Massachusetts Department of Conservation and Recreation

THE CITIZEN FORESTER

Urban & Community Forestry Program

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Caring for New Trees

This article is adapted from our factsheet, *Caring for New Trees*. Newly-planted trees need care, especially in the first two to three years after planting. Follow our advice on watering, protecting, mulching, and pruning to keep your new tree looking good and growing great. Thinking about planting a tree? We have a factsheet on that too.

Slow watering with a hose.

Watering

New trees need lots of water. Watering with a garden hose at low volume, utilizing a soaker hose, or a specialized tree watering bag is ideal since it allows water to slowly infiltrate the soil. Less frequent, but thorough watering is more beneficial to root development than frequent shallow watering.

It is hard to say exactly how much to water your tree, but 15 gallons once per week is a good starting place for trees that are approximately 1.5 inches in caliper. If your tree is larger than that, or if the weather is hot and dry, increase the amount of water or water twice a week. You can keep an eye on drought conditions at the U.S. Drought Monitor or by checking out conditions reported in the Landscape Message from UMass Extension. Or you can measure the rainfall at your own property by purchasing a rain gauge for around $10. Test the soil moisture by using a trowel to dig two inches into the soil. Use your fingers to feel the soil in the small trench you created. If it is dry, it is time to water.

A watering bag placed around its own stake. Bags can also be placed around the trunk, but be sure to monitor the trunk for moisture and insect problems.

Water your tree for the first two years after planting. Begin watering when the ground thaws and until the ground freezes. It is possible to water your tree too much, so if you are watering your tree and it's not looking so great, it's possible that overwatering is the culprit. Overwatering deprives roots of the oxygen that they need. If the area around the tree is always wet, that's a sign of overwatering. To assess another way, dig down six inches or so and feel the soil – it should not be soaking wet. If it is, try watering less. Signs of overwatering a tree and underwatering a tree can look similar, so it is good to poke around a little in soil to check what's going on below ground when trying to diagnose the problem.

What about lawn sprinklers and rainfall?

While lawn sprinklers may keep grass looking green, they do not provide the deep watering that trees need. Even with lawn sprinklers and natural rainfall, trees may need additional watering.

Up Ahead:

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Caring for New Trees

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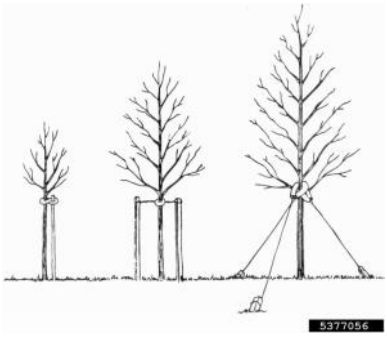
Tree Stabilization



Staking techniques, ISA, bugwood.org

Tree stabilization may be necessary in windy areas or for trees without an adequate root system. Tree stabilization may consist of stakes, guys, and other materials. Here we describe a method using stakes, but there are a variety of systems out there, with varying costs and amounts of labor required. Use 2 to 3 stakes, placed just inside the outer edge of the mulch ring, and wide nylon or canvas straps, tied loosely around the trunk. A loose connection with the tree trunk enables the tree to move and develop reaction wood in response to wind. This helps make the trunk grow stronger. A tightly bound tree will not be able to sway in the wind and develop this kind of wood, making the trunk more susceptible to breakage. A loose connection also means that a tie around the trunk won't girdle the tree. For an unstable root ball, use 1-3 stakes attached low on the trunk. Remove all stakes after 1 year.

Trunk Guards

If winter damage to the trunk by rodents or rabbits is a concern, install a trunk guard made of plastic tubing, hardware cloth, or wire fencing. Allow 1-4 inches of space around the trunk and ensure it is tall enough to protect in winter when the "ground" level may rise due to snow. Remove in the spring.

Mulching

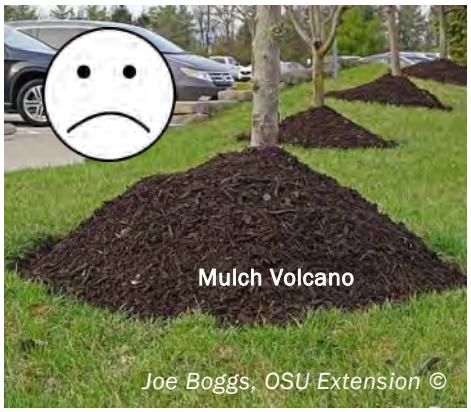
Mulch is any woody or herbaceous material spread over the root zone of a plant. It can be aged wood chips, shredded bark, pine needles, composted leaves, composted grass clippings, and other organic material.

|---------- Root Zone ----------|

Correct mulch technique

Why mulch? Mulch reduces the shortcomings of urban and landscaped sites by replicating natural processes of the forest. It increases available nutrients and water retention, buffers soil temperatures, and provides root protection. It also reduces root-zone erosion potential, soil compaction, weed growth, and prevents lawnmower, string trimmer, and other machinery damage.

How to use mulch. Place mulch in a ring at least 3 inches away from the tree trunk, at a depth of 2-4 inches, and ideally out to the tree crown. When in doubt use the 3-3-3 method, mulching 3 inches high, 3 inches away from the trunk, in a 3-foot ring. Occasionally, you may need to pull mulch away from the trunk of the tree since it will sometimes settle around the trunk. Raking away old mulch before applying more helps maintain the correct depth. It is common to see mulch piled high against a tree trunk, which is not necessary and can be harmful to the tree whose roots may struggle for oxygen under the raised "ground level." It also encourages insects, rodents, and fungal pathogens that can damage the trunk.



This practice is commonly seen in the landscape and is harmful to trees.

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Caring for New Trees

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Fertilizing

New trees typically do not require fertilization. Only use fertilizer if a soil test indicates a deficiency. For information on testing your soil, contact the UMass Soil and Plant Nutrient Testing Lab, 413-545-2311 or https://soiltest.umass.edu/. Improper use of fertilizer can damage your tree and the environment.

Pruning and Periodic Inspection

A best practice is to prune only dead and broken branches at planting. After 2 years, you may begin structural pruning. Your tree will likely require pruning every 1-2 years to establish and maintain proper structure. If your tree is within 10 feet of utility lines, or you need to use a ladder or chainsaw to prune, contact an arborist. There may be times when it is more practical to do some structural pruning at planting—for example, removing a co-dominant leader. While it is not recommended to do this kind of pruning at planting, if that is likely the only time a tree (or trees) may be visited for pruning in the next two years, go for it, just be judicious and perhaps only tackle the co-dominant. (Be sure to keep watering it in the meantime!) For guidance on tools, techniques, and safety, see *The Tree Owner's Manual*, pages 18-23. Periodically, inspect the tree for insect and disease problems. If you encounter insects or suspect a disease, you can check out the resources at UMass Extension or a book like Garden Insects of North America. As you would with any tree, protect the tree from lawn mowers and string trimmers, construction, soil compaction, and road salt.

