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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 2014 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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APPENDIX - Additional Website Resources.

1. PLANTS OF THE WEEK.

Note: The species listed in the perennial of the week in last week's BYGL (BYGL 2014-2, April 10, 2014) was incorrectly listed as Colchium spp. The correct species for crocus is Crocus spp. We apologize for this error.
*PERENNIAL - SEDUM (Sedum spp.). While plants of the week, especially the perennial and annual, are often highlighted when the plant is blooming or at its peak, this week's perennial was chosen because of the plant care that can be done this time of the year, during the spring season.

There are numerous types of sedums, also called stonecrops, that are a perfect addition to a rock garden, or often planted in perennial borders or gardens. While the blooms won't be enjoyed for months, spring is the preferred time to divide and plant sedums. Existing plants in the garden have begun to show new growth. If last year's spent flowers are still standing, they can be pruned down to the new growth. A general rule is that the plants can be divided every 3 to 4 years - and spring is the preferred time. The plants can be lifted and divided into smaller clumps. If your garden is currently "sedum-less" now is the time to choose plants and put them in the ground.

Whether you are planting new, or dividing existing plants, sedums prefer full sun to light shade. They are considered a lower maintenance plant by many, and make good cut flowers, attract butterflies, have unique succulent foliage, and once established tolerates dry soil conditions.

So get planting and stay tuned to a future BYGL article that will highlight sedums a little later in the season when the plants are in their full beauty with blooms of reds, pinks, golds, yellows, and whites.

*Author: Amy Stone*

*WOODY - BORDER FORSYTHIA (Forsythia X intermedia). This deciduous shrub also goes by the common name golden bells or common forsythia. A cultivar, 'northern lights' forsythia is one of the shrubs included in the Phenology Gardens across Ohio. While the straight species can grow from 8' tall by 10' wide, 'northern lights' height is 4 - 6' with an equal spread.

The bright yellow flowers of forsythia appear in mass before the leaves in early spring. Shrubs should be planted in full sun for best flowering, but the plant can tolerate part shade. This shrub flowers on old wood, and branches are commonly cut and forced indoors during the winter.

Forsythia grows well in a wide variety of soil types, but does prefer a well-drained location. It can be planted in mass, as a screen, a hedge, or background for a perennial border.

Although forsythia is winter hardy to USDA Zone 5, flower buds can be damaged by cold temperatures and/or late freezes. If cold temperatures are coupled with a blanket of snow, those buds underneath the snow often are "saved" and will bloom.

*Author: Amy Stone*

*VEGETABLE - BEET (Beta vulgaris). Beets (also known as beetroot, table beet and garden beet) are popular garden vegetables and are very versatile in use. The root of the beet is used roasted or boiled, the juice in used in borsht and smoothies and the leaves are often used as a specialty green. They are frost tolerant, prefer cooler weather and may be planted up to 30 days before the last frost free date. To ensure continuous supply, seeds can be succession planted every couple of weeks up to the middle of the summer. It is important to provide adequate moisture for germination and establishment during hot weather.

Beets seeds are unique in the sense that the seed is actually "a cluster of seeds" and often many seedlings are produced from one single "seed", requiring thinning. Beets prefer a pH of 6.2 - 6.8, but are somewhat forgiving of higher or lower pH. Beets should be planted 0.5" deep in loose, well-drained soil. Spacing between rows should be 12 - 18". Spacing between plants is dependent on the ultimate
use of the plant. If growing for the root, plant the seeds 1" apart and thin to 1 - 3" (depending the desired size of the root). If growing for strictly for beet greens, spacing the seeds 0.5" apart without thinning will produce full stand (however, the roots will not expand). Most beets will mature within 55 - 60 days and are best consumed when the roots are 2 - 3" wide. If allowed to grow bigger, they tend to get fibrous.

Recommended varieties include (open-pollinated) 'Detroit Dark Top', 'Early Wonder', 'Sweetheart', (hybrid) 'Red Ace', 'Pacemaker', 'Avenger' (specialty) 'di Chioggia', 'Cylindra' and 'Golden'.

Author: Jacqueline Kowalski

*WEED - POISON HEMLOCK (Conium maculatum). This non-native invasive weed is among the most deadly plants in North America. The plant contains highly toxic piperidine alkaloid compounds, including coniine and gamma-coniceine, which cause respiratory failure and death when ingested by mammals. The roots are more toxic than the leaves and stems; however, all parts of the plant including the seeds should be considered dangerous. Unfortunately, this dangerously toxic plant is becoming more common throughout Ohio including growth in landscape plantings where close proximity to people increases poisoning risks.

