

The Citizen Forester

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NO. 209

Do-it-Yourself Diagnostics

By **Rick Harper** Diagnosing plant problems can be a very broad topic, but here we will outline the process in five general areas:

- Our perspective as tree enthusiasts
- An appreciation for factors outside of our control that impact plant health, like weather
- Our ability to leverage and properly apply diagnostic resources
- Our ability to better “understand the landscape”
- Good record-keeping

Step One: Develop perspective

Perspective is the most important ability that we can take with us into the field when it comes to diagnosing ornamental plant problems. It involves our ability not only to examine the problem close up, looking at signs and symptoms associated with insects or disease, but also to have the ability to step back and consider the broader factors that may impact plant health, like planting location and overall site condition.

Several years ago, when I worked for Cornell Cooperative Extension,

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we were contacted to consult about several Japanese maples located in an interior courtyard at some Brownstone apartments in New York City. When we arrived, we found that although there was natural light in this location, there wasn't a lot of air movement (Photo 1). The landscape architects (and



Photo 1. Japanese maples at brownstone apartments in New York City.

residents) had been really concerned about the trees, as the foliage was looking thin and unhealthy, and the overall appearance of the trees was poor.

Since the trees were enclosed in the courtyard, we were able to take many pictures from various perspectives (i.e., floors/balconies overlooking the planting) and samples. It would have been easy to ascribe a situation like this to some sort of cosmetic pathogen, like a foliar anthracnose, submit plant tissue samples, and await the laboratory diagnosis. But, the perspective of a good diagnostician demanded that we not only look closely at the situation (in this case, the foliage), but that we also consider the whole picture.

When we investigated the base of the trees, for example, we readily noted a right angle (i.e., lack of a flare), which indicated there may be excessive soil on top of the roots. We probed further with surveyor chaining pins in an attempt to locate larger, lateral (i.e., higher order) roots and to further confirm that the trees had indeed been planted too deeply (Photo 2). Unfortunately, we see this situation all too often regarding trees and shrubs in the urban landscape – in fact, over 90% of urban/landscape trees observed (Wells et al., 2006) were identified as suffering from excessive soil on top of the roots. Other factors were also taking place in this situation, including severe over-watering, as well as a layer of moss that had been placed over the soil on these planters. There was little doubt that these saturated, stifling soil conditions impacted the roots' ability to respire. When the broader picture was considered, it was no surprise we found that there was something going wrong with the foliage of these trees. They were symptomatic of larger planting



Photo 2. Looking for larger lateral roots with a surveyor chaining pin.

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and maintenance-related problems.

Step Two: Develop an appreciation for weather

Several resources exist that can help us not only understand how weather impacts plant health, but also can help us better communicate this message to local clients and stakeholders.

Originally developed in the 1800s for maritime use, the Beaufort Scale has application in our industry. It helps to provide an initial understanding relating wind speeds to other observable indicators on sea and on land – including tree-related occurrences ranging from leaf and branch movement, to tree failure (Figure 1).

We should not just consider present weather conditions, but we should be prepared to look back through previous growing seasons for information related to relevant factors like seasonal accumulation of heat (measured as ‘Growing Degree Days’ or GDD) and precipitation levels. The NOAA Precipitation and Temperature maps (link: <https://www.ncdc.noaa.gov/temp-and-precip/us-maps/>) can be very helpful in understanding current and previous growing season information. The growing seasons of 2011 and 2013 for example, were the wettest on record for many of us here in the Northeast since we started taking weather records in the late 1800s. Abundant rainfall may not necessarily be a problem itself, but when the ground becomes saturated and pooling takes place in the landscape, this can very much become a problem for roots of trees and shrubs (Photo 3).



