BUCKEYE YARD AND GARDEN LINE 2013-04
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From: Curtis E. Young (Lead editor and contributing author) and Pam Bennett (Co-editor and contributing author).

Joe Boggs, Jim Chatfield, Julie Crook, Erik Draper, Denise Ellsworth, Gary Gao, Denise Johnson, Tim Malinich, Cindy Meyer, Amy Stone, Marne Titchenell, and Danae Wolfe (Contributing authors).

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This is the 4th 2013 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.

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1. PLANTS OF THE WEEK.

*ANNUAL - SNAPDRAGON (Antirrhinum spp.). Gardeners who are chomping at the bit should realize it's still too early to plant impatiens and other warm-season annuals, and be successful! However, those anxious to get color in the garden should consider planting snapdragons. These cold-tolerant annuals can be planted right now because they tolerate cool soil temperatures and light frosts. In fact, they thrive in cooler temperatures.

Snapdragons bloom and grow best in full sun. They tolerate light shade but bloom production decreases. The flowers get their common name from the fact that when one squeezes or pinches the flowers, the "dragon mouth" opens. Flowers are faintly fragrant and taller varieties make excellent cut flowers. Shorter varieties are used for bedding plants or in borders. Deadhead on a regular basis to keep them fresh and blooming all season. There may be a period during the heat of summer where they just "sit there and do nothing," but be patient as they return to full glory with cooler fall temperatures.

*PERENNIAL - WILD COLUMBINE (Aquilegia canadensis). This native North American plant is beginning to bloom in central Ohio nature preserves and is a great plant for shady woodland and natural areas as well as the perennial garden. Wild columbine grows around 1 - 3' tall (top of the bloom stems) and have red and yellow bell-like flowers that are attractive to hummingbirds. The plants grow on a range of soils (dry to moist) and are adaptive to a variety of conditions including full sun to part shade. They are excellent in areas that one wants to naturalize as they spread prolifically under good growing conditions. However, on the other hand, in the garden where one
might want to maintain control, columbine can re-seed and become a problem. Therefore, deadhead the flowers before the seeds develop.

The foliage is soft and somewhat frilly and quite attractive after flowering, as long as soils aren't completely dry. In addition, wild columbine appears to be less susceptible to leaf miner feeding which devastates other species and hybrids.

*WOODY - THREE-FLOWERED MAPLE (*Acer triflorum*). This Asian maple is a small to medium-sized tree (20 - 25') and like its cousin, the paperbark maple, it has exfoliating bark but is not as papery nor does it have the cinnamon color of *A. griseum*. Leaves are trifoliate (3 leaflets), and arranged oppositely on the twigs, as with all maples. Flowers are arranged in 3 as the name suggests. In the Chatscape (Jim CHATfields landSCAPE) in northeast Ohio, the three-flowered maple from Secrest Arboretum is about 10' tall and 6' wide despite 8 years of neglect. It has a somewhat sprawling form and soft foliage at emergence and through the season and has spectacular orange-red fall color.

Winner of many landscape design awards throughout the world for its multi-season appeal of bark and foliage characteristics, the three-flowered maple is something you should try in your specimen garden. According to the National Arboretum website, plant explorer Ernest Wilson found *Acer triflorum* on the Korean peninsula in 1917 on a plant exploration trip and described it as "perhaps the best find of the trip." Plant in well-drained soil.

*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 (green onions). Onions are generally sold as sets, transplants or seedlings. Sets are small onions that have been harvested and stored. These small bulbs are then grown onto a larger size in the garden. They 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.

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 will perform well in Ohio. This includes long-day varieties for northern Ohio and intermediate or long-day varieties for the southern portion of the state. Also, pay attention to which varieties are better suited for harvest as scallions, fresh eating, or for use as long-term storage onions.

*WEED - PURPLE DEADNETTLE (*Lamium purpureum*). Purple deadnettle is gracing many fields and landscapes with its soft-textured, deep purple foliage and generally difficult-to-control habit. A winter annual, purple deadnettle (also known as red deadnettle) germinates from seed in the fall or very early spring. By the time fields and gardens are dry enough to work, these plants are already full-sized and ready to flower.