Poison hemlock is a biennial weed. It spends the first year as a basal rosette and the second year as an erect, towering flowering plant that can measure 6-10' tall. Despite its common name, poison hemlock is not a tree; it is a member of the carrot family, Apiaceae (formerly Umbelliferae). Thus, it shares many characteristics with other members of the carrot family found growing in Ohio including the non-native plants such as QUEEN ANNE'S LACE (Daucus carota) and WILD PARSNIP (Pastinaca sativa). All stages of the poison hemlock plant have bluish-green leaves that are 3 - 4 times pinnately compound, and the deeply cut parsley-like leaflets have sharp points. Flowering plants have hairless, light-green to bluish-green stems that are covered with obvious purplish blotches. Clusters of tiny white flowers are borne on structures called umbels that look like upside-down umbrellas.

While poison hemlock can be partially managed by mowing and tilling, the most effective control approach involves properly timed applications of selective or non-selective post-emergent herbicides including glyphosate (e.g. Roundup). It is a prolific seed producer, so applications of herbicides made now will control both the first season rosette stage and the second season flowering stage, before seeds are produced.

Author: Joe Boggs

2. HORT SHORTS.

A. COLD INJURIES TO GRAPEVINES. Polar vortexes have caused a lot of damage to grapevines in Ohio this year. The bad news is that Vitis vinifera or European grape cultivars (i.e. Cabernet Franc and Riesling) have sustained a 100% bud kill wherever we had checked the bud damage in Ohio. The good news is that most, if not all, home gardeners grow French-American hybrids or American grapes. The French-American hybrids (i.e. Jupiter, Marquis, Reliance and Saturn) and American grape cultivars (i.e. Concord and Catawba) are more cold-hardy than Vinifera grapes and only suffered a 20 - 40% bud kill. Since home gardeners typically leave too many fruiting buds, there is no reason to worry too much about cold injuries to the grapevines in the home gardens. Gardeners can leave a few extra canes to compensate for the cold injured buds. Serious gardeners or commercial grape growers should consult "Midwest Grape Production Guide" for more information. This bulletin can be purchased from OSU Extension offices.
B. DAFFODILS OR JONQUILS, WHICH ARE THEY? The answer to this question is that they are almost the same thing. Any member of the plant genus *Narcissus* (Latin scientific name) (Family Amaryllidaceae) could be called a daffodil (common non-scientific name). Some use the genus name *Narcissus* as a common name narcissus to refer to the plants that can be found in the genus, possibly a questionable practice. There are at least 40 different species in the genus and over 25,000 registered cultivars (named hybrids). Several common garden species included in this group of plants are popular daffodil (*N. pseudonarcissus*), the jonquil (*N. jonquilla*), and the poet's narcissus (*N. poeticus*). Another member of the daffodils are those called “paperwhites,” a couple of species (e.g., *N. papyraceus*) that are not hardy in northern climates such as that of Ohio, but are considered naturalized in states such as Texas, California and Louisiania. In Ohio and other northern states, they are grown as a house plant, and can be forced to flower throughout the year. Paperwhites are called such because of the pure white flowers they produce in bunches at the tops of their floral stems. Most daffodil species are native to southern Europe and northern Africa.

Daffodils are bulb forming perennial plants. The bulbs are similar in appearance to onion bulbs. This is unfortunate, because daffodil bulbs are toxic. All parts of the plant are toxic; however, the bulb is the most toxic part. Daffodils contain an alkaloid compound (lycorine) that causes vomiting and gastrointestinal cramping. This compound is toxic to humans as well as other animals. Symptoms of poisoning include diarrhea, vomiting, salivation and, in extreme cases, convulsions and cardiac arrhythmias.

When buying daffodil bulbs from catalogs and other sources, there is a standard way of describing and listing the 25,000 plus cultivars of daffodils. These descriptions are a combination of a number and letters. The number is in reference to a “classification system” of 13 “divisions” and the letters are “color codes” of the perianth (petals) and corona (cup) of the flower. The American Daffodil Society's webpage ([http://daffodilusa.org/](http://daffodilusa.org/)) provides a full description of the divisions and color code system.