Photo 3. Pooling in the landscape, Dr. Frank Rossi, Cornell University

In addition to some very wet seasons, we have also experienced some very hot growing seasons in recent years. The growing seasons of 2010, 2012, and 2016 were among the hottest we’ve seen in the Northeast. During periods of intense heat – especially when it is coupled with little rainfall – trees and shrubs in the landscape can become very stressed. During some of these seasons, I remember scouting for pests on ornamental trees that had already started shedding their leaves in July! Under these acutely stressful conditions, we need to understand that plants will not necessarily be

Beaufort	Avg. Miles per Hour	Surroundings
0 calm		Smoke rises vertically and the sea is mirror-smooth.
1 light air	1.2-3.0	Smoke moves slightly with breeze and shows direction of wind.
2 light breeze	3.7 - 7.5	You can feel the breeze on your face and hear the leaves start to rustle.
3 gentle breeze	8.0 - 12.5	Smoke will move horizontally and small branches start to sway. Wind extends a light flag.
4 moderate	13.0 - 18.6	Loose dust or sand on the ground will move and larger branches will sway; loose paper blows.
5 fresh breeze	19.3 - 25.0	Surface waves form on water and small trees sway.
6 strong breeze	25.5 - 31.0	Trees begin to bend with the force of the wind and causes whistling in telephone wires. Some spray on the sea surface.
7 moderate gale	32.0 - 38.0	Large trees sway. Moderate sea spray.
8 fresh gale	39.0 - 46.0	Twigs break from trees, and long streaks of foam appear on the ocean.
9 strong gale	47.0 - 55.0	Branches break from trees.
10 whole gale	56.0 -64.0	Trees are uprooted and the sea takes on a white appearance
11 storm	65.0 -74.0	Widespread damage.
12 hurricane	75+	Structural damage on land, and storm waves at sea.

Figure 1. Beaufort Scale. Adapted from [nw3weather](#).

trying to allocate their limited resources to putting on new growth, but that they will prioritize other functions to guard against desiccation and to preserve their limited water resources. We need to be cognizant of this when we are attempting to manipulate plant growth, largely through practices that include the application of fertilizers. After all, we don’t want to “push” plants to grow and potentially stress them further; instead we need to give plenty of thought and consideration to the appropriate timing and amount of fertilizers that we may be applying.

As we are all aware, many parts of the country have been struggling with drought conditions over the past few years. It is easy to think that if it isn’t hot, we are not experiencing a drought; however, the relationship between heat and drought isn’t as direct as one might think. Drought is the lack of available moisture, typically associated with a lack of rainfall. Hence, a drought can occur at various times throughout the year, including the cooler months, and we should be aware of the U.S. Drought Monitor (<http://www.droughtmonitor.unl.edu>). The U.S. Drought Monitor provides readings year-round,

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Do-it-Yourself Diagnostics (cont'd)

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nation-wide. It is updated regularly and is available to anyone with an internet connection.

Weather affects plants and pests in other ways that we may not consider. With the exception of 2017, the Northeast has experienced some very dry weather in the early periods (i.e., the month of May) of the last few growing seasons. This has limited the development of the introduced

Entomophaga maimaiga fungus and minimized its ability to control gypsy moth (*Lymantria dispar*) populations. This is an example of how weather can impact control of an insect by impacting the pathogen that helps to control it. As a consequence, we have seen an abundance of gypsy moth in Massachusetts, as well as in other parts of the Northeast. Since the larvae are voracious eaters, they can defoliate a tree entirely, and oak (*Quercus* spp.) trees in Massachusetts have struggled to re-foliate mid-season amid some very dry conditions.



Photo 5. Proper sample submission to the lab showing an array of transitional phases of disease: one not bad (right), one transitional (left), and one showing a lot of desiccation (center). www.ag.umass.edu.

In addition to phytophthora and verticilium wilt, another pathogen exploiting stressed plants, perhaps in relation to difficult weather conditions, is armillaria root rot (*Armillaria* spp.). The presence of a white mycelial “fan” is diagnostic for this fungus (Photo 4). It also produces honey-colored mushrooms. Although identification is possible for armillaria in the field, the procedure often involves hammering and chiseling away bark at the lower level of the tree. This procedure is highly invasive and damaging to a living tree. In my experience, if the plant is about to die, it may be useful to do this for confirmation.

