BUCKEYE YARD AND GARDEN LINE 2015-03
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Buckeye Yard and Garden Line (BYGL) enhanced with photos and links is available online at: [http://bygl.osu.edu]. Become a fan of the BYGL on Facebook at [http://www.facebook.com/OSUBYGL] or follow the BYGL on Twitter at [http://www.twitter.com/OSUBYGL].

This is the 3rd 2015 edition of the Buckeye Yard and Garden Line (BYGL). BYGL is developed from a Tuesday morning conference call of Extension Educators, Specialists, and other contributors in Ohio.

*****HOW TO: BUCKEYE YARD AND GARDEN LINE SUPPORT. The Ohio State University (OSU) Buckeye Yard and Garden Line (BYGL) writers need your support to continue this newsletter. OSU puts a great deal of resources into this project and we do not receive funding necessary for full support. We know you like BYGL, as in the 2014 Reader's Survey respondents indicated BYGL saved them $2.45 million dollars, 96% indicated BYGL was useful in their jobs, and 87% indicated BYGL helped with their diagnostic skills.

Funds will support on-going work of the Ohio State University Extension Nursery Landscape and Turf Team in matters regarding preparation, compilation and travel for the weekly April-October BYGL e-newsletter. Expenditures will include but not be limited to equipment such as cameras, upgrades of computers and related devices, management of the website, editing and webinar costs, and travel reimbursements.

Here's how you show your support:

This is the direct link to the OSU giving site: [http://go.osu.edu/byglsupport].

Or:

Go to [https://www.giveto.osu.edu/makeagift/OnlineGivingDonation.aspx?fund=315145] and click on "search," then enter the fund number into the box. The fund number is 315145 and the name is Buckeye Yard & Garden Support. The fund, its name and description will appear in a new, smaller box. Click "Select this fund."

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Also, if you would like to make a larger gift, please contact Jennifer Heller ([heller.4@osu.edu]), the Director of Development for the OSU College of Food, Agricultural and Environmental Sciences with your name and contact information. Jennifer's cell phone number 614.975.1317 and she will be more than happy to speak with you.

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1. PLANTS OF THE WEEK.

*PERENNIAL - LARGE FLOWERED TRILLIUM (Trillium grandiflorum).* Pam Bennett selected this plant as the perennial of the week in honor of its glorious bloom showing off right now in Clifton Gorge Nature Preserve. Dubbed Ohio’s official state wildflower in 1986, large-flowered trillium at one time was found in every county in the state. The 3-petaled flowers are held erectly atop a 1/2’ - 1’ stem, right above the 3 leaves. If you look down on a plant from the top, you will see the 3-petaled flower surrounded by 3 sepals, on top of 3 leaves. They thrive in fertile woodland soils and bloom in the early spring.

A reminder to all who enjoy our woodland flowers - DO NOT DIG THEM AND TAKE THEM HOME! First of all, spring ephemerals dug at this time don’t usually survive transplanting; more importantly, if everyone did this, we wouldn’t have anything left to enjoy in our natural areas. *Trillium* can be purchased in pots or bare-root in garden centers and can be planted now. Ohio is blessed with incredible natural areas and BYGLers encourage you to get out and enjoy them during the spring wildflower season. For a list of nature preserves and to find the one nearest you, go to: [http://naturepreserves.ohiodnr.gov/](http://naturepreserves.ohiodnr.gov/)

Author: Pamela J. Bennett

*WOODY - TULIPTREE (Liriodendron tulipifera).* Shakespeare used the term "tripplingly" to refer to a lilting or nimble effect as in "tripplingly on the tongue" rather than bombastic speechifying referenced in his Hamlet directives. The Latin name of tuliptree should thusly be spoken trippingly. Try saying it out loud; it’s very elfish and fairy-like trills befits the "tripplingly" term the Bard first used in "Midsummer Night’s Dream."

And what a tree this is with its large, lobed tulip-shaped leaves. The flowers are wondrously cup-shaped with yellow-green petals with orange flares at the base. The tree grows upward and rapidly, straight on, seeking the regal peak atop the canopies of even oaks and maples. Tuliptrees are the largest flowering plants (Angiosperms) in North America, sometimes exceeding 150 feet in the Great Smoky Mountains, with a 191 foot giant measured there. It is the state tree of Kentucky.

Tuliptrees are in the Magnoliaceae or the magnolia family, with one species native to eastern North America and one species (*Liriodendron chinense*) native to China and Vietnam. There are fossils of other *Liriodendron* species from the late Cretaceous Period, some 70 million years ago or so. Today tuliptrees are used as landscape and parkland plants where there is room to grow, especially upward, and there are a number of cultivars with features such as variegated and gold-colored leaves.

Tuliptree wood is fine-grained and used in cabinet making and furniture finishing, and as one of the common names of canoewood infers, it was once used to construct dugout canoes. Other common
names include tulip poplar or yellow poplar, but tuliptree is not related to poplars. Plant tuliptrees in sun or partial shade and in slightly acid, well-drained soils. Enjoy the tiny tulip-shaped leaves as they emerge and grow into large leaves (7” or more long and wide), the flowers on older trees, and their rapid growth. I planted a tuliptree seedling in my yard a little over 20 years ago and it is now over 60 feet tall. This past week, for Arbor Day (April 24, 2015), the OSU Tree Campus Wooster group planted a tuliptree at the Agricultural Technical Institute which will now grow almost as fast as the students.

And so, for an Arbor Day Ode to the Tuliptree:

**Leeree-oh-den-dron too-lip-if-er-ahh, trippingly on the tongue**
Liltingly, nimbly a dance across Nature’s green stage, a dream to be
An Asian cousin, others 70, 80 million years old
Today we plant anew, a giant someday to accrue
Leaves of tulips, blooming in the sun
Flowers of tepals, petals yellow-green, daubed with orange
Relatives magnolias blooming now in all their glory
Tulipwood trunks growing up, above the maples above the oaks
Canopy giants nurtured in forest soil of fauna and flora
Microbial glue binding and flowing freely
Leer-ee-oh den-dron too-lip-if-er-ahhhhh!