Daffodils are very easy to grow and adapt well to numerous different environmental conditions. Daffodils grow in many soil types. However a well-drained, deep, fertile soil with a high organic matter results in the best performance. Average fertility levels are better than high fertility levels. High fertility, especially in nitrogen, promotes excessive vegetative growth at the expense of high-quality flower production, as well as excessive bulblet production.

If one plans their plantings well, they can have daffodils in flower from late March through early May.

Author: Curtis E. Young

3. BUGBYTES.

A. EUROPEAN PINE SAWFLY EGGS HATCH. Joe Boggs reported that overwintered European pine sawfly (*Neodiprion sertifer*) eggs have hatched in southwest Ohio. The tiny 1st instar larvae measure a little over 1/16" long. They are grayish-green with bulbous shiny black head capsules; their color and small size make them difficult to see as they feed on the needles. However, rows of yellowish-brown egg scars, created last season when the female sawflies used their saw-like ovipositors to insert eggs into the needles, remain very evident and should signal a closer inspection for sawfly larvae.
The larvae typically feed in groups of 3 - 4; however, they are too small to consume entire needles. They feed in groups of 3 - 5 along the edges of needles producing clusters of curled, wiry, straw-colored needles. Later instars develop faint grayish-white longitudinal stripes and are large enough to consume entire needles. Preferred hosts include Scotch, mugo, red, jack, Table Mountain, and Swiss mountain pines. White and Austrian pines are occasional hosts. While most insecticides labeled for use on the conifer host will control the larvae, it's easy to dispatch the early instars by simply smashing the little buggers; gloves are optional.

Author: Joe Boggs

B. CARPENTER BEES BUZZING. Joe also reported that carpenter bees (Xylocopa virginica) have commenced their annual heart-stopping aerial antics in southern Ohio. This includes buzz-bombing people or hovering eye-to-eye until even the most well-informed person tends to back away. Carpenter bees look very similar to bumblebees except their abdomen is an iridescent blue-black instead of being covered with black or yellow hairs.

Each spring, the newly emerged males and females begin the characteristic behavior that, if not understood, seems terrifying. While the females are busily collecting pollen and nectar wads to shove into their wood tunnels to feed their progeny, the males buzz back and forth around the area guarding their territory from other males. The males may appear to be menacing; however, they lack stingers (ovipositors). Of course, the hovering bees make easy targets for a well-aimed tennis racket; a control strategy that's also good practice for developing a wicked backhand.

Although carpenter bees are excellent pollinators, the females can cause extensive damage to exposed horizontal wood, particularly boards made from redwood, pine, or cedar. They drill holes measuring almost 1/2" in diameter vertically into the wood, and then they tunnel horizontally to construct larval chambers. The best strategy is to plug the holes with steel wool, fill the holes with paintable caulk and then paint the wood with at least two coats of an acrylic paint. However, the holes should not be plugged until fall. Closing the "door" now with the bees inside their chambers will only result in more damage as the bees chew lateral holes to free themselves.

Author: Joe Boggs

C. GREEN TIGERS ON THE PROWL. Curtis Young reported observing SIX-SPOTTED TIGER BEETLES (Cicindela sexguttata) on the prowl in wooded parks in northwest Ohio. This native beetle has a curious affinity for darting about on woodland trails. The shiny beetle is actually more emerald green in color than EMERALD ASH BORER (Agrilus planipennis) causing it to sometimes be mistaken for the borer. The tiger has excellent eyesight, quick speed, and it is an agile flyer. These traits make it difficult for people to get a close look for identification.

As the common name implies, the six-spotted green tiger beetle has white spots that are arranged along the trailing edge of the wing covers, three spots per side. The spots are small and sometimes obscured by light bouncing off their highly reflective shiny green bodies. The beetles have elongated bodies with the thorax about half the width of the front wings and abdomen. They have long legs and their bulging black eyes make them look like their wearing dark goggles.

As with all tiger beetles (family Cicindelidae), this is a ferocious predator and it sports powerful sickle-shaped mandibles that are used to grab and dispatch hapless arthropod prey. A word of caution: these carnivores can also use their impressive mandibles to deliver a painful bite to the hand of the overly curious. So, keep your eyes peeled for and hands away from these tigers prowling woodland trails ... and don't kill them since they are good guys!
D. LEFTOVER FIREWOOD. Now that spring has sprung, it may be time to take leftover firewood outside to the woodpile. This is because firewood may contain insects that tend to startle homeowners when they emerge from the wood.