Step Three: Utilize diagnostic resources correctly
Properly submitting samples to a lab sounds simple, but the quality of the sample can make the difference



Photo 4. Diagnosing armillaria root rot.

between a frustrated diagnostician and a helpful diagnosis. If a sample that you’ve been meaning to get to a lab has sat too long in a plastic bag, other pathogens may develop, or, if left on a shelf or in a fridge for an extended period of time, a sample can dry out. One problem I’ve encountered are samples that sit for a period of time in a post office, perhaps over the weekend, if they are mailed near the end of the workweek. Properly submitted samples should be freshly taken and consist of both healthy tissue and affected tissue that is expedited to a diagnostic lab (Photo 5). To give an idea as to the quantity of plant material, samples should generally be shipped in a gallon-sized, re-sealable plastic bag and be accompanied by photos of the plant, *in situ*. Samples should always include the proper paperwork with information that answers important questions like ‘Where did the sample come from?’ ‘How long has it been experiencing symptoms?’ There have



Photo 6. Sampling soil to the proper depth of six to eight inches.

been numerous situations where I’ve encountered individuals – both homeowners and professionals – who have submitted too little plant material, with almost no helpful information on the accompanying paperwork. In Massachusetts, the UMass Extension Plant Diagnostics Laboratory provides these diagnostic services for a fee. On the lab’s website, you can find additional tips and instructions for submitting samples, including specific forms for submitting samples for trees and shrub diagnostics.

The same principles apply when it comes to the proper submission of a soil sample (Photo 6). A single sample should consist of at least 12 or more sub-samples (i.e., soil cores) from a particular area, typically six to eight inches in depth (15 to 20 cm), mixed together. Areas on a property that feature different ‘physical conditions’ should have a separate soil sample taken. An upland hillside, a poorly drained lowland, or areas that are in full sun or full shade may all require separate soil samples, to get a more accurate picture of the soil on the entire site.

Learning to interpret a soil report is also important, and from a practitioner’s perspective, we can start by examining the four following factors: (i) The soil pH

Do-it-Yourself Diagnostics (cont'd)

helps give us an understanding into nutrient/essential element availability to plants on a given site. (ii) Bulk density (D_b) is a measurement of the weight of soil in a given volume (g/cm^3), hence a higher number indicates a potentially more compacted soil. For example, $2.65 g/cm^3$ is the density of rock.



Photo 7. Soil penetrometer, www.wikimedia.org

Readings of 1.4 to $1.6 g/cm^3$ can be indicative of soil that may limit root development, foster poor drainage, or inhibit oxygen exchange depending on soil texture. To quickly identify potential soil compaction on-site, practitioners should consider investing in a soil compaction tester, commonly called a penetrometer (Photo 7). (iii) Soil organic matter (SOM) is another important component of soil health. Ideal levels of SOM generally range around 5% (3-6%), per the soil test report. (iv) Overall abnormalities are also important to look for, including nutrient reading levels that may be aberrantly high or low.



Photo 9. Salt damage. Riverhead, Long Island, NY. M. Daughtrey, Jan. 2013

antagonism (i.e., allelopathy) among different plant types such as trees and grass, the complexities of the urban environment can make successful growth and development of trees and shrubs challenging. Asking key questions, taking time to learn not only present but past site conditions, applying useful tools, and employing the help of diagnosticians and other experts can be an important part of an effective arsenal of resources. Indicator plants can help to identify moisture or fertility levels (i.e., bentgrass may indicate an excessively moist area or clover may indicate a site with low fertility) and performing a percolation test can help to identify

drainage rates. Arborists should be prepared to encounter and treat both ordinary, and sometimes mundane, issues, like over-mulching around the base of a tree, (Photo 8) and not-so-ordinary scenarios; many of us were surprised, after all, to see widespread salt injury after Hurricane Sandy showered conifers with salt spray a few seasons ago (Photo 9)!



Photo 8. Too much mulch

Step Five: Develop good record-keeping

Finally, we should be ready to learn from our experiences. If experience is the best teacher, the properties, landscapes, and parks that we visit will be the best classroom we'll ever have. Document those experiences by taking careful notes, photographs, and samples. Develop a good library and use this reference material to reinforce the conclusions you may have reached in other similar situations.