References and Resources

Arbor Day Foundation Videos
www.arborday.org/trees/video-library.cfm

Cranshaw, Whitney and David Shetlar. 2015. *Garden Insects of North America: The Ultimate Guide to Backyard Bugs.* 2nd ed. Princeton: Princeton University Press

New Tree Planting. 2011. International Society of Arboriculture, www.treesaregood.com/treecare/resources/new_treeplanting.pdf

Tree Owner's Manual, www.treeownersmanual.info

Tree Planting Best Management Practices. 2014. 2nd ed. Champaign, IL: International Society of Arboriculture

Greening the Gateway Cities in Lynn

Through the Greening the Gateway Cities Program, the City of Lynn has created new planting strips in an area with low tree canopy. The strips measure roughly 5x10 feet. The City made the strips as wide as possible, while still complying with requirements of the Americans with Disabilities Act.

Greening the Gateway staff planted two Jefferson elms in the new planting sites. As these elms mature into large shade trees, they will help lower the local air temperature by shading the pavement and through evapotranspiration.

Kudos to Lynn for creating more places for trees and working to reduce the urban heat island!

Photo by Michael C. Griffin, DCR

Species Spotlight

Apple, *Malus domestica*

By **Mollie Freilicher**

I struggled to come up with a species to spotlight this month and then a couple events led me to the apple, *Malus domestica*. First, I started reading *The Botany of Desire*, and one of the four plants Michael Pollan writes about is the apple (and also the person responsible for bringing apples—not for eating, but for drinking—to much of the western frontier, the man we know as Johnny Appleseed). The second event was the Urban Forestry Today webcast on fruit trees with Wes Autio, pomologist, professor, and current Director of the Stockbridge School of Agriculture at the University of Massachusetts Amherst.

Malus is the genus name for apple trees, whether they produce crabapples or the apples we regularly eat. The difference in common name comes from the size of the fruit, not the taste. Crabapple fruit is less than two inches in diameter and apples are larger. There are three species of *Malus* native to North America *Malus fusca*, *M. coronaria*, and *M. ioensis*. They produce crabapples—and not ones we would want to eat right off the tree. None of these are native to Massachusetts, so anytime you are in a natural area and you see an apple tree, it is either a remnant from a former orchard or has seeded in. The apples we eat are the result of lots of hybridization and breeding. Scientists in Italy sequenced the genome of *M. domestica* in 2010 and discovered that it has 57,000 genes. That is more genes than any other known plant genome. (Humans, for comparison, have between 20,000-25,000 genes.)

Apples growing in the Tian Shan mountains in Kazakhstan. (Mercedes Hutton)

Flowers of 'Roxbury 'Russet.' (Monticello.org)

The main wild ancestor of all domesticated apples is *Malus sieversii*. *M. sieversii* grows in the Tian Shan mountain region of Kazakhstan and it was domesticated three to four thousand years ago. Traders and travelers of the Silk Road (and their animals) brought the apple west as they traveled. The wild crabapple, *M. sylvestris*, native to Europe, also hybridized with these apples, perhaps naturally and probably with the help of people, starting around 1,500 years ago, and genetic analysis shows that our modern apples today are more closely related to *M. sylvestris* than *M. sieversii*. The Tian Shan region is also of interest for other native fruit trees, including apricot, cherries, and almonds. As one of the main sources of genetics for our modern cultivated apples, it has also interested plant breeders and others. There are repositories of seeds collected by scientists from the USDA and from Cornell in Ithaca, NY, and in Fort Collins, CO, that are used for research and developing better apples.

Recognizing apple trees

Apple trees are small trees that can reach heights of about 30 feet. Habit can vary. They are alternate, with ovate to elliptical leaves,

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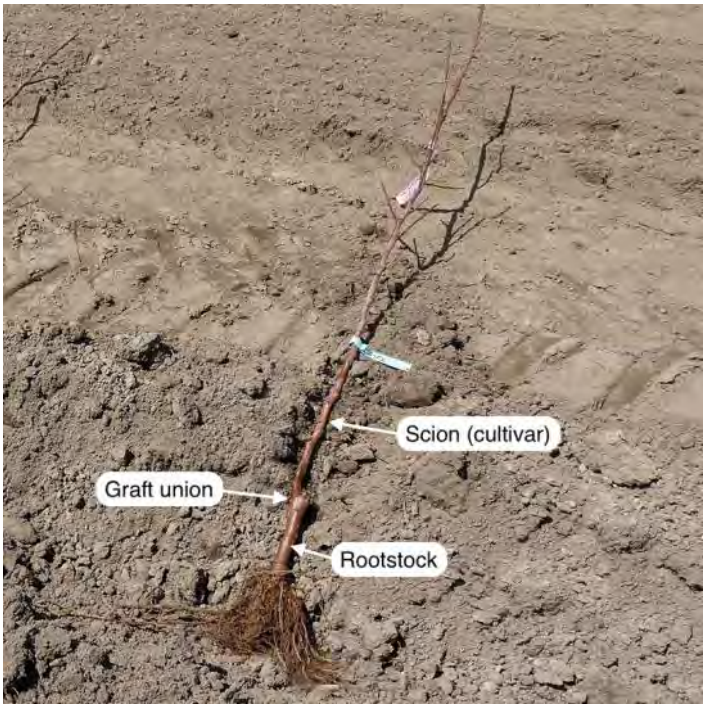
Species Spotlight- Apple, *Malus domestica*



Parts of an apple tree seedling (University of Minnesota Extension)

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three to six inches long and about half as wide, with margins that may be smooth, serrated, or undulate. On older trees, the bark can be gray and scaly and on younger trees, it may be smoother, gray-brown, with visible lenticles. Apple buds are ovoid, with overlapping scales. Apples typically bloom in early spring and flower color varies from white to pink. Like most other members of the *Rosaceae*, apple flowers have five petals. Bloom may last just a few days and the early spring blooming makes the flowers (and developing fruit) susceptible to the vagaries of early spring weather, which can include frost and freezing temperatures.

Depending on variety, the fruit ripens in late summer through fall and can range in color from yellow to green to red. As we all know, the fruit can be pretty varied—though much more varied than a trip to the grocery store would have you think. Fruit may be smooth and shiny, or dull, or even "russeted," like the Roxbury Russet (yes, as in Roxbury, MA) with rough patches of brown covering some or all the outside. They may even have ridges, like the Calville Blanc d'Hiver, a variety first cultivated in the 16th or 17th century. If you have a chance to visit an orchard, like the UMass Cold Spring Orchard, you'll see the amazing variety in appearance and taste the variety in flavor. (Full disclosure: I've been known to frequent Cold Spring Orchard almost every weekend of the apple season. Top four apples there: Roxbury Russet, Shamrock, Mutsu, and Paulared.) **Growing apples**

Most of the information that follows is from Wes Autio's Urban Forestry Today webcast. I highly recommend watching it if you are considering getting into apple (or other fruit tree) growing or simply want to up your game with fruit trees you already have.

