Massachusetts Urban & Community Forestry Program

The Citizen Forester

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The Best Management Practices: Tree Pruning

By **Rick Harper**

Recalling once again that the Best Management Practice (BMP) companion publications are developed by the International Society of Arboriculture (ISA) for application by arborists and urban forestry practitioners to aid in the "interpretation of the professional standards and to guide work practices based on current science and technology," we now examine *Tree Pruning* by Edward F. Gilman, Ph.D. and Sharon J. Lily (2008). ISA developed this guide as a complement to the ANSI A300 (Part 1) Tree, Shrub, and other Woody Plant Maintenance – Standard Practices, Pruning, by the Tree Care Industry Association (TCIA).

This guide commences by discussing the points that pruning can be helpful and beneficial to a tree through "reduced risk of branch and stem breakage, […] enhanced view and increased flowering (p.2),"but also that, if applied incorrectly, pruning may be detrimental to the "health, stability, and appearance (p.2)" of the tree. A lack of pruning may result in the "development of low limbs; weak codominant stems […] included bark; and accumulation of dead branches (p.2)." The guide cites that one of the most common defects in planted trees is the formation of large, low limbs (p.2) and that the removal of limbs once they reach approximately 50% the trunk diameter, is much more likely to initiate decay.

Several other general principles related to pruning are introduced, including that younger trees typically respond more resiliently to pruning, that crown reduction should only be applied judiciously, that crown cleaning may be appropriate even for mature trees, and that topping should be avoided.

Up Ahead:

Before pruning, it is encouraged that pruning objectives are identified – the guide outlines seven of them (p.4 – p.5):

Crossing, rubbing branches may be removed any time.

1. Reduced risk of failure – encouraging a structurally sound, sustainable stem and branch architecture, ideally initiated at planting and carried out through the first 25 years
2. Clearance – directing growth away from an object (building, lights, utilities) of importance
3. Reduce shade and wind resistance – lowering wind resistance and increasing light levels
4. Maintain health – preservation of tree health in medium-to-older- aged specimens but also in younger specimens by removing dead, diseased, and rubbing branches
5. Influence flower or fruit production – impacting the number and/or size of flowers or fruit
6. Improve a view – creating or bettering a view through removal of live branches
7. Improve aesthetics – improving the appearance of the tree(s) in question

Numerous pruning methods are identified in relation to obtaining the pruning objectives (p.6 – p.14):

1. Cleaning – typically on medium-age to older trees, it is the selective removal of dead, diseased, detached, cracked, and broken branches with the purpose of reducing the presence of decay, insects, and disease

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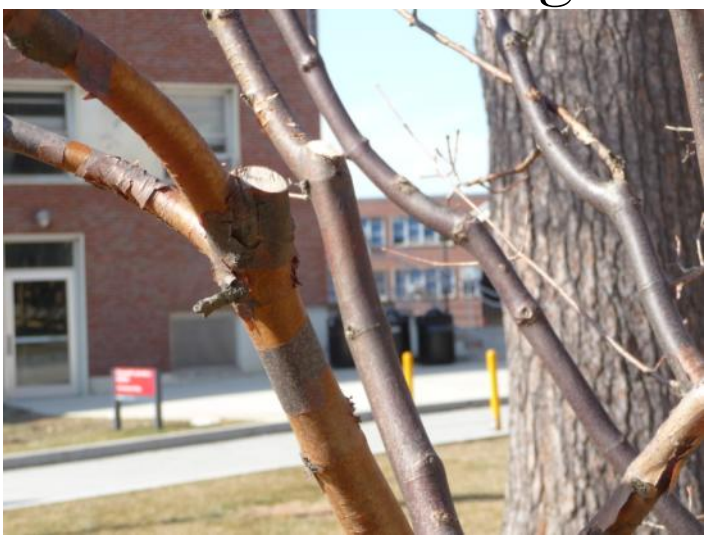
and mitigating the risk associated with branches falling from the tree. **Cleaning does not remove live branches unnecessarily** and usually involves specifying the size of branches to remove (clean branches 1" diameter and larger).

2. Thinning – the selective removal of small live branches, usually at the outside edge of the crown, to reduce crown density and increase both sunlight penetration and air movement. No more than 25% of the foliage should be removed; however, 10% – 15% is more standard.
3. Raising (Elevate, Lift) – the shortening or removal of lower branches to provide vertical clearance; this procedure should leave no less than 50% live crown ratio, when completed.
4. Reduction (Shape, Drop Crotch) – reducing the spread or height of sections of the crown of a tree or shrub on smaller diameter branches (1-4" trees; ¼ - 1" on shrubs).
5. Structural pruning – influence the orientation, spacing, growth rate, attachment, and size of branches and stems on young and medium-sized trees. It includes the reduction or subordination of branches (typically over 15-25 years) to develop a single, dominant leader.
6. Restoration (remedial pruning) – to improve a tree or shrub's form, structure, or appearance through selective branch, stub, or shoot removal, following a storm, vandalism, or poor pruning (e.g., topping)
7. Pollarding – the repetitive pruning, heading back of branches and shoots to a predetermined point; it is often carried out in more formal settings; the guide identifies several types of trees that tolerate pollarding.

