



Tree Line

A publication of the Kentucky Division of Forestry's Urban and Community Forestry Program
Bridget Abernathy, Editor



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December 2018

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Environmental Impacts of Christmas Trees

Dr. Jill Sidebottom, NC State University



What's best?

Consumers often ask which is better for the environment — to use a real farm-grown Christmas tree or an artificial one?

Trees and wildlife

One important contribution that real Christmas tree production provides is green-space for wildlife to live and forage in. Christmas tree growers accomplish this by managing their ground covers.

In many ways, a Christmas tree plantation is like a woodland meadow. The trees themselves provide shelter for smaller birds and mammals. The diversity of ground covers around trees provide pollen, nectar, support insects which in turn are food, and provide seeds and forage. It is a good habitat for mice and rabbits and ground dwelling birds such as grouse and quail. Song birds build nests in trees. Even the decaying stumps of the trees that were cut harbor insects that are food for wood peckers and flickers. But wildlife can also include the smallest foragers. Christmas tree farms, because of the flowering ground covers growing around the trees, provide habitat for native bees and other pollinators.

What about pesticides?

Pesticide use continues to decline as growers adapt integrated pest management (IPM) practices. These reductions have been substantial. Pest management surveys conducted by Extension specialists have documented a 71% decrease in pesticide use from 2000 to 2013. Learn more at: [What pesticides are used on Fraser fir production in western North Carolina?](#)

The North Carolina Christmas Tree Association has put together a comparison: [The Environmental Choice: The Real Christmas Tree vs. the Fake Christmas Tree.](#)

NC STATE EXTENSION



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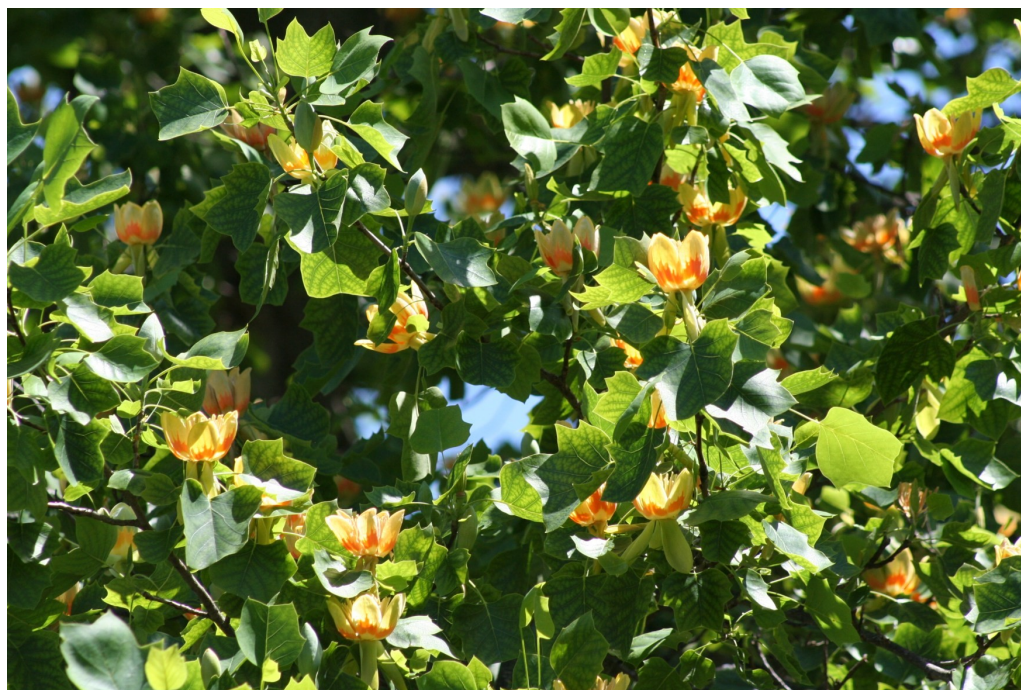
Society of Municipal Arborists