Author: Jim Chatfield

*VEGETABLE* - **ONION (Allium cepa).** The common onion is tolerant of early season cold weather and frost. Onions can be grown for storage as dry bulbs or harvested young for use as scallions, also known as green onions. Onions are generally sold as sets, transplants or seedlings.

Sets are small onions that have been harvested and stored. These small bulbs then grow to a larger size in the garden. Onion sets are usually sold by the pound. Transplants, on the other hand, are sold in bundles. They were started early in the year, usually in Southern states, then dug up and shipped to local stores. They may look ragged in the garden center but perk up quickly when planted.

Seedlings are just what their name suggests, very young plants grown from seed. Sold in pots or packs, they are carefully separated and planted in the garden. All of the onions can, and should, be planted now. Early-planted onions will put on more growth prior to flowering, resulting in a larger bulb. When ordering onions from out-of-state sources, be sure to pick varieties that perform well in Ohio; select long-day varieties for northern Ohio and intermediate or long-day varieties for the southern portion of the state. Gardeners should be aware that there are varieties that are better suited for harvest as scallions, fresh eating, or long-term storage onions – choose according to you and your family’s eating preferences.

Authors: Amy Stone and Tim Malinich

*WEED* - **COMMON TEASEL (Dipsacus fullonum** (Synonym: *Dipsacus sylvestris*). This weed is also known as WILD TEASEL, FULLER’S TEASEL, and VENUSCUP TEASEL. The spiny flower head that persists throughout the year is one of this weed’s most noteworthy characteristic. This biennial reproduces by seed that germinates in late summer and early fall and overwinters as a basal rosette. The leaves are puckered in appearance. Flowers are present July through September of the following year. The flower head is egg-shaped, covered with small spines, and has large bracts that curve upward from the bottom. The white petals are tubular, with purple lobes, giving the head a purple thistle-like look. Teasel is often found along roadsides, low maintenance stands of turfgrass, and in meadows. In these areas in much of Ohio, teasel is becoming a greater and greater problem as it produces denser and denser stands, pushing out many other species. It is usually not a problem in cultivated and cared for landscapes.
Control of teasel can be a challenge, if done at the wrong time of the growing season. Choices of chemicals for control of teasel include triclopyr and glyphosate. Triclopyr is dicot-specific and can be applied to foliage and stems at 2% active ingredient (a.i.) during the growing season, preferably before the plant has bolted (sent up a flowering stalk). Triclopyr is apparently the more effective of the two herbicides. Glyphosate is also effective when applied to foliage and stems before bolting, although it is non-selective. Herbicides can be applied after bolting, but seed development remains a risk. The rosettes of teasel remain green late into the fall, after most other plants have become dormant, thus applications at that time of the year reduce the risk of harming non-target species. Glyphosate may also be effective during the dormant season, providing the rosettes are photosynthesizing when glyphosate is applied.

Author: Curtis E. Young

2. HORT SHORTS.

A. HEAVY MAPLE SEED PRODUCTION. BYGLers discussed reports of heavy maple seed (a.k.a. helicopter seed, maple spinners,) production in some parts of the state. Abundant winged maple seeds (samaras) in the spring can draw both the attention and wrath of landscapers and homeowners. Trees shift energy to support heavy seed production at the expense of leaf expansion which makes "seedy trees" look unhealthy. The overall sickly appearance is enhanced once seeds mature and turn brown. Of course, once the seeds drop, the resulting maple seedlings become a serious weed issue as they sprout throughout landscapes and in uncovered building gutters.

It was once believed that prolific maple seed production is connected to tree stress; the theory was that heavy seed production occurred on stressed or dying trees as a last hurrah in support of the species. It was eventually discovered that maples are by nature heavy seed producers; however, the successful persistence of the seed to maturity depends upon whether or not the flowers or nascent seed is exposed to freezing temperatures.

Southern and central Ohio has experienced moderate temperatures throughout bloom and early seed development on red, silver, and sugar maples. Consequently, these maples are heavy with seed. Norway maples are still in bloom and remain susceptible to low temperature seed suppression. However, Erik Draper reported that most maple species in northeast Ohio are still vulnerable to seed suppression by freezing temperatures that are predicted for later this week. His observation illustrates once again the dramatic differences in plant development that can occur in spring between the northern and southern parts of the state.

Author: Joe Boggs

B. A WALK ON THE WILDSIDE: IS THAT WILDLIFE BABY REALLY AN ORPHAN? This is a question homeowners must ask themselves as spring progresses into summer. We naturally want to protect and care for a seemingly abandoned baby animal, but many wildlife infants are born much more advanced than human infants. This means wildlife babies are capable of being left alone. EASTERN COTTONTAIL RABBIT kits (babies) mature very quickly, leaving the nest after 3 weeks as small versions of their parents. A small baby rabbit with erect ears and open eyes does not need assistance. Neither does a young bird with feathers fully covering their body. At this point, the young bird is a fledgling and learning to fly. Although it may appear to be alone, the parents are often nearby to help if there is trouble. On the other hand, nesting birds that lack feathers and are covered with down are not able to fly or perch on their own. These nestlings should be placed back in their nest, or if the nest has been destroyed, a new nest can be constructed.

Leaving wildlife young alone is a parental strategy that helps to ensure their offspring’s safety and protection. For example, female cottontail rabbits will often leave their kits alone yet concealed while she
feeds during the day, only returning at night to care for them. Female WHITE-TAILED DEER employ this same strategy, which also serves to protect the young from being found by predators.

