Massachusetts Urban & Community Forestry Program

The Citizen Forester

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MA Department of Labor Standards: Information for Massachusetts Tree Wardens

By **H. Dennis Ryan**

The ANSI Z-133 is the safety standard of the tree care industry for both commercial and municipal entities. While the Z-133 standard stands alone, it does work in conjunction with the Occupational Safety and Health Act of 1970. Section 5(a)(1) of that Act reads, "Each employer - (1) shall furnish to each of his employees employment and a place of employment which are free from recognized hazards that are causing or are likely to cause death or serious physical harm to his employees."

Section 5(a)(1) is a general duty clause that recognizes a consensus standard. The Z-133 is the consensus standard for the tree care industry. This basically means that although the ANSI standard is not a law, all tree care industry employers must comply with the standard or risk being cited by OSHA.

The Occupational Safety and Health Act of 1970 excludes all units of government, but this does not mean that government agencies can ignore safety standards. First, in Massachusetts, the Massachusetts Department of Labor Standards (DLS) has mandated that municipal agencies comply with the federal standards. Second, if a workplace accident occurs, the municipal agency may be held liable. In the case of a tree care accident, the Z-133 standard will be used as a baseline in the investigation, which means that government agencies should follow the requirements. In Massachusetts, the DLS recognizes the Z-133 for both commercial and municipal tree work.

Up Ahead:

In December of 2015, there was a workplace injury when a municipal employee cut his finger with a chainsaw. He had to miss some work and filed a workers compensation claim. The compensation claim is what triggered the municipality to be contacted by the DLS) DLS contacted the municipality in February of 2016 and issued a "Written Warning and Order to Correct.." What follows are several of the documents produced as part of the corrective action as well as the original written report by DLS. The main thing is that DLS wants municipalities to be consistent with their training programs. In this case, the town did have documentation of safety training sessions for the past five years, but this was a new employee (1.5 months on the job) who had not completed all the same training sessions as the other employees. The town now has a packet that is given to every new employee, and then each enters the training program with everyone else. The MA Dept. of Labor inspector also mentioned that DLS was specifically interested in monitoring municipal forestry operations and that inspectors would be targeting municipal tree crews for random inspection and observation. However, the town that was inspected has not had any of these inspections since this incident. It truly is all about training, documentation, and consistency. The DLS is looking for the written policies that were not in place at that time.

Citation:

MARCH 18, 2016

Town of XXXX, Department of Parks

Pursuant to M.G.L. c. 149, §§ 6, 6 1/2 and 454 CMR 25.00, it is the responsibility of the Department of Labor Standards ("DLS") to investigate occupational hazards in the workplace, to recommend controls to reduce such hazards, and to assist counties municipalities and state agencies to ensure compliance with applicable workplace safety and health laws, regulations, and recognized industry standards.

On December 17, 2015, a Town of XXXX, Department

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Labor Standards and Tree Wardens (cont'd)

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of Parks arborist suffered a laceration and open fracture of the index finger of his left hand while working to remove a sizeable tree. Working as part of a crew on an overcast and rainy day, the worker was limbing the tree from a height of approximately seventy-five feet in a 2015 Terex XT 60/70 Pro aerial lift truck while using a Husqvarna 346XP, fully equipped, professional logging chainsaw. According to the worker, and those who investigated the matter within the department, the worker attempted to engage the chain brake with his left hand. He further claimed that wet gloves may have caused his hand to slip from the chain brake facilitating contact with the turning chain resulting in the injury. Chainsaw basics teach that there are two ways to engage the chain brake: by pushing the handle forward with a closed fist or a roll of the backhand, or by force of inertia that occur when the saw kicks back. Grabbing the top of the chain break exposes the hand/fingers to the chain.

Subsequently, on February 17, 2016, DLS met with and interviewed the Town of XXXX Department of Parks personnel ("Respondents") and the Town of XXXX Safety & Health Training Manager to discuss and determine the facts of the incident. DLS also has offered voluntary safety and health technical assistance services of the Respondent's facilities at a mutually convenient time.

DLS identified conditions which place employees at risk of work-related injury or illness and issues this Written Warning and Order to Correct to the Respondent to correct those conditions in accordance with Massachusetts General Laws and Federal Regulations, including the Occupational Safety and Health Act of 1970, Section 5(a)(1), 29 CFR 1910, and 29 CFR 1926. (Respondent is advised to apply DLS corrective actions and recommendations as appropriate to all work locations.)