2018 Tree of the Year

Michelle Sutton, Editor, *City Trees*



The 2018 SMA Urban Tree of the Year is native to much of the Eastern United States and is cold hardy to Zone 4 and heat hardy to Zone 8b or 9. You may associate it with forests, but not so much with urban forests. Yet it definitely has its place in cities so long as its basic needs are met. It is the majestic tulip tree or yellow-poplar (*Liriodendron tulipifera*), a member of the magnolia family that reaches 60 to 90+ feet in height and 30 to 50 feet in width. It's named tulip tree because of the shape of its leaves, which emerge first, and its showy flowers, which follow and can be borne higher up in the canopy and somewhat hidden from view by the leaves.



In the plus column, tulip tree is fast-growing and beautiful, offers great wildlife value, tolerates acid soils and somewhat alkaline soils, tolerates soils that are occasionally wet, can grow in partial sun, and healthy specimens do not commonly suffer from diseases or insects. It is readily available in the trade, and there are more compact cultivars available, like 'Emerald City'.

In the minus column, it's not tolerant of salt spray or soil salt, it's sensitive to both drought and chronically poor soil drainage, it needs a large soil volume to meet its needs as a large shade tree, and it can be weak-wooded and drop a lot of branches, especially after ice storms. If used in urban environments, the planting sites need to be places like parks, parkways, rights-of-way, and extra wide medians with shared soil volume where the roots have enough soil volume to meet the tree's needs, especially for water. The foliage of tulip trees in droughty conditions will yellow and the tree will become stressed.

Liriodendron is Greek for “lily tree” (leirion is Greek for “lily” and is Latinized to “lirio,” and dendron means “tree”) and *tulipifera* is Latin for “tulip-bearing.” So one could say it’s a “tulip-bearing lily tree,” although the reference to lilies is not well understood—the tree is in the magnolia, not lily, family.

The SMA recognizes the underutilized, attractive, and useful tulip tree for its service to urban forests and encourages its use when matched appropriately to site and as part of a diverse urban tree inventory. You can see the full list of past Tree of the Year winners on the SMA website, www.urban-forestry.com.



The tulip tree can grow to be a stunningly large, beautiful tree when planted in a location that accommodates it. Because of its unique leaves and flowers, it is a great educational resource for the young arborist starting on their tree ID training journey.

While the species can get big, it can also have brittle branches, possibly exasperated by drought, and can break under wind or snow load. But it also provides pollen for bees and can be a micro-ecosystem for urban wildlife, even in cavities of previously dropped branches.

This tree can benefit from training pruning in the early years and an on-going maintenance program according to the local municipality’s standards. Keeping an up-to-date municipal tree inventory and funding allocation for maintenance, not just for removal and replacement of trees, will help get larger, mature trees like this kind throughout any city, which can provide a strong sense of place and a more human connection to urban wildlife.



Official State Tree of Kentucky



Yellow-poplar was designated the official state tree of Kentucky in 1994, replacing Kentucky coffeetree, which is now Kentucky’s state heritage tree. A host plant for Kentucky’s [state butterfly](#), the viceroy, the yellow-poplar is also called tulip tree, tulip poplar, tulipwood, whitewood, and fiddletree. The tulip poplar is the tallest hardwood tree in the Eastern United States.

Old Tree Finds New Life in a New Form

Carol Lea Spence, University of Kentucky College of Agriculture, Food and the Environment

Urban life can take its toll on a tree. Pollution, trenching to lay underground utility lines, soil compaction, it's all very hard on an old tree, and the red oak tree in front of the Agricultural Sciences Building on the [University of Kentucky](#) campus had seen better days. But its story won't end in piles of mulch. Instead, its wood will find its way into useful, beautiful objects created by and for UK students, faculty and staff.