References

Wells, C., Townsend, K., Caldwell, J., Ham, D., Smiley, E.T., and Sherwood, M. 2006. Effects of Planting Depth on Landscape Tree Survival and Girdling Root Formation. *Arboriculture & Urban Forestry* 32(6):305–311.

Further Resources

UMass Extension Plant Diagnostic Lab <https://ag.umass.edu/services/plant-diagnostics-laboratory>

Apps:

[Purdue Tree Doctor](#) • [Leaf Snap](#) • [Forest Insect Pests in North America](#)

Books

Insects That Feed on Trees and Shrubs, Johnson and Lyon
Diseases of Trees and Shrubs, Sinclair and Lyons
A Pocket IPM Scouting Guide for Woody Landscape Plants, Michigan State University

Websites

UMass Extension landscape message <http://ag.umass.edu/landscape/landscape-message>

Noah Precipitation Temperature maps; <https://www.ncdc.noaa.gov/temp-and-precip/us-maps/>

U.S. Drought Monitor: <http://droughtmonitor.unl.edu/>

Rick Harper is Extension Assistant Professor in the Department of Environmental Conservation, UMass-Amherst.

Species Spotlight—White oak, *Quercus alba*

By Mollie Freilicher

Hardy in USDA zones three through nine, white oak (*Quercus alba*) is native to the eastern United States and Canada, from southern Ontario, east to southwestern Maine and southeast Quebec, south to northern Florida, and west to east



Texas. White oak naturally occurs in all parts of Massachusetts, and in our urban and suburban areas, it is often planted in parks and in other areas where it will have room to thrive. At maturity, white oak can reach heights of 80-100 feet, with a similar spread. At maturity, it can be quite wide-spreading. Michael Dirr calls this “one of the most handsome oaks.”

Leaves of white oak are alternate, four to eight inches long, half as wide, and have rounded lobes. They are dark green in color above and paler below. Like other oaks, terminal buds occur in a cluster. Individual buds are imbricate and blunt.



White oak is monoecious, with male and female flowers on the same tree. Male flowers are in catkins that hang down, while female flowers occur singly, in the axil. The flowers are not ornamentally important.

The fruit is an acorn, three-quarters to one-inch long. The cap covers one-quarter to one-third of the acorn. The cap, also called an involucre, has raised scales unlike red oak (*Q. rubra*), which has smooth scales.

Like other native oaks, white oak is susceptible to numerous pests and diseases, including anthracnose, powdery mildew, galls, gypsy moth, and others. Even with so many pests, white oak is a long-lived tree. Oak wilt is a disease that is new to the Northeast that will change our management of oaks in our area, perhaps requiring more active management of oaks in urban and suburban areas. To learn more about oak wilt, check out this U.S. Forest Service [factsheet](#).

Historically, wood from white oak was used extensively in shipbuilding, in the construction of whaling boats, and also in farm equipment, oxbows, baskets, spikes, and levers, and for tanning. G.B.

Emerson writes, in 1846, that “[c]arriage and wagon builders use scarcely any thing else for the spokes of wheels.” It was the preferred wood for casks, and Emerson notes that to supply Boston, it came from Mobile, New Orleans, and other cities in the South. Of its ornamental value, Emerson notes that “What has been said of the oak as an ornamental tree, applies especially to the white oak. It is beautiful



in every state of its growth[...]. Let everyone who has an opportunity, plant a white oak.” Emerson writes that because the wood was so valuable, by the 1840s it was difficult to find large trees. He recalls measuring one in Greenfield in 1838 that had a circumference of 15 feet three feet above the ground.



Interestingly, when the Metropolitan Parks Commission, the country’s first regional park

commission, was legally established by the Massachusetts Legislature in 1893, among the first areas preserved was the Waverly Oaks, a stand of white oaks in Belmont.

As a large tree, white oak in urban areas provides many benefits and, as with all large trees, the best thing communities can do is protect them. As to planting new white oak trees, Dirr notes that they can be difficult to transplant and recommends transplanting small trees. Select a large site with moist and well-drained soils and full sun.