Firewood often contains wood-boring insects that have infested the tree prior to being chopped. They remain active even though the tree is dead! Insects can and do emerge from wood that is not burned after being brought indoors. This week, BYGL had reports of the Tanbark Borer (Phymatodes testaceus) and Painted Hickory Borer (Megacyllene caryae) showing up in homes, likely from firewood. Other insects that could emerge from firewood include: horntail wasps, parasitic wasps, ants, longhorned beetles, flathead borers, bark beetles, and powder post beetles. Most insects that emerge from firewood are not harmful to humans or household items. They are frequently found at windows because they have been attacked to the light. However, powder post beetles can re-infest wood furniture and other exposed woodwork and become more than just a nuisance.

Look for signs of insect emergence. To determine if an insect came from your firewood, look for exit holes through the bark or the cut surface of the wood. These can be "D"-shaped or circular in shape and range from the size of a pencil tip to 0.5" in diameter. Another sign could be sawdust-like substance known as frass (bug poop) that can be a fine powder or the consistency of small toothpicks on, under, or near the wood in question.

To manage these issues, firewood should be kept outdoors and dry. Do not pile wood against the home to prevent carpenter ants or termites from setting up shop and then moving into the home structure from the pile. Try to use older wood first. Bring in only enough wood for a day or two and do not let wood sit in the house for extended periods of time. DO NOT SPRAY firewood with pesticides. There would be a risk of burning a toxic substance and creating harmful fumes when using the wood.

Author: Ashley Kulhanek

4. DISEASE DIGEST.

A. WHY HOST RANGE MATTERS, PART 2. As noted in the last BYGL, understanding the host ranges of pests and pathogens causing infectious plant diseases and pest infestations are 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 with 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. However, selection (i.e. natural selection) which has a different time frame is also critical to our understanding of host range.

As Ohio State University (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. Certain mutations of Asian ash provided advantages (e.g., plant chemical defenses) over EAB which made that ash a little more resistant to the effects of this insect. An accumulation of mutations over thousands and millions of years resulted in ash trees that were more resistant to EAB 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/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 (Juglans major), this combination is not a big deal pest. The combination of insect and fungus only affects stressed plants and does not cause 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 eastern black walnuts (J. nigra) were dying throughout the West.

Black walnuts are native to Ohio and the eastern United States, but were planted out west. However, black walnut transplanted to the West had no natural selection history to this seemingly innocuous insect/fungus combination; they have no resistance. Devastation to black walnut ensued out West. Now this new black walnut/thousand canker combination threatens the native range of black walnut here in Ohio and the East from imported black walnut products from the West. From an invasive organism 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 Mike Raupp and Paula Shrewsbury of the University of Maryland and Dan Herms of OSU in recent articles listing some of our most familiar and important pest/pathogen and host combinations. 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 North American pest and non-native plants.

"Documented Examples of Low Host Resistance Where Coevolutionary History is Lacking"

- Bronze birch borer and Eurasian birches
- **Emerald ash borer and N.A. ashes**
- Pine needle scale and Eurasian pines
- **Hemlock wooly adelgid and N.A. hemlocks**
- Balsam wooly adelgid and N.A. firs
- **Beech bark scale and N.A. beech**
- Grape phylloxera and European grape
- **Viburnum leaf beetle and NA viburnums**
- Redbay ambrosia beetle and NA redbay
- American chestnut and chestnut blight
- Dutch elm disease and N.A. elms
This is quite a lineup showing that natural selection history matters.

Check out more from Raupp, Shrewsbury and Herms in these excellent references:


**Author: Jim Chatfield**

**B. APPLE SCAB CONTROL.** It is hard to imagine that we need to think about apple scab control when we had snow on April 15. But, air temperatures were projected to rise to 60°F and higher during the latter part of this week. Apple scab spores are maturing and ready to be released. Hence, newly emerged apple leaves are very susceptible to infection. Since most of our fungicides are protectants, home gardeners need to make a fungicide application this week to prevent apple scab from ruining their apple crop. Additional fungicides are needed during the growing season. For a comprehensive apple spray schedule, home gardeners are encouraged to purchase a copy of the OSU Extension Bulletin #780, "Controlling Diseases and Insects in Home Fruit Plantings" from OSU Extension offices.