That the oak, which had died on the side facing the building, will live on through other products is a good illustration of the many products that come from forests -- more than 5,000 in fact, said Chad Niman, primary forest products specialist in the UK [College of Agriculture, Food and Environment](#). Forest products range from the mundane to the sublime, such as toilet paper, lumber, food, medicines and musical instruments.



Branch and Bark Urban Sawmill milled a red oak tree on campus as a demonstration during National Forest Products Week.

“We can salvage and use these large trees and make them into something better than just mulch,” Niman said. “It’s exciting to see that material used in something longer lived.”

In this case, the old red oak is destined for greatness in two UK colleges. The College of Agriculture, Food and Environment will set aside some of its wood for future projects. And the College of Design has plans to use it in a number of ways. Students will design and build with it in the furniture design studio. Bruce Swetnam, associate dean for

students in the College of Design, said they are also considering it for an art piece milled for their new café space.

Just as it took a long time for the oak to grow to its mature 39-inch diameter, its lumber will not be ready overnight. Niman’s team is going to air dry the squared and live edge lumber and monitor the moisture level, which will avoid or greatly reduce the cost of kiln drying. That means the wood will likely not be available for about two years.

Stacy Borden, UK arboriculture superintendent, worked closely with Niman in arranging for the harvesting and milling of the tree. Borden has created a tree protection standard for the university. If a tree has to be removed, the replacement policy is an inch-for-inch replacement.

“It takes a long time to replace that tree’s canopy, so replacing a 60-inch tree with one 2-inch

tree doesn't even come close to replacing the canopy or the benefits from that canopy," he said. "We can replace that canopy a lot faster if we plant 30 2-inch trees."

Aside from the aesthetic value, Borden said preserving the tree canopy is about stormwater mitigation. A tree's canopy will intercept the rain before it hits the ground, either absorbing it, allowing it to evaporate back into the atmosphere, or letting it drip down at a much slower pace, which gives the soil more time to absorb it.

"There's a lot of stormwater that never even gets to the storm drains because of a tree's canopy," Borden said. "If we start losing all this canopy, all of a sudden we have a lot more stormwater and surface flows and erosion, which means more pollution."



Branch and Bark Urban Sawmill contributed their time and equipment to mill the oak once the tree was down. With two sawmills they brought to the site, they milled planks from some of the smaller diameter pieces and cut six thick slabs from the main trunk.

"One of the things we're trying to achieve is the salvaging of these logs," Borden said. "In the past, they went to the city's composting facility and were turned into mulch. We're trying to divert our wood away from that, because there's better use for the wood."

The plan going forward is to turn trees that can't be saved into a usable form that could benefit the university in some way.

"This material from the campus trees can provide unique learning experiences, fill material needs for classes and programs, and have folks thinking about stewardship and utilization," Niman said.



Photos by Matt Barton

Helping Trees Recover From Ice Storms



As we move into the winter season, more extreme weather patterns are likely to occur. Ice storms, which were once infrequent in Kentucky, now take place more often and earlier in the season.

Ice accumulation adds extraordinary weight to trees, breaking stems and branches, or toppling them completely. Both conifers and hardwoods are affected, from young stands to mature trees with large crowns. Ice storms can kill trees outright, but damaged trees can survive if given the right care. Don't make hasty decisions. There are measures that can be implemented to help many damaged trees recover.

Practice Safety First. Homeowners who work on their own trees should use extreme caution. Working with chainsaws or other tree care equipment to removing large trees or limbs is dangerous. Broken branches or leaning trees can be easily dislodged by the wind, so wear safety gear. Don't work on ice-coated trees – let the ice melt. Do not climb a ladder with a chainsaw. Do not climb into a heavily damaged tree, and never touch any tree near electric wires. Assess your particular tree situation carefully and watch for safety hazards. Most tree work needs to be carried out by trained professionals, especially when the work requires climbing or the tree is leaning against another tree or structure, or where falling debris might put you or your property at risk.