How to grow apples

Apples are not self-fruitful; one tree cannot pollinate itself. If you want fruit, you will need two separate varieties, with overlapping bloom times, within 50 feet of each other. They do best in full sun, between six to eight hours of sun per day and in well-drained soil. In his presentation, Autio recommended several varieties of apple trees that have good disease resistance, making them especially suitable for home growers. Some of these varieties include Redfree, Sansa, CrimsonCrisp, Crimson Topaz, Liberty, Crimson Gold, NovaSpy, Enterprise, and GoldRush.

How apples grow

Growing consistent apple varieties is the result of grafting. Grafting is bringing together two different parts of two different trees to form the variety. The rootstock determines how the tree will grow – how tall and wide, as well as when, in its life, a tree will start fruiting. Rootstock can also influence disease resistance, and other factors. The scion is attached to the rootstock and is responsible for determining what the fruit is like. It comes from a cutting from a tree with the desired fruit characteristics or the desired known cultivar. These two elements are put

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Apple, *Malus domestica*

Tree pruned to maintain a central leader. The tree is pruned each year to remove some side branches. (UMaine Cooperative Extension)

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together and form a union that creates one tree. When planting a grafted tree, it is important to plant the graft union two to four inches above the soil. When planting any tree, it is important to know if your tree is the result of a graft so that you don't accidentally plant the tree too low, in which case, the scion will form roots and your tree may be much larger (or smaller), or less disease resistant than you anticipated. Autio also recommends taking a soil sample to ensure the soil is adequate to support the trees.

How to maintain apple trees

Apple trees require ongoing maintenance to optimize fruit production, including fertilization and pruning. Apple trees fruit on two-year-old wood and older, with optimal fruiting on three to four-year-old wood. Pruning to ensure wood of that age, as well as a central leader structure is critical for the best fruit production. Autio has seven simple rules for apple pruning:

1. Remove 2-3 of the largest limbs in the top 2/3's
2. Use the 2-to-1 rule
3. Avoid stubbing (or heading) cuts
4. Simplify branches
5. Remove drooping branches
6. Remove branches growing straight up
7. Maintain central leader

Autio stresses the importance of removing apple fruitlets that are developing to ensure adequate fruit development and to ensure the tree has enough resources to make buds for the next year. Without this thinning, the fruit will be smaller and bloom the following year will not be as good. Apple trees are susceptible to many pests and diseases, including voles, deer, apple maggot, plum curculio, apple scab, and others. For details on these pests and others, check out the Urban Forestry Today webcast and the New England Tree Fruit Management Guide.

Other References and Resources

Dirr, M.A. 1998. Manual of Woody Landscape Plants: Their Identification, Ornamental Characteristics, Culture, Propagation and Uses. 5th Ed. Champaign, IL: Stipes.

Glausiusz, Josie. 2014. "Apples of Eden: Saving the Wild Ancestor of Modern Apples." *National Geographic*. May 9, 2014.

Hutton, Mercedes. 2019. The Birthplace of the Modern Apple.

UMass Extension Fruit Program. https://ag.umass.edu/fruit

A new apple variety 'Firecracker' developed at Cornell. (Cornell AGriTech)

From the Woods

Being a Small Part of Big Solutions Makes Change for Climate, Forests, and Birds

By **Alison Wright-Hunter**

There is a stretch of days in late April and early May when it all turns green, the smell becomes grassy, the sun is high in the sky, and the air is moist. These are the days when the leaves on our deciduous and coniferous trees are expanding, growing and beginning the process of taking down carbon dioxide from the atmosphere to build more tree while also producing the oxygen we breathe. At about the same time, the neotropical migrant birds begin to arrive and there is a chorus in our woods. My morning wakeup call becomes the ethereal song of the wood thrush singing along with other migrant birds. As they arrive, I imagine their long journey from the southern tropical latitudes, places like Mexico, South America, and Central America. They are here for a purpose. Our woods are a critical bird nursery for them and for our resident birds. It is an annual cycle for many of them; breeding and raising their young here in the north, only to fly away and overwinter in another forest with a warmer climate and habitat that is equally as important. There is a growing set of data documenting where birds go for the winter. The Cornell Lab has a new resource to learn more about these travelers.

Mass Audubon's research indicates that 30% of our breeding birds are in decline. Their report, State of the Birds 2017, summarizes the challenges our birds face as the climate changes. There are other challenges, such as deforestation – with a change to another use (such as agriculture or residential), completely removing forest habitat. The majority of bird species in northeastern forests are neotropical migrants, and they are increasingly at risk due to disappearance of their habitat, especially in tropical countries. Not only is tropical deforestation a problem for birds and wildlife, but it is also one of the causes of a warming climate. If tropical deforestation were a country, it would rank third in CO_2e emissions. Put another way, deforestation and degradation of tropical forests are 8% of the problem and conservation and restoration of tropical forests is 23% of the solution.

Wood thrush (Billtacular, flickr.com)

It may seem like these problems are out of our control. But there are ways to make a positive contribution to enhancing or maintaining bird habitat in *both* their summer and winter habitats while also being part of climate mitigation solutions. If you own forestland in Massachusetts, you are part of a large group who owns 63% of our state's forests. Depending on their interests, a forest landowner can enroll in multiple forest programs through the Department of Conservation and Recreation's (DCR) *Working Forest Initiative*. For a landowner who is interested in birds, and who would like to improve bird nesting habitat, the *Foresters for the Birds* program is a good choice. It is a program that integrates knowledge of bird habitat nesting requirements and forest management practices, putting science on the ground and in the woods. The program began just to our north in Vermont. In response to declines in songbird populations in New England, Audubon Vermont and the Vermont Department of Forests, Parks, and Recreation launched *Foresters for the Birds* in 2008. The program is an innovative project that works to keep forests as forests and common birds common by training foresters to identify existing types of bird habitat. The program proceeds to then teach how to enhance those forest

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From the Woods - Being a Small Part of Big Solutions

Shade-grown coffee plantation, Colombia. Credit: Brian Smith American Bird Conservancy Flickr (CC BY-SA 2.0) https://blogs.scientificamerican.com/guest-blog/the-coffee-songbird-connection/

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conditions to create improved nesting habitat. This information is compiled in a forest management plan as a guidance tool for the landowner. In 2014, the Massachusetts Department of Conservation and Recreation, Mass Audubon, and the Massachusetts Woodlands Institute partnered to bring the ***Foresters for the Birds*** program to Massachusetts. The *Foresters for the Birds Program* is now working with landowners building better habitat along the flyway of migrant birds in at least seven states including Vermont, Maine, Connecticut, Rhode Island, North Carolina, South Carolina, and Michigan.