This weed branches from the base and will easily reach 12 - 16". Being in the mint family (Labiatae) the stems are square. Distinctly triangular leaves are purple to red and crowded near the upper portion of the stem. Lower leaves are larger and have longer petioles than upper leaves. Flowers are light purple. Each plant produces thousands of seeds which can persist in the soil for several years.

HENBIT (*Lamium amplexicaule*) is similar, but the leaves are deeply lobed or scalloped and spaced evenly along the stem. It also lacks the soft texture and purple coloration of the upper leaves. Henbit flowers will self-pollinate without opening.

Control of purple deadnettle or henbit should center around preventing germination with herbicides or mulching or post emergence control (cultivation, herbicides) prior to flowering.

2. HORT SHORTS.
A. LIFE-LONG LEARNING: THE CALLERY PEAR STORY. One of the certainties of education is that as you age you become aware that there is more and more to learn and that you are absolutely certain about less and less. No one will ever master gardening. This is good to remember relative to the story of Callery pear (Pyrus calleryana).

Callery pears were brought into the US to cross with fruiting pears, with the idea that they would provide some genes for resistance for bacterial fireblight disease. The crosses did not fare so well, but as USDA researchers looked out at plantings, lo and behold Pyrus calleryana 'Bradford' did seem to look like the perfect street tree. Snowy white flowers, glossy green leaves, great burnished-red fall color, and because of genetic self-incompatibility, hardly ever were there any fruits (meaning no mess).

Thus, Pyrus calleryana 'Bradford' was widely planted as a street tree. It had great ornamental attributes. Some felt it was "overplanted," but the reason was that so many liked it. Soon, though, it was noted by arborists that the crotch angles of the branches were an Achilles heel; the angles were weak which resulted in a lot of storm damage. Soon, street tree commissions demanded "no more pears." Often these groups were not very discriminating, banning "flowering pears," "ornamental pears," and "Bradford pears."

Many horticulturists come to defense of Callery pears, pointing out that other cultivars (cultivated varieties) of Pyrus calleryana had better branch structure, including cultivars such as 'Aristocrat' and 'Cleveland Select'. We said, don't throw the baby out with the bathwater, and make sure which Callery pears you are belittling. Names matter. Meanwhile, for years many of us noted that one of the outstanding features of Callery pears was changing; more and more fruits were showing up on the trees. In the early days, you almost never saw any of the small tan globes; over time we noticed more and more of these fruits appearing on trees, resulting in a messy tree.

Teresa Culley of the University of Cincinnati and others brought to light what was happening. Though 'Bradford' Callery pear was still largely self-incompatible, the other cultivars, originating from slightly different plants (e.g. better branch structure) and then cloned, were crossing. They were then spread by Angry Birds and showing up by the thousands upon thousands where they were not planted by humans. Many natural area managers now are concerned that Callery pears are an invasive plant threat. The ultimate fate of this plant in native areas in still an unfolding story, but it proves the point that all such stories of nature and nurture are ultimately never-ending. Don't look now, but what you knew yesterday was not the last word.

As Kim Todd pointed out in the book "Tinkering with Eden,"
"So we should do what we can, take actions that make the most sense to us given our present understanding, proceed with caution, work to expand our peripheral vision so it takes in more species and unglimpessed possibilities, reach to see beyond the effects we hope to achieve. We should also rest assured that in the half-light at the end of the working day, no matter how we open our eyes and how finely we tune our fortune-telling instruments, no matter how many times we re-check the calculations and stretch to account for the earth complete and entire, the natural world will continue to rattle, buck, elude, and astonish us, serving up results far beyond the imagination."

B. RARELY SEEN BY THE UNINITIATED. Michael Dirr, speaking of the flowers of pawpaw, famously wrote in his "Manual of Woody Landscape Plants" that their "lurid purple flowers" were "rarely seen by the uninitiated." This is an apt turn of phrase for springtime as the riots of spring bring major changes in plants daily. Magnolia flowers open and of course sometimes are blasted by frost the next day. Chartreuse-yellow Norway maple flowers and intense reds of red maple flowers and developing helicopter-like fruits are stunning but often many "uninitiated" question whether maples even have flowers.