Wildlife parents are generally very committed to their young and will usually only abandon them if there is an injury or death. Be sure to give the parents plenty of time to recover their young. If the young animal is not recovered, or if there are injuries present, contact a wildlife rehabilitator. A list of country rehabilitators is available on the Ohio Division of Wildlife's website, or click here: [http://wildlife.ohiodnr.gov/species-and-habitats/orphaned-and-injured-wildlife/licensed-wildlife-rehabilitators]. Always think before you act – even a young animal can bite or scratch, and in the process potentially spread a disease or parasite. Leave the capturing and caring for injured or truly abandoned animals to the trained rehabilitators. If you have any questions, call the Ohio Division of Wildlife before taking action at 1-800-WILDLIFE.

Author: Marne Titchenell

C. A WALK ON THE WILDSIDE: WHAT ARE THOSE LITTLE ROWS OF SMALL HOLES IN MY TREE? This time of year and through May, it is very likely that those rows of holes are caused by Ohio's migratory woodpecker, the YELLOW-BELLIED SAPSUCKER. Amanda Bennett, OSU Extension Agriculture and Natural Resources Educator for Miami County, reported sapsucker damage on a conifer during this week's BYGL call. The holes typically appear along the trunk of a tree and are a result of the sapsucker's feeding activity. The sapsucker pecks multiple small, but shallow, holes into the bark to reach the tree sap, which it feeds on. These small holes are called sapwells. While a sapsucker, true to its name, does drink sap, it does not, untrue to its name, suck it up. A sapsucker's tongue is tipped in tiny bristles, much like a paint brush, making it all the better to soak up the sap. Perhaps this woodpecker should be called a 'sapsoaker' instead of a sapsucker!

Unfortunately, it can sometimes be a challenge to deter sapsucker feeding and the subsequent damage they can cause to trees. Some homeowners can successfully deter sapsuckers by hanging shiny reflective material, such as mylar tape or old CDs around the tree. This isn't guaranteed to work and may cause the woodpeckers to turn to the next available tree. Other management options include wrapping the area of the tree where damage has occurred with hardware cloth or burlap to prevent the woodpeckers from reaching the bark, or applying tactile/sticky repellents to the bark to deter feeding. Perhaps the better news is that most of the time trees are able to withstand the occasional sapsucker feeding. However, sometimes sapsuckers will feed repeatedly on the same tree year after year, which can lead to long term damage.

The yellow-bellied sapsucker is only seen throughout most of the state during migration season, which is good news for those suffering from tons-of-holes-in-your-trees syndrome. However, those in the northeastern part of the state, up around Ashtabula, Lake, and Geauga counties, may deal with sapsuckers throughout the summer. The yellow-bellied sapsucker range has shifted slightly over the years and have been seen breeding in NE Ohio. Currently, sapsuckers are still being seen around the state, but we move closer to the end of May, expect sapsuckers and their feeding damage to decline.

Author: Marne Titchenell

D. DIGGING DEEPER: YELLOW-BELLIED SAPSUCKER. After reading the above article on the yellow-bellied sapsucker, perhaps your curiosity is piqued and you are wondering if they prefer certain trees over others? Or perhaps you would like to know more about their feeding preferences in order to protect your landscape trees? Let's dig a little deeper into the feeding behaviors of the yellow-bellied sapsucker! Research studying the feeding behavior of yellow-bellied sapsuckers reports some preference towards certain tree species; conifers in the early spring, followed by birch (Betula spp.) and maple (Acer spp.). A study conducted in northern Michigan reported sapsuckers preferentially feeding on juneberry/serviceberry (Amelanchier sp.) and bigtooth aspen (Populus grandidentata) along with paper birch (B. papyrifera) and red maple (A. rubrum). Sapsuckers are also reported to prefer trees with old sapwells, which means if this is the first year a tree has succumbed to a sapsucker, it likely won't be
the last. Why do sapsuckers revisit the same tree over and over? And why are their sapwells clustered so closely together? Research suggests it could be that creating successive small holes clustered together acts to girdle parts of the tree, backing up phloem sap as it travels down from the leaves, thereby increasing the amount of sap above the sapwells. In Michigan, new sapwells often appeared above old sapwells, providing support to this theory. In a way, sapsuckers are farming their food resource throughout the season. While this may not be the best thing for the tree, it's pretty smart on the sapsucker's part!

Sugar maple appears to be a species frequently targeted by sapsuckers and has led researchers to examine the sap of sugar maples for answers. Sapsuckers were observed tapping into both the xylem and phloem sap of sugar maples. The xylem sap contained various minerals important to a sapsucker such as potassium, sodium, and calcium, but also nitrogen. During bud burst and leaf growth in the spring, there is a surge of nitrogen in the xylem sap that sapsuckers may be capitalizing on. Also, as we pancake lovers know, the main component of sap from sugar maples is sucrose, an important part of a bird’s diet. So it appears we are not the only ones who appreciate maple sap; of course we prefer it boiled down and drizzled over pancakes, but sapsuckers appreciate it in its purest form.

Researchers are now looking into new questions in regards to sapsucker feeding behavior, such as if and how sap from different trees impacts the reproductive success of sapsuckers. Sap lacking the required nutrients may lead to a reduction in the number of eggs laid, low nestling weight, or low nestling survival rates. In fact, there is still a question as to why sapsuckers select the trees they do select. Is it because of sap quality or quantity? It's no surprise that the deeper you dig into a subject, the more questions arise!

Author: Marne Titchenell

3. BUGBYTES.

A. AZALEA LACE BUG EGGS HATCH. Overwinter eggs of azalea lace bug (*Stephanitis pyriodes*) are hatching in southern Ohio. This event is predicted to occur once Growing Degree Day (GDD) accumulations have surpassed 206. Like all lace bugs that infest evergreens, azalea lace bugs spend the winter in the egg stage on leaves and stems. This means damage appears early in the season soon after egg hatch. Both the nymphs and adults use their piercing/sucking mouth parts to feed on the underside of the leaves.

