

THE SHADE TREE

A BI-MONTHLY BULLETIN DEVOTED TO NEW JERSEY'S SHADE TREES

Volume 93 – Sept - October 2020 – Issue 9 & 10

This Issue Presents...

Director's Discourse

Transplanting and a Deeper Look at "Fall Hazards"

Five Tree Care Tips to Protect Your Property



DIRECTOR'S DISCOURSE

By Donna Massa

The New Jersey Shade Tree Federation's 95th Annual Conference is just around the corner. It will be a virtual conference held the entire week of October 19th thru October 23rd. We have spread discussions throughout the entire week to accommodate work at home schedules. Register for our conference and we will mail you a complimentary copy of our newest publication "Soils for NJ Trees"! It's our "giveaway" this year since we cannot be together. It's also our "Thank You!" for joining us as we navigate the virtual world together. Here are some important deadlines to take note of:

- Registration for the virtual conference is by invitation only! Email addresses are required! Registration AND an approved PO/voucher, check or payment through PayPal must be received and verified in order to receive a link to the conference virtual platform.

- Because the conference is virtual this year, attendees have the opportunity to attend Community Forestry CORE sessions as well as the General Sessions of the conference if they so choose.

- If you register for both CORE and Conference, your complete, paid registration must **REACH OUR OFFICE** by Friday, September 25, 2020.

- Registration for Conference only must **REACH OUR OFFICE** by Friday, October 9, 2020. Make sure you mail your registration with authorized P/O (if applicable) or check early enough to reach us on time.

- Mail your registration to NJ Shade Tree Federation, PO Box 6540, Hillsborough, NJ 08844. **UNSIGNED/UNAUTHORIZED PO'S WILL NOT BE ACCEPTED.**

BULLETIN OF THE NEW JERSEY SHADE TREE FEDERATION

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DIRECTOR'S DISCOURSE

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• **Payment Options:**

• Enclose check or authorized voucher/PO with your registration form and mail to: NJ Shade Tree Federation, PO Box 6540, Hillsborough, NJ 08844

• Complete registration form through our website at njstf.org, save it to your computer and email it to trees@njstf.org with your request to remit payment through PayPal. Upon receipt of your email, we will send you an invoice through PayPal which will allow you to remit payment with credit card.

• **IMPORTANT NOTE:** Registration is **NOT** accepted until a completed registration form is received AND payment is made either with check, authorized P/O or thru Pay-Pal.

Allow me to provide you with some direction as you join us for a virtual conference this year:

• When a completed registration is received, you will receive a link via email which will give you access to the virtual platform hosted by Pathable. Email addresses are required and must be accurate!

• To attend a virtual meeting on the Pathable platform, we strongly recommend using Google Chrome or Microsoft Edge browsers.

• The link to the virtual platform will be sent out the week before the conference.

• When you receive the link, enter the platform and explore! Take some time before the actual conference dates to navigate the website and become familiar with all that the website has to offer.

• Scroll down our homepage, take note of our sponsors who continue to support us, and reminisce what it feels like to be at a “physical” conference (which we hope to resurrect next year) by clicking on the link to our 2018 Conference! Enjoy the tour!

• Take note of the links at the top of the page. Click on “Schedule” and then “Agenda” to see the full program schedule. Click on “Calendar View” in the upper left corner of the Agenda page to view the entire week of scheduled discussions.

- Click on “Schedule” at the top of the page once again and then “My Agenda” to create your own agenda of discussions you are interested in.

- Click “People” at the top of the page to read about our talented speakers and their credentials.

- Click “Exhibitors” at the top of the page and visit the Exhibitors who will join us virtually this year. Be sure to come back during the conference to chat with our exhibitors who have much to share with you.

The virtual conference is uncharted territories for all of us. Take some time before the conference to explore the virtual platform. Troubleshoot any issues with Pathable directly ahead of time. Together, the NJ Shade Tree Federation and Pathable are working hard to make your attendance at the conference enjoyable, comfortable, and informative.

