

OSU Extension - Auglaize County Weekly Horticulture Newsletter – 4-3-20

You Can Start Planting the Garden Now!



In the short term temperatures will be good enough to start planting the garden, however the long term forecast after April 8th is for temperatures to be in the high fifties, which is probably still high enough. We are currently too wet to plant, but it may dry out before a greater chance of rain on Tuesday. If we dry off soon, then it is the time to get the “early” crops planted. “Early crops” include radish, carrot, red beet, kohlrabi, turnip, onion, cabbage, broccoli, cauliflower, Brussel sprouts, lettuce, spinach, Swiss chard, collards, kale, leek, peas, and maybe potato. Look ahead at the weather forecast before planting potato as they can be frosted off if temperatures go below 32 degrees Fahrenheit. It is plenty early to plant sweet corn, but if temperatures stay above 32 degrees Fahrenheit for the foreseeable future, then maybe try it. At this time of the year plant sweet corn hybrids that have the greatest cold tolerance to ensure the best germination. Overall, sh² hybrids have the least cold tolerance of sweet corn hybrids, although these hybrids are improving.

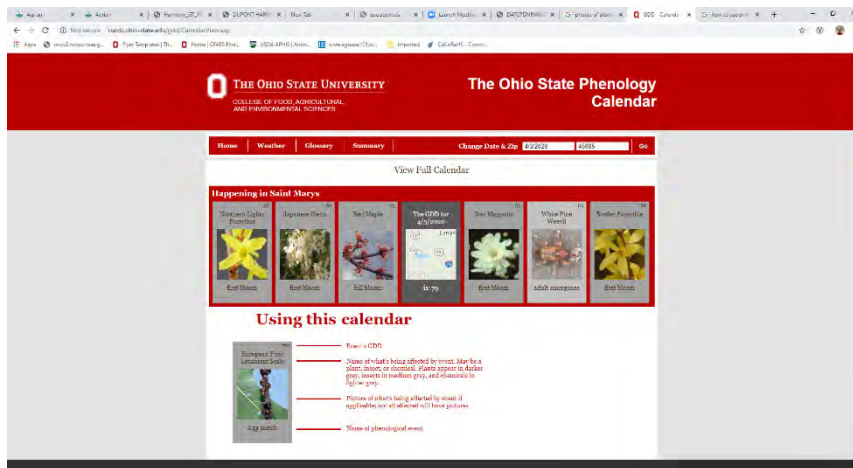
There is plenty of time to plant cool season crops till about May 15th. Planting this early allows for earlier harvest and the opportunity to harvest longer as you can plant some of these things again in three to four weeks.

The average last hard freeze for the area is about April 15th. The average last frost for the area is about May 21st, so now is NOT the time to plant warm season crops, just the ones listed above. If you want to get a jump on vine crops, plant them within the next two weeks in the house, greenhouse, or hothouse and transplant them into the garden after May 15th. Make sure the plants get maximum sunlight so the hypocotyl, the stem below the cotyledons does not get long and floppy.

Planting depth is very critical to successful emergence and proper development of plants. In most cases, plant seeds to a depth 4 times the diameter of the seed. Lettuce seeds should be covered lightly (< 0.125 inch) with soil. Planting depth for kale, carrot, and leek should be 0.25 inch. Onion planted by seed should be placed at 0.33 inch deep, while onion bulbs should be planted 1 to 2 inches deep. Planting depth for radish, kohlrabi, kale, and turnip, should be 0.5 inch. Spinach can be seeded 0.5 to 0.67 inch deep. Planting depth for red beet and Swiss chard should be 0.75 to 1 inch. Peas can be planted 1 to 1.125 inches deep. Plant sweet corn 1.75 inches deep. Planting sweet corn at this depth is critical for proper nodal root development. Potatoes should be planted 4-6 inches deep. Be sure the potato seed pieces have at least two “eyes” to ensure plant growth. Seeds planted less than 1 inch deep may need to be watered until emergence if no rain is in the forecast. Cabbage, broccoli, cauliflower, and Brussel sprouts should be transplanted at least to the top of the potting mix, but can be planted deeper with few problems. Transplant in the evening and place some water in the hole before placing the plant in the hole.

Row spacing can usually be closer than listed on seed packets. For instance I plant my spinach in 8 inch rows. Sweet corn needs to be planted in a square block design to maximize pollination, all other crops can be planted in single long rows.

Growing Degree Days and Phenology



Growing degree days (GDD) is a measure of the average daily maximum and minimum temperatures and subtracting the base temperature of 50°F. If the maximum temperature is greater than 86°F, then 86°F is used as the high temperature and if the low temperature is below 50°F, then 50°F is used. The daily GDD is added to the cumulative from the day before to obtain a new cumulative total and is considered that days GDD.