Both here and afar, the forests of the world support birds and wildlife populations as well as communities of people who depend on those forests for some part of their livelihood and survival. Forests provide income to landowners through forest harvesting, jobs for foresters, loggers, wood mills, farmers, conservation organizations, and other environmental professionals. But to understand tropical deforestation we must take a lens to what causes it – what drives it? Tropical deforestation is overwhelmingly driven by just a few global commodities: palm oil, wood products, soy, and beef. These four commodities account for the majority of all global warming emissions from tropical deforestation.

How can we make informed decisions that can improve climate mitigation while also maintaining tropical forests, habitat, and local forest people's livelihoods? Choosing products produced from sustainable forestry systems can be where we each have some influence. For example, scientists and policy makers have found that shade-grown coffee provides multiple benefits by maintaining tree canopy cover. The tree canopy cover is habitat for birds and provides a higher value coffee bean for the market, increasing value to the farmer. Trees on the landscape improve soil health and capture and store additional carbon. The practice of growing shade grown coffee is considered an agroforestry system. Other agroforestry systems grow trees with livestock, a practice called silvopasture.

Forest Stewardship Council label.

Another way to identify sustainably harvested forest products is to watch for the Forest Stewardship Council label (at right). The Forest Stewardship Council (FSC) was established to create an international system for certifying sustainable wood. *FSC* certification ensures that products come from responsibly managed *forests* that provide environmental, social, and economic benefits. These familiar labels can be found on millions of products around the world from toilet paper rolls to your favorite book, magazines that arrive in the mail, office copy paper and lumber at your local hardware store yard. Although FSC has been criticized for some incidents where illegal tropical wood was certified as sustainable, it continues to maintain that its certification

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From the Woods - Being a Small Part of Big Solutions

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system is "robust and under continuous development".

Like many others, I am an avid shopper buying new clothing and shoes for myself and my family on a regular basis. But without that "made in America" label it is hard to know whether the stuff that makes up your product came from a tropical forest and whether it was legally and sustainably harvested. Ecosystem Marketplace is a good resource for reading about international environmental news and resources. It was there that I discovered a new product tracking tool. Supply Change is the world's first and only freely available data aggregation and profiling platform that tracks global corporate public commitments to and progress toward eliminating deforestation from the four most damaging global commodity supply chains: palm, soy, timber and pulp, and cattle.

There is no denying it - there is a commitment to education and practice in order to be part of effective solutions for climate mitigation, improved bird habitat, and forest regeneration and sustainability. Start locally and learn about forestry and efforts towards sustainability and improved bird nesting habitat. Call your local DCR Service Forester with questions or to arrange a woods walk on your land. If you are a novice birder, spring and summer are the best time to learn to identify birds. Look for a local bird club, try a bird ID app or follow Mass Audubon. Next steps are to go global to understand how we all influence the status of tropical forests with our purchasing power. Look for ways to determine if the products you buy are sustainably sourced. Prioritizing efforts to keep tropical forests as forests, while also improving the livelihoods of local peoples is a climate mitigation strategy towards the top of the list for the international climate community. We are part of that community and can be part of the solution process. Listen and look for the birds of the woods this spring and summer and let them show you how connected we really are.

Alison Wright-Hunter is a Service Forester at DCR, working and living in the woods of Western Franklin County. She is the recipient of the Weyerhaeuser Fellowship and is enrolled in Michigan State University Department of Forestry's Graduate Certificate in Forest Carbon Science, Policy, and Management.

The Service Forestry program is an outreach and regulatory program within the DCR, whose core mission is to encourage sustainable forest management on privately owned forest lands. DCR Service Foresters provide technical assistance and programs to landowners as well as to municipalities. Each Service Forester covers a district. Find out more about Service Forestry (including your local forester) at https://www.mass.gov/service-details/service-forestry

Tree Steward Training 2021 – Update

DCR Urban and Community Forestry is in the process of re-visioning our 2021 Tree Steward Training this October. Holding a two-day, overnight event at Harvard Forest this fall did not seem practicable this year. We are re-working the workshop into a series of webinars and an in-person, outdoor session. Stay tuned for announcements related to the programs and dates.

Tree identification with Joe Perry—learning about dichotomous keys.

Beetle Bites

ALB or Not ALB? That is the Question

Beetle Bites is a new section from the DCR staff of the Asian Longhorned Beetle Cooperative Eradication Program.

By **Dan Callahan**

When I first started surveying for Asian Longhorned Beetle (ALB), I remember feeling overwhelmed by all the things in the forest that seemed made out to trick me. I quickly learned that the devil is in the details. Many things appear similar to ALB and its damage, but here you'll find some of the most common culprits.

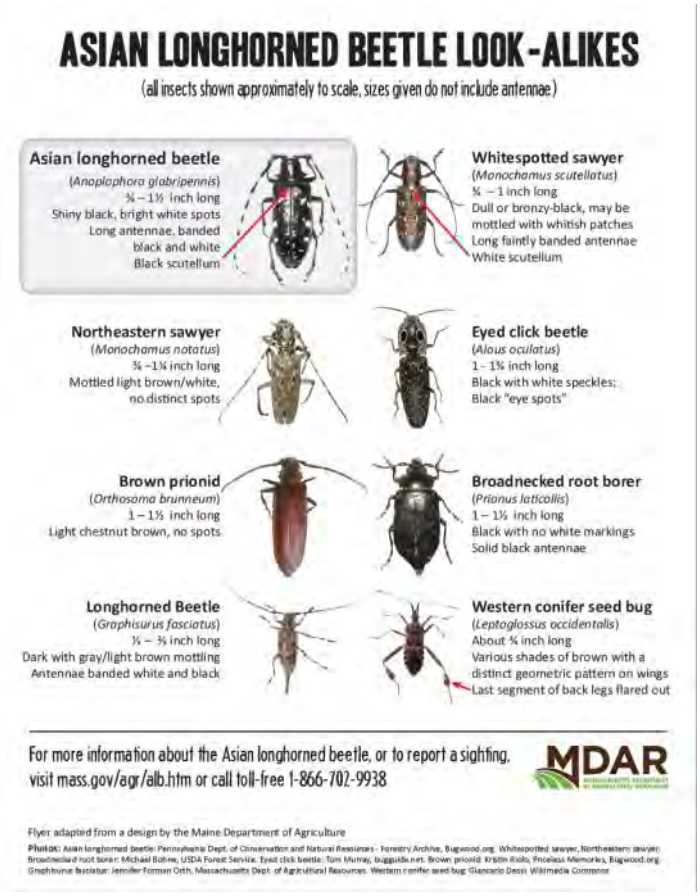
Look-alike Insects

ALB is a large, shiny, black beetle with white spots, black and white banded antennae, and is often adorned with blue-tinted legs. The body typically ranges in size from 0.75" to 1.5", with the antennae extending even longer. While its coloration and size make it seem unique, there are several native look-alikes that closely resemble ALB. With a closer look and the right knowledge, we can distinguish these beetles from their similar looking relatives.

