

How Can I Quickly Assess Canopy Cover in my Community?

By **Mollie Freilicher** Free tools in the i-Tree suite enable users to quickly assess canopy cover in a given area, without even leaving your home or office! i-Tree is a freely accessible suite of applications developed by the USDA Forest Service and partners.

Tree canopy cover is the leaves, branches, and stems of trees that cover the ground when viewed from above. For background on tree canopy in urban areas, go to this USDA Forest Service [website](#).

Communities across the United States are losing tree canopy cover and the benefits that go along with trees: reduced peak summer temperatures, reduced air pollution, wildlife habitat, increased property values, increased desirability of shopping districts, and others. Though there are high-end urban tree canopy analyses that can provide more in-depth information about tree canopy and what tree canopy may be possible in a community, the tools in i-Tree can provide a good baseline for communities that want to know how much canopy cover they have.

Here are two options for quickly calculating canopy cover using i-Tree: **i-Tree Canopy** and **i-Tree Landscape**. To use either of these tools, you will need a computer connected to the internet and a web browser.

Up Ahead:

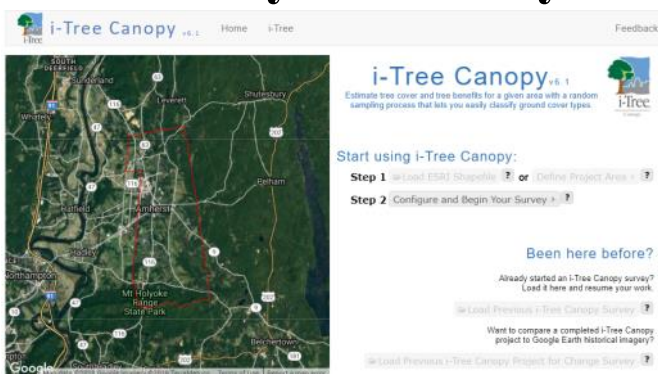
Assessing Tree Canopy	1-3
Species Spotlight	4
Grants Growing on Trees	5
Gleanings	5-7
News	8
On the Horizon	9
	10

Assessing tree canopy in a community with i-Tree Canopy:

<https://canopy.itreetools.org>

i-Tree Canopy enables users to define an area of interest and then classify random points on a Google Map as either “tree” or “non-tree,” (or other classes that you choose).

1. To use i-Tree Canopy, load an ESRI shapefile with the boundaries of



i-Tree Canopy project set-up screen

your choice or click **“Define Project Area”** to zoom into your location and draw the boundaries for your project – neighborhood, ward, district, whole community, or other area of interest. Once you have your boundaries drawn, click **Finish**.

2. Click **Configure and Begin Your Survey**. The default classes are “Tree” or “Non-Tree,” but you can get as specific as you want. If you would like to edit the classes or add others, you can. For example, you could collect “lawn” or “pavement” or choose other categories related to imperviousness. If you want to keep it simple, though, you can stick with the defaults. When you are all set, click **Next**.

3. Choose your location for the calculation of benefits – you can select a state or county. On this page, you also denote which class represents tree canopy and what currency and units you would like the benefits calculated in. Once you are all set here, click **Begin Survey**.

4. Now you see the map, as well as your cover class table. Click the + sign in the table and i-Tree will generate your first point. Look for the yellow cross on the picture. (Sometimes it can be hard to see a point when it falls on a light surface, but it is always in the

(Continued on page 2)

How Can I Quickly Assess Canopy Cover in my Community?

(Continued from page 1)



i-Tree Canopy point classification screen

center of the picture.) Choose whether the center point falls on a “tree” or “non-tree” (or whatever classes you chose). When you are done with a point, click the + sign again to generate a new point.

5. As you continue to classify points, you will see the chart of percent cover change, as well as the standard error. It can be difficult to tell sometimes whether a point falls on a tree, especially if it is in a shadow. Don't sweat it! You'll get better at classifying, and the more points you do, the lower your standard error will be. Once you approach 500 points or so, the standard error should be pretty low. The lower the error, the better.

Five-hundred points may seem like a lot to generate, but it goes by quickly. Remember to save your project periodically by clicking **Save Data** at the bottom. You can also use **Save Data** to save your project and come back to it later. You don't have to do it all at once!