**Author: Gary Gao**

**5. TURF TIPS.**

**A. GROUND-NESTING BEES ON THE WING.** Joe Boggs reported that ground-nesting bee activity has commenced in southwest Ohio. Although there are a number of species of ground-nesting bees representing several hymenopteran families, the species currently on the wing belongs to the family Andrenidae. The common name for this family is "mining bees"; however, these important native pollinators are most often called "ground-nesting bees," as well as "burrowing bees," or "digger bees" owing to their soil excavating nesting habit. The small (3/16 - 3/4" long) black bees have narrow white stripes across their abdomens, one stripe per abdominal segment.

The female bees dig individual burrows several inches deep into the soil. They prefer to nest where the soil is lightly exposed where vegetation is sparse such as areas with weakened turfgrass. Each burrow consists of a hole about the diameter of a wooden pencil surrounded by a mound of loose, excavated soil particles. The size, shape, and color of the soil particles may cause the mounds to be mistaken for those produced by ants. The females become receptive to mating after they provision their burrows with wads of pollen to nourish their larvae.

These are very effective pollinators. Understanding their behavior may reduce fear of these highly beneficial insects. For example, while these are solitary bees with no social structure, large numbers of females often locate their burrows in close proximity to one another giving the appearance of an organized colony. The males will cruise menacingly just above large collections of burrows; however, the males lack stingers! While the females are busily digging and provisioning their burrows, the males buzz back and forth chasing other males and possible predators. This presents the appearance of a "swarm of bees," but it's all a rouse!
Since these are beneficial insects, management efforts should focus on making the environment less favorable for the bees rather than targeting these bio-allies with insecticide applications. The females prefer to excavate where the soil is exposed by sparse vegetation. Turfgrass that is weakened and thin due to poor management provides ideal conditions. Thickening the turfgrass through applying good management practices will create an environment less favorable for these bees. The bees will simply move to other locations.

Author: Joe Boggs

6. INDUSTRY INSIGHTS.

A. "THE PERFECT STORM" FOR SEVERE WINTER BURN - SPRING 2014. Winter burn occurs on broad and narrow-leaved evergreens or conifers. A common misconception is that this type of winter injury is limited to young or small conifers. Winter burn does occur with any age of plant when the ground is frozen and snow cover is present. Often it is most distinct on young plants when the snow is not high enough to protect all the branches. Typically, the damage on these plants is most severe on the top portions of the plants. However, any branches, of any age plant, lying above the snow cover, can be prone to winter burn.

Even though winter air temperatures may be low, snow cover reflects sunlight off the snow surface concentrating solar energy on the south and west sides of the plant, resulting in increased internal temperatures. This increased temperature and concentration of solar energy increases photosynthesis in the plant. Transpiration follows as part of the photosynthetic process and evaporation occurs from the leaves or needles. If the ground is heavily frozen, during this time, the plant is unable to replace the lost water and will dehydrate. Add excessive winter winds and dehydration will be even more severe.

Winter burn in evergreens can cause plant death in severe cases. Inspection of plant buds and twigs of plants exhibiting winter burn reveals how extensive the injury is. If buds and twigs remain green, these plants will flush new growth in the spring, and show little evidence of injury in subsequent years. However, in extreme cases of snow reflectance, dehydration and cold winds, branches and needles may be killed and tissues will be brown and potentially shriveled. Foliage loss due to winter burn is not unusual.

Another contributing factor to winter burn are soil conditions. Hardpans and dramatic soil profile changes can exasperate winter burn injury. Impeded water flow such as that caused by hardpans can cause the development of shallow-rooted plants. These plants are subject to frequent drought stress because the soil in which the roots are located are susceptible to frequent and rapid drying out. To avoid winter burn and other problems, break up hardpans before planting or replanting a field.

Finally, plants in Ohio may have been predisposed for winter burn due to weather conditions that occurred during the time of year plants should have been preparing for the coming winter, the acclimation period. The acclimation period for most plants in Ohio is early August to October. In 2013, this period was warmer and drier than usual. The longest warm spell of 2013 was from September 25 to October 7, constituting 13 consecutive days with warmer than average high temperatures. The hottest day of 2013 was September 10, with a high temperature of 93°F. For reference, on that day the average high temperature is 76°F and the high temperature exceeds 82°F only one day in ten. The hottest month of 2013 was August with an average daily high temperature of 80°F. In addition, September, October, and November in parts of Ohio were completely without measured precipitation. The longest dry spell was from August 10 to August 21, constituting 12 consecutive days with no observed precipitation. The month with the largest fraction of days without observed precipitation was
September, with 70% of days reporting no observed precipitation at all. In January and February, 2014, Ohio experienced severe cold and the ground was frozen well below the root systems of most conifers. The shortage of water from the fall and the depletion of limited reserves of available water during freeze-thaw cycles above the snow line caused the shallow-rooted plants to dry out and die. Even the north and east sides on hardy plants may succumb to injury when exposed for long periods to bright conditions and unavailable soil moisture.

