENCY

Healey-Driscoll Administration Awards \$1 Million for Tree Planting in Gateway Cities

Boston – The Healey-Driscoll Administration announced over \$1 million in grants to support tree planting and expand the urban forest canopy in Gateway Cities across Massachusetts. Six municipalities, two non-profit organizations, and one state university will receive awards through the Greening the Gateway Cities (GGCP) Implementation Grant Program. An additional seven projects are receiving awards through the GGCP's Non-Profit Partnership Grant Program.

"Expanding our forest canopy is one piece of the larger puzzle to combatting climate change in Massachusetts," said **EEA Secretary Rebecca Tepper**. "With continuous heat waves leading to higher energy bills and greater greenhouse gas emissions, our Greening the Gateway Cities Program leverages our state resources and engages residents to help plant trees and enhance public health. Reducing the urban heat island effect is a top priority, and our non-profit partnerships through the GGCP will help cool our neighborhoods, towns, and cities."

(Continued from page 10)

"I am beyond thrilled that the City of Holyoke has been awarded funds through the Greening the Gateway Cities initiative that will benefit a local park and various neighborhoods downtown with new growing trees," said **State Senator John C. Velis (D-Hampden and Hampshire**). "With increased tree canopy cover, communities like Holyoke can reduce household energy usage and provide an overall better quality of life for residents. I am grateful to the Healey-Driscoll Administration for their commitment to this important program and our Gateway Cities throughout the Commonwealth."

"The Greening Gateway City initiatives address important inequities, including the overheating that occurs in urban areas," said **State Representative Patricia A. Duffy (D-5th Hampden)**. "I'm so grateful that the Healey-Driscoll Administration recognizes this and supports these efforts. I'm looking forward to seeing these beautiful trees in my city."

The GGCP is a partnership between the Executive Office of Energy and Environmental Affairs (EEA), the Department of Conservation and Recreation's (DCR) Urban & Community Forestry Program, and Gateway Cities and local grassroots organizations. Tree planting in Gateway Cities is essential to achieving state climate goals by decreasing energy usage, reducing the impacts of flooding from stormwater runoff, mitigating the extreme heat in urban areas, and improving overall public health.

Trees cool neighborhoods and reduce the "urban heat island" effect, where areas deficient in greenery and abundant in impervious surfaces, such as buildings and roads, create significantly hotter living conditions and adverse public health outcomes. In 2024, GGCP expanded eligible planting areas, to encompass environmental justice neighborhoods in Gateway Cities.

The GGCP Implementation Grant awardees will facilitate tree stewardship and impervious surface removal to increase energy savings from reduced heating and cooling costs. The GGCP Implementation Grant awardees are:

(Continued from page 11)

City of Everett	\$150,000 to plant 62 public trees and create and prepare 150 new tree pits to be planted by the Greening the Gateway Cities Program.	
City of Holyoke	\$149,760 to prepare 88 tree pits to provide public planting locations for the Greening the Gateway Cities Program. Additionally, the City will plant 42 trees in a neighborhood park.	
City of Lynn	\$123,981 to prepare 80 new tree pits, and provide assistance to Greening the Gateway Cities Program, in order to plant 110 new public trees. In addition, the City will provide tree stewardship and assist with community engagement to promote GGCP.	
City of Malden	\$150,000 to prepare 80 new tree pits to provide new planting locations for the Greening the Gateway Cities Program. Additionally, the City will install permeable pavement around urban tree pits to increase water absorption and plant a pocket forest.	
City of Salem	\$120,000 to plant and steward 100 trees, along entry routes into Salem.	
City of Taunton	\$105,000 to plant 30-35 trees in two municipal cemeteries. Additionally, the City will install permeable pavement around 80 urban trees to aid with stormwater absorption and protect against soil compaction.	
Green Roots	\$150,000 to plant 150 public trees and expand the Tree Keeper program (a community driven tree stewardship program).	
Groundwork Southcoast	\$150,000 to plant 65 trees in 3 open space locations in New Bedford, including planting a micro forest.	
Salem State University	\$31,950 to plant and steward 36 new trees on Harrington Campus.	