Their feeding damage produces tiny yellow or whitish spots (stippling) on the upper leaf surface. Lace bugs also deposit unsightly hard, black, varnish-like spots of excrement onto the leaf surface as they feed. Heavy feeding from large infestations may result in large, yellow, blistered areas on leaves, chlorotic, yellowed leaves and early leaf drop. Damaging populations can be controlled by applying a properly labeled insecticide to the underside leaf surface.

Author: Joe Boggs

B. SAWFLY LEAFMINERS FLY. Adults of the ELM LEAFMINER (*Kaliofenusa ulmi*) were observed flying around their namesake host in southwest Ohio earlier this week. The emergence of this leafmining sawfly was predicted in this part of the state by accumulated GDD (219) and phenological indicators such as the full bloom of common chokecherry. This means that three other leafmining sawflies are either also on the wing or soon will be, including: BIRCH LEAFMINER (*Fenusa pusilla*); EUROPEAN ALDER LEAFMINER (*F. dohrnii*); and HAWTHORN LEAFMINER (*Profenusa canadensis*).

Larvae of these sawflies mine the leaf parenchyma producing large, blister-like, reddish brown "blotch" mines. The mines usually extend from the leaf margin toward the midvein. Although the leafmines may appear unsightly, these sawflies seldom cause enough damage to significantly harm the overall health of established host trees. However, severe leafmining damage may produce stress on newly planted trees.
The hawthorn and elm leafminers have one generation per year and the alder and birch leafminers have three generations. For most insect pests, the occurrence of multiple generations usually means upwardly spiraling populations and ever increasing damage as the season progresses. However, the opposite is true for birch leafminer. Larvae can only mine new leaves. So, most damage occurs in early spring when the first generation larvae mine the new, expanding leaves. After they finish feeding for the season, around 80% of the first generation larvae drop to the ground and remain as pre-pupae until next spring. Control efforts should target the first generation since the second and third generations cause little damage, unless the tree is re-foliating after leaves were stripped by some other problem such as a general defoliating caterpillar.

If control of these sawflies is deemed necessary, a soil drench application of dinotefuran (e.g. Safari) made now will prevent larval leafmining activity. Imidacloprid (e.g. Merit, Xytect, etc.) will also suppress larval leafmining; however, it is probably too late in southwest Ohio to prevent all damage since it takes around 30 days for the insecticide to move into the tree in sufficient concentrations to provide control. The best time to make soil drench applications of imidacloprid to prevent larval leafmining damage is in October or November. It’s important to note that it will be too late to halt damage caused by these leafminers this season once leafmines become obvious. Home gardeners may find products with the aforementioned active ingredients in their local garden centers; look for products that list these leafmining sawflies on the label and ALWAYS FOLLOW LABEL DIRECTIONS.

Author: Joe Boggs

4. DISEASE DIGEST.

A. PINE WILT DISEASE. This disease involves the microscopic-sized pine wood nematode (Bursaphelenchus xylophilus), which is transmitted to 2-needled pines by pine sawyer insects (Monochamus species). It is primarily a pathogen of exotic pines (e.g. Scots pine and Austrian pine) rather than native pines such as white pine. Unlike many plant parasitic nematodes that cause plant diseases on roots, this nematode, after being vectored by the sawyer insects that feed on pine stems, damages plants by feeding on cells of the vascular (conducting) system of the plant, ultimately causing rapid (weeks or months) decline of the pine.

Tree death often progresses from the top of the pine downward, unlike most needle diseases that thrive on lower branches where higher relative humidity and moisture conditions prevail on the outer portions of the plants. The nematodes, once introduced under the bark by the pine sawyers, feed on wood stain fungi and on the plant cells, resulting in first grayish needle discoloration and then browning of needles on branches and the entire plant in short order. Needles are retained for some time on the plant, which is also different than many other pine diseases.

Stress plays a role in the extent of the problem and pine wilt disease also does not tend to occur on pines younger than 10 years old. Control is difficult and relies on proper diagnosis and then removal and disposal of affected trees. Though the sawyers spread the nematode to living trees, starting the disease cycle, the insects also may lay eggs on dying and dead trees in a planting, with these trees acting as reservoirs for the vector and the pathogen which then attack living trees. So if diagnosis is confirmed, removal of affected, dying and dead trees in the planting is needed. Send inch thick or larger stem tissue for microscopic examination for nematodes to the C. Wayne Ellet Plant and Pest Diagnostic Clinic [http://ppdc.osu.edu] if you see rapid dying of pines and suspect pine wilt disease.

Author: Jim Chatfield

B. WHY HOST RANGE MATTERS, PART 2. As noted in BYGL 2015-02, 4-16-2015, understanding the host ranges of pests and pathogens that cause infectious plant diseases and pest infestations is important in plant health management, in evaluating the potential risks of a particular pest or pathogen,
and in communicating with our clientele and customers. After all, the host is one of the three sides of the Disease and Pest Triangles (along with the pest or pathogen and the environment conducive to disease or infestation). Here is another key consideration about host ranges.

**Natural Selection Matters**

We talk a lot about plant selection; "right plant for the right place" is an important mantra for our daily Zen. Host range plays a role here as well. In Ohio where there is heavy apple scab pressure, it is important to select crabapples which bring good apple scab resistance along with desired horticultural characteristics of flower, fruit, form and foliage. But selection within a different time frame is also critical to our understanding of host range. Namely, the role of natural selection with regards to host range matters.

