

The Citizen Forester

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Pollinators in the Urban Landscape I: Importance of Pollinators and Causes of Decline

By Mandy Bayer
and Rick Harper

Some of us may recall widely-publicized pesticide applications that occurred on urban *Tilia* spp. (linden) trees in 2013 and 2014 that were reported to the Oregon Department of Agriculture. In response to these applications that allegedly involved widespread bee-kill, rulings and restrictions followed, prohibiting the application of certain types of systemic insecticides to *Tilia* spp. The ensuing media-buzz, however, ushered in a broader, more widespread discussion about topics directly related to pollinator populations, urban trees, and how we manage our resources in the 21st century as a largely urban populace.

The Importance of Pollinators

Pollinators are animals that assist in the process of pollination in order for plants to reproduce. Pollinators can include bees, butterflies, birds, beetles, moths, flies, wasps, ants, as well as other less common animal pollinators. To understand the importance of pollinators, it is necessary to have an understanding of pollination. There are two types of pollination, self-pollination in which a plant is able to pollinate itself without outside help, and

cross-pollination, which is pollination aided by animals, wind, and water. The majority of pollination is cross-pollination, with animal assistance accounting for around 75% of the pollination that actually occurs. Pollination is necessary for fruit development and seed production and can result in better quality of some fruits. Almost all fruit and grain crops grown in the U.S. require pollination (over 150 crops!), and crops dependent on pollinators are estimated by the USDA to be worth more than \$10 billion per year.

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Pollinator Decline

Pollinator decline is an area of controversy and concern, with the growing consensus being that it is not a singular cause, but a combination of multiple stressors leading to population declines. It is no surprise that pesticides, especially neonicotinoids, are one of the most controversial substances and contributors to the discussion (and potentially decline). The concern with pesticides is two-fold: 1) the direct health implications of pesticides on pollinators, and 2) the use of herbicides in cropping systems, which creates monocultures that poorly support pollinators by reducing the variety of flowering plants in the area. The issue with neonicotinoid insecticides is that they travel systemically throughout the plant, including to pollen and nectar, increasing the likelihood of pollinator contact.

Loss of suitable habitats is another cause of concern. Urbanization and land conversion have contributed to loss of habitat. A combination of habitats is needed for food, nesting and mating areas, and migration. Urbanization has led to the fragmentation of habitats and the disruption of some migratory pathways. Land conversion from diverse natural landscapes to intensive cropping areas that are almost monocultures decreases the variety of pollen and nectar sources for pollinators. Flowers vary in protein content and nutrient composition, so a diet of a singular plant species has the potential to impact pollinator health.

Transportation of bees and an increase of commercial bee colony trade have contributed to the spread of parasites and diseases outside of the normal range. The spread of parasites and pathogens is problematic, because the new host species often lacks resistance, increasing the likelihood of death.

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Pollinators in the Urban Landscape I

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The impact of current and future climate change on pollinators is not yet well understood. Historically, changes in climate have caused the native ranges of plants and animals to shift to where conditions are more favorable. Many plants and pollinators have evolved to have a mutualistic dependency, so with potential range shifts there is concern that plant and pollinators will shift in different directions. Range shifts due to climate change have already been observed with some butterflies. Another concern is the alteration of bloom time and pollinator emergence. Climate change has the potential to lead to earlier warmer temperatures in the spring, which could disrupt the synchronization of flower development and pollinator emergence. There may also be increased potential for flower and bud damage due to increased frequency of late frost events if warmer temperatures come early.

The good news is that urban landscapes, and their affiliated tree and plant populations, have great potential to support pollinators, both as nectar and pollen sources and as pollinator habitats.

Pollinator Highlight: Butterflies and moths
 Butterflies have four life stages: egg, caterpillar, pupa, and adult, all of which have differing habitat needs. There are many habitat options for butterfly eggs, including leaves or branches of various plants and the soil. Larval, or caterpillar, host plants are much more limited (for example Monarch butterflies and milkweed) and need to provide the caterpillar with both food and shelter. At the pupal stage, butterflies need a protected area, such as shrubs, tall grasses, or fallen branches. As adults, butterflies need plants that provide a nectar source. Butterflies are attracted to flowers that are brightly colored, open during the day, and provide a good landing platform. Nectar is usually deeply hidden within the flower; however, butterflies are able to use nectar guides to find nectar. Nectar guides are markings on flowers that are not visible to humans, but can be seen by pollinators and direct them to nectar. While some butterfly species migrate in the winter, others hibernate, requiring leaf litter, bark, or other landscape debris as cover.

Moths can be either nocturnal or day-time pollinators, depending on the type, with the majority being nocturnal and very important for the pollination of night-blooming flowers. They are generally attracted to white or dull-colored flowers that are heavily fragranced.