References

Dirr, M. A. 1998. *Manual of Woody Landscape Plants*. 5th Ed. Champaign, IL: Stipes.

Emerson, G.B. 1846. *A Report on the Trees and Shrubs Growing Naturally in the Forests of Massachusetts*. Boston: Little, Brown, & Co.

Photos: Leaf, Twig, Bark: Mollie Freilicher; Acorn: [Northern Forest Atlas](#); Form: [Wikimedia](#).

Webcasts and Events

Urban Forestry Today Webcast

December 14, 2017 | 12:00 p.m. – 1:00 p.m. (Eastern)
Pruning Practices to Manage Risk and Enhance Urban Wildlife

Join Mark Reiland, UMass Department of Environmental Conservation, as he outlines how the common practice of urban tree pruning may be used to both mitigate risk associated with urban trees, and impact urban ecology and wildlife concerns in a positive manner.

To attend, www.joinwebinar.com, access code: 491-732-747

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.

Northeast Climate Science Center

Wednesday, December 6, 2017 3:30 p.m. (Eastern)
Engaging managers in forest adaptation science and application in the northern forest region
 Anthony D'Amato, University of Vermont and NE CSC PI

More info on the NECSC [website](#).

Forest Adaptation Planning and Practices: Online Training 2018

The Northern Institute of Applied Climate Science and the USDA Northern Forests Climate Hub is offering the popular Forest Adaptation Planning and Practices training as an online, seven-week course! The winter 2018 course will be held during January 15 - March 2, 2018 with a focus on New England and New York. Find out more at forestadaptation.org.

Consortium for Climate Risk in the Urban Northeast

Green Infrastructure, Climate, and Cities Seminar
 Wednesday, December 6, 2017, 4:00 p.m. (Eastern)
De-Carbonization

For more information, visit: <http://www.ccrun.org/resources/seminars/>

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](#).

Next Webinar:

December 13, 2017 | 1:00 - 2:15 p.m. (Eastern)

Reflections on My Life and Work in Urban Forestry: Past, present, and future

Greg McPherson, USDA Forest Service

Future webinars:

January 10, 2018 | 1:00 - 2:15 p.m. (Eastern)

February 14, 2018 | 1:00 - 2:15 p.m. (Eastern)

To access the webinar, go to <https://www.fs.fed.us/research/urban-webinars/>.

Climate Academy

This eight-week online course is designed to cover the fundamentals of climate science, provide an overview of tools and resources for climate adaptation, and increase climate literacy and communication skills. The course is designed to encourage networking among conservation professionals engaged in the management of fish, wildlife, habitat, and cultural resources and provides participants an opportunity to interact with experts as they address case studies across multiple habitat types. Course cost: \$200. [Find out more](#).

Climate, Megafires, and Conservation Financing

December 11, 2017 1:00 – 2:30 p.m. (Eastern)

Join us in a discussion on how climatic changes can influence wildland fire activity across the globe and how these critical fire weather variables have changed over the last 40 years. Find out more at climatewebinars.net.

Growing on Trees

Harvard Forest Seminars

Seminars are **Thursdays** at 11:00 a.m. Eastern Time, unless otherwise noted. They are held in the Harvard Forest Seminar Room and also can be joined online via webstreaming.



Seminars are free and open to the public; no pre-registration is required.

The full schedule is available here: <http://harvardforest.fas.harvard.edu/seminars>

December 14, 2017

Mapping and monitoring the forests of Southern New England: A Landsat time series perspective – Join seminar online

Valerie Pasquarella - University of Massachusetts

From the New England Wildflower Society

A selection of the upcoming courses offered by the New England Wildflower Society. Course locations vary. Go to <http://newfs.org/learn/our-programs> for details

December 6: [Live Webinar: Choosing Native Shrubs for Your Landscape](#)

January 7: [Conservation Biology](#)

January 13: [Winter Botany](#)

January 20: [Urban Gardening Series: Native Lawn Alternatives](#)