The Non-Profit Partnership Grant awards will provide funding for non-profit partners to conduct outreach to residents and business owners interested in receiving free trees from the Greening the Gateway Cities Program (GGCP). These partnerships ensure DCR can maximize tree planting and tree stewardship in environmental justice neighborhoods within Gateway Cities. The GGCP Non-Profit Partnership Grant awardees are:

(Continued from page 12)

GreenRoots	\$35,000 to increase the capacity of the TreeKeeper Program, a community driven tree stewardship program.
Groundwork Lawrence	\$35,000 to conduct door-to-door canvassing, literature mailings and tabling at community events to raise awareness of GGCP tree planting within Haverhill environmental justice neighborhoods and communicate the benefits of urban canopy.
Groundwork Southcoast	\$35,000 to conduct door-to-door canvasing and disseminate literature in New Bedford environmental justice neighborhoods, as well as increase awareness of the program via social media.
Growing Places	\$48,778 to grow community awareness of the GGCP in both Leominster and Fitchburg, conduct door-to-door canvassing, connect DCR foresters with new landowners for tree planting in environmental justice neighborhoods, literature mailings and tabling at community events to increase knowledge of the many benefits of urban tree planting within both communities.
Lowell Parks & Conservation Trust	\$24,520 to conduct door-to-door canvassing, social media outreach, tabling at community events to raise awareness of GGCP tree planting, as well as conduct training and educational programs.
Salem Sound Coastwatch	\$35,000 to conduct outreach and generate interest in the GGCP program, and recruit residents to have tree(s) planted on their property as well as identify high priority planting locations across the designated planting zone in coordination with DCR.
Wildlands Trust	\$52,300 to conduct social media and community outreach, literature mailings, and tabling at community events to raise awareness of GGCP tree planting and communicate the benefits of urban canopy in environmental justice neighborhoods within Taunton & Brockton.



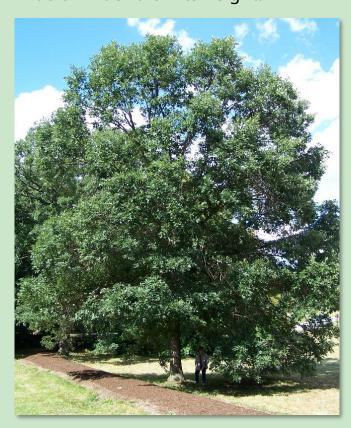
For more information, visit:

 $\underline{https://www.mass.gov/news/healey-driscoll-administration-awards-1-million-for-tree-planting-ingate way-cities}$

Species Spotlight

Swamp White Oak, Quercus bicolor

Swamp white oak is a member of the white oak group and is native to the central United States, the central Appalachians, and up to southern New England. It is a long-lived tree that can live for 300 years. It can grow as high as 80 feet, and can have a spread as wide or wider than its height.



It is medium to coarse in texture and forms a rounded crown as it matures. It requires acidic soils and its leaves can show chlorosis when soils are too alkaline. In its native habitat, it is found in bottomlands and along streams. The leaves are alternate, simple, and obovate with shallow lobes, and are

dark green above and paler below. Fall color is typically yellow, but can vary. The monoecious flowers bloom in May and form yellow-green catkins on both old and new growth.



The acorns are 1 inch long, with a long peduncle, in pairs, with the involucre (the acorn "cap") covering about 1/3 of the acorn. Heavy acorn crops occur every 3-5 years and may be considered a nuisance.



Acorns provide food for large birds, ducks, and mammals, including squirrels and deer. The bark is graybrown and shaggy when young and becomes deeply ridged with age.

Species Spotlight—Continued

(Continued from page 14)

In urban settings, this large tree makes a great specimen tree, park tree, or lawn tree in areas where it has lots of room to grow. It is tolerant of drought and can grow in partial shade to full sun. It can be an option for wet areas, as it tolerates wetter conditions. It can be susceptible to borers, caterpillars, spongy moth, anthracnose, cankers, and powdery mildew. There are a few cultivars available—the result of



hybridization with other oaks. Swamp white oak hybridizes with white oak (Quercus alba), bur oak (Quercus macrocarpa), English oak (Quercus robur), and others.