There is also some discussion regarding the pruning of palms and conifers (p.16), with cautionary notes, including that conifers shouldn't be pollarded or reduced, but that growth should only be managed by shortening candles and removing older needles, rather than entire branches.

The pruning BMP guide continues with discussion related to specific parts of branch attachment, including the branch protection zone located within the branch collar and the importance of leaving this structure intact when pruning small branches from the trunk. As branches increase in size, especially when they reach 50% or more of the trunk diameter, their ability to form a protection zone diminishes and the tree may be more prone to decay.



Right: Pruning back to a lateral branch after a storm damaged this paperbark maple.

The challenges associated with codominance – two stems of approximately equal size that arise from a single union – like weak unions and opportunity for decay entry if removal cuts take place, are highlighted. In many of these instances, the guide recommends reduction pruning and the potential installation of a support system on larger trees, and limiting removal to smaller, younger trees.

The publication dedicates an entire section to the identification of three major pruning cuts (p. 21-24):

1. Branch removal (thinning cuts) – performing a cut as close as appropriately possible to the point of origin (trunk, parent branch) in an attempt to mimic that natural shedding of a branch. The three-cut method, comprised of an under-cut, top-cut, and final cut just outside the collar of living tissue, may be employed to preclude any tearing as part of the removal of a larger branch or portion of the stem.
2. Reduction cuts – shortening a limb or branch back to a similarly-sized or smaller limb or lateral branch, no less than one-third to one-half the diameter of the removed portion. This is generally applied in structural or reduction pruning, and if the lateral

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branch is less than one-third the diameter of the removed stem, then the cut is considered a heading cut. One cautionary note is that reduction cuts may result in decay behind the cut and larger cuts (more than 2" diameter) on scaffold limbs should be avoided.

3. Heading cuts (topping or lopping cuts) – leave stubs between branches, and though generally discouraged, have application relative to flower removal, fruit production, and aesthetic considerations. Heading cuts are made as part of the commencement of pollarding, and shearing is considered a form of a heading cut.

The guide closes this section by discussing wound dressings and indicating that their use today is neither encouraged nor discouraged.

Though one may often associate the pruning of trees as taking place either before live growth occurs in the spring or at an earlier point in the dormant season, differing strategies include pruning after new shoot growth expansion has taken place to help control plant growth, and pruning after an early-season bloom on last year's growth has taken place to help ensure bloom again next year (e.g., *Prunus* spp., *Malus* spp.). Trees that bloom on this season's growth (*Lagerstroemia* spp., *Tilia* spp.) may best be pruned either before shoot expansion in late winter or after their bloom in summer. Also, the "bleeding" of sap in the spring on specific trees (*Acer* spp., *Betula* spp.) that have been recently pruned is generally considered not to be problematic, but to be cosmetic only. Dying, diseased, broken, rubbing, or dead branches may be removed at any time during the year.

The guide continues with discussion concerning the use of the appropriate, properly maintained (i.e., adequately sharpened, sanitized) tools and closes by outlining properly written pruning specifications:

1. Stating which trees are to be pruned
2. Stating all work shall be performed in accordance with ANSI A300 pruning and ANSI Z133 safety standards
3. Clearly defining pruning objectives
4. Specifying pruning types to be performed
5. Specifying minimum/maximum branch size
6. Specifying maximum percent of live tissue to be removed.

This guide is quick to point out that proper pruning can be advantageous to a tree, but that pruning should be applied in a judicious manner where the removal of excessive amounts of live crown (25%) should generally be avoided (p.25) and that ultimately, since pruning is, in a manner, wounding a tree, it is up to the professional arborist to understand that the tree's ability to compartmentalize a wound relates to not just the health or species of the tree, but also the size and location of the cut.

For more information more about the BMP companion guides, visit: www.isa-arbor.com.

Rick Harper, UMass Department of Environmental Conservation

Arbor Day is Friday, April 28, 2017

How will your community be celebrating?

Species Spotlight—Osage orange, *Maclura pomifera*

By **Ahron Lerman**

The curious and amazing Osage orange (*Maclura pomifera)* tree has had a long history of use by Native Americans and settlers alike for tools, crafts, building material, fiber, and more. The tree's versatility comes from its strength, durability, fast growth, and pollution tolerance—qualities that could allow the tree to continue contributing to the human environment for many more years to come.

Maclura pomifera is known most commonly as Osage orange, but is also known colloquially as mock orange, hedge, prairie hedgeplant, Naranjo chino, bois d'arc, bodark, or bow wood. The tree is a remnant from before the last ice age, when the fruit was thought to be eaten by Pleistocene horses or mastodons. When the tree's natural animal distributors died off, the tree's range shrank from across the continent, to just the Red River watershed in modern Texas, Oklahoma, and Arkansas.