Plant features for attracting butterflies include:
 Bright-colored flowers
 Wide landing pad
 Tubular flowers

Plant features for attracting moths include:
 Pale/dull-colored flowers
 Strongly sweet fragrance (especially at night)
 Tubular flowers

Larval Host Plants: plants that caterpillars like to feed on

Scientific Name	Common Name	Size	Native
<i>Alcea rosea</i>	hollyhock	5-8'	
<i>Anethum graveolens</i>	dill	3-5'	
<i>Asclepias</i> spp.	milkweed	24-60"	
<i>Artemisia</i> spp.	wormwood	6-36"	
<i>Aster</i> spp.	aster	12-24"	
<i>Carex</i>	sedge	0.5-1.5'	
<i>Echinacea purpurea</i>	coneflower	18-36"	
<i>Panicum</i>	switch grass	2.5-6'	
<i>Petroselinum crispum</i>	parsley	0.5-1'	
<i>Schizachyrium scoparium</i>	little bluestem	2-4'	
<i>Sedum</i> spp.	stonecrop	2-18"	
<i>Viola</i> spp.	violet	4-12"	some
<i>Aesculus glabra</i>	Ohio buckeye	20-40'	
<i>Amelanchier</i> spp.	serviceberry	15-30'	some
<i>Betula</i> spp.	birch	30-70'	some
<i>Carpinus caroliniana</i>	hornbeam	20-35'	*
<i>Ceanothus americanus</i>	New Jersey tea	3-4'	*
<i>Cephalanthus occidentalis</i>	buttonbush	5-12'	*
<i>Cercis canadensis</i>	redbud	20-30'	*
<i>Clethra alnifolia</i> and cultivars	sweet pepperbush/summerweet	2-8'	*
<i>Cornus florida</i>	flowering dogwood	15-30'	
<i>Cornus alternifolia</i>	pagoda dogwood	15-25'	
<i>Fraxinus</i> spp.	ash	35-80'	some
<i>Lindera benzoin</i>	spicebush	6-12'	*
<i>Populus</i> spp.	poplar, aspen	30-80'	some
<i>Quercus</i> spp.	oak	30-80'	some
<i>Rhododendron</i> spp.	rhododendron and azalea	2-12'	some
<i>Rhus</i> spp.	sumac	1.5-30'	some
<i>Sassafras albidum</i>	sassafras	30-60'	*
<i>Salix</i> spp.	willow	20-40'+	some
<i>Syringa vulgaris</i> cultivars	common lilac	3-16'	
<i>Vaccinium</i> spp./cultivars	blueberry	3-12'	*
<i>Viburnum</i> spp.	viburnum	2-20'	some
<i>Ulmus</i> spp.	elm	30-80'	some

Pollinators in the Urban Landscape I

Shrubs and Trees to attract butterflies in the urban environment					
Scientific Name	Common Name	Size	Color	Bloom Time	Native
Shrubs					
<i>Aesculus parviflora</i>	bottlebrush buckeye	8-12'	white	June-July	
<i>Buddleja alternifolia</i>	alternate-leaved butterfly bush	8-15'	lilac purple	May	
<i>Buddleja davidii</i> cultivars	butterfly bush	3-12'	lilac, purple, pink, red, white	June - September	
<i>Ceanothus americanus</i>	New Jersey tea	3-4'	white	May - July	*
<i>Cephalanthus occidentalis</i>	buttonbush	5-12'	white	June	*
<i>Clethra alnifolia</i> and cultivars	sweet pepperbush/ summer-sweet	2-8'	white, pink	July - August	*
<i>Fothergilla gardenii</i>	dwarf fothergilla	1.5-3'	white	April-May	
<i>Kalmia latifolia</i> cultivars	mountain laurel	2-15'	pink, white, multicolor	May - June	*
<i>Kolkwitzia amabilis</i>	beautybush	6-10'	pink	April-May	
<i>Lindera benzoin</i>	spicebush	6-12'	yellow/green	March	*
<i>Rhododendron</i> spp.	rhododendron and azalea				
<i>Syringa vulgaris</i> cultivars	common lilac	3-16'	lavender, purple, white, pink, blue	May	
<i>Vaccinium</i> spp./cultivars	blueberry	3-12'	white	May	*
<i>Viburnum</i> spp.	viburnum	2-20'	white	April - June	some
Trees					
<i>Aesculus glabra</i>	Ohio buckeye	20-40'	greenish yellow	April - May	*
<i>Amelanchier</i> spp.	serviceberry	6-25'	white	April - May	*
<i>Cornus florida</i> and cultivars	flowering dogwood	15-30'	white, pink	April - May	*
<i>Malus</i> cultivars	flowering crabapple	7-30'	white, pink, coral	April - June	
<i>Prunus</i> spp.	cherry, flowering almond	10-40'	white, pink	March - April	some

Sources:

Goulson, D., E. Nicholls, C. Botias, and E.L. Rotheray. 2015. Bee declines driven by combined stress from parasites, pesticides, and lack of flowers. *Science* 26 Feb 2015.