Recommendations may also be provided to prevent work-related injuries at this site and are based on nationally recognized standards. Respondent is advised to apply DLS corrective actions and recommendations as appropriate to all work locations, as well.

CONDITIONS REQUIRING CORRECTIVE ACTION

Item No. 01 Correction Due Date: APRIL 22, 2016

Condition: During the DLS investigation with Town of XXXX Department of Parks personnel ("Respondents"), no evidence was presented to demonstrate that workers were currently trained in recognition and avoidance of unsafe chainsaw and tree work conditions, nor in the regulations or town policies and procedures applicable to their work environment to control or eliminate hazards and exposures to risks. Specifically, documentation of: 1) Written city policies and procedures specific to tree work; 2) Checklists used on a regular basis to assist in full tree and aerial lift work compliance; 3) Worker training documentation for affected workers in the dangers of such work and the appropriate, fully compliant ways of performing such work safely; and 4) Procedures for the use of town-owned chainsaw and aerial lift and equipment.

Massachusetts General Law: MGL c. 149, § 6
Recognized Industry Standards: 29 CFR 1926.21(b)(2) – Safety Training and Education;
ANSI Z133 – Safety Standard for Arboricultural Operations

Corrective Action Required: Secure, provide, and document (or provide evidence of) suitable tree work training for those assigned to tree work operations. Training must be comprehensive, all-inclusive and include effects of impact with felled trees, including key engineering controls and work practices such as:

CHAINSAWS

- The blades can cut you.
- Chainsaws are heavy and can cause a back injury.
- Noise from the chainsaws can cause hearing loss.
- Chainsaws can kick back and cause an injury.
- Vibration from the chainsaw can cause numbness and injuries to your muscles, nerves, or tendons (sometimes called "ergonomic" injuries)
- Flying debris can cause an eye injury

TREE FELLING

- Limit access/set up controlled access zones
- During trimming, keep non-essential response and recovery workers at least 20 feet beyond expected drop zones during trimming
- During felling, designate work area so that trees cannot fall into an adjacent occupied work area. Adjacent occupied work areas should be at least two tree lengths from the tree being felled. (Allow more if it is reasonably foreseeable that the tree might roll or slide.)
- Always plan a clear path of retreat before cutting
- Determine the felling direction and how to deal with forward, back, and/or side lean

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Labor Standards and Tree Wardens (cont'd)

(Continued from page 2)

- Determine the proper hinge size to safely guide the tree in its fall
- If tree is broken and under pressure, make sure you know which way the pressure is going. If not sure, make small cuts to release some of the pressure before cutting up the section
- Be careful of young trees that other trees have fallen against; they act like spring poles and can propel back
- If you have to cut a dead tree, be careful: the top could break off
- If possible, avoid felling trees into other trees or objects; branches and objects may get thrown back toward the tree cutter

The investigation yielded that most/many of the department personnel are likely well vetted and trained, although said training may not be all-inclusive and is not well documented. As you know, many programs are available for training and/or refresher training. One, for example, permits one or more key employees at a given organization to become certified tree care safety experts, thereby empowering and encouraging a culture of safety within that organization.

CIVIL PENALTY

Failure to comply with the requirements set forth in this Written Warning and the corrective measures set forth in the associated Order to Correct within the period of time specified may result in the issuance of a civil citation with monetary penalties and other civil penalties as provided by law, pursuant to MGL c. 149, § 6.

Proof of Corrective Action: Submit to DLS documentation that employees have been well trained in appropriate chain saw and tree care operations.

Subject: Forestry Operations Safety Policies and Procedures

The Town of XXXX Forestry Division hereby adopts the American National Standards Institute Z133 Safety Requirements for Arboricultural Operations as the official City policy for forestry operations. All work practices conducted by the Forestry Division will abide by the safety recommendations provided in the most current edition of this standard. This includes but is not limited to the following provisions:

Section 5.2: Aerial Devices
Section 5.3: Brush Chippers
Section 6.3: Chain Saws
Section 8.2: Pruning and Trimming
Section 8.5: Tree Removal

Written Certification of Workplace Hazard Assessment

This is to certify that XXXX Forestry Division has evaluated Forestry Division Operations on 3/21/16 in order to determine if PPE* is required and, if so, what specific type is required.