6. Once your standard error is low, perhaps within two or three percentage points, you can generate a report of your results. Click **Report** (just above the map), and you will see a chart and table that you can use. Use the chart and table as a singular document or integrate them into another report format that you like. In our example, 502 points show that Amherst has 54.9% ($\pm 2.23\%$) canopy cover.

If you get stuck using i-Tree Canopy, click **Help** or **?** to get some information on how to use the tool.

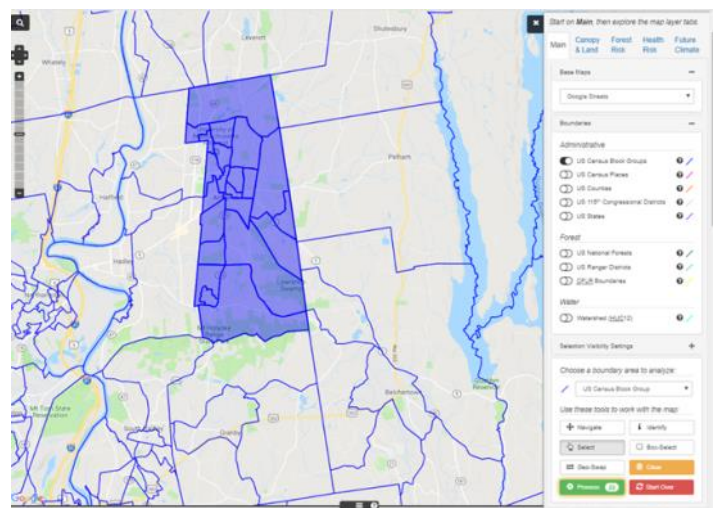
In no time at all, you can have a quick, easy, and accurate assessment of tree canopy in a given area, whether your neighborhood, your community, or somewhere else.

Assessing tree canopy in a community with i-Tree Landscape: <https://landscape.itreetools.org>

Like Canopy, i-Tree Landscape is a web-based application. No special tools are required! i-Tree Landscape calculates canopy cover using National Land Cover Data (NLCD), which has 30-meter resolution. i-Tree Landscape is a powerful mapping application that you can use to calculate canopy (and so much more). Here, though, we will just be focusing on canopy cover.

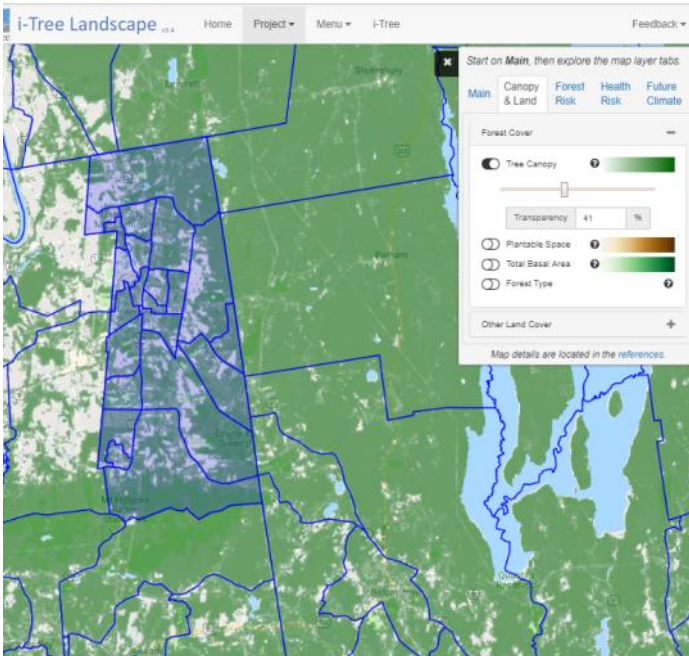
Go to the [Landscape](https://landscape.itreetools.org) website and enter an address or city and state to help zoom in on your desired location. On the right, you will see a menu. Click **Boundaries** and you will see different **administrative, forest, or watershed boundaries** to choose from. Currently, the smallest area that can be explored is the US Census Block Group. (Unlike in Canopy, you cannot draw boundaries in Landscape.) If you know the shape of your town or city, you can select the US Census Block Groups that comprise the area. (If you are interested in county-level benefits, there is a [separate i-Tree tool for that](#).)