For the foraging types, swamp white oak is known as one of the acorn-

bearing oaks with the least tannins, meaning they are the sweetest and easiest to eat and digest. While all acorns can be specially soaked in water to remove the tannins, the swamp white oaks' acorns need the least soaking.

In a recent study by Clark University, swamp white oak had shown to be a



species with a 93% survival rate in DCR's Greening the Gateway Cities Program over a 10 year period, when properly maintained.

Also a past winner of the Society of Municipal Arborist's Urban Tree of the Year Award, swamp white oak has proven its potential in urban areas. Consider this tough, native shade tree — which will add texture and interest to the landscape—for your next urban planting project!

Photos:

From DCR, <u>Virginia Tech</u>, <u>UConn Plant Database</u> and Smith College.



Tree City USA & Tree Campus



This June, DCR Urban & Community
Forestry Program celebrated the
2023 Tree City and Tree Campus USA
award winners, in Westborough, MA.
The event was graciously hosted at
Fales Elementary School, the first
energy net-positive school building in
the state.

Representatives from over 30 communities and universities were in

attendance to receive their awards, with a record matching overall total of 90 cities and town who achieved their Tree City USA certification for this past calendar year.

Attendees participated in educational workshops for continuing education credits. Presenters for the day were: Kyle Grendell and Derek Saari, City of Westborough, Kristina Bezanson,

UMass Amherst,
"Educational and Work
Force Opportunities for
Arboriculture" and Patrick
Lindquist, DCR Program
Coordinator, "DCR
Growing Wild Program."

In 2023, Massachusetts
Tree City USA communities
invested \$43.6 million in
90 towns and cities
representing 3.5 million
people with over 20,000
hours of volunteer time.

Talk to your community about TCUSA today!



City of Westborough with DCR Commissioner Arrigo and staff.

For more information, visit:

https://www.mass.gov/guides/programs-in-partnership-with-the-arbor-day-foundation



MASSACHUSETTS

2023

BY THE NUMBERS

TREE CITY USA COMMUNITIES

55.80%

OF STATE
LIVES IN A TREE CITY
USA COMMUNITY

97.75% RECERTIFICATION RATE

1

REPORTED NUMBER OF TREES PLANTED

13,241

LARGEST

Boston

POPULATION 674,272

SMALLEST

Westover ARB

POPULATION 950

LONGEST-RUNNING ACTIVE TREE CITY USA COMMUNITY:

Tree City USA Summary

Wellesley

41 YEARS

\$43,646,084

SPENT ON URBAN FORESTRY MANAGEMENT



\$11.13

average per capita



13 Growth Award Recipients

LONGEST ACTIVE GROWTH AWARD
Worcester

1010000

25 YEARS

2 NEW Growth Award Recipients





An Arbor Day Foundation Program

Recognized
Massachusetts
Schools

NEWLY Recognized Schools



Tree Line USA
Utility
LONGEST ACTIVE UTILITY:

Eversource Energy - MA 2 YEARS



An Arbor Day Foundation Program

Recognized Healthcare Facilities:











Greening the Gateway Cities Program Expansion Takes Off!

The newly expanded Greening the Gateway Cities Program (GGCP) is providing trees to more Massachusetts residents then ever! Tree planting has been expanded to cover all Environmental Justice neighborhoods in the actively planted cities. Current lists and planting zone maps are <u>available</u> online, contact your friendly local urban forester today!



More info at: https://www.mass.gov/service-details/greening-the-gateway-cities-program







DCR Holyoke crew plants street trees with City partners to reduce urban heat islands





DCR Urban and Community Forestry Program all-staff meeting at Hopkinton State Park

2024 U&CF Challenge Grants Awarded

Challenge Grants are an annual grant opportunity for municipalities and nonprofit groups in Massachusetts to improve and protect their urban forests. These 50/50 matching grants (25/75 for EJ areas) help develop, grow and sustain programs that plant, protect, and maintain a community's public tree resources and develop partnerships with residents and community institutions.