Examples of PPE required for this operation or work area:

*Personal Protective Equipment

PPE Required	Specific Type	Hazard (protection against)
Eye/Face Protection	Safety Glasses	Debris
Head Protection	Class E Helmet	Impact/low-voltage conductors
Foot protection	Safety shoes with impact protection	Dropped objects
Protective Clothing	Cut-resistant leg protection	Chainsaw cuts
Hearing Protection	Min 23 decibel noise -reduction rating	Noise exposure
Fall Arrest Harness	Full-body harness with shock absorbing lanyard	Fall from height

Subject: Forestry Safety Training Policies and Procedures

The Town of XXXX Forestry Division shall utilize the TCI "Tailgate Safety: Manual for Job Site Safety Meetings, 6th edition" published by the Tree Care Industry Association as a safety training program for forestry staff. All new employees will complete the following sessions at a minimum before performing work for the Forestry Division:

Session 12: Chainsaw Selection and Maintenance
Session 13: Chainsaw Use and Safety
Session 19: Brush Removal and Chipping
Session 40: Aerial Equipment and Electrical Hazards
Session 47: Tree Removal

Additional training will be provided on an ongoing basis utilizing the "Tailgate Safety" program, as well as other sources of training materials.

(Signed) ***XXXX, Town Arborist***

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Labor Standards and Tree Wardens

Conculsion

It is the responsibility of all tree care managers, commercial or municipal, to be knowledgeable about all local, state, and federal laws, rules, and regulations as they apply to tree work. This would include, but not be limited to, the OSHA, the Department of Transportation (DOT), the Environmental Protection Agency (EPA) and Equal Employment Opportunity (EEO) regulations. In October an updated new Z-133 2017 was released. The 2017 Z-133 is available from the International Society of Arboriculture (www.isa-arbor.com) and from the Tree Care Industry Association (www.tcia.org). Every commercial arborist and municipality should get and review the updates in the 2017 edition of the Z-133.

H. Dennis Ryan University of Massachusetts, Amherst Arboriculture & Community Forestry

Species Spotlight—European white birch, *Betula pendula*

By **Mollie Freilicher**

This month, we are highlighting a plant that is found in the landscape, but that we do not recommend you go out and plant. Native to Europe and parts of Asia, European white birch (*Betula pendula*), (also called silver birch, European weeping birch, and other names) has been planted in the landscape since the mid-18th century. In many areas in the United States, including in Massachusetts, it has escaped cultivation, and in some locations, it has entered local forests where it may compete with the native gray birch (*B. populifolia*). For this reason, as well as for severe pest problems, we do not recommend planting European white birch today. Planted for its graceful, pendulous habit and whitish bark, European white birch is recognizable in the landscape. It can reach heights of 40 to 50 feet, with a spread half to two-thirds its height, and it has a medium-to-fast growth rate.

Leaves of European white birch are alternate, simple, and ovate, though they often are diamond-shaped or more triangular. During the growing season, leaves of European white birch are shiny dark green, and they turn yellow in the fall.

The stems of European white birch are smooth, but lighter-colored lenticels give it a warty appearance and another common name: "warty birch." (Warty-ness is in appearance only; the twigs feel smooth.)

On young trees, the bark may be brownish, but becomes white as the tree matures. Eventually, bark toward the base of older trees may become dark and fissured.

Flowers are not ornamentally important and are monoecious, with male and female flowers on the same plant. Male flowers are 1.5 to 3.5 inches long, and female flowers are about one-inch long. The fruit is a two-winged nutlet in a catkin.

European white birch is highly susceptible to bronze birch borer, as well as birch leaf miner. For this reason, along with its potential invasiveness, we do not recommend planting European white birch. For high-value trees in the landscape, these pests can be managed through diligent treatment with pesticides, but there are other alternatives for planting that will require less maintenance. Though it does not have white bark, river birch (*B. nigra*) is one option and offers ornamental bark, as well as tolerance of urban conditions, especially heat - a trait not common among birches. For a white-barked alternative, paper birch (*B. papyrifera*) might be suitable for some sites in parks, campuses, or other locations not subject to harsh heat or other difficult urban conditions.

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

US Forest Service. Weed of the week. https://www.na.fs.fed.us/fhp/invasive_plants/weeds/european-white-birch.pdf

Photos (Clockwise from top-left): Form: Wikipedia; Twig: John Seiler Virginia Tech, Leaf, flower, fruit: John Seiler, Virginia Tech; Bark: UConn Plant Database.