Community Forestry CORE training is intended for our municipal membership. There are NO CEU’S provided for CORE training. There are NO LTE/LTCO Credits given for attending CORE training either.

The virtual conference allows attendees to attend Community Forestry CORE as well as the General Sessions of the conference if they so choose. If you want to attend CORE as well as the General Sessions, your registration deadline is Friday, September 25,2020. If you don’t want to attend CORE and only want to attend the Conference, your registration deadline is Friday, October 9, 2020.

On-line Community Forestry CORE Training includes 6 modules to complete on your own time **BEFORE THE CONFERENCE BEGINS** and requires you to attend four (4) discussions during the conference. You will receive instructions for accessing CORE upon registration if you elect to attend CORE.

We welcome all of our exhibitors – those who return each year to support the Federation and meet and greet you as well as newcomers to our Exhibit Hall. Be sure to visit our “Virtual Exhibit Hall” offered each day from 9:00-10:00 AM and chat with our Exhibitors.

Be sure to log into our website at njstf.org. As updated information becomes available, we will be sure to post the information there!

We challenge you to take advantage of all that the 95th Annual Conference has to offer you. We look forward to welcoming you to the virtual conference this October!



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TRANSPLANTING AND A DEEPER LOOK AT “FALL HAZARDS”

By Michelle Sutton and Matthew Stephens NYC Parks Director of Street
Tree Planting “Taking Root” October 13, 2015

We coauthored this story questioning commonly held beliefs about “fall hazards,” mostly as it applies to B&B trees, but we also discuss the interaction of the fall season with other production methods, like bare root. The section, “The Five Branches of Transplanting Success,” should be of interest to anyone planting trees, period! With the help of Nina Bassuk and others, we tried to break down the complex interactions at work with transplanting. This article originally ran in *Arbor Age* (Fall 2015).

The nursery industry is reluctant to dig certain species of trees in the fall, yet the “fall hazards” lists can vary significantly among nurseries. Also varying is the experience of nursery customers, including city foresters who plant hundreds or thousands of trees each year. In addition to digging season, there are other interacting factors at play in the fall planting picture.

A More Nuanced Look

Cornell Urban Horticulture Institute Director and street tree expert Dr. Nina Bassuk says, “Those fall hazards lists are generalizations. Typically, the trees that appear on those lists are trees that are more difficult to transplant, period. In spring they don’t become easy to transplant; they’re just observed to be easier in the spring than in the fall.”

Tree Pittsburgh Director of Urban Forestry Matthew Erb has overseen the planting of more than 25,000 trees (mostly B&B) since 2008. “I’m sure if you look hard enough, you will find nearly every species on someone’s fall hazard list,” he says.

Oaks frequently appear on fall hazard lists. “We’ve actually had great success planting oaks B&B in the fall – specifically swamp white oak (*Quercus bicolor*), Erb says. “The fall-planted ones even put out typically twice as much growth for us the following spring than do the spring-planted ones.” Erb credits Nina Bassuk for this, as her research on methods and times of transplanting swamp white oak spurred him to plant them in the fall.

Erb says Tree Pittsburgh has had no problems with B&B fall-planted red maples (*Acer rubrum* and associated cultivars and hybrids), London planetrees (*Platanus x acerifolia*), hornbeams (*Carpinus spp.*) and hophornbeam (*Ostrya virginiana*), all of which frequently appear on fall hazard lists.

Some other “fall hazard” species that Tree Pittsburgh has had success

with transplanting B&B in the fall—with caveats in parentheses—include tulip tree (*Liriodendron tulipifera*) (Erb found it needs to be transplanted earlier in the fall), black gum (*Nyssa sylvatica*) (similar survival rate to spring-planted trees), and Kentucky coffeetree (*Gymnocladus dioicus*) (when transplanted at 2- to 2.5-inch caliper).

On the other side of the ledger, Tree Pittsburgh has tried fall planting of river birch (*Betula nigra*), flowering cherry (*Prunus spp.*), goldenrain tree (*Koelreuteria paniculata*), and sweetgum (*Liquidambar styraciflua*)—but has had mostly failures with those species. Hence, these are some of the few species they avoid planting in the fall.