1. From the menu on the right, scroll down to **Choose a boundary area to analyze** and select the layer you are interested in. (We're using US Census Block Group in this example.) Then, click the select tool and click on the map to select census blocks. At this point, you can also view canopy and impervious area on the map. (You



i-Tree Landscape area of interest and layer selection

How Can I Quickly Assess Canopy Cover in my Community?



i-Tree Landscape tree canopy cover visualization with transparency adjusted for the area of interest and the tree canopy layer

(Continued from page 2)

can also make the shading of your selection more transparent, so that it's easier to see canopy underneath.) Click **Selection Visibility Settings** and move the slider to adjust transparency.

2. To view canopy, as well as other features, click on the tabs "**Canopy & Land**," "**Forest Risk**," "**Health Risk**," or "**Future Climate**." Note that some of these maps may be more suited to projects looking at state-level or regional scales – the scale may not be fine

enough to detect possible differences within a municipality or county. To view canopy, click **Canopy & Land** and then move the sliders below to view **Tree Canopy**, **Plantable Space**, **Total Basal Area**, or **Forest Type**. In **Other Land Cover**, you can also view impervious area.

3. To view tree canopy on the map, click the button by **Tree Canopy**. You can zoom in and out of the map and get a sense for canopy in the area. (You can also explore the other map visualizations, too.)

4. To calculate canopy, click the **Main** tab and then scroll down to **Process**. This will crunch canopy and other data for the area or areas you selected. Now, at the bottom of the window, there is a table with tabular data from the US Census and the map layers. For our example here, we see canopy is 53.54%. (Our figure in Canopy was 54.9 ± 2.23 , so these definitely comport!) In the table, you will also notice a figure for impervious surface and plantable space. If all you are interested in is calculating Canopy, congratulations! You're done!

There is much, much more to Landscape - from looking at census data, forest risk, health risk, and future climate, as well as prioritizing planting based on census data. For more information on Landscape, go to: <http://www.itreetools.org/landscape/index.php>

For more information on Canopy, Landscape, and other i-Tree tools, go to www.itreetools.org. You can even watch videos to help you get projects started.

Tree City, Tree Line, and Tree Campus USA Applications Due December 31

We are accepting applications for Tree City, Tree Line, and Tree Campus USA. Complete instructions are on the [DCR website](http://www.mass.gov/dcr). If your community, utility, or school does not currently participate in these programs, contact Mollie Freilicher, mollie.freilicher@mass.gov or 413-577-2966 to find out more and how you can apply next year.



THE CITIZEN FORESTER

Species Spotlight—Dove tree, *Davidia involucrata*

By **Mollie Freilicher**



Bracts ([Virginia Tech](#))

Native to southwestern China, dove tree is not well known in the United States. Dove tree is in the same family as tupelo, Nyssaceae, but is the only member of its genus. The genus *Davidia* is in honor of the French missionary and naturalist, Father Armand David, who lived in China in the mid-19th century. In addition to bringing knowledge of dove tree to the West, David also introduced the West to the giant panda (*Ailuropoda melanoleuca*). Dove tree gets its common name from the two large, white bracts that are at the base of flowers. The slightly more awkward-sounding common name, handkerchief tree, also arises from the presence of these bracts. The tree is rare in China, and it was relatively unknown, even in China, until Chinese leaders saw the tree growing in gardens outside the country, in Switzerland and in Washington, D.C.

A medium-sized tree, dove tree can reach heights of 20 to 40 feet, with a similar spread. As a young tree, it has a pyramidal form and becomes oval to rounded with age. Dove tree is hardy in USDA zones six to eight.

Dove tree is alternate, with a simple ovate to heart-shaped leaf between two and six inches long and with serrated margins. Leaves are bright green above and paler underneath. They do not change color in the fall.



Fruit ([Virginia Tech](#))

Twigs are moderately stout and gray-brown in color. Buds are scaled, and ovoid and pointy in shape, about one-quarter inch long.

Dove tree flowers in early spring. The flowers are conspicuous because of the large white bracts, and



Leaves ([Virginia Tech](#))

Michael Dirr writes, “The flowering may not be prolific every year, but a tree in full flower is a spectacle that will be carried through a lifetime of memories.” A 2008 research paper found evidence to support the idea of bracts serving as protection for pollen from rain and as attractants for pollinators.