Book Review: *The Illustrated Encyclopedia of Trees*

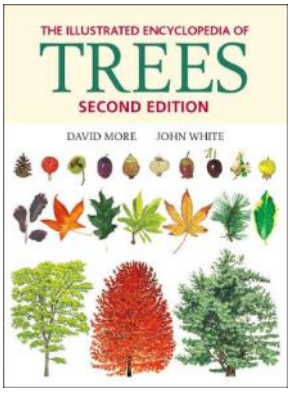
By **Rick Harper**

More, D. and J.W. White. 2013. *The Illustrated Encyclopedia of Trees* (2nd ed). Princeton University Press. Princeton, NJ. 832 pp. ISBN 978-0-691-15823-5

It has been stated that one never gets a "second chance to make a first impression." At over 800 printed pages, perhaps the first impression made on an individual who encounters the second edition of *The Illustrated Encyclopedia of Trees* is the sheer size of this publication. The next impression may be the quality and number of the illustrations therein. Nearly all of the pages of this book feature detailed, hand-drawn, color-depictions of leaves, bark, fruit, and flowers of hundreds of species of trees. The lead author, David More, is described as a "trained artist," and in this publication his illustrative accomplishments are a testament to that training. Though the printed feedback on the front cover (from the *Seattle Times*) exclaims that this is "the very best book…for identifying trees" the authors themselves rather candidly self-describe this publication as primarily a "book for pleasure," indicating that it is "far from a botanical text-book" in their foreword (p.7). The authors continue to detail that their intentions behind this book are simply to describe "a tree's distinctive characteristics of form, growth, history or points of general interest" (p.8). They also indicate that few technical terms are used, and that readers are encouraged to consult the Glossary near the end of the text for any needed clarification.

Following the Foreword, the authors commence the Introduction by contrasting the "rich and varied" native tree flora of North America to that of Europe, which they describe as being rather "small and reduced" (p.9). They do, however, outline that while European forests tend to be dominated only by a few select tree species, Europeans themselves have been actively carrying out expeditions to other regions of the globe for many centuries, returning home with multitudes of seeds of plants from abroad. The authors also laud how the moist, maritime climate of Britain and Ireland has facilitated the healthy growth and development of what are predominantly exotic tree species, more than in "any comparable area of the temperate world." (p.9)

The authors continue, through the Introduction, to describe and define terms like species, subspecies, varieties, forms, and cultivars. The authors contend that because trees offer a quality of "permanence" (p.11) to a location, due in part to their longevity and immobility, their selection and installation deserves great thought, planning, and consideration. They advocate that one method of selecting trees is to advance through the process of elimination, determining what first isn't suitable or desirable in a given spot. Because trees change over time, the authors suggest considering many of the design and practical components of a tree before its final selection. They urge thoughtful visualizing as to what the tree will look like many decades into the future, considering how it may change a viewscape or cast shade, and urge locating and examining other larger, more mature specimens to aid in this understanding. In largely non-technical terms, the authors then detail the installation process itself and discuss the digging of the hole and the planting and staking of the specimen. They encourage that newly-planted specimens not be fertilized and that the planting hole soil should not be amended. Following this, the authors recount the fascinating practice of plant collecting. They discuss how collecting methods have changed through the ages from pre-historic and Roman times, when plants were transported for their edible fruits, to the more formal naming, classification, and recording of taxa by Carol von Linné and the early expeditions of Englebert Kaempfer, John Tradescant, James Cunningham, Peter Collinson, John Bartram, Pierre d'Incarville, Captain Cook, William Roxburgh, and John Gould Veitch. Of these, special mention is given to two collectors: the "truly intrepid" (p.15) Scottish explorer David Douglas (1799-1834) whose unfortunate demise occurred as a result of being gored to death by a bull while on expedition in Hawaii, and "the greatest collector of them all" (p.15) Ernest H. Wilson, who successfully retrieved hundreds of plants from Asia, including paperbark maple and the dove tree. The authors continue in the Introduction by detailing trees worthy of consideration for specific sites: varying soil types (e.g., clay, acidic, dry, poor soils), gardens, streets, and variety of ornamental characteristics (e.g., flowers, fall foliage, bark, and fruit).