The Osage Nation, whose territory encompassed the entirety of Osage orange's range at the time of European contact, made high quality hunting bows, tomahawks, and knife handles with the wood from the trees. The resulting tools and weapons were extremely high quality and valuable on the early American frontier, with a good bow worth a horse and a blanket, it is said. (The tree's early French name, "bois d'arc"—"bowdark" in English—means "bow-wood".) Osage orange bows were so esteemed and traded so widely, they were used as far away as Ohio by the Shawnee and Wyandotte tribes and in Montana by the Blackfeet Tribe.

Midwestern settlers in the mid-1800s took advantage of the tree's fast and compact growth habit to plant literally tens of thousands of miles of Osage orange as hedge. The resulting hedges were "horse high, bull strong, and pig tight," and they functioned very well for keeping in livestock. However, as hedges expanded, they also dissected the previously open prairie landscape. Ground-nesting birds, like the prairie chicken, especially suffered, as predatory birds and mammals had closer lofts from which to hunt.

Settlers also used Osage orange to craft rugged tools and equipment for traversing the tough, expansive western terrain. Since it's even stronger than the magnificent white oak, and equally as tough as the durable hickory, some of the longest-lasting wagons, wheel stock, railroad ties, pavement blocks, and more were made from Osage orange wood.

But before Osage orange hedges could crisscross the whole continent, barbed wire replaced "hedge" in the 1870s as the preferred fencing material. Ironically, Osage orange branches also make excellent fence posts due to the tree's thin layer of sapwood, resulting in a high proportion of heavily rot-resistant heartwood. According to Jim W. Grace in 1995, Osage orange posts set "two generations ago" were "still standing strong."

With its unprecedented history of utility, it's no surprise that Osage orange is considered one of our toughest and most durable native trees. "It transplants easily, grows very quickly, and is not afflicted with any significant pests or diseases," according to Michael Dirr. "The poorer the site, the better" for this tree, and it "withstands wetness, dryness, wind, extreme heat, acid, and high pH conditions." Because of these qualities, Osage orange is deserving of yet another revival: as a street tree, especially for our most rugged urban spaces.

Above: the young form of 'White Shield' in Ithaca, NY. Photo by: Nina Bassuk via NYSUFC.

Fruitless and thornless varieties of *M. pomifera*, like 'White Shield' and 'Wichita', do *not* grow the large, green, brain-looking fruits which otherwise would develop in the fall on female trees of the straight species. (Allegedly, the slightly fragrant fruits—or an extract derived from them—will keep away cockroaches.) At 20'-40' in height and spread, 'White Shield' and 'Wichita' are appropriate for locations near homes and buildings. The tree grows fast (upwards of 9'-12' over just a 3-5 year period, writes Dirr), is hardy to the colds of zone 4a, suffers from no serious insects or diseases, and is highly-deer resistant. 'White Shield' has "leathery lustrous dark green leaves" (Dirr), and 'Wichita' has a distinctly upright spread and is "better than Bradford Pears but the public

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Growing on Trees

Above: a neighborhood in Ohio fought for the preservation of their row of Osage orange trees. Photo from: Oklahoma State University, via http://shade-trees.tripod.com/families/selections/osage_orange.html.

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will never believe it" (Dirr). The tree has a full canopy of tightly interlacing branches, and its deeply-fissured and ridged bark is reminiscent of black locust. Leaves turn a clear, beautiful yellow to yellow-green in the fall. The tree flowers appear in June and are small and inconspicuous.

As a public tree, Osage orange could be a great selection for downtown plantings, alleès, tree pits (especially for the most difficult of sites), or places looking to add shade quickly. Because of its toughness and utility, the tree could also potentially open up new partners for urban forest management. Artists, craftspeople, and makers of all sorts could use Osage orange as a living canvas, or even a renewable product.

Imagine a city collaborating with artists and arborists to create Osage orange topiary out of street trees in front of restaurants and storefronts downtown. Or, as a renewable urban resource, the tree could be harvested on a multi-year cycle and its wood fashioned into beautiful, sustainable, high-quality tools and crafts. Who doesn't think hipsters in Somerville or Brooklyn (or Holyoke!) couldn't come up with an artisan, hyper-local product out of the wood? Osage orange benches, built right where the wood grew (and tree continues to grow)? How about a super-strong, custom-made Osage orange bicycle?! Imagination and innovation await for this tree.

With (urban) populations growing, budgets tightening, and a climate run wild, a tree with as many uses as Osage orange should be grown more widely in our urban spaces: as a single-stem tree in tree pits, belts, and lawns; as a renewable resource to be transformed into tools, art, and infrastructure; and as a way to continue engaging and educating the public about the value of urban forestry.

Above: a beautiful Osage orange bench, from The Wood Whisperer.

Works Cited

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Pair, John C. "Magnificent Maclura: Past and Present" *Arnoldia,* vol. 52, num. 3, fall 1992, pp. 14-19

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Ahron Lerman is an Urban Forester
DCR Greening the Gateway Cities Program

Growing on Trees

Grants

DCR Urban and Community Forestry Challenge Grants

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.