Ultimately we are all uninitiated and ignorant of far more than that which we know. Shakespeare said, "In Nature's infinite book of secrecy, a little I can read." Marcel Proust gloried in the thrill of discovery of that which we have seen but not registered when he said, "The true voyage of discovery lies not in finding new landscapes, but in having new eyes." So, when you do finally observe the flowers of katsuratree, showy in detail for perhaps a few days each spring if we are lucky, take it in amidst our busy nurture of nature days. And take a look at the accompanying image of the leaf buds with elaborate scales and the leaves then emerging on three-flowered maple (Acer triflorum). Who would have thought?
C. IT'S TURKEY TIME! The spring WILD TURKEY hunting season is underway, as of April 22, 2013. This past weekend, Ohio youth age 17 years and younger found success after 1,784 birds were harvested, a 12% increase from 2012. The Ohio Department of Natural Resources (ODNR) would like hunters to be aware of changes to the game tagging and check procedures for both wild turkey and WHITE-TAILED DEER. Of note is the change that hunters will now need to make their own game tags to attach to the animal. For more information on this procedure and for a game tag template, visit [http://www.wildohio.com] and click on the 'Hunting and Trapping' icon.

D. GEESE GOSLINGS WADDLING ABOUT. The CANADA GOOSE is one of Ohio's earliest species to begin their breeding season. This year, they are holding true to that, as Marne Titchenell spotted young goslings waddling around a small retention pond in northern Columbus earlier this week. Canada geese start scoping out nesting territories as early as February and will typically begin to lay eggs from mid-March to mid-April. Given the eggs take roughly 23 - 30 days to hatch, that means this northern Columbus pair were on the ball this season, with all eggs laid and ready for incubation in mid-March. As the breeding season gears up, expect to see many more goslings waddling around the state as spring continues. Experiencing conflict with Canada geese? Check out this OSU Extension FactSheet W-3-10, "Coping with Canada Geese: Conflict Management and Damage Prevention Strategies" for more information.

E. BIRDS, BATS, AND DRAGONFLIES - OH MY! As spring continues, so do the sightings of wildlife arriving in Ohio after weeks and weeks of traveling from warmer climates. Marne Titchenell observed several pairs of GREEN DARNER DRAGONFLIES mating and depositing eggs in a small pond in central Columbus last week. Green darners are one of several species of migratory dragonflies, however little is known about the phenomenon. While biologists study the process, several organizations have teamed together to involve citizens around the country to report data on 5 known dragonfly migrants. This partnership is called the Migratory Dragonfly Partnership. If you are interested in becoming involved in this citizen science monitoring project, check out the partnership webpage [http://www.inaturalist.org/projects/migratory-dragonflies-in-ohio], which is run using iNaturalist [http://www.inaturalist.org/], an online hot spot for recording observation of plants, animals, insects, and anything nature related!

Dragonflies aren't the only critters migrating this time of year. Migrating tree bats are also on the move. RED BATS, HOARY BATS, and SILVER-HAIRED BATS are arriving in Ohio, some stopping for the summer, some heading further north. Reports have been shared with Marne Titchenell of several red bats being spotted around Ohio in the past couple weeks. The red bat is one of the more colorful Ohio bats, perhaps rivaled only by the hoary bat. Both the male and female red bat is clad in bright reddish-orange fur, with the female sporting frosted fur tips.

Last but certainly not least, more and more songbirds are arriving in Ohio, pausing for a break from their migratory journeys or beginning to set up shop for the breeding season. Many warblers have been spotted including the PINE, BLACK-THROATED GREEN, HOODED, BLACK AND WHITE, CERULEAN, NORTHERN PARULA, and let's not forget the yellows - YELLOW-THROATED, YELLOW-RUMPED, AND YELLOW WARBLER. Many of these area-sensitive, mature forest species have been spotted in urban metro parks, a nice reminder of the quality habitat that exists in Ohio's urban areas.

Many other species are also making an appearance including many of the thrushes such as the WOOD THRUSH, VEERY, SWAINSON'S THRUSH, and the EASTERN BLUEBIRD. The bluebirds will soon have competition for nest boxes as TREE SWALLOWS have also been spotted. Woodpeckers are becoming more active as their nesting season is swinging into gear and the YELLOW-BELLIED SAPSUCKER is passing through Ohio leaving behind its signature rows of small, shallow holes in the bark of trees. Other species to keep an eye or ear out for are the EASTERN PHOEBE, EASTERN TOWHEE, WHITE-CROWNED SPARROW, RED-BREASTED NUTHATCH, and the EASTERN KINGBIRD. One can hardly miss the high pitch trill of the CHIPPING SPARROW or the distinctive cat-like 'mrrrow' of the CATBIRD. Now is an excellent time to grab the binoculars, a cup of coffee, and brave the early morning hours to go birding.