Upper Arlington, Ohio Superintendent of Parks and Forestry Steve Cothrel has learned to give credence to his local nursery’s advice in light of when his fall planting program takes place. Cothrel says that his fall B&B trees are typically dug and shipped in October. “Digging stock of certain species later in the fall—when plants are more fully dormant—might help with the ‘fall hazards’ from what I’ve heard,” he says, “but that would not work with our installation schedule. It’s all we can do as it is to get trees planted before serious winter arrives.”

Based on this installation schedule and his many years of observation, Cothrel avoids fall planting of oaks (except swamp white oak), magnolias (*Magnolia spp.*) (including tulip tree), river birch, black gum, beeches (*Fagus spp.*), hawthorns (*Crataegus spp.*), horsechestnut (*Aesculus spp.*), and baldcypress (*Taxodium distichum*). However, he says that he has observed no readily apparent survival differential between fall- and spring-planted 1.5-inch-caliper trees that some consider touchy in the fall, including lindens (*Tilia spp.*), zelkova (*Zelkova serrata*), goldenraintree, callery pear (*Pyrus calleryana*), and elms (*Ulmus spp.*).

Five Branches of Transplanting Success

In her work in her home city of Ithaca, NY and with dozens of other municipalities, Nina Bassuk has found that for bare root trees under 2-inch caliper, it has been easy to successfully fall-transplant many of the trees frequently appearing on fall hazard lists—including London planetrees, goldenraintrees, crabapples (*Malus spp.*), zelkovas, cherry trees, pear trees, oaks, and elms. This tells us that season + species isn’t the only key interaction in the fall hazard picture; production method comes into play as well.

Bassuk says that the five major interacting factors influencing transplanting success are season, species, production method, size, and aftercare. Season is best understood in its interactions with the other factors, while the essential nature of good aftercare (watering, weeding, mulching, avoiding damage to bark, etc.) is obvious.

Species: Bassuk and colleagues are currently investigating why some

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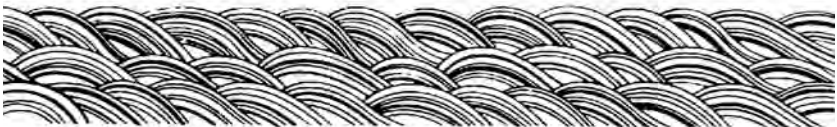
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tree species are more difficult to transplant than others. It has to do with the ability of a given species to maintain hydraulic conductivity by avoiding cavitation (obstructing bubbles in the xylem) after its roots are severed. Why is bur oak (*Q. macrocarpa*) so difficult to transplant while its close relative, swamp white oak, is relatively easy?

Bassuk says, “Our early results show that bur oak isn’t able to take up significant water from its severed root system after transplanting. There’s compromised water uptake until it makes new roots, so if it doesn’t get adequate water at planting and thereafter, that exacerbates the problem. Meanwhile, swamp white oak can take up water from its own root system after transplanting; it has better hydraulic conductivity than bur oak.”

Production method: Bare-root digging takes exponentially more roots along than does B&B digging. For many species, if the bare root trees are handled properly (see www.hort.cornell.edu/uhi), bare root can translate to higher survival in spring or fall because of this larger root system. For notoriously difficult-to-transplant species, Bassuk says that container-grown trees are actually the safest best, because the entire root system is brought along/there’s no root severing to trigger cavitation. However, Bassuk acknowledges that container-grown trees of the species and size arborists desire are not always readily available.

Size: Bassuk says, “In terms of transplanting, for both B&B and bare root, the larger the caliper of tree, the poorer the results (bare root trees above 2-inch caliper are especially at risk). For instance, even though spring planting works better for bur oak, with larger caliper there will be high rates of failure, even in spring and in the best conditions.”