January 28: [Shrubs in Winter](#)

February 3: [Make Life Easier with Living Mulch](#)

February 7: [Understanding and Managing Soils](#)

February 8: [Plant-Soil Interactions: Introduction to Nutrient Cycling](#)

February 10: [Plant Identification Tools and How to Use Them](#)

February 24: [Native Plants for Urban Design](#)

Mass. Tree Wardens' 105th Annual Conference

Tuesday-Wednesday, January 9-10, 2018, Sturbridge Host Hotel, Sturbridge, MA

[Online registration](#) is now available

Keynote Speaker: Don Blair – two presentations! Anatomy of a Catastrophic Rigging Failure | A Condensed History of Arboriculture

Go to the Mass. Tree Wardens' & Foresters' Association [website](#) for details.

Call for Conference Presentation Abstracts

2018 MassDOT Innovation and Tech Transfer Exchange

April 10 -11, 2018 | DCU Center, Worcester, MA

MassDOT encourages Transportation practitioners from federal, state, and local transportation agencies; Metropolitan Planning Organizations; transit agencies; academia; and private industry to submit abstracts on a broad range of innovative surface transportation topics including: Construction/Materials, Planning/Design, Operations/Maintenance, Safety/Mobility, Technology, and Policy. **Deadline is December 22, 2017.** Find out more at

umasstransportationcenter.org.

From the Arnold Arboretum

For additional information on these and other offerings, go to: <https://www.arboretum.harvard.edu/education/adult-education>

Select Saturdays: Arboretum for Educators

December 2: Growing Woody Plants from Hardwood Cuttings

January 11, 18, 25, February 1: Landscape for Life

January 22: Replaying Life's Tape through the Lens of Plants

February 4: Conifers up Close

February 10: Bark: A Multi-Sensory Experience of Trees

February 24: Grafting Woody Plants

February 26: A Field for Women's Work

From the Mass. Tree Wardens' and Foresters' Association—Nominate Your Favorite Tree Warden!

Nominations are now being accepted for the Tree Warden of the Year award, to be announced at the Annual Conference of the Mass. Tree Wardens' on January 9, 2018. **Nominations from any Massachusetts resident are welcome.** Nominate your tree warden today! Deadline: December 1.

You can now complete and submit the [nomination form online](#) OR [download the nomination form](#) and complete and submit it via email or snail mail. Not sure what the award is all about? [Click here for more information.](#)

Growing Greener – in Lynn

Lynn – At a ceremonial planting, Governor Charlie Baker, Energy and Environmental Affairs (EEA) Secretary Matthew Beaton and Department of Conservation and Recreation (DCR) Commissioner Leo Roy, today joined with City of Lynn officials and others to celebrate the planting of the 10,000th tree under the Commonwealth's Greening the Gateway Cities Program. The program, which increases the number of trees within urban neighborhoods, provides energy efficiency and environmental benefits to Gateway Cities across Massachusetts. Since the program's inception, 13 of the state's 26 Gateway Cities have participated. [Read more.](#)