It's not too early to put out bird feeders in attempts to entice many of these species into backyards. Wondering about the RUBY-THROATED HUMMINGBIRD? There have been a few accounts of the tiny little bird in Ohio, but many are still south of us working their way north. This means there is still time to dust off the hummingbird.
feeder and supply it with sugar water, but don't wait too long as these speedy little jewels will be here before we know it!

3. BUG BYTES.

A. BOXWOOD LEAFMINER. Dave Shetlar reported that boxwood leafminer midge flies (*Monarthropalpus flavus*) have completed their spring larval development and are now pupating in their leaf mines in central Ohio. This non-native leafminer was accidentally introduced into North America from Europe and has become common in the southern and central parts of the state. It was rarely observed in the northern part of the state; however, Curtis Young observed heavy populations last year in northwest Ohio (BYGL 2012-08, 05/24/12).

Except for their bright orange abdomens, adults superficially resemble miniature mosquitoes. The females use their sharp ovipositors to insert eggs between the upper and lower surfaces of boxwood leaves. Several eggs may be laid per leaf. The resulting yellowish-orange larvae (maggots) spend the remainder of the season developing through the 1st and 2nd instar stages as they consume interior leaf tissue to produce blister-like mines. Winter is spent as 3rd instar larvae inside the blister mines. In the spring, the larvae resume feeding and they develop through a 4th instar stage. During this time, mines expand rapidly, and damage becomes evident. Indeed, as mined leaves turn from yellow to orangish-brown, the leafminer damage mimics winter injury.

Effective control options for this leafminer involve applications of neonicotinoids such as imidacloprid (e.g. Merit and generics), clothianidin (e.g. Arena or Aloft), and thiamethoxam (e.g. Meridian). An application this spring will prevent damage during the upcoming season by killing 1st instar larvae. An application of imidacloprid made in October will kill the 3rd and 4th instar larvae next spring. The fall application does not prevent damage from 1st and 2nd instar leafminer larvae. However, it will carry the added benefit of controlling BOXWOOD PSYLLID (*Psylla buxi*) before these aphid relatives produce their characteristic leaf-cupping damage.

B. SAWFLY LEAFMINERS FLY. Joe Boggs reported observing ELM LEAFMINER (*Kaliofenusa ulmi*) adults flying around their namesake host in southwest Ohio. The emergence of this leafmining sawfly was predicted in his 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 also on the wing or will be soon, 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 is very 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.

C. EUROPEAN ELM FLEA WEEVIL CHEWING ON LEAVES. Curtis Young reported that the European elm flea weevil (Orchestes alni) is already chewing on the newly expanding leaves of elms, especially Siberian elms (Ulmus pumila) in northwest Ohio. The leaves on the elm trees are barely 3/8” in length and the weevils have already begun chewing holes in them. The elm flea weevil overwinters as an adult somewhere near or on the host tree and apparently moves to the leaf buds very near the time when they break dormancy and begin to expand. It is expected that they will begin to lay their eggs in the mid-rib veins of leaves in the near future.

When the eggs hatch, the new larvae tunnel through the leaf tissues. As they mine, they move from the mid-rib vein toward the tip of the leaf where they produce a blotch mine. Mature larvae produce an elliptical silk-lined cocoon (puparium) within the mine. Larvae pupate within the cocoon and metamorph to the adult stage. New adults emerge from the cocoons in early, and return to the surface of the leaves feed. The adults feed the rest of the summer and sometime in the early fall disappear to their overwintering sites. There is only one generation per year.

Adult feeding damage appears as small irregularly shaped holes chewed part way through leaves leaving one leaf epidermis intact producing a "window pane." Numerous holes are produced by mid- to late summer (dependent on the weevil population on a tree). Siberian elm is a highly impacted host as are hybrids that include Siberian elm as one of the parents. Chinese elm (U. parvifolia) also supports the flea weevil's development. Others elm species and native elms still need to be examined more closely for host suitability. Heavily damaged leaves may prematurely drop.