This is because the larger the tree caliper at transplanting, the greater the percentage of its roots are lost in the move; it takes a longer time for a root system to grow to support that larger canopy than it does to support a smaller canopy. “In my experience, size trumps season and species and production method,” Bassuk says. For this reason, she recommends that arborists, whether in spring or fall, consider planting B&B and bare root trees at 2-inch caliper or less; research shows they have higher establishment rates and catch up with or even outgrow their larger-caliper, more stressed counterparts.

Mitigating Fall Hazard Traits

Based on his review of the literature and his experience in NYC, coauthor and Director of Street Tree Planting for NYC Parks Matt Stephens created a table (see below) that breaks down the four main traits for species presumed to be fall hazards and then gives advice to counteract these traits. His first piece of advice is to Harvest at the Right Time. During the fall, trees reach

dormancy at different rates/on different schedules; depending on weather patterns, some trees go dormant very late in the fall. One reason that some tree species are thought to be fall dig hazards is that they have been harvested too early.

An example of this can be seen with the genus *Quercus*, which goes dormant extremely late in the fall. A possible solution is to strategically procure trees from slightly more northern climates. For example, if *Quercus* were on a planting plan in the fall and timelines were tight, it would be wise to obtain trees from a reasonable northern

Species Presumed to be Fall Hazards	Common Fall Hazard Traits			
	Minimize Moisture Loss	Thin Barked Trees	Harvest Time	Trees with Coarse Roots
<i>Acer rubrum</i>	X	X		
<i>Betula</i> sp.	X	X	X	
<i>Carpinus</i> sp.	X	X	X	X
<i>Celtis</i> sp.	X	X		
<i>Cercis</i> sp.	X	X		X
<i>Cercidiphyllum</i>	X	X		
<i>Cornus</i> sp.	X	X		
<i>Crataegus</i> sp.	X		X	
<i>Fagus</i> sp.	X	X		
<i>Halesia</i> sp.	X		X	
<i>Liquidambar styraciflua</i>	X		X	
<i>Liriodendron tulipifera</i>	X	X		
<i>Malus</i> sp.	X	X	X	
<i>Nyssa sylvatica</i>	X			X
<i>Ostrya virginiana</i>	X	X	X	X
<i>Platanus</i> sp.	X	X		
<i>Pyrus</i> sp.	X		X	
<i>Quercus</i> sp.	X	X	X	X
<i>Taxodium distichum</i>	X		X	
<i>Tilia tomentosa</i>	X	X		
<i>Zelkova serrata</i>	X	X		

source where there is an earlier digging season. This earlier digging could allow two to three weeks of additional time for planting ahead of locally grown trees. Regardless, Stephens believes it is absolutely critical—no exceptions—to ensure that trees are harvested in a dormant state.

The reality is that an arborist’s work timeline can drive when trees get dug in the nursery industry, and nursery people understandably want to secure sales. Sometimes nurseries would rather sell the tree, attaching to it a “fall hazard” caveat, than lose the sale if they wait to dig the tree during optimal conditions when the trees are fully dormant. If they want to do more fall planting, arborists and cities should consider adjusting installation schedules to the needs of the species they are planting—e.g., planting oaks late in the fall.

The second mitigation strategy is to Root-Prune Coarse-Rooted Trees. Some trees that have been labeled fall hazards have coarse root systems that regenerate more slowly. The genus *Nyssa* has a tap-root-like root architecture when compared to *Metasequoia*, which has a much more fibrous root system. Research indicates that the coarse roots of scarlet oak (*Q. coccinea*) require approximately three to four times longer to regenerate than the more fibrous roots of pin oak (*Q. palustris*).

Also, if a tree with coarse roots is harvested in the fall and a harsh winter comes along, freezing the soil early and consistently, the tree becomes more easily desiccated due to an inability to absorb and replenish water. Therefore, any coarsely rooted tree should be prepared for digging in the fall

by root pruning the previous spring. Careful root pruning in the beginning of the growing season forces a more fibrous root system by fall harvest time. For example, a 2.0- to 2.25-inch-caliper tree could be prepared in spring by spading two or three sides of the root system as if it were going to be placed in a 28-inch root ball. It would be left in ground and allowed to grow until fall harvest, at which time the tree would be spaded and placed in a 32-inch root ball.