Project areas include:

- Building and Strengthening Citizen Advocacy and Action Organizations
- Securing or Training Professional Staff
- Developing and Implementing Systematic Urban Forestry Management through tree inventory and analysis, resource assessment, and development of plans
- Attaining a Tree City USA Award, Growth Award, Tree Campus USA Award, or Tree Line USA Award
- Completing strategic community tree plantings and "heritage" tree care projects
- Other projects

NOTE: In 2016 we implemented new guidelines for strategic planting grants.

Grant Funding Request	Eligibility
$1,000 - $7,000	All communities may apply
$7,001 - $20,000	Community must be a Tree City USA
$20,001 - $30,000	Contact DCR Urban and Community Forestry to discuss

Start planning for the next round! Read the complete guidelines and download the news application at: http://www.mass.gov/eea/agencies/dcr/conservation/forestry-and-fire-control/urban-and-community-forestry-challenge-grants.html.

For more information on the Challenge Grants, including our National Grid Partnership Grants and Eversource Go Green 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.

UMass Summer College—Sustainable Tree Care Program for High Schoolers

Scholarships available! For the past three summers, UMass and Stockbridge have offered a "pre-college" course in Arboriculture & Urban Forestry for high school students. In the course, students get an overview of the Arboriculture & Urban Forestry curriculum that two- and four-year students at Stockbridge and UMass take. The course will run for one week (35 hours of training—in the classroom and in the field) in July 2017. Find out more here or contact Brian Kane bkane@eco.umass.edu.

Growing Greener—in Fall River

On March 22, Fall River hosted its annual spring urban forestry workshop. The workshop was organized by Elizabeth McKinley, arborist with the Davey Resources Group, in cooperation with Mary Ann Wordell and the Fall River Street Tree Planting Program. This year's session featured a variety of topics and speakers, and attendees came from Fall River, New Bedford, Providence, Somerville, and other communities.

Elizabeth started off the day with a presentation on tree benefits. Mary Ann Wordell took a few moments to tell the story of her longtime involvement with trees in Fall River and to talk about the great progress that has taken place in the realm of trees in the city (in no small measure because of her advocacy and that of the Fall River Street Tree Planting Program). In Andrew Hillman's presentation, *Diversify Now*, he discussed looking southward to species not commonly planted in the north, but that are hardy enough to survive, particularly in warmer microclimates. Some species he discussed were hardy pecan (*Carya illinoinensis*), Persian parrotia (*Parrotia persica*), and southern magnolia (*Magnolia grandiflora*). Years ago, as city forester in Ithaca, NY, Andy planted a number of 'Edith Bogue' southern magnolias as street trees and has lost only two!

Chance Perks and Justin Ohlson presented on New Bedford's urban forestry program, including an initiative of the mayor to plant 500 trees a year. They also discussed using i-Tree to help advocate for city trees. Nicole Keleher, from DCR Forest Health, provided an update on pests and diseases in Massachusetts forests, including a composite map showing mapped damage going back to 1936. Southeastern Mass was one of the hotspots that had many defoliation events since then. Following Nicole, Mollie Freilicher presented on Forest Pest Planning and discussed how communities are managing the threat of emerald ash borer. The day ended with Jason Veil of the Trustees of Reservations presenting on the importance of good nursery stock (and where it comes from) and on the Trustees' management of botanical collections at some of its properties.

Some images from the workshop appeared in the *Fall River Herald* at heraldnews.com.

Growing on Trees

Celebrate Arbor Day with 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 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, 2017**.
For more information, go to http://masstreewardens.org/arbor-day-seedling-program/.

Conservation District Seedling Sales

Massachusetts Conservation Districts sponsor spring seedling sales to raise money for district programs. Conservation districts work with the Natural Resource Conservation Service to protect soil and water resources across counties in Massachusetts. They often sell a variety of trees and shrubs in small sizes. Below are links to some of the conservation districts that have held seedling sales in Massachusetts.

Berkshire Conservation District: www.berkshireconservation.org.
Pioneer Valley Conservation District: http://pioneervalleyconservation.org/events.php
Worcester County: **http://worcesterconservation.org/buy-seedlings/**
Middlesex County Conservation District: http://middlesexconservation.org/?page_id=38

Growing on Trees—Webcasts

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.

Smart Growth for Dallas: Leveraging GIS and local partnerships to drive urban forestry investments toward climate equity
April 12, 2017 | 1:00-2:15 p.m. (Eastern)

Jad Daley, The Trust for Public Land
Robert Kent, The Trust for Public Land
Matt Grubisch, Texas Trees Foundation

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

Future webinars:
May 10, 2017
June 14, 2017
July 19, 2017 – Third Wednesday this month!

Tree Fund Webinar

Tree Risk Assessment – Perceptions, Reality, and Reliability
April 13, 2017 | 1:00 p.m. EDT
Andrew Koeser, University of Florida

Tree risk assessment is a very human endeavor. Did you know that the arborist assessing a tree for safety can have more impact on the final rating than the tree itself? This webinar highlights sources of variation and potential bias when rating a tree's likelihood of impact, likelihood of failure, and consequences of failure. Opportunities for making risk assessment more repeatable while avoiding false precision in risk assessment are discussed. This webinar is free and will have CEUs available.