USDA Forest Service. Pollinators. <http://www.fs.fed.us/wildflowers/pollinators/animals/>

USDA Forest Service. Plant Milkweed for Monarchs. http://www.fs.fed.us/wildflowers/pollinators/Monarch_Butterfly/documents/MilkweedInfoSheet.pdf

University of Maine Extension. Landscaping for Butterflies in Maine. <http://umaine.edu/publications/7151e/>

Massachusetts Butterfly Club. <http://www.naba.org/chapters/nabambc/downloads/Butterfly%20gardening%20101%20-%20Western%20Massachusetts.pdf>

USDA Natural Resources Conservation Service and the Wildlife Habitat Council. Native Pollinators. https://plants.usda.gov/pollinators/Native_Pollinators.pdf

UMass Center for Agriculture Food and the Environment. Protecting Bees and Pollinators from Pesticides in Home Gardens and Landscapes. <http://ag.umass.edu/fact-sheets/protecting-bees-pollinators-from-pesticides-in-home-gardens-landscapes>

Missouri Botanical Garden Plant Finder <http://www.missouribotanicalgarden.org/plantfinder/plantfindersearch.aspx>

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Species Spotlight—Hornbeam, *Carpinus caroliniana*

By Mollie Freilicher,
DCR Community
Action Forester

Like many trees, *Carpinus caroliniana* is known by many names: American hornbeam, blue beech, ironwood,

and musclewood. We'll call it American hornbeam here. This member of the birch family is native to the eastern United States, Canada, and Mexico. In its native habitat, American hornbeam grows in the understory of hardwood forests and along streams and rivers. As an understory tree, American hornbeam reaches heights of 20-30 feet, but can grow to 40 to 50 feet (and even higher). It

can have one or more trunks and develops a rounded or flat-topped crown.

Leaves of American hornbeam are alternate, simple, and range in size from 2.5 to 5 inches long and about half as wide. They are elliptical in shape, doubly saw-toothed, with a pointed

tip. They are dark blue-green above and paler below, with hairy veins. In the fall, the leaves turn yellow, orange, and red. The buds are imbricate and small—less than ¼-inch long, pointy, and reddish-brown. Sometimes the

tip of the bud is downy. Twigs of American hornbeam are brown and thin, with a slight zigzag. Bark is smooth, gray, and fluted, giving it a muscly appearance, hence the common name “**musclewood.**” American hornbeam is monoecious—male and female flowers occur on the same plant. Male flowers are 1 to 1.5 inches long, while female flowers are 2 to 4 inches long. The flowers are catkins and

appear early in spring before the leaves. The fruit is a three-lobed, egg-shaped nutlet.

American hornbeam thrives in rich, moist, slightly acidic soils, but it is somewhat adaptable and can grow in full sun or shade. It can also tolerate periodic flooding. It is a great choice for naturalized plantings and shady locations.



Leaf, twig, fruit, bark, and form. Photos by John Seiler, Virginia Tech Department of Forest Resources and Environmental Conservation.

Tree City USA, Tree Line USA, Tree Campus USA 2016 marks 40 years of Tree City USA!

Is your community considering becoming a Tree City USA in 2016?

What better way to observe the 40th anniversary of this national program than by joining the ranks for **the first time or rejoining, if your community's Tree City status has lapsed.**

Or, you can take your program to the *next* level and recognize your community accomplishments through a Growth Award.

Contact mollie.freilicher@state.ma.us or 413-577-2966.



TREE CITY USA



TREE CITY USA

Growing on Trees—Arbor Day Ideas

2016 Arbor Day Poster Contest

“Trees Grow with Us and for Us”

Your school can join us!

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

Each year, over 1,500 Massachusetts fifth graders participate in the Arbor Day Poster Contest. The winners reap rewards including art supplies, ice cream, and a tree for their school. Each year there is a theme for the posters; **the theme for 2016 is “Trees Grow with Us and for Us.”**

The deadline for the 2016 contest is April 1, 2016.

[2016 Arbor Day Poster Contest Instructions \(PDF\)](#)

Questions? Contact Mollie Freilicher at 413-577-2966 or mollie.freilicher@state.ma.us or Julie Coop at 617-626-1468 or julie.coop@state.ma.us

Celebrate Arbor Day!