The third strategy is to Harvest Thin-Barked Trees with Abundant Twigs with Special Care. Deciduous trees desiccate during dormancy due to cold, wind, or sun, especially when the ground is frozen. This problem is compounded in trees that have thinner bark because there is more cambial activity on sunny days for thin-barked trees. Desiccation is also more likely on trees with abundant twigs because there is an increased surface area exposed to potential inclement conditions.

Vulnerable tree types should be harvested in the right size root ball or one size larger in an effort to retain as large a root mass—and therefore more available moisture—as possible. Additionally, trees with thin bark and abundant twigs should be watered when possible during the winter season when there are extreme cold, windy, or sunny conditions.

The fourth strategy is to Minimize Water Loss to Root Balls. After harvesting, trees need a constant source of water, especially when they are stored above ground. This is especially true in the spring; however, it is still very relevant for the fall planting season. The outer layer of burlap around the root ball will wick water out of the encased soil during dry, windy, or sunny days. Trees should be well watered until they are planted in the ground; letting the root ball dry significantly even one time can cause tree mortality or make it virtually impossible to restore moisture to the core of the root mass. Depending on the weather conditions, it might be necessary to water an aboveground tree with a slow soaking for at least five minutes per day. Additional precaution could be taken by heeling the trees in mulch until they are planted.

Given the wide variety of experiences among arborists with fall planting, the complex interacting nature of the five major factors of transplanting success, and the promise of mitigating practices as described above, additional research into the fall hazards question is indicated.





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FALL TREE CARE

By Meghan Shinn, Horticulture • Nov 8, 2011

Our trees need care to prepare for colder months.

"While your trees seem to be in a state of hibernation in the winter, exposure to the tough conditions can cause them major stress," says Jim Skiera, Executive Director of the International Society of Arboriculture (ISA). "Minimize stress by helping your trees through the cold months, a little at a time. If you take care of your trees in the winter, you'll be rewarded in the spring."

ISA recommends the following tips for preparing trees for colder weather:

Rely on mulch. Put composted organic mulch under your tree in the fall or early winter to help retain water and reduce temperature extremes in the soil. A thin layer of mulch will act like a blanket and give the tree's roots a little extra protection.

Give your trees a drink. Winter droughts require watering as much as summer droughts. If temperatures permit, an occasional watering during the winter on young trees can be a lifesaver. But be sure to water when soil and trees are cool but not frozen.

Prevent mechanical injuries. Branch breakage or splitting can be caused by ice and snow accumulation or chewing and rubbing by animals. You may prevent problems with young trees by wrapping their base in a hard, plastic guard or a metal hardware cloth. Wrapping trees with burlap or plastic cloth also can prevent temperature damage. However, it is important to remember to remove the wraps and guards in the spring to prevent damage when the tree begins to grow. Other damage can be caused when plowing or shoveling snow. Be mindful of trees

Prune your trees. Fall is a good time to prune your trees. Not only are trees dormant in the colder months, but it is also easier to see a tree's structure when there are no leaves on the branches. "Proper pruning is vital to the health of trees and plants, in part because it helps relieve stress on trees and keeps them growing," says Skiera. "Just be aware that each tree is different, and pruning at the wrong time or the wrong way can injure a tree making it more susceptible."

Plant now. Since autumn is the time of year for colorful, falling leaves, many people do not realize that it is also a prime time to plant new trees. After cooler weather has set in, conditions are perfect for stimulating root growth in new trees. Once roots are established throughout the fall and

dormancy of winter, spring showers and summer warmth encourage new top growth. Fall is the optimum time to plant balled and burlapped trees and shrubs. However, all bare root plants should be planted later in the season, when they are completely dormant.

Content provided by the International Society of Arboriculture, a non-profit organization dedicated to tree-care research and education.

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