Log in at treefund.org on April 13.

Future webinar: June 21 at 2:00 pm EDT, Dr. Susan Day (Virginia Tech) on soil profile rebuilding – hosted by USUFE

Urban Forestry Today Webcast

Urban Trees and the Law
April 13, 2017 | 12:00 p.m. (Eastern)

Attorney Julie Steiner, Professor of Law, Western New England University.

Go to www.joinwebinar.com and enter the ID code: 473-592-579. www.urbanforestrytoday.org

The Urban Forestry Today 2017 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.

Harvard Forest Seminar Series

Seminars are Fridays at 11:00 a.m. Eastern Time, unless otherwise noted. They are held in the Harvard Forest Seminar Room at Harvard Forest in Petersham, MA, and also can be joined online via webstreaming. Seminars are free and open to the public; no pre-registration is required. See the full schedule at http://harvardforest.fas.harvard.edu/seminars.

Friday, April 14, - *SEMINAR TO BE HELD AT UMASS*
Peggi Clouston – University of Massachusetts
'High-tech timber'

Friday, April 21, - Join seminar online
Jessica Corman – University of Wisconsin-Madison
Carbon... and what else? Consequences of browning to nitrogen and phosphorus cycling in lakes

Friday, May 5, - Join seminar online
J. Morgan Varner – United States Forest Service
Flammability of North American woodlands and forests

Northeast Climate Science Center

April 12, 2017 | 3:30 p.m. Drought in the Northeast and Implications for Ecosystems Keith Nislow, US Forest Service, UMass Amherst and Northeast Climate Science Center

Growing on Trees

From the EPA's Clean Water State Revolving Fund Branch and the USDA Forest Service National Urban Forest Technology & Science Delivery Team

Sponsorship: A Unique Tool for Funding Land Conservation Projects with the CWSRF
April 13, 2017, 1:30 – 3 p.m. (Eastern)
Connect to the webinar at: to
https://usfs.adobeconnect.com/spf-ucf/

Questions about this webinar should be directed to Kelly Tucker, tucker.kelly@epa.gov.

Forestry and Natural Resources Webinar

Southern Pine Beetle Biology, Ecology, and Management
Apr 19, 2017 1:00 – 2:00 p.m. (Eastern)
This webinar will cover basic biology, ecology, and management of the southern pine beetle (SPB). While the focus of the webinar will be the southeastern U.S., attention will be given to the recent encroachment of SPB into the northeastern states.
http://www.forestrywebinars.net

From the Arnold Arboretum

The ARNOLD ARBORETUM of HARVARD UNIVERSITY

Find out more and register at: http://www.arboretum.harvard.edu/education/adult-education/
(Click "list of classes" at left.)

Upcoming lectures and programs:
Seed: The Untold Story (movie night)—April 4
The Songs of Trees – April 12
The New American Chestnut – April 17
The Genius of Birds – April 18
Conifer Pollination: Sex among Evergreens – May 3
Witness Tree: A Year in the Forest – May 5
Hope in a New Ecology – May 31
ID the 25 Most Common Trees in Boston – June 11
Warren Manning: Landscape Architect and Environmental Planner – June 15
In the Groves – June 16 or June 17 (two sessions)

From the New England Wildflower Society

NEW ENGLAND WILD FLOWER SOCIETY

Some selected upcoming courses are below. For the complete listing, go to: http://www.newfs.org/learn/our-programs

- Arbor Day Celebration and Tree Giveaway – April 30, Framingham
- Ice Ages, Climate Change, and Boston's Earthquake Problem – May 4, Framingham
- Plant Identification Tools and How to Use Them – May 6, Framingham
- Wild Edibles Walk – May 24, Lincoln
- Rain Garden Fundamentals – June 4, Framingham
- Wetland Shrubs – June 10, Framingham

Help Improve i-Tree

i-Tree

This past fall, we asked our users to help us improve our services and share their experiences by answering some questions in a brief survey. We appreciate the valuable responses that we received, but we know that not all of you had a chance to get back to us. So if you missed it the first time, here is your chance to lend a hand. By answering the questions that you will find through the link below, you will be helping to ensure that the i-Tree Tools and our technical support services are meeting your needs. Thank you for your continued support.
Survey Link >

Growing on Trees

From UMass Extension

To register or find out more about these and other programs, go to: http://ag.umass.edu/landscape/upcoming-events

UMass Earth Day & Arbor Day Celebration with Dr. Michael Dirr
Friday, April 21, 2017 – 2:00 p.m. – 3:00 p.m., Design Building, UMass-Amherst

UMass Earth Day & Arbor Day Celebration with Dr. Michael Dirr
Saturday, April 22, 2017 – 8:00 a.m. – 11:45 a.m.