Gleanings

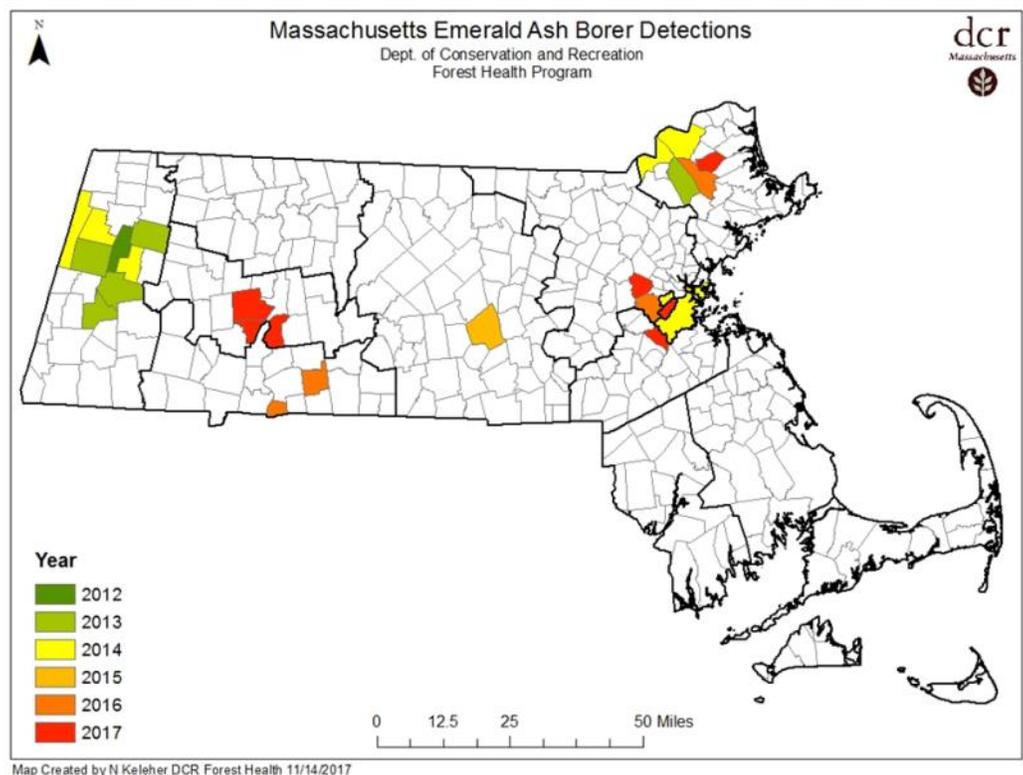
Native Trees Best Support Bird Populations

Newark, DE - A recently published study confirms that native trees are most effective in hosting caterpillars, an important food for birds. The study, focused on yards in the Washington, D.C. metro area, shows that native trees and shrubs were the best producers of caterpillars and other insects that are valuable as food for wild birds. [More](#)

Officials Detect Emerald Ash Borer in Hampshire County for the First Time

Recent monitoring efforts have led to the detection of Emerald Ash Borer (EAB) in Easthampton, Northampton, and South Hadley. EAB can be found in seven counties across Massachusetts. Find out more about this new detection at nepr.net.

Find out more about [EAB](#).



Spotted Lanternfly Found in Delaware

November 20, 2017 — The spotted lanternfly – a destructive, invasive plant hopper – has been confirmed in New Castle County. Delaware is the second state to have found the insect which was first detected in the United States in 2014, in Berks County, PA. The spotted lanternfly has now spread to 13 Pennsylvania counties. This insect is a potential threat to several important agricultural crops including grapes, apples, peaches, and lumber. State plant health and forestry officials are providing information, fact sheets, photographs, and links to other resources at de.gov/hitchhikerbug. Early detection is vital for the protection of Delaware businesses and agriculture. Read the full [release](#) and find out more about [spotted lanternfly](#). It has also recently been detected in [New York](#).



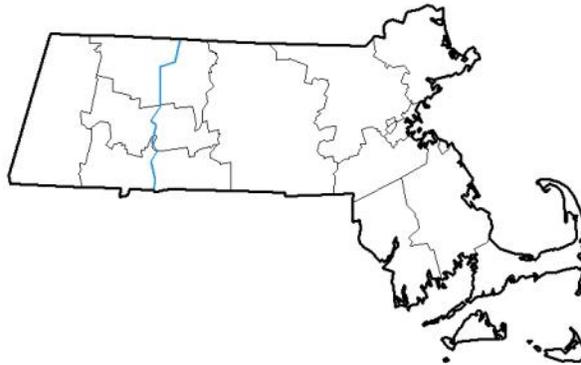
Drought Monitor

Conditions as of November 28, 2017.
Currently, none of Massachusetts is in a drought condition.