The fruit is a round one to two-inch drupe that hangs from a red stem, about one-inch long. The fruit initially is green, but becomes reddish brown as it ripens. Seeds are inside two hard “nuts.”

The bark of dove tree is ornamental and can provide winter interest. It is light gray-brown and has a purplish inner bark that becomes darker and more orange and scaly as the tree matures.

Dove tree has no major insect or disease problems and can grow in part to full sun. Dove tree makes an interesting addition to the planted landscape, though it may prove a little tricky to find in local nurseries.

References

Dirr, M.A. 1997. *Dirr's Hardy Trees and Shrubs: An Illustrated Encyclopedia*. Portland, OR: Timber Press.
Sun, Ji-Fan et al. 2008. Multifunctional bracts in the dove tree *Davidia involucrata* (Nyssaceae: Cornales): rain protection and pollinator attraction. *American Naturalist*. 17:1.

Sun, Ji-Fan and Shuang-Quan Huang. 2011. “[White Bracts of the Dove Tree \(*Davidia involucrata*\): Umbrella and Pollinator Lure?](#)” *Arnoldia*. 68:3.



Bark and Form ([Virginia Tech](#))



Stem ([Virginia Tech](#))

Growing on Trees

2019 Arbor Day Poster Contest

Trees Have Mass Appeal

All 5th grade students in Massachusetts are invited to participate in this annual contest that combines art and science.

Contact Mollie Freilicher
mollie.freilicher@mass.gov or 413-577-2966

WWW.MASS.GOV/GUIDES/ANNUAL-ARBOR-DAY-POSTER-CONTEST

Fifth grade classes from schools across Massachusetts are encouraged to participate in the annual Arbor Day Poster Contest by having fifth-grade students create posters highlighting this year's theme and then hosting a school poster contest. The winning poster from each school can be submitted to DCR. Home-schooled or non-participating school students may submit their posters and enter the contest individually.

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

For complete rules and guidelines, go to the [Arbor Day Poster Contest page](#) on the DCR website.

Drought Monitor

With the recent rains, as of October 30, 2018, and for the first time in a while, no areas of Massachusetts are in drought status or classified as abnormally dry. Find out more at the [US National Drought Monitor](#).

None
D0 (Abnormally Dry)
D1 (Moderate Drought)
D2 (Severe Drought)
D3 (Extreme Drought)
D4 (Exceptional Drought)

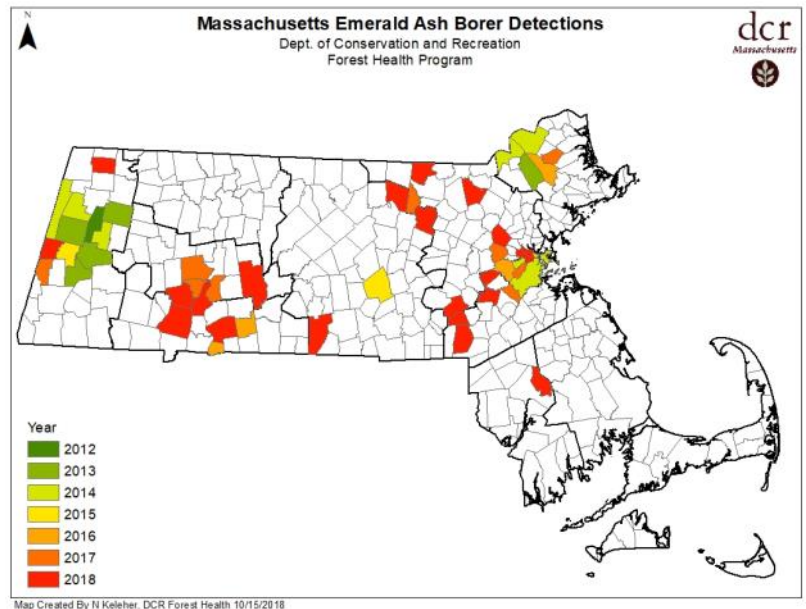
Tree Wardens, Highway Supervisors, and other Municipal Staff learn about managing roadside tree mortality at a recent workshop sponsored by National Grid, DCR, and the Mass. Tree Wardens' and Foresters' Association in Hopedale. (Above — Mollie Freilicher DCR Urban and Community Forestry; Below—Nicole Keleher, DCR Forest Health)

Growing on Trees

Emerald Ash Borer Update

Currently, EAB can be found in 42 communities throughout the Commonwealth, as well as in all five other New England states. Most recently in Massachusetts, the beetle was detected in Chelmsford.