Friday, April 29, 2016

Looking for ideas on how to celebrate Arbor Day **this year? Here’s how Arbor Day was celebrated** last year in Massachusetts:

- Planting trees at schools, town commons, along streets, and other locations
- Holding a planting ceremony
- Giving away seedlings to students and residents
- [Organizing an Arbor Day of Service](#)
- Arranging an assembly at a local school
- Inviting a speaker to give a public presentation about trees
- **Organizing a “Trees 101” educational event for residents**
- Staging a tree climbing and tree planting demonstration
- Working with a scout troop to plant trees
- Creation of a green classroom
- Holding an Arbor Day Festival
- Participating in the [DCR Arbor Day Poster Contest](#)
- Planting a chestnut orchard.

Mass. Dept. of Agricultural Resources—Arbor Day Idea!

Ash-Tagging

The Mass. Dept. of Agricultural Resources is now offering free Tree-Tagging Kits to interested groups. The kits come with tags printed on durable, high-visibility, green material, flagging tape to tie them onto trees, and a tip sheet to get the most out of your tagging efforts. To submit a request for a free kit, use [this form](#).

Celebrate Arbor Day with tree seedlings!

The Massachusetts Tree Wardens and Foresters Association sponsors an annual packaged seedling program as a popular way to help municipalities, garden clubs, businesses, arborists, and other interested individuals and organizations promote Arbor Day and to raise money for the Mass. Tree Warden Scholarship Fund. Available are a variety of shade trees, ornamentals, and conifers. All seedlings and transplant prices include bags, ties, shipping, and handling. The minimum order is 100 seedlings, and the ordering deadline is April 15, 2016. For more information, go to <http://masstreewardens.org/arbor-day-seedling-program/>.

Arbor Day Grant

New England Chapter-International Society of Arboriculture

The Arbor Day Grant supports small towns and communities that need help to build their Arbor Day programs. This grant awards \$1,000.00 to a town, organization, or community that demonstrates need to promote and support their Arbor Day celebration.

Communities must complete and submit their Arbor Day Grant application by March 25, 2016.

Get more information and download the application at: http://newenglandisa.org/arbor_day_grant.

Growing on Trees—Webinars and Events

Urban Forestry Today

Thursday, March 3, 2016, 12:00-1:00 p.m. ET
The Neonicotinoid Controversy, Dr. Richard Cowles, CT Agricultural Experiment Station
www.joinwebinar.com 124-740-683

These broadcasts are free, and each one will offer the opportunity for arborists to earn 1.0 ISA CEU and 0.5 MCA credit. Part 1 of this tree protection series, along with earlier webcasts can be viewed at www.urbanforestrytoday.org.

For more information, contact: Rick Harper, Department of Environmental Conservation, University of Massachusetts, Amherst, rharper@eco.umass.edu

The Urban Forestry Today 2015 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.

i-Tree 2016 Webinars

Due to overwhelming response, **PRE-REGISTRATION** for the webinar sessions is required in order to deliver the most streamlined attendee experience. - See more at unri.org.

All instructional sessions begin at 1:00 PM (Eastern)

March 16, 2016 -Looking at i-Tree HYDRO
April 20, 2016 – Taking Stock of Street Trees: i-Tree STREETS
May 18, 2015 -Using i-Tree SPECIES
June 15, 2015 – i-Tree Roundtable: Answering Your Questions About Using i-Tree
July 20, 2015 – Introducing i-Tree Landscape
August 16, 2016 – **What's New in i-Tree ECO**
September 20, 2016 – Looking at i-Tree HYDRO
October, 19, 2016 – Using i-Tree DESIGN and CANOPY
November 16, 2016 – Taking Stock of Street Trees: i-Tree STREETS
December 21, 2016 – i-Tree Roundtable: Answering Your Questions about Using i-Tree –

Please visit <http://www.unri.org/itreeworkshops/> to learn more, and to find the log-in details.

Urban Forest Connections

March 9, 2016 | 1:00 - 2:15 p.m. ET

The 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](#).

Monitoring Urban Trees: Survival, growth, and energy-saving performance

Lara Roman, USDA Forest Service

Yekang Ko, University of Texas, Arlington

Pete Smith, Arbor Day Foundation

Evaluating the performance of a tree planting program requires urban tree monitoring and data to help answer a critical question: How many planted trees survived to maturity? This webinar will present monitoring data from shade tree giveaway programs that distribute trees to urban residential yards for energy savings. Research showing a discrepancy between expected and observed performance can help future tree planting programs enhance tree survival and the delivery of desired ecosystem services. [View the webinar notice »](#)

[Connect to the webinar »](#)

Future Webinars

April 13, 2016 | 1:00-2:15 p.m. ET

May 11, 2016 | 1:00-2:15 p.m. ET

June 8, 2016 | 1:00-2:15 p.m. ET

Upcoming Event: Maintenance and Preservation of Mature Trees

March 24, 2016, 8:00 a.m. to 12:45 p.m.