Memorial Tree Planting for Prof. Gordon King - Everyone welcome!
Saturday, April 22, 2017 - 1:00 p.m. - Durfee Conservatory, UMass Amherst

Spring Blooming Tree and Shrub ID Walk
Wednesday, May 10, 2017 - 3:00 p.m. to 5:00 p.m., Bowditch Hall, UMass Amherst

Landscape Pests and Problems Walkabout - Insects, Diseases and Weeds
Thursday, May 18, 2017 - 5:00 p.m., Stanley Park, Westfield

Weed Walkabout
Thursday, June 8, 2017 - 4:00 p.m. – 6:00 p.m., Bird Park, Walpole

Landscape Pests and Problems Walkabout - Insects, Weeds and Cultural Problems
Thursday, June 15, 2017, 5:00 p.m. – 7:00 p.m. Long Hill, Beverly

Topics in Landscape IPM
Thursday, June 22, 2017 - 8:30 a.m. – 12:30 p.m., Milford

Announcing Municipal Forestry Institute (MFI) Canada 2017

MFI Canada is an exciting, high-level training opportunity educating professionals in the leadership and managerial aspects of urban forestry. This week-long intensive educational program delivers a challenging opportunity to grow a more successful community tree program. Come learn and master leadership and management tools of program administration, coalition building, strategic thinking, program planning, and public relations by investing a week in your personal growth and development. Join us for MFI Canada 2017, October 15-20, NAV Center, Cornwall, Ontario, Canada! [Just a 6-hour drive from Boston!]

From the Massachusetts Arborists Association

www.massarbor.org

April 7, 2017 - MCA Exam at Elm Bank, Wellesley MA. Pre-registration is required.

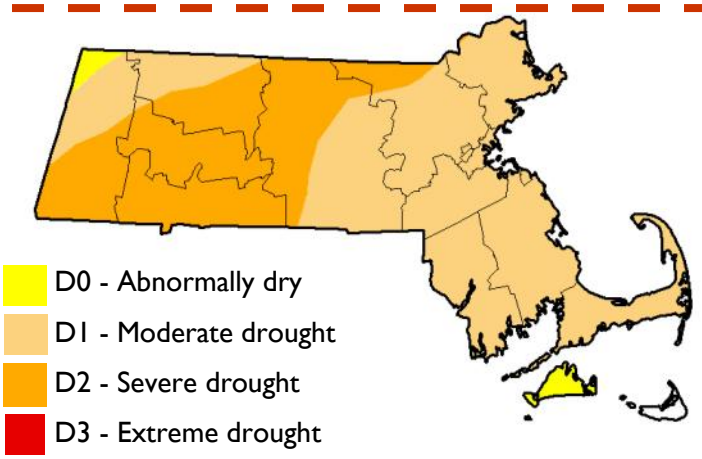
April 28, 2017 - MAA's Arbor Day of Service - statewide.

Drought Monitor

Conditions as of March 28, 2017. Check out drought conditions in Massachusetts, New England, and the U.S. Almost all of Massachusetts is still in drought, but none of the state is in "extreme drought" at this point, and the percentage of the state categorized as "severe drought" has dropped to 15%.

http://droughtmonitor.unl.edu/

Massachusetts drought resources may be found here: http://drought.unl.edu/Planning/DroughtPlans/StatePlanning.aspx?st=ma



Gleanings

Teenager Is on Track to Plant a Trillion Trees

By **Laura Parker**

March 7, 2017—Children are not often invited to speak to the United Nations General Assembly. But there stood Felix Finkbeiner, German wunderkind in his Harry Potter spectacles, gray hoodie, and mop-top haircut—with a somber question about climate change. "We children know adults know the challenges and they know the solutions," he said. "We don't know why there is so little action."

The children came up with three possible reasons to explain the lapse, he said. One is differing perspectives on the meaning of the word "future."

"For most adults, it's an academic question. For many of us children, it's a question of survival," he said. "Twenty-one hundred is still in our lifetime."

Another explanation is climate denial. The third possibility can be glimpsed in an animal parable about monkeys that made an especially sharp point in the way that only a child delivering the message can. Read the full story at nationalgeographic.com.

Recently in *Arnoldia*

Tracking the Seasonal Rhythms of Boston Common Trees

By **W. Wyatt Oswald** and **Andrew D. Richardson**

New England's deciduous forests undergo dramatic seasonal changes. New leaves emerge from protective buds as winter gives way to spring, green trees conceal the landscape and cast deep shade during the height of summer, and glorious fall foliage senesces as autumn yields to the snows and bitter cold of winter. But how much do these seasonal transitions vary from year to year? We are exploring this phenological question through detailed observation of a setting familiar to many New Englanders and visitors alike—the Common in downtown Boston. Since mid May of 2010, a digital camera mounted on the roof of the ten-story Walker Building, overlooking the Boston Common from the campus of Emerson College, has taken photos at thirty-minute intervals of a tree-covered area on the east side of this historic park. Read the full story at *Arnoldia*.

Unlocking Ancient Environmental Change with the Help of Living Trees

By **John M. Marston**

With both human societies and ecosystems worldwide now facing ongoing, and even accelerating, environmental change, both scholars and policy makers are increasingly concerned with predicting the future implications of climate change. Where will our coastlines, tree lines, and urban boundaries lie in 50 or 100 years? How will changes in the seasonality and intensity of precipitation, frosts, and heat waves affect the plants and animals on which we rely for food? And, most important, what are the consequences for us? One avenue for understanding human responses to dramatic environmental and climatic change is to look to the past when societies faced similar periods of rapid change. Read the full story at *Arnoldia*.