Learn how to identify the insect and damage at the [UMass Extension webpage](#).



Webcasts

Urban Forestry Today Webcast

Changing Urban Tree Canopy Cover in the U.S.

November 15, 2018 | 12:00 – 1:00 p.m. (Eastern)

Dr. David Nowak, USDA Forest Service

To attend live and receive free CEUs, go

to: www.joinwebinar.com and enter the ID code: 150-883-555

Archived webcasts are available at

www.urbanforestrytoday.org under 'Videos.'

This broadcast is free and will offer the opportunity for arborists to earn 1 ISA CEU and 0.5 MCA credit.

The Urban Forestry Today Webcast Series is sponsored by the University of Massachusetts Department of Environmental Conservation, in cooperation with the USDA Forest Service, Massachusetts Department of Conservation and Recreation, University of Massachusetts Extension, and Massachusetts Tree Wardens' & Foresters' Association.

Urban Forest Connections

The USDA Forest Service's Urban Forest Connections webinar series brings experts together to discuss the latest science, practice, and policy on urban forestry and the environment. These webinars are open to all. Past webinar presentations and recordings are available [here](#).

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TREE Fund Webinar

Emerald Ash Borer: Strategies for Conserving Ash in the Urban Forest

Dr. Dan Herms, Vice President of Research &

Development, The Davey Tree Expert Company

November 28, 2018 | 2:00 p.m. Eastern (please note date change)

We are grateful to Utah State University Forestry Extension for hosting this program.

Upcoming TREE Fund Webinars:

December 13, 2018 – Trees and Construction

February 2019 – Trees and Health

For more information, go to www.treefund.org/webinars

Rekindling the Forest in Our City: A Story of Research, Responsibility, and Care

December 12, 2018 | 1:00 – 2:15 p.m.

Kristen King, NYC Parks

Sarah Charlop-Powers, Natural Areas Conservancy

Upcoming Urban Forest Connections Webinars

January 9, 2019 | 1:00 p.m.-2:15 p.m. (Eastern)

February 13, 2019 | 1:00 p.m.-2:15 p.m. (Eastern)

March 13, 2019 | 1:00 p.m.-2:15 p.m. (Eastern)

Growing on Trees

Municipal Forestry Institute 2019 – Registration Now Open

Registration is now open for the 2019 session of the Municipal Forestry Institute (MFI), to be held in Silverton, Oregon, February 24-March 1. MFI is an intensive five-day program for urban foresters, hosted by the Society of Municipal Arborists. It is not your typical training for arborists and urban foresters. The focus of the MFI curriculum is leadership and how to move your urban forestry program from good to great. Thinking about attending in the future? Use a DCR Urban and Community Forestry Challenge Grant to help defray the cost. [Find out more. https://www.urban-forestry.com](https://www.urban-forestry.com).

New England ISA Annual Conference

November 4-6, 2018 | Mystic, CT

Please join us for the New England Chapter International Society of Arboriculture Annual Conference and Tradeshow where we will "Honor the Past, Treasure the Present, Shape the Future" in beautiful Mystic, Connecticut. Dr. John Ball will be this year's keynote speaker. There are many pre-conference events, starting Saturday November 3. Enjoy all that Mystic has to offer. Come for the weekend! Earn CEUs and pesticide credits. Find out more at newenglandisa.org.

Upcoming Courses

For complete listings and the most up-to-date information, please go to the provider's website.