Dartmouth College, Hanover, NH

Sponsored by the New England Chapter-International Society of Arboriculture and Dartmouth College

Cost: \$15 for members; \$50 for non-members (includes New England Chapter membership)

Earn 4.25 ISA Credits, 4 AOLCP CEU's

For more information and to register, go to

www.newenglandisa.org.

Growing on Trees

Tree Wardens, Utility and Commercial Arborists Western MA Tree Wardens Dinner Meeting

March 15, 2016 5:00—7:30 p.m.
Northampton, MA
Registration: \$25

If you're involved with trees in western Mass., you'll want to be there! Networking starts at 5 pm., followed by dinner and a panel of guest speakers sharing strategies about preparing for the coming invasion of emerald ash borer. ISA, MCA, and Pesticide credits have been requested. For more information go to: www.masstreewardens.org

From UMass Extension Sustainable Landscapes Management

March 31, 2016, 9:00 a.m. – 3:30 p.m.
Location: TownePlace Suites, 50 Rosebrook Place, Wareham, MA
Cost: \$85/person, \$76 for 3 or more from the same company. Lunch included in registration fee.
Topics include:

- Including Green Infrastructure Practices in the Landscape
- Establishing a Wildflower Meadow in the Landscape
- Disease Management for Low Input Landscapes
- Managing Weeds Sustainably in the Landscape
- Landscaping with Native Plants

Credits: Two pesticide contact hours for categories 29, 36, and Applicators License. Association credits: 1 ISA, 1 MCA, MCH, 2 MCLP, 4 AOLCP, AND 4.5 SAF.

To register: go to ag.umass.edu/events and for more information, contact Geoffrey Njue, UMass Waltham Center, 781-891-0650 ext.12 gnjue@umext.umass.edu

Harvard Forest Seminars

<http://harvardforest.fas.harvard.edu/seminars>



Seminars are Fridays at 11:00 a.m. (ET), 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.

Friday, March 4, - [Join seminar online](#)
Community Forests: An old idea with new relevance
Rodger Krussman –Trust for Public Land; Julie Renaud Evans –Northern Forest Center and Marcy Lyman –Community Forest Collaborative & Harvard Bullard Fellow

Friday, March 11, 2016 - [Join seminar online](#)-
The terrestrial silica pump – exploring the role of vegetation in altering the flux of Si to the coastal ocean
Robinson W. Fulweiler, Boston University and Harvard Bullard Fellow

Friday, March 18, 2016 -[Join seminar online](#)
Valuation of ecosystem services for environmental decision making in South Florida
Pallab Mozumder, Florida International University

Friday, March 25, 2016 - [Join seminar online](#)
Aging, rejuvenation, and resilience
Peter Del Tredici, Arnold Arboretum and Harvard Graduate School of Design

Evenings with Experts

A Public Lecture Series at the Cambridge Public Library
First Wednesdays of each month, from February through May, 7:00 p.m. — 8:30 p.m.

Cambridge Public Library, 449 Broadway, Cambridge
Doors open at 6:30 pm for general seating. Seating is unassigned and will be available on a first-come basis. Events are free and open to all.

Next session: March 2, 2016

Restoring Nature's Relationships at Home
Douglas Tallamy, Author of Bringing Nature Home; Co-author of The Living Landscape

Growing on Trees

DCR Grants

DCR Urban and Community Forestry Challenge Grants

Next deadline: November 1 (Full Application)

Challenge grants are 50-50 matching grants (75-25 for environmental justice projects) to municipalities and nonprofit groups in Massachusetts communities of all sizes for the purpose of building local capacity for excellent urban and community forestry at the local and regional level.

The USDA Forest Service provides funding for the grant program, and DCR administers the grants with guidance from **the Massachusetts Tree Wardens' and Foresters' Association. The DCR Urban and Community Forestry Program** assists communities and nonprofit groups in their efforts to protect and manage community trees and forest ecosystems, **with the ultimate aim of improving the environment and enhancing the livability of all of Massachusetts's communities.**

For more information on the Challenge Grants, including our Eversource Go Green grants and National Grid Partnership Grants, contact Julie Coop at 617-626-1468 or julie.coop@state.ma.us or Mollie Freilicher at 413-577-2966 or mollie.freilicher@state.ma.us.

Changes to the DCR Urban and Community Forestry Challenge Grant

In 2016, our Urban and Community Forestry Challenge Grant will move to one grant round per year. The annual deadline will be November 1. This move will enable the program to better review and compare grant proposals. Look for some additional changes to the 2016 program in upcoming issues.