Check out the updated drought monitor website: <http://droughtmonitor.unl.edu/>

U.S. Drought Monitor Massachusetts

November 28, 2017
(Released Thursday, Nov. 30, 2017)
Valid 7 a.m. EST



The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

Author:
David Simeral
Western Regional Climate Center



<http://droughtmonitor.unl.edu/>

News

Urban Trees Are Growing Faster Worldwide

November 14, 2017 – Trees in metropolitan areas have been growing faster than trees in rural areas worldwide since the 1960s. This has been confirmed for the first time by a study on the impact of the urban heat island effect on tree growth headed by the Technical University of Munich (TUM). The analysis conducted by the international research team also shows that the growth of urban trees has already been exposed to changing climatic conditions for a long period of time, which is only just beginning to happen for trees in rural areas. Read the full story at phys.org.

Banner Year for Saugus Tree Plantings

By Mike Gaffney
November 14, 2017—More than three dozen trees were planted across town in recent weeks, thanks to the efforts of the Saugus Tree Committee and a Department of Conservation and Recreation grant. This fall, Mercurio Brothers Landscaping completed 30 tree plantings spread between Belmonte Middle School, Laurel Gardens, and Talbot Street. The town, drawing on a portion of DCR’s \$22,500 Urban and Community Forestry Challenge Grant, hired Mercurio Brothers to plant the trees in environmental justice areas, as the grant stipulates. Read the full story at [The Saugus Advertiser](http://TheSaugusAdvertiser.com).

department of Conservation and Recreation

Millions of City Trees at Risk from Rising Temperatures

November 14, 2017 –A new study has found that almost one-quarter of trees in Australian cities are at risk from increasing temperatures in urban environments due to climate change and urban heat islands, posing a threat to some tree species in our cities. Read the full story at phys.org.

News Headlines in Brief

- [Tiny, Stingless Wasp Species Discovered in Maine Oaks](#)
- [A Biologist Believes that Trees Speak a Language We Can Learn](#)
- [Trees Dying All Around Ipswich](#)
- [The Great Ginkgo Leaf Dump Is Here](#)
- [Detroit Will Plant 10,000 New Saplings To Replace Trees Wiped Out by Disease](#)
- [Community Togetherness: Planting an Urban Forest](#)
- [Toronto Is Looking to Transform Its Ravines into a 45,000-Acre Urban Forest Park](#)

On the Horizon

- Dec 1** Deadline to submit nominations for [Tree Warden of the Year](#)
- Dec 13** [Urban Forest Connections Webcast](#), 1:00 p.m.
- Dec 14** Urban Forestry Today Webcast, Pruning Practices to Manage Risk & Enhance Urban Wildlife, 12:00 p.m. www.joinwebinar.com Access code: 491-732-747

Dec 31 **Deadline for Tree City, Tree Campus, and Tree Line USA Applications**, contact [Mollie Freilicher](#) with questions

- Jan 9-10** Mass. Tree Wardens' and Foresters' Assoc. Annual Conference, www.masstreewardens.org
- Jan 10** [Urban Forest Connections Webcast](#), 1:00 p.m.
- Feb 6** Landscape Safety Conference, UMass Extension, Milford, www.umassgreeninfo.org
- Feb 18-23** Municipal Forestry Institute 2018, [Society of Municipal Arborists](#), Litchfield, CT
- Feb 27** Safety Saves and Annual Meeting, Mass. Arborists Assoc., Wellesley and Framingham, www.massarbor.org

- Mar 6** UMass Community Tree Conference, Amherst www.umassgreeninfo.org
- Mar 13** Western Mass. Tree Wardens Meeting, Northampton, www.masstreewardens.org
- Mar 27** Safety Saves and Dinner Meeting, Mass. Arborists Assoc., Wellesley and Framingham, www.massarbor.org
- Apr 7** MCA Exam, Mass. Arborists Assoc., Wellesley, www.massarbor.org
- Apr 27** Arbor Day in Massachusetts



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.

Bureau of Forestry
Department of Conservation and Recreation
251 Causeway Street, Suite 600
Boston, MA 02114

Julie Coop, Urban and Community Forester
julie.coop@state.ma.us, 617-626-1468

Mollie Freilicher, Community Action Forester
mollie.freilicher@state.ma.us, (413) 577-2966

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

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