4. DISEASE DIGEST.

A. CEDAR RUSTS. The fungi involved in cedar apple rust, cedar hawthorn rust and cedar quince rust emerge each year at different times, depending upon temperature and moisture conditions. At Secrest Arboretum in Wooster, in northeast Ohio, on April 11, telial spore horns of the fungus on juniper seemed to be ready to elongate with masses of spores, and some spores may have been produced. However, checking the same juniper on April 22, it appears that nothing much had yet happened, indicating that there is still time to protect hawthorn and crabapple from infections with fungicides. Remember these fungi cycle back and forth between junipers and rosaceous host plants (such as hawthorns, apples and crabapples and quinces).

5. TURF TIPS.

A. CRABGRASS MANAGEMENT. Crabgrass (Digitaria spp.) is an annual concern for many homeowners' lawns as well as for landscapes around business, parks, cemeteries, and other public buildings. Crabgrass management is multifaceted and includes both cultural and chemical tactics.

Crabgrass seeds germinate when the temperature in the upper inch of soil reaches 50F - 55F for at least 5 consecutive nights under moist conditions. Exposure to sunlight is also critical for seed germination, and this makes thin lawns more susceptible to crabgrass take-over. Thus a cultural tactic to limit crabgrass establishment is to limit the amount of sunlight that reaches the soil surface in a lawn. This is accomplished by maintaining a high mower setting to avoid scalping and cutting the grass too short. A thick, tall lawn helps keep the soil surface cooler and prevents sunlight from reaching the soil surface. However, there will still be crabgrass susceptible areas at the edges of lawns, especially beside driveways, sidewalks and edges of bedding areas. These stressed areas can be a real challenge to keep crabgrass from establishing in them. When trimming the edges of lawns with mechanical devices such as weed wackers, be careful not to severely scalp the grass. Severely shortening the grass at the edges further weakens the grass that is already under pressure from the effects of the driveway and sidewalk materials such as cement heating up in the sun and baking the soil of the lawn next to it. These highly stressed areas of lawns may require treatments with herbicides to limit crabgrass establishment.
Herbicide treatments for crabgrass management are typically pre-emergent treatments, but there are some post-emergent treatments available as well. Pre-emergent herbicides should be in place before soil temperatures reach the seed germination threshold of 50F - 55F. The application date recommendations are typically March 1 to April 1 for southern Ohio; March 15 to April 15 for central Ohio; and April 1 to May 1 for northern Ohio. Even though most of these dates have lapsed already in 2013, the cold, wet spring experienced thus far may have extend the time frame further into April and May for all regions of Ohio. Examples of pre-emergent active ingredients used to prevent crabgrass germination include dithiopyr (e.g. Dimension, Crab-Buster), benefin and trifluralin (e.g. Team), prodiamine (e.g. Barricade, Regalkade), pendimethalin (e.g. Pendulum 3.3 EC, Pendulum WDG, Pendulum Aquacap, LESCO PRE-M 3.3 EC), and quinclorac (Drive). Corn gluten meal is a popular natural fertilizer that also has substances in it that are reported to inhibit crabgrass and other weed seed germination.

Once crabgrass germinates and emerges, there are a few post-emergent products available to suppress or eliminate it from lawns. Examples of post-emergent active ingredients include fenoxaprop (Acclaim Extra) and quinclorac (Drive). Both Acclaim Extra and Drive are foliar absorbed, so care must be taken to apply on a dry, windless day, when crabgrass is actively growing, and no rainfall is expected for 6 - 12 hours. While Acclaim Extra contains a surfactant, Drive must have a surfactant added. Best efficacy has been obtained with methylated seed oil or crop oil concentrate. Always read and follow label directions.

6. INDUSTRY INSIGHTS.

A. ALL BORERS ARE NOT EQUAL! Amy Stone and Joe Boggs reported looking at an ash sample collected within the Asian longhorned beetle (ALB) (Anoplophora glabripennis) regulated area in Tate Township, Clermont County, that showed the characteristic exit hole and larval tunneling activity of REDHEADED ASH BORER (Neoclytus acuminatus, family Cerambycidae), one of the many borers that may appear on ALB hosts. Although ALB has been found in ash elsewhere in North America, no infested ash have yet been found in Ohio. However, their report prompted a discussion on the many types of borers that may be found on ALB hosts and how such a wide range of borers could present an identification challenge for an uninformed observer if the identification is only based on exit holes and larval galleries. Using ash as an example, here are some borer identification tips.