MA DCR FY17 Partnerships Matching Funds Program

DCR is now accepting applications for the FY'17 Partnerships Matching Funds Program. The grant program, through which DCR will allocate up to \$1.5 million in matching funds, assists in the financing of capital projects on DCR properties proposed by park advocacy groups, civic and community organizations, institutions, businesses, municipal governments, and dedicated individuals with an interest in improving the Commonwealth's natural, cultural, and recreational resources.

Conceptual applications are due by March 19, 2016. [Project Concept Forms can be completed online](#), and applicants may attach documents to the online application. Read the full [press release](#). For additional information and please contact Lisa Barstow at (617) 626-4954 or Lisa.Barstow@state.ma.us.

Upcoming Eastern Regional Climate Preparedness Conference

Join us in Baltimore's Inner Harbor April 4-6, 2016, for the Local Solutions: Eastern Regional Climate Preparedness Conference. This capacity-building, "how to" conference, convened by Antioch University's Center for Climate Preparedness & Community Resilience in partnership with the U.S. Environmental Protection Agency (EPA), is designed to build capacity for local decision-makers from throughout the eastern United States (EPA Regions 1-4). For more information, go to: <http://www.communityresilience-center.org/conference-2016/>

From Bay State Roads

Check out upcoming workshops: <http://baystateroads.eot.state.ma.us/workshops/>

Complete Streets 101 – Benefits, Eligibility, and Funding (free)

March 1, 2016 • Marlborough, MA

March 2, 2016 • Hyannis, MA

March 16, 2016 • Oak Bluffs, MA

March 17, 2016 • Falmouth, MA

March 18, 2016 • Nantucket, MA

Proposals for Cleaner Water: A Grant-writing Workshop (free)

March 22, 2016 • Taunton, MA

March 30, 2016 • Lawrence, MA

April 7, 2016 • Sturbridge, MA

Find out more at <http://baystateroads.eot.state.ma.us/>

Growing on Trees

2016 UMass Community Tree Conference: Work Safe, Stay Safe

This one-day conference is designed for tree care professionals, volunteers, and enthusiasts, including arborists, tree wardens/municipal tree care specialists, foresters, landscape architects, and shade tree committee members.

The theme of this year's conference is safe work practices. Topics include: OSHA and the Tree Care Industry; Climbing Tips for Long-term Physical Health & Safety; and PPE, Deer Ticks, and Their Management in the Landscape. Registration: The registration rate is \$65 for a single individual, and \$50 for each additional registration from the same company. For more information and to register, go to: <https://ag.umass.edu/events/2016-community-tree-conference-work-safe-stay-safe>

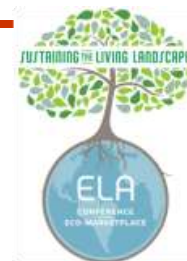
Sponsored by UMass Extension in cooperation with the UMass Dept. of Environmental Conservation, the Massachusetts Department of Conservation and Recreation, and the USDA Forest Service Urban Natural Resources Institute.

New England Society of American Foresters 96th Winter Meeting

March 8-11, 2016, Sturbridge, MA, <http://www.nesaf.org>

22nd Annual Ecological Landscape Alliance Conference & Eco-Marketplace: Sustaining the Living Landscape

March 9 & 10, 2016, UMass Campus Center, Amherst, MA [Learn more and Register Today!](#)



Fall River Urban Forestry Workshop

Thursday, March 10, 2016, 8:30 a.m. to 12:30 p.m.

Location: Hearing Room, City Hall, 1 Government Center, Fall River, MA

This FREE workshop will feature presentations on current urban forestry topics and provide regional updates from area specialists. Topics include planting near utilities, using i-Tree to communicate tree benefits, and preparing for and living with emerald ash borer. ISA and MCA continuing education credits will be offered, and morning refreshments will be served. More information: http://www.frstpp.org/upcoming_events.

2016 Mass Land Conservation Conference— “Managing for Success”

Saturday, April 2, 2016, 8:00 a.m. – 4:00 p.m.

Worcester Technical High School, One Skyline Drive, Worcester, MA

This annual, day-long training and networking event provides an opportunity to participate in a full day of workshops and discussions that focus on fostering healthy communities in MA through land conservation. Join your colleagues in land conservation and acquire the information, skills, and connections you need to be most effective.

Who should attend?

- Land trust board members and staff
- Parks administrators and advocates,
- Federal, state, and local government employees
- Students
- Philanthropists

Find out more: <http://www.massland.org/conference>

Convened by the Massachusetts Land Trust Coalition.