As OSU entomologist Dan Herms points out "no natural selection history pressure - no resistance." Asian ashes that have co-evolved with the emerald ash borer (EAB) have greater resistance to this insect than our North American ashes which never encountered them until the past few decades. Thus our native ashes have not evolved through the cauldron of natural selection. Each mutation of Asian ash that provided, for example, plant chemical advantages over EAB made that ash a little more resistant to the effects of this insect. Multiply this over thousands and millions of years and the result is more resistant ashes in Asia. If only we could wait that long? Hopefully, as horticulturists we can speed up the process through plant breeding efforts.

This story plays out again and again. With birch and the bronze birch borer the story is the same - but in reverse. Bronze birch borer is a North American native insect. Our native birches, such as paper birch and river birch have good to great resistance to bronze birch borer due to the eons of natural selection history. It is the European and Asian birches that have not faced this insect until planted here and are more vulnerable because of their lack of natural selection history. Are they worried in Europe and Asia about the bronze birch borer as an invasive species to their birches? Absolutely.

This story unfolds in an interesting way with thousand cankers disease. The walnut twig beetle and the *Geosmithia* fungus combination is not officially classified as an invasive problem because the insect and beetle are technically native to the United States. In Arizona, on the native Arizona walnut, this combination is not a big-deal pest, affecting stressed plants and not causing too much overall damage to healthy plants, a typical bark beetle scenario. The problem though, as noted early in the 21st century, by University of Colorado entomologist Whitney Cranshaw and plant pathologist Ted Tisserat, was that black walnuts were dying throughout the West.

Black walnuts are native to Ohio and the eastern United States, but were planted out west. However, black walnut had no natural selection history to this seemingly innocuous insect/fungus combination. No resistance. Devastation to black walnut ensued out West and now this new black walnut/thousand canker combination threatens the native range of black walnut here in Ohio and the East from wood products imported from the West. From an invasives-biology perspective, this is again the same old "no natural selection history - no resistance" story.

This story, told over and over again, is neatly summarized by entomologists Mike Raupp and Paula Shrewsbury of the University of Maryland and Dan Herms in recent journal articles (see below) listing some of our most familiar and important pest/pathogen and host combinations.

The following is an excerpt of "Documented Examples of Low Host Resistance Where Coevolutionary History is Lacking." (The examples in **bold** are those where the host plants are native to North America and the pest or pathogen is non-native, the non-bolded examples tell the reverse story of a North America pests and non-native plants.)

*Bronze birch borer and Eurasian birches
*Emerald ash borer and North American ashes
As you can tell, this is quite a lineup. Natural selection history matters. Check out more from Raupp, Shrewsbury and Herms in these excellent references:


**Author: Jim Chatfield**

5. **TURF TIPS.**

A. **MOW, MOW, AND MOW SOME MORE!** Proper mowing is the most important maintenance practice performed on established lawns, sport fields, golf courses, and other turf areas. Properly mowed lawns are denser, have fewer weeds, are more moisture-stress tolerant, and are of a higher quality than lawns that are not. A general rule is - a properly mowed lawn should look as good or better after it is mowed, than before it was mowed! If it does not, then some aspect(s) of the mowing procedure was not done properly.

Rapid turf growth in the spring makes quality mowing a daunting challenge! REMEMBER the basics of mowing: a) mow high; b) mow frequently; and c) mow with a sharp blade. For more information refer to the OSU Extension FactSheet HYG-4020-93: Lawn Mowing ([http://ohioline.osu.edu/hyg-fact/4000/4020.html](http://ohioline.osu.edu/hyg-fact/4000/4020.html)).

The following are some recommendations to consider for improving the health and appearance of a lawn:

- Mow high, 2 1/2" - 3". Three inches is often the highest setting on the mower, if it is height adjustable.

- Mow frequently. In the spring with very rapid growth this may mean mowing two times a week.

- Each mowing should remove 1/3 or less of the height of the grass. If the grass is allowed to grow too tall, mowing will remove too much of the blades of the grass resulting in a "stemmy" appearance and poor color. Continual removal of more than 1/3 results in a stressed root system going into the heat of summer.

- Return clippings to the lawn whenever possible. This recycles nutrients and reduces yard waste. Some suggestions to deal with excessive clippings include: double cutting the lawn to cut the clippings finer so they can move down into the turf canopy, and mow higher and more frequently, however if there is a thick mat of clippings removal is recommended. Put these clippings in the compost pile.
- Should wet grass be mowed? This is more of a safety issue than a problem causing injury to the turf. If the grass needs mowed and it can be done safely, MOW IT! The quality of the mowing may not be as good as dry turf but it is better to keep up then to let the lawn become too tall.

- Remember to sharpen the mower blade. A dull mower blade tears and shreds the ends of the grass blades. As the shredded ends of the grass blades dry, they turn tan to brown in color. A sharp blade produces a clean cut that limits the amount of browning that occurs.

Author: Curtis E. Young

6. INDUSTRY INSIGHTS.

A. OVERWINTERED MAGNOLIA SCALE IDENTIFICATION. Participants in this week's S.W. Ohio BYGLive! Diagnostic Walk-About held at Spring Grove Cemetery and Arboretum observed overwintered magnolia scale (Neolecanium cornuparvum) crawlers on the stems of a small magnolia planted in 2011. Unfortunately, unlike armored (hard) scales and many other soft scales, no dead females remained adhered to the stems after they departed from this world last season to aid in making a positive identification. Consequently, Joe Boggs reported that he was flummoxed with identifying the scale. However, a follow-up telephone consultation with Dave Shetlar (OSU Entomology, a.k.a. "Bug Doc"), revealed that dead magnolia scale females frequently to drop from their host trees during the winter and early spring, particularly on small twigs and branches.