Arnold Arboretum

www.arboretum.harvard.edu/education/adult-education

Measure Twice, Cut Once: Introductory Tree and Shrub Pruning – December 8

Winter Tree Identification – February 9

Berkshire Botanic Garden

www.berkshirebotanical.org

Plant Health Care – Nov. 27, 2018 – Dec. 18, 2018

Bark and Buds: Winter Tree ID – December 8

Tree Care for Gardeners – February 1-15, 2019

Orchard Management – March 23, 2019

New England Wildflower Society

<http://www.newenglandwild.org/learn/our-programs>

Winter Branchlet Identification – November 1

An Autumn Walk through Meadow and Forest – November 2

Naked Shrubs – November 10

Wetland Shrubs in Winter – January 19

Fruits and Seeds Revealed – January 20

Winter Botany – January 31

Understanding and Managing Soils – February 9

Climate Change and the Plants of New England – February 12

Winter Pruning – March 12

Polly Hill Arboretum

www.pollyhillarboretum.org/education

Fall Guided Walk – November 17

Researchers Are Looking for Input

Univ. of British Columbia—Species Selection

Consider participating in our Urban Tree Selection Study regarding the priorities for tree species selection in cities across temperate North America.

Study team: This research is being conducted by graduate student Jehane Samaha and her supervisor Dr. Cecil Konijnendijk van den Bosch, through the University of British Columbia (UBC), Department of Forest Resources Management. If you have questions about this research in general, or about your role in the study, please feel free to contact either member of the study team using the e-mails listed below.

The survey is available at this link:

<http://tinyurl.com/urbantreeselection> Thank you!

UMass– Amherst—Tree Inventories

Dear Colleagues, - We (researchers at UMass - Amherst) are conducting a study on commonalities between street trees planted in municipalities around the globe. Please help us by [completing a short, ~3 minute survey](#) on tree inventory data collected by your city or municipality.

Thanks for your time!

Sincerely,

Bethany Bradley, Associate Professor of Biogeography,
Brian Kane, Mass. Arborists Association Professor
UMass–Amherst

Gleanings

Why Are Manchester Trees Turning Blue?

By Sarah Gibson

October 5, 2018 – This fall, Manchester's trees aren't just turning orange, red, and yellow - they're also turning blue. With the help of local volunteers, New York City-based artist [Konstantin Dimopoulos](#) is coloring the trunks of about 100 city trees at the Currier Museum and Victory and Pulaski Parks.

"The Blue Trees" installations started fifteen years ago, when Dimopoulos moved at the age of 45 from New Zealand to Melbourne, Australia. Dimopoulos's native city had been so windy it was virtually treeless. But Melbourne was an urban forest.

Standing at the Currier Museum in a Carhartt jacket and blue paint smeared on his cheeks and hands, Dimopoulos smiles remembering how he became a tree lover. Listen (or read) the full story at [nhpr.org](#).



Planting Trees with Greater Purpose: The time is now

By Dan Lambe, President of the Arbor Day Foundation

October 19, 2018 – With all the global issues we face today — including poor air and water quality, climate risk, deforestation, poverty, and hunger — individuals and organizations alike are taking a proactive step to become part of the solution. And they are turning to trees to make a difference. There is a natural draw to tree planting and forests because there is an emotional and intuitive connection between trees and a healthier planet.

Planting trees is a simple yet serious strategy to combating the biggest challenges facing the world today. Because trees provide the necessities of life itself — and the beneficiaries of trees are people. They filter pollutants out of the air and water while protecting us from dangerous heat and flooding. They lower urban temperatures, reduce energy use and sequester carbon to slow the rate of climate change. Resources from forests help to keep people out of extreme poverty. Green environments encourage physical activity, improve cognitive ability and reduce stress. And trees foster community engagement and connectivity in a unique and positive way.

For these benefits and more, there's a great urgency to plant trees and restore forests. That's why, every year, working with our government, corporate and non-governmental partners, our foundation helps to plant millions of trees throughout the U.S. and around the world. These efforts are happening strategically in National Forests, rain forests and the cities and towns that make up our urban forest. Read the rest of Dan Lambe's commentary at [The Denver Post](#).



Tree Stewards play "Who Am I?" with DCR Service Forester Joe Perry during the Tree Identification session at the 2018 DCR Tree Steward Training. Stay tuned next month for more about this year's training.

News

Two-Lined Chestnut Borer Beetles Chew through Oaks at Sturbridge's Wells State Park

By Bradford L. Miner

October 19, 2018 – There is a new thief in town, and those who enjoy camping at Wells State Park next summer will be the first to realize they've been robbed of their favorite shaded campsite. The culprit is the two-lined chestnut borer, a native beetle that delivers the death knell to oaks that have sustained repeated years of stress from drought and gypsy moth defoliation. Ken Gooch, Forest Health program director for the state Department of Conservation and Recreation, said more than 200 dead oaks in the campground, many near Walker Pond, have been marked for removal. "At least a dozen campsites will no longer have any shade at all," Mr. Gooch said.