Some Early Research on Climate Change and Soil

By **Rachel Sargent** Outside Story

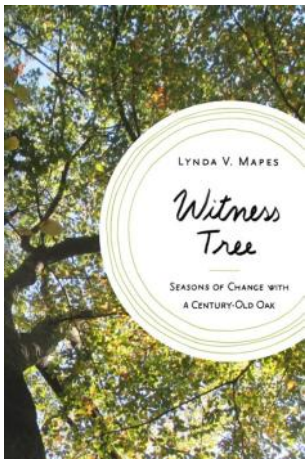
March 13, 2017—For many of us, winter in the Northeast means cold temperatures and piles of snow, drifting through forests and across fields. It's hard to imagine that winter here could be different, but the prospect of climate change has scientists asking just what our winters might look like in the future – and how those changes might influence forest ecology.

At the U.S. Forest Service's Hubbard Brook Experimental Forest, scientists are thinking about the year 2100. How much warming will occur isn't certain, but some projections suggest that average air temperatures in our region may increase 5.5 to 9 degrees over the course of this century. Read the full story at Northern Woodlands.

Gleanings—New Books

Witness Tree: Seasons of Change with a Century-Old Oak

By **Lynda V. Mapes**



An intimate look at one majestic hundred-year-old oak tree through four seasons--and the reality of global climate change it reveals. In the life of this one grand oak, we can see for ourselves the results of one hundred years of rapid environmental change. It's leafing out earlier, and dropping its leaves later as the climate warms. Even the inner workings of individual leaves have changed to accommodate more CO2 in our atmosphere.

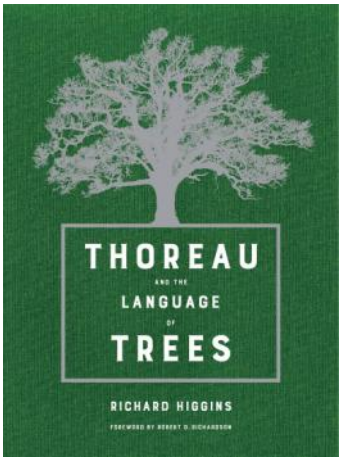
Climate science can seem dense, remote, and abstract. But through the lens of this one tree, it becomes immediate and intimate. In *Witness Tree*, environmental reporter Lynda V. Mapes takes us through her year living with one red oak at the Harvard Forest. We learn about carbon cycles and leaf physiology, but also experience the seasons as people have for centuries, watching for each new bud, and listening for each new bird and frog call in spring. We savor the cadence of falling autumn leaves, and glory of snow and starry winter nights. Lynda takes us along as she climbs high into the oak's swaying boughs, and scientists core deep into the oak's heartwood, dig into its roots and probe the teeming life of the soil. She brings us eye-level with garter snakes and newts, and alongside the squirrels and jays devouring the oak's acorns. Season by season she reveals the secrets of trees, how they work, and sustain a vast community of lives, including our own.

The oak is a living timeline and witness to climate change. While stark in its implications, *Witness Tree* is a beautiful and lyrical read, rich in detail, sweeps of weather, history, people, and animals. It is a story rooted in hope, beauty, wonder, and the possibility of renewal in people's connection to nature.

Find out more at Bloomsbury.com.

Thoreau and the Language of Trees

By **Richard Higgins**



Trees were central to Henry David Thoreau's creativity as a writer, his work as a naturalist, his thought, and his inner life. His portraits of them were so perfect, it was as if he could see the sap flowing beneath their bark. When Thoreau wrote that the poet loves the pine tree as his own shadow in the air, he was speaking about himself. In short, he spoke their language.

In this original book, Richard Higgins explores Thoreau's deep connections to trees: his keen perception of them, the joy they gave him, the poetry he saw in them, his philosophical view of them, and how they fed his soul. His lively essays show that trees were a thread connecting all parts of Thoreau's being—heart, mind, and spirit. Included are one hundred excerpts from Thoreau's writings about trees, paired with over sixty of the author's photographs. Thoreau's words are as vivid now as they were in 1890, when an English naturalist wrote that he was unusually able to "to preserve the flashing forest colors in unfading light." Thoreau and the Language of Trees shows that Thoreau, with uncanny foresight, believed trees were essential to the preservation of the world.

Text from the Univ. of California Press.

Find out more at University of California Press. Release date: April 2017.

News

Tree Scars Record 700 Years of Natural and Cultural Fire History in a Northern Forest

March 1, 2017—Distinguishing human from climatic influence on historical fire patterns is critical to forest management planning, which is guided by historical patterns of fire frequency, size, and intensity. A Norwegian forest tells a story of a surge in human-instigated fires during the 17th and 18th centuries, followed by fire suppression after AD 1800, as economic motivations changed. Read the full story at Science Daily.