First, tree borers tend to target their hosts based on the health of their hosts; therefore, where is the tree, or even parts of the tree, located on the "Tree Health Continuum?" Picture a sliding bar with "Live and Healthy Trees" on the far left and "Dead Trees" on the far right. As the tree's health declines, it slides to the right on the continuum, first passing through "Live but Stressed Trees," then through "Dying Trees," and eventually ends on the continuum in the "Dead Trees" zone. The vast majority of our native borers target trees that are located on our imaginary continuum somewhere from stressed to dead trees. Non-native borers such as EMERALD ASH BORER (EAB) (Agrilus planipennis) and ALB target live and healthy trees.

For example, native clearwing moths (family Sesiidae), such as the ASH/LILAC BORER (Podosesia syringae), and the BANDED ASH CLEARWING BORER (P. aureocincta) will target live but stressed trees; they will not lay eggs on dead trees. The redheaded ash borer (family Cerambycidae) as well as ASH BARK BEETLES (Hylesinus spp., family Curculionidae, subfamily Scolytinae) attack dying trees or recently dead trees. This is true of many bark beetles. POWDERPOST BEETLES and the related FALSE POWDERPOST BEETLES (family Bostrichidae) as well as BANDED ASH BORER (N. caprea, family Cerambycidae) attack dead trees. Indeed, as noted in last week's BYGL (2013-03, 04/18/13), the banded ash borer is a notorious nuisance pest sometimes emerging from firewood stored around or in homes. These borers may also target parts of trees such as single branches if the branch falls within the tree borer's preferred host zone on the Tree Health Continuum. For example, dying branches on an otherwise live and healthy ash tree may be attacked by the redheaded ash borer as well as bark beetles and sometimes even the powderpost/false powderpost beetles.

Second, the larvae of specific types of borers will feed in specific locations on a tree. For example, ash bark beetles are phloem feeders; their larval tunnels are found just beneath the bark in the phloem. EAB larvae and the ash clearwing caterpillars are also phloem feeders and are found in the phloem although they will etch into the outermost ring of the xylem as these borers gain girth. However, this does not make them true xylem feeders. Like many longhorned beetles, redheaded ash borer larvae start out feeding in the phloem and then they bore deep into
the xylem to become true xylem feeders. The same is true for ALB which is why the "pencil test" is so effective in separating Cerambycids from the Sesiids; a pencil can be inserted deeply into a Cerambycid exit hole. Of course, ALB will not lay eggs on dead trees.

The size and shape of exit holes are also helpful with identifying borers. The BB-sized bark beetle and powderpost/false powderpost beetle emergence holes are perfectly round. Of course, powderpost beetles are so-named because of the fine powder-like frass that trickles from their emergence holes. EAB exit holes are noticeably larger (about 1/8" wide) and characteristically D-Shaped. The perfectly round banded ash borer and slightly oblong redheaded ash borer emergence holes are both about 1/4" wide. Clearwing moth emergence holes are also perfectly round and around 3/8" in diameter and there may be a light brown pupal skin hanging from the hole. Pupal skins are not seen hanging out of wood boring beetle emergence holes. The perfectly round ALB emergence holes are similar in size to clearwing moth emergence holes, but remember the "pencil test."

We have focused on ash borers, however, the same identification approach works for borers of maples as well as other possible ALB hosts. First learn which borers may be found on the host and the tree health preference of each borer species. Then learn about the larval feeding behavior and the borer's exit strategy or the type of exit hole produced when adults emerge. With a little homework and some practical experience, accurately identifying the true tree boring culprit can be very straight forward.