Magnolia scale is one of the largest soft scales in Ohio with mature females measuring as much as 1/2" in diameter. Apparently, their size makes the bodies of dead females susceptible to detaching from trees. The smooth, helmet-shaped live mature females are brownish-purple and often lightly coated in a white powder. They will appear in mid-to-late summer attached to the twigs, branches, and main stems of their namesake host as well as tuliptree. As with all soft scales, magnolia scale uses its sucking mouthparts to extract sap from phloem vessels. Heavy infestations can kill branches, or even entire trees, or produce enough physiological stress to make trees susceptible to succumbing to other problems.

Their size coupled with their feeding behavior makes this scale a notorious producing of "honeydew," a by-product of the extraction of amino acids from large quantities of plant sap. The sticky honeydew may drip onto the leaves and stems of the host plant as well as plants beneath an infested tree, or onto sidewalks, cars, slow-moving gardeners, etc. Honeydew is often colonized by black sooty molds and while the molds do not harm plants, the sticky goo combined with the molds can produce an unsightly mess. Of course, the occurrence of honeydew and sooty molds do not necessarily mean soft scales are afoot. Many other sucking insects (aphids, planthoppers, etc.) also exude honeydew.

Magnolia scale has one generation per year. Females become fully mature and loaded with eggs from early August into early October. The eggs remain inside the female's body until they hatch which gives the appearance that the females are "giving birth" to live young. Once eggs hatch, the nymphs (crawlers) wander around on the twigs for a short period of time before settling down for the winter. The flattened, oval-shaped dark gray to grayish-brown nymphs have a corrugated edge bounding a slightly raised longitudinal center. The nymphs feed just like the mature females and they will also exude honeydew.

Targeting overwintered nymphs with insecticidal soap or horticultural oils in early spring before bud break will provide some suppression of magnolia scale populations. However, a more effective alternative is to make a soil drench application of a neonicotinoid systemic insecticide such as imidacloprid (e.g. Merit), dinofuran (e.g. Safari), or clothianidin (e.g. Arena) in early May or in the fall from September into November.

Author: Joe Boggs
B. MONITOR FOR SPRUCE SPIDER MITES. GDD accumulations have surpassed the 162 GDD mark in southern Ohio that predicts overwintered egg hatch of the spruce spider mite (*Oligonychus ununguis*). This means that host trees should be closely monitored to determine whether or not control measures are required. The mite spends winter and summer months in the egg stage. As temperatures warm in the spring, or cool in the fall, the eggs hatch making this a "cool-season" mite. Typically, fall generations are more damaging than the spring generations owing to a more extended feeding period. However, fall feeding symptoms do not become evident until the following season, so damage that is observed now most likely occurred last fall.

Spruce spider mites may be found on a wide range coniferous hosts including: spruce, arborvitae, juniper, hemlock, pine, Douglas-fir, and true firs. The mites feed by rupturing individual cells of the host's foliage, producing characteristic tiny yellow spots, or "stippling." As the stippling coalesces, foliage becomes bleached and eventually bronze-colored. Inner foliage is generally affected first.

A "beating tray" is the most effective tool for discovering and assessing spruce spider mite populations. This tool can be a purchased piece of equipment, or simply a stick and an 8.5 x 11" tablet of white paper. Hold the white target beneath the conifer foliage and strike the foliage several times with a stick or rod causing the mites to drop onto the target. Next, tilt and lightly tap the collection paper or tray to allow plant debris to fall off. Look closely for small, slow-moving dots, not much bigger than the period at the end of this sentence; these are the spider mites. The faster moving dots are likely to be predaceous mites; the good guys that feed on the spider mites. A finger can be used to "mash and smear" the mites to further distinguish the good mites from the bad. Greenish-brown streaks are "pate de spider mite" or the bad guys.

Effective management efforts include washing (syringing) mites from the foliage using a heavy stream of water, applications of soaps and oils, or applications of traditional miticides. Syringing will conserve predaceous mites, but may be difficult on large trees or large numbers of trees. Soaps and oils are also kind to predators, but oils will wash away the blue color on Colorado blue spruce. Certain miticides such as spiromesifen (e.g. Judo), hexythiazox (e.g. Hexygon, Savey), and bifenzate (e.g. Floramite), as well as a few others, have a low impact on the beneficial mites.

*Author: Joe Boggs*

7. WEATHERWATCH.

A. WEATHER UPDATE. The following weather information summarizes data collected at various Ohio Agricultural Research Development Center (OARDC) Weather Stations spanning the dates from April 1 - 23, 2015, with the exception of the soil temperatures which are readings from Wednesday, April 23, 2015 at 5:20 a.m.

Following an almost perfect Saturday, temperatures fell and rain followed. Four of the five weather stations listed in the table below are recording above normal in the precipitation column for the month of April.

<table>
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<tbody>
<tr>
<td>Ashtabula</td>
<td>NE</td>
<td>60.2</td>
<td>38.2</td>
<td>1.7&quot;</td>
<td>2.7&quot;</td>
<td>33.96/39.42</td>
</tr>
<tr>
<td>Wooster</td>
<td>NE</td>
<td>63.2</td>
<td>42.1</td>
<td>2.79&quot;</td>
<td>2.6&quot;</td>
<td>46.46/47.03</td>
</tr>
<tr>
<td>Hoytville</td>
<td>NW</td>
<td>63.2</td>
<td>39.6</td>
<td>3.23&quot;</td>
<td>2.6&quot;</td>
<td>37.61/41.42</td>
</tr>
<tr>
<td>Columbus</td>
<td>Central</td>
<td>66.3</td>
<td>45.6</td>
<td>3.3&quot;</td>
<td>2.9&quot;</td>
<td>50.05/51.10</td>
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<tr>
<td>Piketon</td>
<td>South</td>
<td>67.9</td>
<td>42.9</td>
<td>5.26&quot;</td>
<td>2.3&quot;</td>
<td>46.87/49.73</td>
</tr>
</tbody>
</table>
For a link to the OARDC Weather Stations, visit: [http://www.oardc.ohio-state.edu/centernet/weather.htm].