Eliminate Immediate Hazards. Remove dead trees, trees leaning severely, trees with broken or cracked stems, trees with extensive broken roots, and any large dead or broken limbs that are still attached to the tree. Landowners with acreage should complete a damage assessment before salvaging any forest stands. Unfortunately, downed or damaged trees that could be salvaged will lose their value within a few months because of decay and discoloration. Marketing salvaged material can be more challenging because of the sheer volume of damaged trees in the region.



Hire an Arborist. Hire a qualified arborist to carry out individual tree care work properly and safely. Trained arborists are aware of proper pruning and removal procedures and can reduce the chance of further damage to the tree. Make sure the arborist is certified, and ask for certificates of insurance, including proof of liability for personal and property damage and workman's compensation. Also request local references and get more than one estimate if possible. Check the [International Society of Arboriculture](http://www.international-society-of-arboriculture.org) website to locate an arborist in your area.

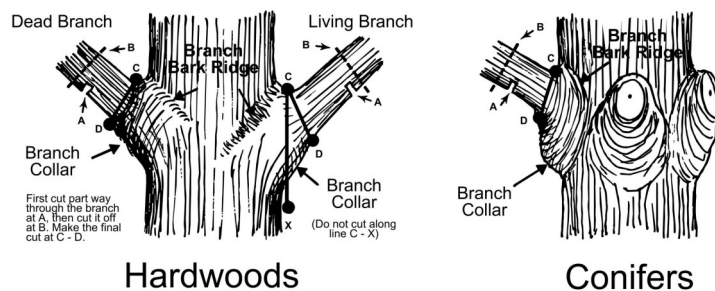
Steps in Proper Pruning. Because of its weight, a branch can tear loose during pruning, stripping the bark and creating jagged edges that invite insects and disease and inhibit proper wound closure. Use the following proper pruning steps for hardwoods and conifers:

A. Make a partial cut from beneath, at a point several inches away from the trunk.

B. Make a second cut from above, several inches out from the first cut to allow the limb to fall safely.

C-D. Complete the job with a final cut just outside the branch collar, the raised area that surrounds the branch where it joins the trunk.

Proper Pruning Principles

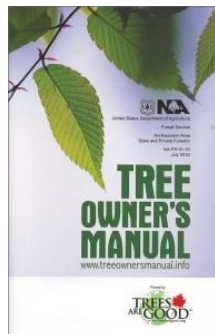


Hardwoods

Conifers

 [Arbor Day Foundation](http://www.arborday.org)

Long-term Considerations. Some tree damage may not be immediately apparent. Hidden cracks may cause branches to droop when leaves come out in the spring. Stem decay or cracks may lead to structural loss, causing the tree or large branches to become hazardous. Root damage may not be evident until twigs or branches in the upper crown begin dying after two or three growing seasons. Stressed, dying and dead trees may attract insect pests. Visually monitor trees over the seasons to determine if additional tree care measures need to be taken.



The [Tree Owner's Manual](#) is an excellent resource for proper tree care, and includes detailed information on installation, protection and maintenance.





Little Rock Combats Chronic Diseases Through "Medical Mile Trail"



CASE STUDY

In 2003, the [Parks and Recreation Department of Little Rock](#), Arkansas wanted to encourage people to get outside into a natural setting and promote healthy lifestyle choices. As part of the [Arkansas River Trail](#) system that runs for over eighty miles, the [Medical Mile trail](#) is health inspired and promoted by the medical community. It includes playgrounds, spraygrounds, sculptures, picnicking areas and a mural wall with a message to inspire fitness and nutrition.

After two years of fundraising and getting support from the Heart Clinic of Arkansas, the state's largest cardiac clinic, the trail was completed and became the nation's first linear health museum. The goal of the project was to unite the benefits of urban greenery and decrease preventable chronic diseases like obesity and heart disease.