The Introduction closes with an explanation of the methodology behind the author's rating system that is used to describe the "height," "hardiness," "choice," and

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Webcasts and Events

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"wood" of the trees identified and discussed throughout the text. Tree **height** is designated in meters by three figures and assumes proper planting and compatible growing conditions: growth expectation in 10 years, 20 years, and eventual maximum. **Hardiness** rating commences at 40 degrees F/C, where a specimen surviving under these conditions is ascribed a 100% "resistance" rating. As specimens become less cold tolerant, they are ascribed a lower hardiness %. **Choice** relates to a tree's "garden value" or ornamental appeal where 1=Excellent, 2=Good, 3= Of lesser garden merit, 4=Not recommended. **Wood** quality is considered in 5 categories where 1=High quality and useful for furniture, 2=Good and useful for structural building, 3=Less valuable and useful in rough construction, 4=Wood appropriate for particle board or pulp, 5=Inferior and useful as fuelwood.

The heart of this text is divided into two sections: coniferous trees (p.21-p.259) and deciduous trees (p.263 -p.803), organized by family. The coniferous section commences with the Ginkgoaceae and closes with the Pinaceae. Numerous (generally) evergreen species are depicted and described. Typically there is a paragraph detailing the silvics, ecology, and natural history of a specific species, followed by numbers in accordance with the aforementioned rating system outlined in the Introduction of the book. For example, *Ginkgo biloba* is given a growth (height in meters—m) rating of 2-5-25, meaning that the tree can be expected to be 2 m in height after growing for 10 years, 5 m in height after 20 years and reach an eventual height of up to 25 m. It receives a hardiness rating of 60-70%, which according to an accompanying chart (p.18) indicates that it may withstand temperatures as low as -28°C (-18°F). It is ascribed a choice rating of 2 and 4, meaning while its garden or ornamental value is "Good" (2), it may feature unpleasant characteristics (in this case, smelly fruit) that warrant it unsuitable (4) under certain circumstances. A wood rating is not indicated as its commercial lumber use is apparently very limited. Following the descriptions of coniferous tree species, a selection of coniferous cones is depicted (p.260-261).

The deciduous section of the text commences with the Salicaceae. As with the coniferous section, numerous (generally) broad-leafed species are described with a brief paragraph characterizing the silvics, ecology, and natural history of a specific species. Again, numbers are ascribed in accordance with the rating system detailed in the Introduction of the book. As a second example, *Quercus coccinea* is given the same ranking treatment for its height (5-10-25) and hardiness (60-70%). It was assigned a choice rating of 1, 2, 3 meaning its garden or ornamental value may be "Excellent" (1) "Good" (2) and of "Lesser Merit" (3), it may offer other important values like providing habitat for wildlife. Its wood value rating of 2, 3, 5 is considered to be "Good" (2) with application as a structural timber, "Less Valuable" (3) with application in rough construction, and "Inferior" (5), indicating that it has application as a fuelwood. Following the descriptions of deciduous tree species, the text features a relatively brief "Glossary" of terms (p.804 – p.806). It also features several pages of high-quality depictions of shoots and buds and of coniferous and deciduous leaves (p.806 – p.815). The text itself closes with an Index of botanical tree names (p.816 – p.830).

To anyone who takes time to examine this literary resource, several items become apparent. Whether it is from the perspective of an artist (David More) or a natural scientist (John White), the authors are incredibly passionate about trees – both from their European-based point of view, and from an international standpoint. The overall tone of the book is one of service, both to the plant kingdom and to those of us enticed enough to take an interest in it. The authors provide an email address, soliciting input from readers as to how to make the text better, also adding to perhaps the self-effacing manner in which the text was composed. Since trees are divided by botanical family, the layout of the book can leave potential readers leafing through several pages before finding a particular tree; fortunately, the Index may provide assistance with this effort, and frankly, if one has the time, leafing through this text exposes the reader to hand-drawn, colored depictions of trees that are truly of the highest quality. This book would make an excellent addition to the library of any amateur tree enthusiast and professional arborist who desires to read more about the trees of the world.

Rick Harper, Department of Environmental Conservation, UMass-Amherst

Growing on Trees

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.

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.

Making Urban Forests Count: Quantifying and Crediting Stormwater Benefits
January 10, 2018 | 1:00 - 2:15 p.m. (Eastern)

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

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

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

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

Urban Forestry Today Webcast

January 4, 2018 | 12:00 p.m. – 1:00 p.m. (Eastern)

Urban Trees and the Law: The Arborist's Perspective
Thomas Brady, Town of Brookline, MA

Join Thomas Brady, Conservation Administrator and Tree Warden of Brookline, MA, as he defines and discusses scenarios that demonstrate how legal terms and definitions impact the day-to-day the practices of today's urban forester.

To attend live and receive 1 ISA CEU or 0.5 MCA credit, visit: www.joinwebinar.com and enter the ID code: 884-299-715

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.