Massachusetts Sustainable Campuses and Communities Conference

April 15, 2016, Hampshire College, Amherst, MA | April 16, 2016, Northampton, MA

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\$20 - \$45 before March 11, 2016 Discount promotional codes at <http://masccc.eventbrite.com> [Register here](#)

Gleanings

New Research: Students Learn Better in Classrooms with Views of Trees

By Jared Green

February 1, 2016—**What if what is outside a school's windows is as critical to learning as what's inside the building?** A fascinating new study of high school students in central Illinois found that students with a view of trees were able to recover their ability to pay attention and bounce back from stress more rapidly than those who looked out on a parking lot or had no windows. The researchers, [William Sullivan](#), ASLA, professor of landscape architecture at University of Illinois at Urbana-Champaign, and Dongying Li, a PhD student there, reported their [findings](#) in the journal [Landscape and Urban Planning](#).

Sullivan and Li argue that "context impacts learning. It is well-documented, for instance, that physical characteristics of school environments, such as lighting, noise, indoor air quality and thermal comfort, building age and conditions all impact learning." However, schools' surrounding landscapes have been too long overlooked for their impact on learning, and it's time to understand what campus greenery — or lack thereof — means for student performance. Research studies to date have had relatively small sample sizes. While these studies point to encouraging correlations or associations between improved student performance and access to nature on campus, up until their study, they argue, no causal connections have been proven. Read the full story at the ASLA blog, [The Dirt](#).

Public Review: ANSI Z133 Standard Revisions and ANSI A300 (Part 11) Draft

Revisions to the [ANSI Z133-2012 Standard for Arboricultural Operations-Safety Requirements](#) and a draft of the [ANSI A300 \(Part 11\) Urban Forest Products](#) are currently available for a 45-day public review period, which began 5 February and will end 21 March 2016. The drafts of both documents and instructions for submitting comments can be found [here](#) (bottom of page).

How Do Trees Survive Winter

Check out this short video on how trees adapted to survive in cold climates. <https://www.youtube.com/watch?v=d260CmZoxj8>



Mapping Website Tells Building Owners if Going Solar is Worth the Cost of Installation

by Rob Matheson

February 5, 2016—MIT spin-out [Mapdwell](#) is answering that question by mapping solar potential for entire cities and providing a cost-benefit analysis for each rooftop. On



Mapdwell's satellite-map website, people can click on an individual roof to receive information about installation price, energy and financial savings, and environmental impact.

The idea is to "empower businesses and homeowners with information they need to go solar," according to the Mapdwell website. So far, Mapdwell has mapped eight cities across the U.S., including New York, San Francisco, and three in Massachusetts—Boston, Cambridge, and Wellfleet—as well as a few cities in Chile. Mapdwell is currently expanding to include all major metropolitan areas in the U.S. by year's end.

Results from mapped cities indicate that, in general, solar panel installation is a "good investment" for long-term homeowners, says co-founder and technology co-inventor Christoph Reinhart, an associate professor of architecture and head of the MIT Sustainable Design Lab. "In Cambridge, for example, a good roof will get you your money back within seven years," he says. Read the

Scholarships

New England Chapter International Society of Arboriculture

Undergraduates and graduate students are invited to apply. Two \$1,500 scholarships are offered for students studying Arboriculture, Botany, Entomology, Horticulture, Plant Pathology, Urban Forestry, or a related field. Applications due April 1, 2016. For complete instructions and eligibility, go to: http://newenglandisa.org/student_opportunities.html.

Mass. Arborists Association \$2,500 Gordon & Frances King Scholarship for UMass and Stockbridge School students, due June 1, 2016. For more details, go to: <http://www.massarbor.org/sections/scholarship.php>

News

Rent an Apartment, Plant a Tree?

By Ely Portillo

January 28, 2016--Developers often face criticism for cutting down trees. Now, Crescent Communities is partnering with TreesCharlotte to launch a new program called "[Tree for a Key](#)," which will donate a tree to be planted every time the company signs a lease at certain properties.

The first apartments to come under the program will be Crescent Dilworth, a 296-unit building on East Morehead Street. TreesCharlotte, a nonprofit working with the city to reach a goal of 50 percent tree canopy cover, said **Tree for a Key will help restore the city's trees.**

"We're excited to partner with Crescent Communities on this bold new initiative," said Dave Cable, executive director of TreesCharlotte, in a statement. "It's refreshing to see a developer and corporate sponsor take an active role in sustainability and plan for the future livability of their communities."

Here's how the program works: Each time a new lease is signed for a Crescent apartment at selected communities, a new tree will be planted. The location will be recorded and accessible on an interactive map, and residents will receive a card explaining the donation. Read the full story at [The Charlotte Observer](#).