Being in a natural setting is scientifically proven to encourage people to become active and stay healthy. The Medical Mile does that and more. It also uses interpretative signage and artwork to send a message to the public about getting active. Features of the trail include art displays from local artists, benches to rest and enjoy the natural beauty and a grand entry plaza with young and mature trees adjoining the walkways.

The trail is a massive success story with over two million visitors annually and designed for people of all backgrounds, ages and physical ability. During all hours of the day people are out walking, running, bicycling and roller blading. Some use the trail to just take a break from the busy urban life and find refuge under the shade of a honey locust.

FUNDING

- ⇒ Little Rock Parks and Recreation successfully engaged the medical community for assistance with fundraising, including local hospitals, coalitions, the Arkansas Department of Health, Arkansas Blue Cross and Blue Shield, Arkansas Parks and Tourism, Pulaski County, numerous individual physicians & medical practices.
- ⇒ Little Rock Parks and Recreation created a fund-raising campaign where donors were encouraged to purchase trail "by the foot."

PARTNERS

- ⇒ National Park Service Rivers Trails & Conservation Assistance Program
- ⇒ American Trails
- ⇒ Heart Clinic Arkansas
- ⇒ Little Rock Parks & Recreation
- ⇒ Arkansas River Trail
- ⇒ City Parks Conservancy

LESSONS LEARNED

- ⇒ Promoting outdoor activity is not only good for health, but also strengthens the community.

The Power of Partnerships United Way Day of Action Tree Planting



Each fall, the Heart of Kentucky United Way mobilizes over 600 community volunteers from four Central Kentucky counties to contribute to service projects in local communities, called the Day of Action. In October, one dedicated group of volunteers assisted in a riparian tree planting project along Clarks Run, an imperiled waterway in the Dix River Watershed in Boyle County.



This project had many moving parts and partners to make it successful. The Kentucky Water Resources Research Institute (KWRII) and Clarks Run Environmental Education Corporation (CREEC) identified a section of Clarks Run in Danville's Michael M. Smith Park to focus riparian restoration activities. Staff and volunteers from the City of Danville, Boyle County Cooperative Extension, Kentucky Division of Forestry, CREEC, Centre College and KWRII developed a protocol for removing invasive species, planting native trees and shrubs along the waterway, and establishing educational kiosks in these areas.

In advance of the United Way's Day of Action, Centre College students removed invasive species along the waterway. Volunteers then gathered on a brisk but beautiful morning in October to plant native trees and shrubs.

This project's collective impact was strengthened by the dedicated group of volunteers from Central Kentucky. Learn more about getting involved with the Day of Action [here](#).



U of L's Sustainable Living Lab

Maple Tapping

(U of L News)

Three years ago students successfully tapped 12 trees for the first time on U of L's campus, as part of a biology class where students designed experiments and gathered data. The sap was processed into two quarts of syrup by Dave Barker, a community partner who operates an artisanal sugar shack in Lyndon. Syrup was later served atop pancakes at the Ecoceps Lunch and Learn Workshop.

The project has since grown to include a second biology class, additional species and an expanded number of trees that were tapped, and hands-on campus and community maple tapping workshops, where participants took home their own tap at the end of the day.



"We are always looking for ways to use U of L's campus as a living laboratory for sustainability," said Justin Mog, assistant to the provost for sustainability initiatives. "Tapping maple trees here on our campus is another way to teach about food literacy and urban agriculture."



In 2018 the initiative further expanded into an extracurricular Living Lab project for students, employees and the public, in association with the U of L Garden Commons. Sugar maple, red maple, river birch and sycamore trees on two of U of L's campuses were tapped. It was a very productive year, where 139 tapped trees produced 30 gallons of maple syrup from over 1,000 gallons of sap.