Historic Cultural Records Inform Scientific Perspectives on Woodland Uses

February 22, 2017—Scientists have investigated how cultural records dating back 300 years could help improve understanding of the ways in which science interprets the many uses of woodland areas. Read the full story at Science Daily

Early Action Advised As Gypsy Moth Eggs Take Hold

By **Cyrus Moulton**

February 4, 2017— Belchertown - The enormous oak at Quabbin Reservoir looked like it had butterscotch candies melted onto its bark, which had grown fuzzy with mold. But they weren't candies, they were gypsy-moth egg masses; and foresters are saying their prevalence signals another bad year for gypsy moth defoliation.

"What we see in areas is a lot of egg masses," said Ken Gooch, director of the Forest Health program at the Massachusetts Department of Conservation and Recreation. "We're predicting that the defoliation will be as bad as 2016, if not worse."

Read the full story at Telegram.com.

Many Tree Species in Eastern US May Be Unable To Adapt To Changing Climate, Study Finds

Evidence continues to mount for the toll climate change is taking on the ecosystems of the United States' national parks and forests from coast to coast. The latest study, published in Global Change Biology by researchers at Woods Hole Research Center in Massachusetts, predicts that warming temperatures across the eastern United States will alter the distribution of a range of tree species, leaving many too vulnerable to adapt to changing conditions. Of the 40 tree species studied, those found most at-risk are balsam fir, quaking aspen, and others related to northern spruce-fir and hardwoods.

Read the full story at Mongabay.

State Grant to Help Fight Invasive Kiwi

By **Stephanie Zollshan**

February 4, 2017—The state has awarded $140,000 in grants to several Berkshire County towns and organizations to support wildlife habitat improvement projects. Recipients include the town of Lenox to help fight an infestation of invasive hardy kiwi plants in Kennedy Park. Also receiving state funding are the Trustees of Reservations for work in Sheffield, MassAudubon for a project in Otis, The Nature Conservancy for wetland and grassland protection in Sheffield, and the Berkshire Natural Resources Council for invasive plant control and other work in Dalton and Hinsdale. Read the full story at berkshireeagle.com.

VIDEO: Volunteers Clean up Debris Left by Conway Tornado

By **Andy Castillo**

March 1, 2017— Conway — More than 30 volunteers garbed in gloves and boots trudged through Pumpkin Hollow Wednesday retrieving broken boards, siding, and shingles left by Saturday's tornado.

The debris were scattered across roughly 11 acres of saturated ground. "It's one thing to deal with your barn, but then to walk into your yard and see trash scattered everywhere, that would be daunting for me," said Will Anderson, head land steward at the Franklin Land Trust, which organized the cleanup event. The storm was "tragic to those who see their favorite trees now gone from the landscape, and certainly to those whose houses (were damaged)," Anderson said. Read the full story and watch the video at recorder.com.

News Headlines in Brief

Gnarled Polish tree that two Jewish brothers hid inside to escape the Nazis is named European Tree of the Year 2017

From Tree to Tipoff

Safety Concerns After Driver Killed by Falling Tree in Oxford, MA

Tree on a Chip Could Lead to Sugar-Powered Robots

Asheville, NC Aims to Plant Trees at Every Park

Where Will All The Ash Trees Go?

Researchers: Hemlock Trees in Trouble as Winters Warm

On the Horizon

Apr 4	Webinar: Drought and Forest Ecosystems, 2:00 p.m. (Eastern) http://www.climatewebinars.net/webinars/drought-forest-ecosystems
Apr 7	MCA Exam at Elm Bank, Wellesley MA. Pre-registration is required. www.massarbor.org
Apr 12	Webinar: Drought in the Northeast and Implications for Ecosystems, https://necsc.umass.edu/webinars/drought-northeast-and-implications-ecosystems
Apr 12	Urban Forest Connections Webcast, https://www.fs.fed.us/research/urban-webinars/
Apr 13	Urban Forestry Today Webcast, **Urban Trees and the Law**. 12:00 (Eastern) Go to www.joinwebinar.com and enter the ID code: 473-592-579.
Apr 13	Tree Fund Webinar, **Tree Risk Assessment**, :00 p.m. (Eastern) www.treefund.org
Apr 13	Clean Water State Revolving Fund and USDA Forest Service webcast, 1:30 p.m. (Eastern), https://usfs.adobeconnect.com/spf-ucf/
Apr 19	Webinar: Southern Pine Beetle Biology, Ecology, and Management, 1:00 p.m. (Eastern)
Apr 21-22	UMass Earth Day & Arbor Day Celebration with Dr. Michael Dirr, UMass Extension , Amherst
Apr 28	**Arbor Day in Massachusetts**
Apr 28	Mass. Arborist Association's Arbor Day of Service - statewide. www.massarbor.org
Jun 7	**Tree City, Tree Campus, and Tree Line USA Forum and Award Ceremony, Arlington—More info to follow**

Want to find out how **your community** can become a Tree City USA? Contact Mollie Freilicher, mollie.freilicher@state.ma.us, 413-577-2966

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

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 or click here.