Most often confused with ALB in Massachusetts are sawyers, specifically the white-spotted sawyer (*Monochamus scutellatus*). While white-spotted sawyers can have specks of white on their elytra (wing covers) like ALB, the main difference is that their scutellum (the spot in between the top of their elytra) is white instead of black like on ALB. They also tend to be a bit smaller. Other common sawyers we see that may be confused with ALB are Northeastern (*Monochamus notatus)*, Carolina (*M. carolinensis)*, and Southern (*M. titillator)* sawyers. These beetles are a duller black, gray, or brown and have spots that are less distinct.

Photo 1. ALB egg site (Dan Callahan)

Our Worcester office also gets calls about brown prionids (*Orthosoma brunneum)* and broadnecked rootborers (*Prionus laticollis).* These beetles are usually a solid shade of brown without any markings and have much shorter antennae than ALB. A final bug that tricks people is the western conifer seed bug (*Leptoglossus occidentalis),* which is commonly seen in houses. This brown bug is generally smaller than ALB and is notable for having legs that flare out.



ALB lookalikes poster, available from MDAR.

Look-alike Damage

The ALB-related damage we look for in infested trees includes egg sites, galleries, exit holes, and frass. To understand what to look for, it is helpful to know the beetle life cycle. When the adult female lays her egg, she chews a spot on the bark and creates a pit in the middle to deposit her egg (Photo 1). When the egg hatches, the larva will create a feeding gallery

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ALB or Not ALB? That is the Question

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by chewing its way into the tree, disrupting flow of nutrients and hindering new bark growth. After months of eating, the beetle pupates and emerges from the tree as an adult through a perfectly round exit hole (Photo 2). The adults typically emerge later in the summer, when they mate and the cycle starts anew.

Photo 2. ALB exit hole (Dan Callahan)

It is also important to know that ALB only infests a handful of genera of trees. They highly prefer maple (*Acer*) but will also infest ash (*Fraxinus*), birch (*Betula*), elm (*Ulmus*), golden raintree (*Koelreuteria*), London planetree/sycamore (*Platanus*), horsechestnut/buckeye (*Aesculus*), katsura (*Cercidiphyllum*), mimosa (*Albizia*), mountain ash (*Sorbus*), poplar (*Populus*), and willow (*Salix*).

One type of damage that consistently tricks me is what we call "squirrel chew" (Photo 3). Squirrels use their incisors to scrape up tree bark for a variety of reasons. The size and shape of these scars can be deceiving, but using context clues is helpful to determine the cause of the damage. Squirrels chew with their front teeth which are rather large compared to the mandibles ALB uses to cut through the bark. The thin ALB cuts that we call mandible marks are much narrower than the scrapes squirrel teeth make. This difference, along with the oviposition site pit in the middle, helps us distinguish between the two types of damage. In addition to squirrel chew, branch scars and patches of lichen can look like egg sites when they are high up in a tree!

Photo 3. "Squirrel chew" (ALB Eradication Program)

When looking at a hole in a tree and assessing whether or not it's an ALB exit hole, there are many other possibilities to consider. Among the most common types of damage that we see in our trees is damage caused by birds. Woodpeckers, in particular, use their beaks to chip away at bark to get their food. Often, the holes they make in trees tend to be too large and have beveled edges. Although sapsuckers make fairly round holes, they run on the smaller side and can be distinguished by their row pattern (Photo 4). A tricky type of damage that appears like ALB is leopard moth exit holes. Their exit holes also tend to be round and just about the right size. The main difference here is that leopard moths exit the tree at an angle, while ALB chews its way out directly against the grain of the wood. Popping a standard pen or pencil into the hole can inform us of the angle of exit. One last exit hole look-alike is the tap holes for sugaring. If the hole is shallow, not too far off the ground of a sugar maple, and there are no other signs of damage (e.g., egg sites, galleries, frass, etc.) then it could very well be a tap hole.

Photo 4. Yellow–bellied sapsucker (ALB Eradication Program)

Other damage associated with ALB is matchstick like frass, "C" shaped entrance wounds, and feeding along the veins of leaves. With all these pointers, I hope you can keep your eyes peeled for ALB!

Dan Callahan is a Plant Protection and Quarantine Technician with the USDA Animal and Plant Health Inspection Service working out of the Worcester Asian Longhorned Beetle Eradication office.

Think you've seen Asian longhorned beetle? Report it: https://massnrc.org/pests/albreport.aspx

Congratulations to the 2020 Tree City USA, Tree Campus Higher Education, and Tree Line USA Participants

For 2020, we recognize 91 Tree City USA communities in Massachusetts and 10 Growth Award Recipients. Tree City USA communities meet four standards set by the Arbor Day Foundation. We also recognize five Tree Campus Higher Education campuses, and one Tree Line USA.

Tree City USA

Acton 24
Amherst 34
Andover 22
Arlington 19 G3
Bedford 21
Belmont 34
Beverly 20
Boston 25
Brockton 23
Brookline 33
Cambridge 29 G16
Chatham 8
Chelmsford 7
Chicopee 28
Cohasset 1
Danvers 34
Dedham 11
Duxbury 30
Easton 29
Everett 13
Fall River 16
Falmouth 22
Framingham 30
Gardner 3
Great Barrington 9
Greenfield 19
Groton 25
Hadley 5
Hanscom AFB 34
Haverhill 25
Hingham 33
Ipswich 19
Lanesborough 16
Lawrence 19
Leominster 22
Lexington 32
Longmeadow 19
Lowell 23
Lynn 31
Lynnfield 13 G1
Malden 6
Manchester-by-the-Sea 29
Marblehead 22
Marion 24
Marlborough 10
Mattapoisett 13
Maynard 8 G2
Medfield 8
Medford 23
Milford 3
Milton 12
Nahant 2
Nantucket 22
Natick 14
Needham 26
New Salem 5
Newburyport 25
Newton 32
Northampton 14 G5
Peabody 23
Pittsfield 16
Plymouth 32
Quincy 23
Reading 36
Revere 4
Rochester 6
Salem 16
Sandwich 15
Saugus 22
Sheffield 11
Somerville 26 G6
South Hadley 26
Southborough 2
Springfield 35 G8
Stoneham 21
Sturbridge 32
Sutton 21
Swampscott 30
Wakefield 20
Waltham 19
Watertown 30
Wellesley 38
West Bridgewater 27
Westborough 12
Westfield 15 G4
Weston 18
Westover ARB 21
Weymouth 21
Wilmington 1
Winchester 10
Worcester 35 G22

Communities and years of recognition. G Growth Award and years of recognition.

Tree Campus Higher Education

Boston College 3
College of the Holy Cross 6
Northeastern University 2
Smith College 6
UMass-Amherst 6

Tree Line USA

National Grid

For information on how to become a Tree City USA, Tree Line USA, or Tree Campus Higher Education, go to the DCR website. There you can also learn about other Arbor Day Foundation programs, including Tree Campus Healthcare, Tree Campus K-12, and Tree Cities of the World.