From the Arnold Arboretum

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

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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

i-Tree Online Roundtable Session – Looking Toward Tomorrow

Thursday, January 18, 2018 | 1:00 p.m. (Eastern)

The free series is offered by the Urban Natural Resources Institute and is led by members of the i-Tree Team.

Go to https://www.unri.org/webcasts/ for more information

Growing on Trees

A Look at i-Tree 2018

Newtown Square, PA (November 16, 2017) – The U.S. Department of Agriculture's U.S. Forest Service announced the latest updates to i-Tree, a suite of freely available tools that helps everyone from land managers to homeowners assess how trees enhance environmental quality and human health.

i-Tree tools can be used to quantify benefits such as reducing air pollution and ultraviolet radiation and providing carbon sequestration, stormwater control, and more. Users can access information about tree health and environmental risks to trees, including potential for damage by storms, wildfires, air temperatures, air pollution, and more.

"Northern Research Station science is adding to our knowledge of the myriad ways trees contribute to human health and environmental quality," said Tony Ferguson, Director of the Northern Research Station and Forest Products Laboratory. "i-Tree Tools is an outstanding example of how the Forest Service works with partners to translate research into tools that meet the needs of land managers in U.S. communities and throughout the globe."

New features of i-Tree 2018 include:

- i-Tree Landscape: More than 150 new map layers have been added to help prioritize areas where it would be helpful to plant or protect trees to maximize benefits and minimize risks:
  - Land surface temperatures
  - Climate change projections
  - Composition and sizes of forest species
  - Air quality
  - Wildland-urban interfaces
  - Plant hardiness zones
  - Insects and diseases
  - Future ozone concentrations
- i-Tree Database: i-Tree Database is a new tool that allows international users to submit data about their local trees using i-Tree Eco.
- i-Tree web apps: New mobile-friendly apps allow users to estimate the benefits and values of individual trees
- (MyTree) or long-term benefits and values from tree planting efforts (i-Tree Planting Calculator).
- Other apps include i-Tree Species, which helps in selecting the best species for desired benefits, and i-Tree Harvest Carbon Calculator, which estimates the amount of carbon stored in harvested wood products.

"By understanding local urban forest composition and forces of change, plans for urban forest management can be developed to sustain healthy and functional urban forests for future generations," said David Nowak, a research forester with the Forest Service's Northern Research Station and co-creator of i-Tree.

The Forest Service developed i-Tree with Davey Tree Expert Company and other private industry groups, professional associations, non-profit groups, and universities.

www.itreetools.org.

UMass Extension 39th Annual Community Forestry Conference

Ecological Perspectives of the Urban Forest

Tuesday, March 6, 2018 - 8:45 a.m. - 3:30 p.m. | Bowker Auditorium, UMass Amherst

This conference is designed for tree care professionals, volunteers, and enthusiasts, including arborists, tree wardens, and municipal tree care specialists, foresters, landscape architects, and shade tree committee members. Topics include: Safe Pruning Practices to Reduce Risk and Enhance Wildlife, i-Tree as a Tool for Assessing Urban Wildlife Habitat and Landscapes, An Introduction to Using Unmanned Aerial Vehicles (Drones) to Inventory Resources, and From the Diagnostic Lab: What Can We Expect This Growing Season?

Registration: Cost is $90 for first registration, $75/person for each additional registration from the same company.

Find out more. www.umassgreeninfo.org

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

Growing Greener—in Gateway Cities

In December, representatives from eight non-profit organizations working with the Greening the Gateway Cities Program in cities across Massachusetts, gathered in Leominster for the Annual Community Tree Partners Summit. The Greening the Gateway Cities Program currently operates in 13 Gateway Cities across the Commonwealth, hiring local residents to plant trees on public and private property for energy savings. Non-profit organizations are critical partners in the program, educating the community about the benefits of trees by conducting outreach to property owners and providing on-the-ground knowledge of the community to DCR foresters. Each year, community partners come together, along with staff from DCR and the Office of Energy and Environmental Affairs, to exchange ideas and learn from each other. This year's summit in Leominster encouraged cooperation and collaboration among groups through breakout sessions and panel discussions on topics that included "engaging volunteers with trees," "transitioning to trees," "trees and your mission," "grants and funding," and "community trees: block party," among others. Attendees left with new ideas to implement in their communities as they gear up for the spring planting season. To learn more about the Greening the Gateway Cities Program, click here.