So, was there a "perfect storm" for winter burn injury in Ohio during the 2013/14 winter? In some parts of Ohio, absolutely!

Author: Hannah Mathers

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 - 15, 2014, with the exception of the soil temperatures which are readings from Tuesday, April 15, 2014 at 5:20 p.m.

Old man winter has returned to Ohio. BYGLers from north to south and east to west all included a four letter word in their reports this week - SNOW. Following a beautiful weekend, temperatures fell and the snow followed. While amounts of snow ranged from less than an inch, to several inches, it was a wide spread event felt across the buckeye state. Erik Draper reported that the city of Burton in Geauga County broke the previous record of 20F. Other temperature highlights from the NE included: Madison reached 21.7F, Perry reached 21.7F, and Avon reached 24.5F.

Joe Boggs reported weekend temperatures in the high 70s and low 80s in the greater Cincinnati area. While the area didn't have an "official low" temperature reported after midnight tonight, the local TV media are all reporting that we dropped to the "middle to upper 20's" but we did not break the record of 24F for April 16 that was set back to 1875. By the way, on April 15, 2010, we had a record high temperature of 84F! Wish we could time-travel!! Much of southwest Ohio has a frost advisory for Wednesday night, and a large portion of southeast Ohio has a freeze warning for tonight; here is a link to the map: [http://www.weather.gov/iln/].

The cold temperatures, as well as the shift from warm to cold temperatures, will be something to watch as plants are at various stages of growth and development. Stay tuned to future issues of the BYGL as we closely watch how plants will respond to the record-setting winter and our recent cold snap and return of the white-stuff.

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For a link to the OARDC Weather Stations, visit: [http://www.oardc.ohio-state.edu/centernet/weather.htm]. Author(s): Amy Stone
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 72 to 189. Following is a report of GDD for several locations around Ohio as of end of the day of April 16, 2014: Painesville, 72; Cleveland, 79; Toledo, 80; Canfield, 84; Findlay, 80; Van Wert, 83; Wooster, 95; Coshocton, 118; Columbus, 122; Springfield, 118; Dayton, 124; Cincinnati, 166; Ironton, 187; Portsmouth, 189; and Piketon, 185.

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.

Silver maple, first bloom, 34; Corneliancherry dogwood, first bloom, 40; silver maple, full bloom, 42; red maple, first bloom, 44; speckled alder, first bloom, 52; northern lights forsythia, first bloom, 58; Japanese pieris, first bloom, 60; red maple, full bloom, 75; star magnolia, first bloom, 83; border forsythia, first bloom, 86; 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; chinticleer 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; chinticleer 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; and common flowering quince, full bloom, 214.

Author: Curtis E. Young

8. COMING ATTRACTIONS.

A. EMERALD ASH BORER UNIVERSITY (EABU) SPRING SCHEDULE. Be sure to tune into EABU this spring to learn more about EAB and other related topics. Sessions can be accessed through the Regional Emerald Ash Borer website [http://www.emeraldashborer.info]. Here is a listing of the live sessions scheduled this spring:

*April 23, 2014, 11:00 AM (EST) Using Semiochemicals to Detect and Monitor Invasive Ambrosia Beetles in Hardwood Forests - Matt Ginzel, PhD., Purdue University
In Defense of Urban Forestry - Lindsey Purcell, Urban Forest Specialist, Purdue University

EAB101- What Happened and What's Happening Now - Amy Stone, Extension Educator, Ohio State University and Robin Usborne, Communication Manager, Michigan State University

Have questions about EABU? Contact Amy Stone at [stone.91@osu.edu].