B. GET YOUR GREEN INDUSTRY FIX WEBINARS. We are now hearing about Imprelis again. Impatiens downy mildew has suddenly resulted in a dearth in garden centers this spring of the previous #1 bedding plant in the country. Rose rosette virus is quite a challenge to the ever-popular landscape roses. Just how far is this season behind last year? What are some of the plants "rarely seen by the uninitiated" in landscapes this spring? Why do we P? What is the latest (in a little more detail) from the Buckeye Yard and Garden Line? Join OSU BYGL experts on the Ohio Nursery and Landscape Association's Green Industry Webinars, the second Wednesday of the month from May-October, starting May 8, 2013. If you have questions about registering, contact ONLA at 614-899-1195 or 800-825-5062.

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 - April 24, 2013, with the exception of the soil temperatures which are readings from Wednesday, April 24, 2013 at 11:20 a.m.

Recent temperatures have been up and down - almost like a roller coaster. Pam Bennett, Curtis Young, Amy Stone, and Erik Draper reported being on the receiving end of freezing temperatures over the past weekend in their respective counties. Residents in NW Ohio woke to a dusting of snow over the weekend. We will wait and see the significance of these cold temperatures and effects on the plant in the weeks to come. Spring...where are you?

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</thead>
<tbody>
<tr>
<td>Ashtabula</td>
<td>NE</td>
<td>54.7</td>
<td>33.1</td>
<td>2.66</td>
<td>2.8</td>
<td>54.90/53.02</td>
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<tr>
<td>Wooster</td>
<td>NE</td>
<td>61.1</td>
<td>35.6</td>
<td>2.85</td>
<td>2.7</td>
<td>52.58/52.00</td>
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<tr>
<td>Hoytville</td>
<td>NW</td>
<td>57.9</td>
<td>34.4</td>
<td>2.59</td>
<td>2.7</td>
<td>46.88/49.27</td>
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<tr>
<td>Columbus</td>
<td>Central</td>
<td>64.5</td>
<td>41.3</td>
<td>1.49</td>
<td>3.0</td>
<td>54.97/54.69</td>
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<tr>
<td>Piketon</td>
<td>South</td>
<td>67.7</td>
<td>38.9</td>
<td>1.83</td>
<td>2.4</td>
<td>56.92/56.32</td>
</tr>
</tbody>
</table>

For a link to the OARDC Weather Stations, visit: [http://www.oardc.ohio-state.edu/centernet/weather.htm].

B. GROWING DEGREE DAYS (GDD). 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 118 to 259. Following is a report of GDD for several locations around Ohio as of April 24, 2013: Painesville, 118; Cleveland, 124, Toledo, 118; Canfield, 138; Findlay, 124; Van Wert, 128; Wooster, 158; Coshocton, 199; Columbus, 215; Springfield, 202; Dayton, 207; Cincinnati, 243; Ironton, 257; Portsmouth, 258; and Piketon, 259.

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 website, one can see what is taking place in the landscape.

Northern lights forsythia, full bloom, 94; Norway maple, full bloom, 116; border forsythia, full bloom, 116; chinticuleer callery pear, full bloom, 123; sargent cherry, first bloom, 127; larch casebearer, egg hatch, 128; Japanese piersi, 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; chinticuleer 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; hawthorn leafminer, adult emergence, 260; flowering dogwood, first bloom, 263; red buckeye, first bloom, 265; blackhaw viburnum, first bloom, 269.

8. COMING ATTRACTIONS.

A. NEW APPLICATOR TRAINING, FULTON COUNTY. The OSU Extension Office in Fulton County will be hosting an Ohio Commercial New Applicator Class on Tuesday, April 30, 2013 from 9:00 a.m. - 3:00 p.m. at the OSUE Office in the Robert Fulton Agriculture Center, 8770 State Route 108, Wauseon, Ohio. This class will be geared to municipalities, school maintenance, lawn/landscape companies, property managers, and other government entities.

The morning sessions will review Commercial Core material including but not limited to Ohio pesticide laws and regulations, personal safety and environmental issues, and pesticide formulas and label reading. In the afternoon, the class will be split in two to provide an overview of the weeds, insects, diseases and problem solving that accompanies each of the Industrial Vegetation (Category 5) or Turfgrass (Category 8) tests.

Pre-register with the Extension office by downloading the registration form from [http://www.fulton.osu.edu], calling 419-337-9210 or emailing [richer.5@osu.edu]. Cost for the morning session is $30 and afternoon session is $60 for both and lunch. The workshop is limited to 30. Registration deadline is April 26.