New Guide on How Urban Parks Can Help Fight Flooding

Source: Rachel Dovey, "How Cities Can Harness the Flood-Fighting Powers of Urban Parks," *Next City;* NRPA, "New Guide for Planning, Designing and Implementing Green Infrastructure in Parks, Now Available," News Release Philadelphia, PA (December 12, 2017) – The National Recreation and Park Association (NRPA), in partnership with the American Planning Association and the Low Impact Development Center, has released a technical guide outlining the nuts and bolts of green stormwater infrastructure, including how to engage communities and secure funding. This is a follow up to a NRPA survey identifying parks as key in the fight against climate change. Read the full story at ACTrees.

UMass Extension Landscape Safety Conference

Tuesday, February 6, 2018; 8:30 a.m.-3:30 p.m. | Doubletree Hotel, Milford, MA

Have you ever been bitten by a mosquito? Removed an attached tick? Encountered a poisonous plant? Do you work with pesticides? If you answered "YES" to any of these questions, this Landscape Safety Conference is for you.

This program will explore many topics that are important for landscapers, arborists, tree wardens, lawn care professionals, grounds managers, and essentially any professionals working in outdoor environments. Topics include mosquito and tick prevention and safety; tick testing services provided by the Laboratory of Medical Zoology; poisonous plants you are likely to encounter and strategies to keep yourself safe; pesticide storage, transportation, and use safety, including personal protective equipment (PPE) to wear when working with pesticides. Find out More.

New NASA Insights into The Secret Lives Of Plants

From rainforests to croplands, boreal forests to mangroves, NASA will take a new look at terrestrial vegetation across our living planet over the next two years with several unique instruments in space. The missions will help scientists investigate the role of plants in Earth's global carbon and water cycles.

Since the 1970s, NASA has studied life from space with satellites such as Landsat, Terra, Aqua, and NASA/NOAA's Suomi National Polar-orbiting Partnership. Scientists have used these data, along with observations from international spacecraft, to conduct a wide range of research, from detecting northward expansion of forests in the Arctic, to monitoring how burned areas recover from wildfires.

Generally, the instruments currently in orbit do their work by detecting sunlight reflected off the Earth's surface, like a camera does. But the new instruments being launched over the next two years will take a new, more active approach to probe new questions about vegetation and how it is changing. Two of these NASA missions will use laser instruments that will measure the height of trees, while a third will monitor temperature to provide insights into plant health. Read the full story at phys.org.

Gleanings

New Device Detects Oak Wilt Cheaper and Faster

Source: Katrina Pross, "University researchers develop tree disease detection device," *Minnesota Daily*; University of Minnesota, "New technology makes oak wilt detection faster, more affordable," News release

Minneapolis, MN (November 21, 2017) —A new device developed by University of Minnesota researchers will make it easier for experts to identify a deadly tree disease. The handheld device uses nanotechnology to test for oak wilt. They hope to have the product on the market in a year. A team headed by University bioproducts and biosystems engineering assistant professor Abdennour Abbas has been working on the device for three years.

"This device is important because of the damages that oak wilt causes to resources. Oak is an ecological habitat for many animals, but it is also an industrial resource, as oak wood is used for fire and furniture," Abbas said.
The final product will combine three technologies developed by the researchers: one to extract the fungus from wood chips, one to extract DNA, and one to analyze the DNA. Using nanotechnology and gold, a signal appears on the handheld reader, if oak wilt fungus is present. Read the full story at ACTrees.

New Project to Recognize Responsible Urban Forestry and Urban Wood Utilization

Certification to support better use and less waste

Minneapolis, MN - A new initiative to support increased urban wood utilization and community benefits has been launched. The project will develop a unified urban wood certification strategy, with the goal of aligning existing programs that recognize responsible management practices in the urban forest. Existing urban forestry programs range from accreditation and licensing, to training and certification programs.

"We're not starting with a blank slate," says project manager, Kathryn Fernholz, Executive Director of Dovetail Partners. "There are many high-quality existing programs that support the practice of urban and utility forestry - from Tree City USA and Tree Line USA to arborist certifications - and we're looking at how these programs support shared goals and can respond to the growing interest in urban wood and responsible sourcing."

The intent of the project is to develop a certification process to be incorporated into existing professional and accreditation standards, adopted by municipalities, and embraced by tree-related operations within urban forests, including arboriculture businesses and wood processors.