Breakthrough Discovery Reveals How Thirsty Trees Pull Water To Their Canopies

January 20, 2016—A scientific mystery about how trees pull water from the ground to their top branches has been solved by an international team of researchers from the University of Leicester and the Queensland University of Technology, Australia. The team, led by Dr Adrian Boatwright, who conducted the research while at the University of Leicester's Department of Chemistry, has examined the phenomenon of water being pulled to the top of tree branches, when [scientific theory](#) says that the maximum height water can be pulled up is 33 feet due to gravity – known as the barometric limit. The researchers have discovered that water can in fact be held in a vacuum for almost indefinite periods of time and even under significant tension without forming bubbles or breaking apart, which helps to explain how trees siphon water to their highest points. Read the full story at [phys.org](#).

In Boston Area, The Bald Eagle Population Is Soaring

By Mark Pratt

February 4, 2016— People spotting bald eagles in the skies over the Boston area aren't hallucinating—there really are more of the majestic birds of prey setting up shop in the urban eastern areas of the state, experts say. There were 51 confirmed territorial breeding bald eagle pairs in Massachusetts last year, the most since they were reintroduced to the state in 1982, said Andrew Vitz, the state Division of Fisheries and Wildlife ornithologist. That includes pairs close to Boston in the towns of Milton, Waltham, Lynnfield, and Framingham, all confirmed in the past year or two. Read the full story at [phys.org](#).

Laser Imaging Helps UNH Researchers See Forest

February 3, 2016—University of New Hampshire researchers are looking at data from laser imaging of forests with the goal of helping foresters and landowners track tree inventories to save them from the time-consuming practice of heading into the woods with tape measures. Mark Ducey of the New Hampshire Agricultural Experiment Station has been investigating how aerial and ground light detection and ranging—better known as LiDAR—can be used to provide more accurate and detailed information about forests. The technology maps three-dimensional land surface elevations. Read the full story at [phys.org](#).

Studying Climate Change Impact on Maple Syrup Quality

by Janet Lathrop

February 10, 2016— As maple sugaring season approaches, plant ecologist Kristina Stinson at the University of Massachusetts Amherst recently received a two-year, \$149,800 grant to study the impact of climate change on the quantity and quality of sugar maple sap, including its chemical composition, and of sap from red maples, a species less sensitive to climate change. The researchers believe is the first study to look at the effect of climate change on [sap](#) quality, that is [sugar content](#) and chemistry, as opposed to flow and volume, and the first to investigate how red maple compares to sugar maple as a source for sap. Stinson and colleagues hope to predict maple syrup quality under future climate conditions and explore a variety of management strategies. Read the full story at [phys.org](#).

On the Horizon

- March [Massachusetts Maple Month](#)
- Mar 3 Urban Forestry Today Webinar, Go to www.joinwebinar.com 124-740-683.
- Mar 8 UMass Community Tree Conference, Amherst, MA, www.umassgreeninfo.org
- Mar 8-11 NESAF 96th Winter Meeting, www.nesaf.org
- Mar 9 Urban Forest Connections Webinar, <http://www.fs.fed.us/research/urban-webinars/>
- Mar 9-10 ELA Conference and Eco Marketplace, Univ. of Mass., Amherst, MA, www.ecolandscaping.org
- March 10 Fall River Urban Forestry Workshop, http://www.frstpp.org/upcoming_events
- Mar 15 **Western Mass. Tree Warden's Dinner Meeting**, Northampton, MA, www.masstreewardens.org
- Mar 16 i-Tree Webcast: DESIGN and CANOPY, <http://www.unri.org/itreeworkshops/>
- Mar 24 **Maintenance and Preservation of Mature Trees**, New England Chapter- ISA, Hanover, NH, www.newenglandisa.org
- Mar 25 Deadline for NEC-ISA Arbor Day Grant, http://newenglandisa.org/arbor_day_grant
- Mar 29 MAA Safety Saves and Dinner Meeting, www.massarbor.org/
- Mar 31 UMass Extension: Sustainable Landscapes Management, Wareham, MA, ag.umass.edu/events
- Apr 1 Deadline: DCR Arbor Day Poster Contest, [2016 Arbor Day Poster Contest Instructions](#)
- Apr 2 Mass Land Conservation Conference, Worcester, MA, <http://massland.org/conference>
- April 12 EPA Green Infrastructure Webcast Series, www.epa.gov
- Apr 13 Urban Forest Connections Webinar, <http://www.fs.fed.us/research/urban-webinars/>
- Apr 20 i-Tree Webcast: STREETS, <http://www.unri.org/itreeworkshops/>
- Apr 22-24 [Northeast Natural History Conference](#), Springfield, MA
- Apr 29 Arbor Day in Massachusetts!
- Oct 14-15 **SAVE THE DATE!** 2016 Tree Steward Training, Petersham, MA



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- Peter Church, Director of Forest Stewardship, Department of Conservation and Recreation

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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.), please contact [Mollie Freilicher](#) or click [here](#).

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