Growing on Trees

Town Forest Webinars

June 2, 2021 | 6:30 - 8:30 p.m.
Climate Adaptation and Resiliency in your Community

June 9, 2021 | 6:30 - 8:30 p.m.
Funding for Enhanced Habitat, Climate Adaptation, and Resiliency

Free, pre-registration required. Find out more at masswoodlands.org

Urban Forestry Today

June 3, 2021 | 12:00 - 1:00 p.m.

Mapping & Spatial Data Applications for Arborists: A Continuing Discussion

Forrest Bowlick, PhD., UMass-Amherst

Register here or find out more at urbanforestrytoday.org.

June 30, 2021 | 12:00 - 2:00 p.m.

Urban Forestry Today Tree Summit

Dave Nowak, PhD, USDA Forest Service

Find out more and register at UMass Extension.

EPA Soak Up the Rain New England Webinar Series

June 8, 2021 | 10:30 a.m.-12:00 p.m.

Managing Phosphorus Pollution with Stormwater Bioretention Systems: A Soil Study

Stephanie Hurley, PhD., Department of Plant & Soil Science, University of Vermont and Michael Ament, PhD Candidate, Department of Plant & Soil Science, University of Vermont

Find out more and register at epa.gov.

Urban Forest Connections

June 9, 2021 | 1:00 - 2:15 p.m.

i-Tree: Using Urban Forest Data

David Nowak, PhD., USDA Forest Service and Justin Bower, Houston-Galveston Area Council

Find out more at the Urban Forest Connections website.

TREE Fund Webinars

June 22, 2021 | 1:00 - 2:00 p.m. (ET)

Why do some trees transplant better than others?

Nina Bassuk, PhD, Cornell University

July 27, 2021 | 1:00 - 2:00 p.m. (ET)

A Three-Pronged Approach to understanding the defensive mechanisms in Green Ash resistant to Emerald Ash Borer

Jeanne Romero-Severson, PhD, University of Notre Dame

Find out more and register at treefund.org.

ISA Virtual Tree Climber Summit

July 13, 2021 | starts at 10:00 a.m.
$49 until June 30

Find out more at isa-arbor.com

New England ISA

August 2-4, 2021 | Burlington, VT

Tree Risk Assessment Qualification Course

Register by July 2.

August 27, 2021 | 8:00 a.m.-1:00 p.m. Portsmouth, NH

Aerial Lift Specialist and Compact Lift Specialist Workshop

Classroom instruction and a demonstration, including pre-trip, setup, and rescue operations.

August 28, 2021 | 8:00 a.m.-4:00 p.m. Canterbury, NH

Day of Safety

Morning seminars including Chainsaw Safety, Gear Inspection, Proper Tree Planting, Setting up a Work Zone, Stop the Bleed, and an afternoon of fun competition, including an obstacle course, throw line, knot board, and other events.

Find out more at www.newenglandisa.org

Growing on Trees

UMass Extension

Tick and Mosquito Days

June 8, 2021 | 10:00 a.m.-12:10 p.m.

June 15, 2021 | 10:00 a.m.-12:10 p.m.

This 2-day virtual webinar series will call upon topic experts to provide information about the seasonality, biology, and the diseases these organisms vector, as well as how to manage these pests and steps you can take to protect yourself.

Find out more at ag.umass.edu.

Prepare for the Mass. Arborist Exam

Two on-demand webinars to help you prepare for the Massachusetts Arborist exam.

Part 1: Science
Part 2: Techniques

Each webinar: $24 Mass. Arborist Assoc. members/$44 non-members

Next MCA Exam Date: October 7, 2021

Find out more at massarbor.org.

Native Plant Trust Classes

Online:
Chemistry of Plants – June 3
Strategies for Invasive Plants Management – June 16
Roots of Black Botany – July 20

Hybrid
Plant Ecology – June 9-30

In-Person
Floodplain Botany – June 19
Harvard Designs: Arboretum and Science Complex – July 9
New England Plant Communities – August
Native Woody Plant Materials – Aug. 27, Sept. 3
Plant-insect Interactions – Sept. 2

Find out more at nativeplanttrust.org

2021 Mass. Qualified Tree Warden Course

From the Massachusetts Tree Wardens' and Foresters' Association
Fall 2021

Sharpen your skills and expand your knowledge. Learn what you need to know to fulfill the duties of tree warden and earn MTWFA's professional qualification. The six-session course runs from September 1 through November 10, 2021.

Find out more and register at masstreewardens.org.

ISA Certified Arborist Exam Prep Course

September 6-29, 2021 | 6:00-9:00 p.m.

Online class with a live instructor. The course consists of 8 three-hour classes held on Mondays and Wednesdays in September 2021.

Find out more at newenglandisa.org.

Conservation Arboriculture

September 15, 2021 | Online
This is a 2-part workshop instructed by Philip van Wassenaer. Part I will cover Practical Approaches to Managing Aging Trees and Part II will cover Reducing the Crown and Retaining the Tree.

Find out more at Pacific Northwest ISA.

2020-2021 DCR Urban and Community Challenge Grant Awardees

The Massachusetts Department of Conservation and Recreation (DCR) Urban and Community Forestry Program is announcing recipients of 2020-2021 Urban and Community Forestry Challenge Grants. This year, $153,331 is being awarded to communities and organizations across the Commonwealth to complete 14 urban and community forestry projects.

Funds to support the following projects were provided through the United States Department of Agriculture Forest Service and Eversource and National Grid (both though Mass ReLeaf Trust Fund). Awardees include municipalities and nonprofit groups in Massachusetts.

The DCR Urban and Community Forestry Program offers matching grants to municipalities and nonprofit groups in Massachusetts communities of all sizes for the purpose of building local capacity for excellent urban and community forestry at the local and regional level. Eligible groups include all units of local government and nonprofit 501(c) (3) organizations, including local tree departments and citizen tree groups. Grants range from $1,000 - $30,000 and require a cash or in-kind match. For more information on the Urban and Community Forestry Challenge Grant program, go to the DCR website.