In this round of grants there were twenty-two applications totaling \$403,441 in funds requested. The Review Committee recommended eighteen of the applicants for a total of \$331,390 in funds for their grant proposals.

Town of Acushnet	Southern Acushnet Street Tree Project
Biomimicry New England	Gloucester Climate Tree Demonstration Project
Town of Chelmsford	Chelmsford Town Common Tree Planting
Town of Cohasset	Cohasset Strategic Tree Planting Proposal
Town of Cummington Tree Alliance	Citizen Action- Cummington Tree Alliance
Town of Dedham	Town Green
Emerald Necklace Conservancy	Emerald Necklace Tree Canopy - Heritage Tree Care
Town of Georgetown	Tree Health Survey Management Plan
Greenfield Tree Committee	Growing Better: Improving the Greenfield Public Tree Nursery
City of Lowell	City of Lowell Tree Committee and Urban Forestry Web Page
City of Lynn	Tree Health Survey Management Plan
Town of Milton	Milton Street Tree Initiative
Town of Northfield	Northfield Tree50th Project
City of Revere	Shirley Avenue Community Tree Planting
Town of South Hadley	Street Tree Management Plan
Speak for the Trees	Developing Community-Led Tree Planting Projects
Town of Westborough	Downtown Survey, Work Plan, and Re-Green
Town of West Springfield	Environmental Justice Communities Tree Inventory

HERO Program 2024

Worcester— This summer, the DCR Urban & Community Forestry Program partnered with Clark University and the Human Environment Regional Observatory (HERO) program, to measure survivorship of trees planted over the last 10 years by the GGCP in Chelsea and Holyoke.

Overall, trees continue to survive in good health, where stewardship is continued over time. The greatest losses of trees were the result of tree

removal activities on private property. Student conclusions include following up with new residents, as properties change hands, to explain the benefits of trees and prioritize tree retention for the long term.

Species specific results identified top performing trees: Swamp White Oak, Hackberry, Hophornbeam, Pin Oak, and Honeylocust. These trees tended not only to have high survivorship, but above average growth as well.



Clark University staff and HERO program students. *Photo: DCR*



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.

Watertown's first Miyawaki Forest will be planted this fall

<u>In Cambridge, a dense, climate-forward forest signals a changing approach</u> <u>to urban canopies</u>

She sees the forest and the trees: Lynn appoints first urban forestry fellow

Study details strategies for successful urban tree planting initiatives

Smokey Bear turns 80 this year. Did he help prevent forest fires?

<u>'King Elmer' in Lanesborough named largest American elm tree in</u>
Massachusetts

Springfield, Mass. has new tree ordinance on the books

Newport Among R.I. Communities Seeking to Bolster Tree Canopies

On The Horizon

September 5	Webinar: Urban Forestry Today — The Direction of Municipal Tree Care & Management http://www.urbanforestrytoday.org/
October 6-8	Conference: New England ISA Conference — Warwick, RI. Agenda details at: https://newenglandisa.org/events/2024-annual-conference-trade-show
October 8	Webinar: TREE Fund webinars bring you the latest in tree research, directly from the scientists themselves. https://treefund.org/webinars
October 9	Webinar: Urban Forest Connections — Tune in every other month on second Wednesdays from 1:00pm - 2:15pm ET. https://www.fs.usda.gov/research/products/multimedia/webinars/urbanforestconnections
October 27	Event: Western MTWFA — Fall Dinner Meeting, Northampton, MA 5:30pm: https://masstreewardens.org/event/fall-wmtw-dinner-meeting/
November 20-21	Conference: Partners in Community Forestry — Chicago IL. Registration open now: https://www.arborday.org/ programs/pcf/
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:

DCR is Growing Wild!

Companion plantings help to increase biodiversity and supports a sustainable ecosystem. Planting in proximity to trees maximizes the use of space, provides nutrients, attracts beneficial insects, increases pollination, and provides a space for beneficial creatures.

<u>www.mass.gov/guides/growing-wild-massachusetts</u>



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Department of Conservation and Recreation — Bureau of Forestry

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