Author: Amy Stone

B. GROWING DEGREE DAYS. GDD is a measure of the daily maximum and minimum temperature and directly relates to growth and development of plants and insects. The GDD of any zip code location in Ohio is estimated using the GDD of ten OARDC weather stations and available on the web at: [http://www.oardc.ohio-state.edu/gdd/].

The range of GDD accumulations in Ohio from north to south is 110 to 247. Following is a report of GDD for several locations around Ohio as of end of the day of April 22, 2015: Painesville, 110; Cleveland, 120; Toledo, 121; Canfield, 126; Findlay, 122; Van Wert, 128; Wooster, 140; Coshocton, 183; Columbus, 211; Springfield, 194; Dayton, 198; Cincinnati, 231; Ironton, 246; Portsmouth, 247; and Piketon, 237.

To put these GDD accumulations into perspective, the following is an abbreviated listing of plant and insect species with their respective phenological event and average GDD accumulations at which these events occur. Due to variations in weather, temperature, humidity, etc., these events may occur a few days earlier or later than predicted by the average GDD. By looking at a city, town, or village nearby on the above list, or visiting the above web site, one can see what is approximately taking place in the landscape.

**Eastern tent caterpillar, egg hatch, 92;** Manchu cherry, first bloom, 93; northern lights forsythia, full bloom, 94; Norway maple, first bloom, 116; border forsythia, full bloom, 116; chanticleer callery pear, first bloom, 123; sargent cherry, first bloom, 127; **larch casebearer, egg hatch, 128;** Japanese pieris, full bloom, 129; saucer magnolia, first bloom, 133; common flowering quince, first bloom, 137; Bradford callery pear, first bloom, 142; **European pine sawfly, egg hatch, 144;** weeping Higan cherry, first bloom, 145; P.J.M. rhododendron, first bloom, 147; chanticleer callery pear, full bloom, 149; Norway maple, full bloom, 149; **inkberry leafminer, adult emergence, 150;** sargent cherry, full bloom, 151; star magnolia, full bloom, 151; Allegheny serviceberry, first bloom, 153; Manchu cherry, full bloom, 155; spring snow crabapple, first bloom, 155; apple serviceberry, first bloom, 159; **spruce spider mite, egg hatch, 162;** Bradford callery pear, full bloom, 164; Allegheny serviceberry, full bloom, 169; saucer magnolia, full bloom, 174; P.J.M. rhododendron, full bloom, 178; **boxwood psyllid, egg hatch, 179;** weeping Higan cherry, full bloom, 179; Koreanspice viburnum, first bloom, 185; regent serviceberry, first bloom, 186; Japanese flowering crabapple, first bloom, 189; eastern redbud, first bloom, 191; **gypsy moth, egg hatch, 192;** Koreanspice viburnum, full bloom, 205; **azalea lace bug, egg hatch, 206;** 'Spring Snow' crabapple, full bloom, 209; common flowering quince, full bloom, 214; **birch leafminer, adult emergence, 215;** 'Coralburst' crabapple, first bloom, 217; **elm leafminer, adult emergence, 219;** common chokecherry, full bloom, 221; **alder leafminer, adult emergence, 224;** **honeylocust plant bug, egg hatch, 230;** sargent crabapple, first bloom, 230; common lilac, first bloom, 234; Ohio buckeye, first bloom, 245; common horsechestnut, first bloom, 251; **hawthorn lace bug, adult emergence, 253; and hawthorn leafminer, adult emergence, 260.**

Author: Curtis E. Young

8. COMING ATTRACTIONS.

A. POND SCHOOL MAY 27, 2015. Pond School is a 3-hour workshop on pond care and management. There will be 8 different presentations to choose from taking place across 3 concurrent tracks of 1-hour sessions. There will be lectures, hands-on, and outdoor sessions on a variety of aquatic topics including algae control, aggressive vegetation, managing wildlife around the pond, fish management, aerating, water testing and more. Pre-registration is required and space is limited. The event is May 27, 2015 at Wolf Creek Environmental Center, 6100 Ridge Rd., Sharon Center, OH in Medina County. Program
starts at 5:30 p.m. and goes to 8:30 p.m. Registration Deadline is May 11, 2015. For more information visit: [http://go.osu.edu/pond].

B. BUCKEYE LADY BEETLE BLITZ & GOOD GARDEN BUGS WORKSHOP. The Ag-Urban Landscape Ecology Lab is hosting three sessions of a workshop this year in May to kick off The Buckeye Lady Beetle Blitz 2015! This workshop will focus on training for our Buckeye Lady Beetle Blitz citizen science project. We will provide a review of lady beetle identification and sampling procedures, and distribute the 2015 toolkits. Dr. Mary Gardiner will also cover information from her new book, "Good Garden Bugs," due out May 2015. Participants will learn about the diversity of beneficial arthropods that inhabit their garden. A flyer is attached with additional information, and even more can found on our website: [http://www.ladybeetles.osu.edu]. Please direct any questions towards Chelsea Smith ([smith.7231@osu.edu] or call 330-202-3555, ext 2583).