Grantee	Brief Description	Dollar Amount	Funding Source
Ayer, Town of	Tree Inventory and Tree Management Plan	$11,500	USDA Forest Service
Clark University	Revitalizing the Hadwen Arboretum in Worcester's Columbus Park Neighborhood	$6,010	USDA Forest Service
East Bridgewater, Town of	East Bridgewater Tree Health Survey	$5,000	Mass ReLeaf Trust Fund donation from National Grid
East Longmeadow, Town of	Reforesting our Schoolyards and Heritage Park	$6,931	USDA Forest Service
Everett, City of	Citywide Urban Forestry Resource Inventory Analysis	$22,500	USDA Forest Service
Friends of Blue Hills	Blue Hills Reservation Invasive Species Study	$9,190	USDA Forest Service
Green Cambridge	Cambridge/Somerville Tree Planting and Heritage Trees	$20,000	USDA Forest Service
Holyoke, City of	Community Tree Planting at Kennedy Park, Holyoke	$7,000	USDA Forest Service
Marblehead, Town of	Town of Marblehead Tree Inventory/ Survey	8,000	USDA Forest Service
Medford, City of	Improving Medford's Tree Canopy in Environmental Justice Areas	$22,500	USDA Forest Service
Millbury, Town of	Town Tree Replacements	$5,000	Mass ReLeaf Trust Fund donation from National Grid
New Garden Society	Tree Care Education for Incarcerated Horticulturists	$2,700	USDA Forest Service
Oxford, Town of	Oxford's Trees for Trees Project	$7,000	USDA Forest Service
Tree Eastie	Making Eastie Greener and Cleaner	$20,000	USDA Forest Service

Growing Greener—in Boston

Founded in 2018 by David Meshoulam and Amanda Rich, the non-profit Speak for the Trees has been working to better the urban forest in Boston. The mission of Speak for the Trees is "to increase the size and health of Boston's urban forest, especially in underserved and under-canopied neighborhoods." The organization has accomplished a lot in just a few short years. Some of its ongoing projects include tree giveaways, a tree inventory, a Teen Urban Tree Corps, and advocacy work. They have also convened a monthly meeting of "Boston Urban Forest Friends" (BUFF) – urban forest advocates in the Boston area. The newly-redesigned Speak for the Trees website is a wealth of information and also hosts a series of Boston Tree Equity maps, developed by Raquel Jimenez, a graduate student at Boston University. Speak for the Trees works closely with the Massachusetts Department of Conservation and Recreation Urban and Community Forestry Program, American Forests, and the Arbor Day Foundation. They also partner with many groups local to Boston. A recent partnership with Boston Parks and Recreation has been "The Memory Tree Project," which is open to residents of Roslindale. To honor the memory of a loved one, residents can sign up to care for a tree. A tag is then hung from the tree indicating the honoree and the person providing the tree care. Residents can choose a yellow tag to honor someone who died from COVID-19. The tags are $5, with proceeds going to Speak for the Trees, but no one will be turned away if they don't have the ability to pay.

As of mid-May, according to their website, they have planted 400 trees, given away over 2,000 trees, and inventoried over 9,000 trees. To find out more about Speak for the Trees, to sign up for their newsletter, and to find out how you can volunteer, go to treeboston.org.

Vibrant Cities Lab

The Vibrant Cities Lab website is designed to help professionals, planners, policymakers and advocates discover how healthy tree canopy can enrich their own community and help guide them as they build an effective urban forestry program.

Research Syntheses The research synthesized is vetted to be the most up-to-date and accurate. It conveys the complexity of tree canopy impacts to help with decision-making and maintenance budgets, not just the benefits.

Case Studies Case studies help move beyond the allure of a pretty landscape installation and instead focus on successful programs, laws, funding and management structures that can help institutionalize urban forestry for the long term.

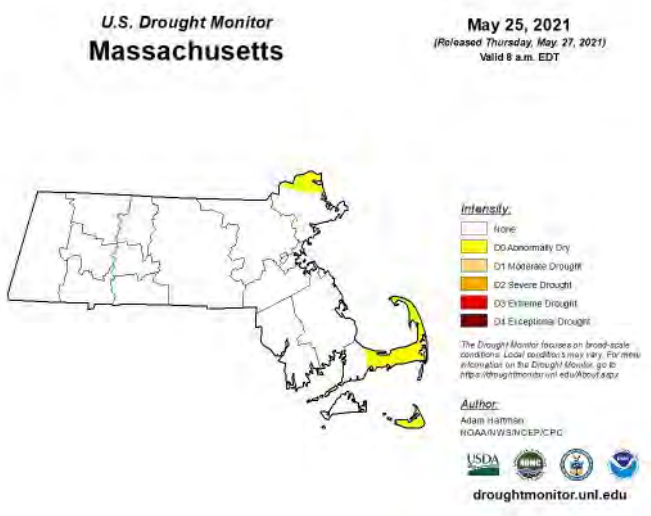
Toolkit Finally, the assessment tool and urban forestry toolkit synthesize many years of best practice analysis by academic researchers and professionals. These tools are designed to help community managers and advocates in jurisdictions of all sizes to determine their current situation and be guided through a process at their own pace to reach goals of comprehensive urban forest management.

Check it all out at vibrantcitieslab.com.

Growing on Trees

Weather and Climate

Much of Massachusetts is still behind on normal precipitation for the year, though the U.S. Drought Monitor for May 25, shows that dry conditions have eased for much of the state. If you have newly planted trees, be sure to keep them watered. Find tips on caring for new trees on our Caring for New Trees factsheet.



Find out More

Massachusetts Drought Status | mass.gov

The Northeast Regional Climate Center | http://www.nrcc.cornell.edu/regional/drought/drought.html

The U.S. Drought Portal | https://www.drought.gov/drought/states/massachusetts

National Climate Report | https://www.ncdc.noaa.gov/sotc/

Gleanings

Low-Income Blocks in 92% of US Urban Communities Have Less Tree Cover and Are Hotter

by Public Library of Science

A new analysis of thousands of U.S. communities finds that, on average, low-income urban blocks have less tree cover and are hotter than high-income blocks. Robert McDonald of The Nature Conservancy in Arlington, Virginia, and colleagues present these findings in the open-access journal *PLOS ONE* on April 28, 2021.

Mounting research links urban tree cover with human health benefits, including reduced air pollution, better cardiovascular function, and improved mental health. Tree cover can also cool urban areas, mitigating the effects of heat waves. However, research from the U.S. and other countries suggests that urban tree cover is unequally distributed, with low-income and minority communities often having less tree cover.

In the new study, McDonald and colleagues sought to quantify urban tree cover and temperature disparities in the U.S. at the resolution of individual blocks. They used digital images from the National Agriculture Imagery Program to examine tree cover in the 100 largest urban areas of the U.S, covering 5,723 cities, towns, and other Census-designated places that are collectively home to 167 million people. They also used Landsat imagery to analyze summertime temperatures in these communities.

The analysis revealed lower levels of tree cover for low- versus high-income blocks in 92 percent of the communities studied. Tree cover was 15.2 percent less, on average, for low-versus high-income blocks, and low-income blocks were hotter by an average of 1.5°C. The Northeast U.S. showed the greatest disparities, with low-income blocks in some urban areas having 30 percent less tree cover while being 4°C hotter than high-income blocks. Read the full story at phys.org.

Gleanings

U.S. EPA Heat Island Effect Website

Heat islands are urbanized areas that experience higher temperatures than outlying areas. Structures such as buildings, roads, and other infrastructure absorb and re-emit the sun's heat more than natural landscapes such as forests and water bodies. Urban areas, where these structures are highly concentrated and greenery is limited, become "islands" of higher temperatures relative to outlying areas. Daytime temperatures in urban areas are about 1–7°F higher than temperatures in outlying areas and nighttime temperatures are about 2-5°F higher. Find more information on the Learn About Heat Islands page.