B. SOUTHWEST OHIO BYGLIVE! DIAGNOSTIC WALK-ABOUTS. This is the 17th year for the Diagnostic Walk-About series in Southwest Ohio. The first 2014 BYGLive! Diagnostic Walk-About will be held Monday, April 21, at Spring Grove Cemetery and Arboretum from 12:00 - 3:00 p.m. This monthly hands-on training series for green industry professionals focuses on diagnosing plant pest, disease, and physiological problems. ISA Certified Arborist CEUs, Landscape Architecture Continuing Education System (LA CES) CEU's for Landscape Architects, and ONLA OCNT credits will be available. Visit the following website for registration information as well as driving directions: [http://hamilton.osu.edu/topics/horticulture/byglive-diagnostic-walk-about]. You can also e-mail Joe Boggs [boggs.47@osu.edu] to learn more about this diagnostic training series.

C. LOW TUNNEL/HIGH TUNNEL WORKSHOP AND FARM TOUR - FULTON COUNTY (NW OHIO). The OSU Extension, Fulton County office is offering a low tunnel/high tunnel workshop and farm tour on April 24, 2014 from 9:30 a.m. - 3:00 p.m. at the Heritage Inn in Archbold, Ohio. The program is geared towards new producers or those wishing to brush up on the basics on integrating tunnel systems into their fruit or vegetable operations. Registration information can be found on the Fulton County website at [www.fulton.osu.edu] or by calling 419-337-9210. Registration deadline is April 17.

D. TREE SCHOOL. Tree School is an all-day workshop on all things trees! It takes place May 3, 2014 at the Ohio State Mansfield Campus. Are you a woodland owner, Christmas tree grower, gardener, wildlife enthusiast, landscaper, or just interested in learning more about trees? Tree School features 12 different educational sessions on a variety of tree-related topics - including things like tree planting, the top landscape trees, mapping your property and invasive species management and more! Registration is now open at: [http://www.woodlandstewards.osu.edu] and closes April 25, 2014.

E. WILDLIFE IN YOUR WOODS. Interested in learning more about the wildlife that is in your woods? Want to learn how to attract deer, birds, and amphibians to your woods? Then this class is for you! Come to the Ohio State Mansfield campus on May 9, 2014 to spend a day learning how to not only attract a variety of these species to your woodlot with proper management but also how to monitor them! We will begin indoors in the morning and end outdoors with a walk through the woods where we will further discuss monitoring techniques, management tips, and search a vernal pool for frogs and salamanders. Registration is now open at: [http://www.woodlandstewards.osu.edu] and closes May 2, 2014. Don't wait - register now!

F. THE BUCKEYE LADY BEETLE BLITZ 2014! The Agricultural Landscape Ecology Lab is hosting three sessions of a workshop this year in May to kick off The Buckeye Lady Beetle Blitz 2014! This workshop will focus on the 'secret lives' of beneficial garden arthropods. You will learn about the diversity of predators, parasitoids, and pollinators that inhabit your garden. They will discuss foraging strategies, courtship, parental care of young, shelter and nest building, and much more! Participants can also get involved with two exciting research projects, the Buckeye Lady Beetle Blitz and a NEW study examining pollination services in home gardens!
They have three locations for this workshop:

* May 14, 2014 at OARDC’s Fisher Auditorium, 1680 Madison Ave, Wooster, OH
* May 15, 2014 at the Rocky River Nature Center, 24000 Valley Parkway, North Olmsted, OH
* May 16, 2014 at the Civic Garden Center, 2715 Reading Road, Cincinnati, OH

For more information visit: [http://gardinerlab-dev.cfaes.ohio-state.edu/node/31/person-workshop-new-and-existing-blbb-volunteers].

9. BYGLOSOPHY. "I love spring anywhere, but if I could choose I would always greet it in a garden." - Ruth Stout

APPENDIX
ADDITIONAL WEBSITE RESOURCES:

Ask a Master Gardener Volunteer
http://mastergardener.osu.edu/ask

Buckeye Turf
http://buckeyeturf.osu.edu

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

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

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

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

Ohio Pesticide Safety Education Program
http://pested.osu.edu/

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

Ohio State University Extension Bee Lab
https://u.osu.edu/beelab/

Ohio State University Extension Master Gardener Volunteer Program
http://mastergardener.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 15th conference call: Joe Boggs (Hamilton); Erik Draper (Geauga); Gary Gao (South Centers); Denise Johnson (Master Gardener Volunteer program); Jacqueline Kowalski (Cuyahoga); Joe Rimelspach (Plant Pathology); Amy Stone (Lucas); Nancy Taylor (C. Wayne Ellett Plant and Pest Diagnostic Clinic (CWEPPDC)); Curtis E. Young (Van Wert); and Randy Zondag (Lake).

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.

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).

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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.