We have three locations for this workshop:

* WOOSTER: May 14, 2015 at OARDC's Fisher Auditorium, 1680 Madison Ave, Wooster, OH

* CLEVELAND: May 21, 2015 at the OSU Cuyahoga County Extension Office, 5320 Stanard Ave., Cleveland, OH

* DAYTON: May 27, 2015 at the Montgomery County Fairgrounds, 1001 South Main Street, Dayton, OH

PRE-REGISTRATION IS REQUIRED. Please send your registration form in at least 3 days before the workshop you are attending. The cost for the workshop is $20.00. Checks should be written out to "Ohio State University". Lunch will NOT be provided. Participants can bring a brown bag lunch or visit a local restaurant (a list of local options will be provided). The registration fee includes workshop attendance, beverages, and BLBB sampling kits. Follow this link for a registration form: [http://ale.cfaes.ohio-state.edu/sites/gardinerlab/files/imce/Events/2015%20registration%20form_workshop_ALL-fillable_0.pdf] and send it by email* to Chelsea Smith [smith.7231@osu.edu] or US mail to:

Chelsea Smith
1680 Madison Ave
Thorne Hall
Wooster, OH 44691

* If you are emailing the form in please follow these steps: 1) Fill out the PDF; 2) Save the PDF as a file on your computer; 3) Open the file to confirm that your entries were saved; and 4) Attach the saved completed PDF file to an email and send it to [smith.7231@osu.edu].

C. THE OSU GREEN INDUSTRY SHORT COURSE, THE OHIO TURFGRASS FOUNDATION CONFERENCE AND SHOW, AND TREES ON TAP PROGRAMS. Mark your calendars now, as these shows will be here sooner than you think. The event will be moving back to the Columbus Convention Center in 2015 and will be held on December 8 - 10, 2015, with the addition of a special tree program on Monday, December 7, 2015. Details on over 100 educational programs and a wide array of certification credits will be coming throughout the BYGL season. We are happy to acknowledge the robust support of the Ohio Turfgrass Foundation for their financial and other aid of the educational efforts of the OSU Extension Nursery Landscape and Turf (ENLT) Team, a group of Extension Educators and OSU Specialists that brings to you a range of programs including field diagnostic walkabouts (such as BYGLive! in southwest Ohio) and diagnostic workshops as well as help with horticulture problem troubleshooting, numerous publications, and of course, the BYGL.

9. BYGLOSOPHY. Friday, April 24 is Arbor Day, so here is a message from our President, some 108 years ago.
Theodore Roosevelt’s Arbor Day Address to Schoolchildren, April 15, 1907:

Arbor Day (which means simply “Tree Day”) is now observed in every State in our Union — and mainly in the schools…You give a day or part of a day to special exercises and perhaps to actual tree planting, in recognition of the importance of trees to us as a Nation, and of what they yield in adornment, comfort, and useful products to the communities in which you live.

It is well that you should celebrate your Arbor Day thoughtfully, for within your lifetime the Nation’s need of trees will become serious. We of an elder generation can get along with what we have, though with growing hardship; but in your full manhood and womanhood you will want what nature once so bountifully supplied and man so thoughtlessly destroyed; and because of that want you will reproach us, not for what we have used, but for what we have wasted…

A people without children would face a hopeless future; a country without trees is almost as hopeless; forests which are so used that they cannot renew themselves will soon vanish, and with them all their benefits. A true forest is not merely a storehouse full of wood, but, as it were, a factory of wood, and at the same time a reservoir of water. When you help to preserve our forests or to plant new ones you are acting the part of good citizens. The value of forestry deserves, therefore, to be taught in the schools, which aim to make good citizens of you. If your Arbor Day exercises help you to realize what benefits each one of you receives from the forests, and how by your assistance these benefits may continue, they will serve a good end.

APPENDIX
ADDITIONAL WEBSITE RESOURCES:

Ask a Master Gardener Volunteer  
[http://mastergardener.osu.edu/ask](http://mastergardener.osu.edu/ask)

Buckeye Turf  
[http://buckeyeturf.osu.edu](http://buckeyeturf.osu.edu)

Emerald Ash Borer Information  
[http://ashalert.osu.edu](http://ashalert.osu.edu)

National Plant Diagnostic Network and First Detector Program  
[https://www.npdn.org/first_detector](https://www.npdn.org/first_detector)

Growing Degree Days and Phenology for Ohio  
[http://www.oardc.ohio-state.edu/gdd/](http://www.oardc.ohio-state.edu/gdd/)

Hungry Pests Website  

Ohio Pesticide Safety Education Program  
[http://pested.osu.edu/](http://pested.osu.edu/)

Ohio State University Department of Horticulture and Crop Science Plantfacts  
[http://plantfacts.osu.edu/web/](http://plantfacts.osu.edu/web/)

Ohio State University Extension Bee Lab  
[beelab.osu.edu](http://beelab.osu.edu)

Ohio State University Extension Master Gardener Volunteer Program
Ohio Woodlands Stewards Program
http://woodlandstewards.osu.edu

The C. Wayne Ellett Plant and Pest Diagnostic Clinic (CWEPPDC)
http://ppdc.osu.edu/

USDA APHIS Beetle Buster Website (Asian Longhorned Beetle)
http://www.beetlebusters.info/

USDA APHIS Beetle Detective Website (Asian Longhorned Beetle and Emerald Ash Borer)
http://beetledetectives.com/

Following are the participants in the April 21th conference call: Amanda Bennett (Miami); Pam Bennett (Clark); Joe Boggs (Hamilton); Jim Chatfield (Plant Pathology); Erik Draper (Geauga), Mary Griffith (Greene); Denise Johnson (Master Gardener Volunteer program); Nancy Taylor (C. Wayne Ellett Plant and Pest Diagnostic Clinic (CWEPPDC)), Marne Titchenell (School of Environmental and Natural Resources), Amy Stone (Lucas), and Curtis E. Young (Van Wert).

BYGL is available via email, contact Cheryl Fischnich [fischnich.1@osu.edu] to subscribe. Additional fact sheet information on any of these articles may be found through the OSU FactSheet database [http://plantfacts.osu.edu/web].

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BYGL is available online at: [http://bygl.osu.edu], a website sponsored by the Ohio State University Department of Horticulture and Crop Sciences (HCS) as part of the "Horticulture in Virtual Perspective." The online version of BYGL has images associated with the articles and links to additional information.

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