Partners on the project include the Arbor Day Foundation, Society of Municipal Arborists, Tree Care Industry Association, Utility Arborists Association, Right-of-Way Stewardship Council, Dovetail Partners, North Carolina Forest Service, and the USDA Forest Service. Support for the project is provided by the North Carolina Forest Service, Urban and Community Forestry Program and the USDA Forest Service.

The project also seeks to develop consistent messaging to engage stakeholders and target audiences in the value and benefits of local urban wood products and to promote the value-added opportunity for local businesses. Some municipalities have already incorporated urban wood into their sustainability plans and are utilizing their own wood for local use. The project hopes to support these existing efforts and to encourage similar efforts by other municipal sustainability and solid waste programs. These combined efforts ultimately increase long-term carbon storage and avoid carbon emissions associated with burning or decomposing.

"By working together, we aim to increase demand for locally-sourced wood and wood products by the public and businesses," says Nancy Stairs, Urban and Community Forestry Coordinator for the North Carolina Forest Service. "We want to help arborists and processors put urban wood to good use and reduce the amount of wood entering landfills."

For more information about this project, visit **www.dovetailinc.org**

Gleanings

In Boston's Leading Hospitals, Nature Is Part of the Therapy

By **Jared Green**

December 14, 2017—In the 1980s, Roger Ulrich discovered hospital patients recover faster and request less pain medication when they have views of nature. Spaulding Rehabilitation Hospital, built on a former brownfield in Charleston's Navy Yard, and MGH's Yawkey Outpatient Center, both in Boston, seem to be guided by this essential finding. At Spaulding, patients recovering from traumatic injury are rejuvenated by good medical care, but also sunlight, garden terraces, and views of the surrounding Charles, Mystic, and Chelsea Rivers. The hospital landscape is a multi-functional therapeutic space where therapists aid patients in the air and sun. In a tour of the 132-bed facility at the 2017 Greenbuild, Jeffrey Keilman, an architect with Perkins + Will and Sean Sanger, ASLA, principal at landscape architecture firm Copley Wolff Design Group explained how the facility heals, but is also one of the most sustainable and resilient hospitals in the country.

Spaulding picked this brownfield site in part because rehabilitating it would help tell the story of resilience to its patients. If a toxic place can become a place of healing, then a broken person can return to health stronger, as well.

Read the full story at ***The Dirt***.

Preparing Trees to Go from Green Pastures to the Concrete Jungle

By **Adrian Higgins**

December 19, 2017—The rolling hills of the Casey Tree Farm in Clarke County, Va., seem a million miles and a distant age from the real estate bustle of the District of Columbia and its constant reinvention, but these pastures offer the city future relief in a climate-changing century. Here, Todd Woodfield and his crew are running a tree factory, raising some 12,000 trees from saplings to sturdy transplants. More than 3,000 are ready for planting each year, when they make the 65-mile journey east for a new life in city parks, schools, neighborhoods, and other places where Casey Trees is trying to maintain and increase the urban forest. The nonprofit organization was established by philanthropist Betty Brown Casey in 2002, following reports of a precipitous decline in the city's tree canopy. Read the full story at *The Washington Post*.

News Headlines in Brief

Trees Are Covering More of the Land in Rich Countries

The Mechanics of Splitting Wood and the Design of Neolithic Woodworking Tools

Phillies Plant a Tree For Every Home Run Hit This Season

From Google Maps to a Fine-Grained Catalog of Street Trees

Engineers Create Plants That Glow

Climate Scientists Study the Odds of a U.S. Megadrought

After a Wildfire, Attitudes about Recovery Vary With Sense of Place and Beliefs about Fire Ecology

Belowground Fungal Interactions with Trees Help Explain Non-Native Plant Invasions

Freezing Trees, Finding Answers: Researchers Study Impact of Ice Storms, Climate Change

On the Horizon

Dec 31 **Deadline for Tree City, Tree Campus, and Tree Line USA Applications**, contact Mollie Freilicher with questions

Jan 4 Urban Forestry Today webcast, 12:00 p.m. (Eastern), www.joinwebinar.com, ID code: 884-299-715.

Jan 9-10 Mass. Tree Wardens' and Foresters' Assoc. Annual Conference, www.masstreewardens.org

Jan 10 Urban Forest Connections Webcast, 1:00 p.m. (Eastern)

Jan 24 EPA Soak up the Rain New England Webinar: Provincetown and Porous Asphalt, 1:00-2:00 p.m. (Eastern) Register here.

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, Topic: Trees and Climate Change, 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

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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.

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