Two-lined chestnut borer (CTPA)

The DCR forester said the removal work will be put out to bid on a state contract to be done either this fall or in the spring, as the project is larger than feasible for the DCR forest crews.

Earlier this month, Mr. Gooch, along with Dan Clark, regional director of the Quabbin and Ware River watersheds, Herm Eck, chief forester for the Quabbin and Ware River watersheds, and two DCR foresters spent a morning west of the Quabbin Visitors Center in a tract where defoliated oaks were dead or dying.

"I found it somewhat surprising that we found only one two-lined chestnut borer in the oaks we cut down and examined at Quabbin. What we did find, however, was red oak borer, which feeds in the tree's cambium layer and eventually bores into the sapwood," he said. Mr. Gooch admitted it's often difficult to distinguish larvae in the field, and definitive identification can only be made through DNA testing in a lab, noting the adult beetles are much easier to identify. Read the full story at [telegram.com](https://www.telegram.com). For more information on two-lined chestnut borer go to: <https://www.forestpests.org/vd/353.html>

News Headlines in Brief

[Millions of Connecticut Trees Have Been Killed or Damaged in Recent Years. Taking Them Down is Expensive.](#)

[More Trees, Happier People](#)

[Climate Change, Pests, Fallen Trees a Deadly Recipe for US Forests](#)

[Chicago Group Gets \\$1M to Plant Trees, Combat Climate Change](#)

[PG&E Cutting Trees near Power Lines in High Fire-Risk Areas – California](#)

[TD Bank and ReGreen Springfield Join Forces to Plant Trees for Better Air Quality](#)



Volunteers from ReGreen Springfield, TD Bank, and the City of Springfield plant trees on Edgewood Street, in the Bay neighborhood of Springfield, October 24.

On the Horizon

- Nov 4-6** New England ISA Annual Conference, Mystic, CT, www.newenglandisa.org
- Nov 6-7** Society of Municipal Arborists Annual Conference, Irvine, CA, www.urban-forestry.com
- Nov 7-8** Partners in Community Forestry Conference, Irvine, CA, www.arboday.org/programs/pcf/
- Nov 8-10** TCIA Expo, Charlotte, NC, www.tcia.org
- Nov 27** MAA Annual Meeting, Framingham, <https://massarbor.org/>
- Nov 28** ISA Exam, Wellesley, www.newenglandisa.org (Must be enrolled in exam by November 8)
- Nov 28** TREE Fund Webinar, Emerald Ash Borer, 2:00 p.m. (Eastern), www.treefund.org/webinars
- Nov 28-Dec 1** ASCA Annual Conference, San Diego, CA, www.asca-consultants.org
- Dec 13** TREE Fund Webinar, Trees and Construction, 2:00 p.m. (Eastern), www.treefund.org/webinars
- Dec 31** Tree City, Tree Line, and Tree Campus USA Applications Due, contact mollie.freilicher@mass.gov | 413-577-296
- Jan 8-9** Mass. Tree Wardens and Foresters Association Annual Conference, Sturbridge, www.masstreewardens.org
- Feb 24-** Municipal Forestry Institute, Silverton, OR, www.urban-forestry.com
- Mar 1** Community Tree Conference, UMass-Amherst
- Mar 5** Western Mass. Tree Wardens' Dinner Meeting, Northampton

The Citizen Forester is made possible through a grant from the **USDA Forest Service Urban and Community Forestry Program** and the **Massachusetts Department of Conservation and Recreation, Bureau of Forestry**.

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www.mass.gov/dcr/urban-and-community-forestry

Charles D. Baker, Governor
Karyn E. Polito, Lieutenant Governor
Matthew A. Beaton, Secretary, Executive Office of Energy and Environmental Affairs
Leo Roy, Commissioner, Department of Conservation and Recreation
Peter Church, Director of Forest Stewardship, Department of Conservation and Recreation

If you have a topic you'd like to see covered or want to submit an item to *The Citizen Forester* (article, photo, event listing, etc.), contact [Mollie Freilicher](mailto:Mollie.Freilicher@mass.gov) or click [here](#).

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