B. OHIO'S NON-NATIVE INVASIVES. The Ohio Woodland Stewards Program is offering an all day workshop on Ohio's Non-Native Invasives at the Ohio State University, Mansfield Campus, 229 Riedl Hall, 1760 University Drive, Mansfield, Ohio, May 17, 2013, 8:15 a.m. - 4:00 p.m. Information can be found on the website at [http://woodlandstewards.osu.edu]. Registration deadline is May 10, 2013.
C. TREE SCHOOL. The Ohio Woodland Stewards Program is offering an all-day Tree School at the Ohio State University, Mansfield Campus, 229 Riedl Hall, 1760 University Drive, Mansfield, Ohio, May 18, 2013. Information can be found on the website at [http://woodlandstewards.osu.edu]. Registration deadline is May 10, 2013.

D. OHIO'S INVASIVE SPECIES SERIES, JUNE 2013, OSU MANSFIELD CAMPUS. Invasive species come in all shapes and sizes. Whether a plant, insect, fungus or vertebrate, each invasive species impacts their segment of the ecosystem in different ways. This seminar series focuses on some of the key issues associated with non-native, as well as how to identify them and deal with them in your own backyard.
*June 4 - This evening's topic will cover two non-native invasive insects impacting Ohio's trees. Learn how to identify emerald ash borer (EAB) and Asian longhorned beetle (ALB) and understand their impact on your trees.
*June 11 - While EAB and ALB have gotten a lot of attention lately, there are still other non-native pests that you should be aware of. This seminar will cover gypsy moth, thousand canker disease on black walnut, viburnum leaf beetle and hemlock wooly adelgid.
*June 18 - Non-native invasives don't impact just our trees. This evening seminar will focus on the impacts non-native invasives have on wildlife and the wood products our woodland produce.
*June 25 - The last seminar session will focus on specific non-native invasive plants. Characteristics for identification will be covered along with control options.

Registration for each seminar is $15 OR register for all 4 seminars for $45. Information can be found on the website at [http://woodlandstewards.osu.edu].

9. BYGLOSOPHY.

As is evident from our discussion of Callery pears, there is no perfect plant; all have plusses and minuses. As Shakespeare penned in Sonnet 35:

"Roses have thorns, and silver fountains mud;
Clouds and eclipses stain both moon and sun
And loathsome canker lives in sweetest bud,
All plants make faults."

Alright, so he actually wrote "men" instead of "plants." You get the picture.

APPENDIX - ADDITIONAL WEBSITE RESOURCES:

Ask a Master Gardener Volunteer (Consumer Gardening Questions)
http://mastergardener.osu.edu/ask

Buckeye Turf
http://buckeyeturf.osu.edu

Emerald Ash Borer Information
http://ashalert.osu.edu

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

Hungry Pests Website
http://www.HungryPests.com

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

Ohio State University Extension Master Gardener Volunteer Program
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 23rd conference call: Pam Bennett (Clark); Joe Boggs (Hamilton); Jim Chatfield (Hort and Crop Science); Erik Draper (Geauga); Francesca Peduta Hand (Plant Pathology); Denise Johnson (Master Gardener Volunteer program); Tim Malinich (Erie); Dave Shetlar (Entomology); Amy Stone (Lucas); Marne Titchenell (School of Natural Resources); Curtis Young (Van Wert); and Randy Zondag (Lake).

BYGL is available via email, contact Cheryl Fischnich [fischnich.1@cfaes.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].

BYGL is a service of OSU Extension and is aided by support from the ONLA (Ohio Nursery and Landscape Association) [http://onla.org/; http://buckeyegardening.com/] to the OSU Extension Nursery, Landscape and Turf Team (ENLTT). Any materials in this newsletter may be reproduced for educational purposes providing the source is credited.

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.

Where trade names are used, no discrimination is intended and no endorsement by Ohio State University Extension is implied. Although every attempt is made to produce information that is complete, timely, and accurate, the pesticide user bears responsibility of consulting the pesticide label and adhering to those directions.

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Keith L. Smith, Associate Vice President for Agricultural Administration; Associate Dean, College of Food, Agricultural, and Environmental Sciences; Director, Ohio State University Extension and Gist Chair in Extension Education and Leadership. TDD No. 800-589-8292 (Ohio only) or 614-292-6181.