Two upcoming heat island webcasts:
June 17, 2021 | 1:00 p.m. (ET) Overview of EPA's Climate Change Indicators (Register)
June 24, 2021 | 2:00 p.m. (ET) Climate and Heat: Trends, Health Impacts and Risks (Register)

There is a lot of information on heat islands on this EPA webpage, including outreach materials in English and Spanish, mitigation strategies, issues like heat islands and equity, and the latest research.

Find out more at epa.org/heatislands.

News

Headlines in Brief

Massachusetts

First Citywide Tree Inventory in Boston is Underway – 11 neighborhoods completed as of May, Click the link to read the press release and find out the most common species the inventory arborists found in these neighborhoods.

Branching Out: Novel Tree Syrups Could Make Forests, Farmers More Resilient

Large Brush Fire Scorches Western Massachusetts, Largest Wildland Fire in More than 20 Years

National & International

A Vision for Truly Inclusive Public Spaces Rooted in Olmsted's Core Values [Opinion]

A New $260 Million Park Floats on the Hudson. It's a Charmer.

Not Just Maple Syrup: Birch, Beech and Other Sappy Trees

Tree Talk: Mammal Damage to Trees

Urban Heat Islands Are Increasingly Dangerous, But Planners and Designers Have Solutions

Parks Not Only Safe, But Essential During the Pandemic, Study Finds

USDA Awards $15 Million in Grants to Expand Wood Products, Wood Energy Markets and Community Forests

A Never-Before-Documented Flower Blooms on One of World's Rarest Trees, *Karomia gigas*

Grassroots Effort to Save Sacramento's Elm Trees Enlists 'Community Scientists'

Standing Dead Trees in 'Ghost Forests' Contribute to Greenhouse Gas Emissions, Study Finds

Pretty Plants Hog Research and Conservation Limelight

Climate Impacts of U.S. Forest Loss Span Net Warming to Net Cooling

How This Tree Can Yield Better Kentucky Bourbon in Future

News

Change in Registration Status of Neonicotinoids in Mass.

Adapted from UMass Extension

The Massachusetts Department of Agricultural Resources (MDAR) recently announced that the Massachusetts Pesticide Board Subcommittee passed a ruling in March regarding the registration and use of neonicotinoids in the Commonwealth. The ruling will ultimately eliminate access to neonicotinoids for non-agricultural outdoor applications by people who are not licensed or certified.

The Massachusetts Pesticide Board Subcommittee (in the Massachusetts Department of Agricultural Resources) has determined that current uses of neonicotinoid pesticides used in outdoor non-structural uses or outdoor non-agricultural uses, may pose unreasonable adverse effects to the environment as well as pollinators, when taking into account the economic, social, and environmental costs and benefits of their use in the Commonwealth. Therefore, the Subcommittee modifies the registration classification of pesticide products containing neonicotinoids that have outdoor non-structural uses or outdoor non-agricultural uses on the label from general use to state restricted use. These include, but are not limited to, uses on lawn and turf, trees and shrubs, ornamentals, and vegetable flower gardens. ***The reclassification shall begin July 1, 2022.***

Some details regarding this ruling:

Outdoor non-structural uses or outdoor non-agricultural uses include such things as:

- Lawn and turf
- Ornamentals
- Trees and shrubs
- Vegetable and flower gardens

Any neonicotinoid product with those uses on the label will be **state restricted use**. This means a **Massachusetts pesticide license (or certification) would be required to use these types of products.**

Homeowners will not be able to use these products on their lawns, trees, shrubs, ornamentals, or vegetable or flower gardens. However, they will be able to use neonicotinoid products that are labeled to control fleas, ticks, mites, bedbugs, or structural pests to target those pests.

MDAR will notify stakeholders of the change so they can arrange for their applicators to obtain the proper license or certification before July 2022.

For ornamental and turf uses, state restricted use products can be applied by someone with an appropriate commercial certification (e.g., Category 36 – Shade Trees and Ornamentals or Category 37 – Turf) or someone with a core (applicator's license) as long as they are under the direct supervision of someone with the appropriate certification (according to the Direct Supervision regulations in 333 CMR 10.07).

If you have questions about these changes, contact Taryn LaScola-Miner, Director of the Crop and Pest Services Division, MDAR, at taryn.lascola@mass.gov

Read the full update at ag.umass.edu.

On the Horizon

Jun 2 Town Forest Webinar: Climate Adaptation and Resiliency in your Community, 6:30pm

Jun 8 Webinar: Tick and Mosquito Days, UMass Extension, 10:00am

Jun 8 Webinar: Managing Phosphorus Pollution with Stormwater Bioretention Systems: A Soil Study, 10:30am

Jun 9 Webinar: i-Tree – Using Urban Forest Data, 1pm

Jun 9 Town Forest Webinar: Funding for Enhanced Habitat, Climate Adaptation, and Resiliency, 6:30pm

Jun 15 Webinar: Tick and Mosquito Days, UMass Extension, 10:00am

Jun 22 Webinar: Why Do Some Trees Transplant Better than Others?, TREE Fund, 1pm

Jun 23 Tree City USA and Tree Campus Higher Ed. Award materials pickup, Beaver Brook Reservation, Belmont, 1-3pm, Contact Julie Coop

Jun 24 Webinar: Climate and Heat: Trends, Health Impacts, and Risks, 1pm

Jun 30 Summer Tree Summit, 12pm, UMass Extension

Jul 1 Tree City USA and Tree Campus Higher Ed. Award materials pickup, Beaver Brook Reservation, Belmont, 10-12pm, Contact Julie Coop

Jul 13 ISA 2021 Virtual Tree Climber Summit, International Society of Arboriculture

Jul 27 Webinar: A Three-Pronged Approach to understanding the defensive mechanisms in Green Ash resistant to EAB, TREE Fund, 1pm

Aug 2-4 Tree Risk Assessment Qualification Course, New England Chapter, ISA, Brattleboro, VT, Register by July 2.

Aug 5 Tree Risk Assessment Qualification Renewal, New England ISA, Brattleboro, VT

Aug 27 TCIA Aerial Lift Specialist and Compact Lift Specialist Workshop, Portsmouth, NH, New England ISA

Aug 28 New England ISA Day of Safety, Canterbury, NH

Aug 31 -Sept 2 Trees and Utilities Conference, Minneapolis

Sept 1 Mass. Qualified Tree Warden Course begins, Sturbridge, www.masstreewardens.org

Sept 6 -29 Online Course: ISA Certified Arborist Exam Prep Course, New England ISA

Sept 6 -29 Online Course: ISA Board Certified Master Arborist Prep Course, New England ISA

The Citizen Forester is made possible through a grant from the USDA Forest Service Urban and Community Forestry Program and the Massachusetts Department of Conservation and Recreation, Bureau of Forestry.

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www.mass.gov/dcr/ucf

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.