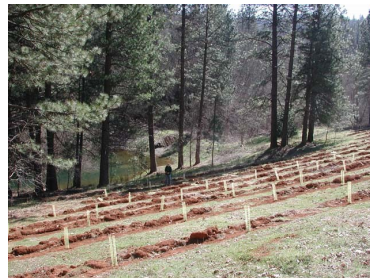
In the future, this initiative will be further incorporated into the classroom and extracurricular life on campus to better suit the weather conditions for tapping and to reach additional student populations. In January, this project will be integrated into an urban agriculture class curriculum as well. Be on the lookout for 2019 workshops offered through [U of L Sustainability](http://UofL Sustainability) to learn more about tapping trees right here in Kentucky.

Kentucky Seedlings Available for 2019 Delivery



Each year, [Kentucky Division of Forestry](#) (KDF) grows over 1.5 million seedlings at its two nurseries located in Morgan and Marshall counties. A total of 40 different species are available for 2019 delivery. Trees can be purchased in small and large bundles, and are an affordable option for Arbor Day events, educational giveaways, and large-scale reforestation projects.

The [tree seedling fact sheets](#) and [seedling order form](#) provide detailed information on species and purchasing. KDF staff can assist you with tree selection, site suitability, and other questions. Order NOW to ensure availability: <http://forestry.ky.gov>



Featured Champion Tree: Sassafras

Kentucky boasts several national champion trees, which are the largest known trees of their species in the country. Many of these trees grow in our forests, while others are located in towns and cities throughout the state.

This champion sassafras, located in Daviess County, is short and stout, with a height of 62 feet and a circumference of 283 inches.

To view other champion trees in Kentucky and throughout the U.S., visit [American Forests Champion Tree National Register](#).





“I frequently tramped eight or ten miles through the deepest snow to keep an appointment with a beech tree, or a yellow birch, or an old acquaintance among the pines.”

~Henry David Thoreau



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Upcoming Events

- ◆ Dec. 29 - Louisville Nature Center's [Audubon 118th Bird Count](#), Lou.
- ◆ Jan. 1 - McConnell Springs [New Year's Hike](#), Lexington
- ◆ Jan. 5 - UK Arboretum's [Trees in Winter](#), Lexington
- ◆ Jan. 12 - KSP's [Winter Guided Hike to Natural Bridge](#), Slade
- ◆ Jan. 23-24 - [KNLA's Winter Training Conference](#), Louisville
- ◆ Feb. 21-22 - KAA's [2019 Annual Conference](#), Boone County
- ◆ Feb. 23—Floracliff's [Lichens, Mosses & Ferns Hike](#), Lexington
- ◆ Feb. 24 - March 5 - SMA's [Municipal Forestry Institute](#), Silverton, OR
- ◆ Mar. 8 - [Public Workers Tree Seminar](#), Kenton County
- ◆ Mar. 30 - ORV's [Woodland & Wildlife Workshop](#), Madison, IN

To learn more about the organizations and events listed above, click on the hyperlinks (hover on the brown text, press Control and click) and visit their websites. Note: pre-registration is required for many events, and there are fees for some events:

- * Arbor Day Foundation (ADF) - arborday.org
- * Arboretum - State Botanical Garden of Kentucky - ca.uky.edu/arboretum
- * Bernheim Arboretum - bernheim.org
- * Boone County Arboretum (BCA) - bcarboretum.org/default.aspx
- * Cincinnati Zoo and Botanical Garden (CVBG) - cincinnatizoo.org
- * Floracliff Nature Sanctuary - floracliff.org
- * International Society of Arboriculture (ISA) - isa-arbor.com
- * Kentucky Arborists Association (KAA) - ky-isa.org
- * Louisville Nature Center - louisvillenaturecenter.org
- * Northern Kentucky U&CF Council (NKUCFC) - nkyurbanforestry.org
- * Society of Municipal Arborists (SMA) - urban-forestry.com
- * Urban Forest Initiative (UFI) - ufi.ca.uky.edu
- * Yew Dell Botanical Gardens (YDG) - yewdellgardens.org