Phenology is nature's calendar as to when plants and insects develop, like when a tree flowers. Phenology is based upon climatic conditions such as temperature which can be correlated to GDD. The GDD can be used to chart the growth and development of plants, insects, birds and animals. The Ohio State University keeps track of GDD's and the development of certain species. This information is available at the following website: [<http://www.oardc.ohio-state.edu/gdd/default.asp>]. The current estimated GDD for Wapakoneta for April 2nd is 77 GDD. This is 37 GDD ahead of last year which was 40 GDD. The 77 GDD is above the GDD's for 2013 to 2015 and 2018 to 2019. At 75 GDD, red maples should be in full bloom. There could still be snow as the wise tale states there are two snow falls after the forsythia are in bloom.

Local Observations



Daffodils in bloom



Magnolia starting to flower



Peach tree buds about to open



Common lambsquarters and common ragweed

Good afternoon! I pray you are well.

We received rainfall 4 days this past week. Rainfall on Friday, March 27th ranged from a 0.1" near County Road 66A and St Rt. 66 roads to 0.44" near Santa Fe-New Knoxville and Kettlersville roads. Rainfall on

Saturday ranged from 0.43" near Santa Fe-New Knoxville and Kettlersville roads to 1.5" near Mercer Line and St. Rt. 197 roads. Rainfall on Monday ranged from 0.0" near Santa Fe-New Knoxville and Kettlersville roads, near Shelby-Fryburg and Santa Fe-New Knoxville roads, and near Feikert and St. Rt 385 roads to 0.09" near County Road 66A and Dowty and near Uniopolis. Rainfall on Tuesday ranged from 0" at most locations to 0.2" near Kossuth. Rainfall for the week ranged from 0.66" near Wapak – Fisher roads to 1.9" near Mercer Line and St. Rt. 197 roads. The average rainfall for the week was 1.12", 0.52" more than last week. Rainfall for March ranged from 4.34" near Valley and Idle roads to 5.88" near County Road 66A and St. Rt. 66 roads. The average rainfall for March was 5.15"!!, that is 2.15" above the normal of 3". Total average liquid precipitation for January, February, and March is 11.80", which is 4.8" above the normal year to date average.

The average high temperature now is 55 degrees F, 3 degrees higher than last week. Temperatures were above normal for 3 days and below normal for 4 days. Temperature ranged from 42 degrees F to 65 degrees F. The average high temperature for the week was 54.3 degrees F which is 0.7 degrees F cooler than the historical average high.

Flowers are starting to bloom. Peach trees have buds about to open. Common lambsquarters, common ragweed, prostrate knotweed, and Pennsylvania smartweed have also started emerging. The garden is drying slowly, but hopefully I can scratch something in tomorrow before the rain

Bees have found my one deep box I left of the hive outside. They are cleaning it out of honey and pollen. There were quite a few yesterday.

VegNet

No news this week.

BYGL

Ticked Off by Ticks

Authors

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Published on

April 1, 2020



Christine Gelley, OSU Extension

Article by: Ashley Kulhanek and Christine Gelley

Ticks are on the move! Be sure to check yourself and your pets as tick reports ramps up!

While spring is a peak time for tick reports, many ticks are active year-round when temperatures allow. Now that temperatures are picking up and we are getting out where we can, tick reports have been coming in.



Christine Gelley, OSU Extension

PHOTO: DEER TICK, 3/23/2020

As anyone who has had the misfortune of finding a tick embedded knows, ticks are blood-feeding parasitic arthropods. Ticks are NOT insects. Ticks and mites have only two body segments (cephalothorax and abdomen) that appear as one round body and 8 legs. Ticks are in the order Ixodida.

These little devils are found in a variety of wooded to grassy environments and feed off the blood of reptiles, birds, and mammals including humans. Ticks are pests of significance that can impact the health and well-being of people, their pets and livestock. In Ohio there are 3 species of medical-importance known to vector diseases to humans: **the American Dog Tick** (*Dermacentor variabilis*), **the Deer Tick, A.K.A Blacklegged Tick** (*Ixodes scapularis*), and **the Lone Star Tick** (*Amblyomma americanum*).

There are other species of tick in Ohio too, notably the brown dog tick, a relatively uncommon tick that has the ability to complete its entire lifecycle indoors where dogs are present. Most other species are not pests of humans, are less common, and are not considered significant vectors of disease in Ohio at present.

AMERICAN DOG TICK

Here in Medina, people often bring the American Dog Tick to the Extension Office for identification.

The American Dog Tick, (*Dermacentor variabilis*) is the most common and largest tick in Ohio. This species has a distinct mottled scutum, or back plate, that makes identification a little easier.



Ashley Kulhanek, OSU Extension

PHOTO: AMERICAN DOG TICK

American Dog Tick is most likely to be found in grassy, pasture, or meadow-type habitats, often along the edges of paths and roads. The transition zone between forest/shrub habitat and grassy habitat is a prime location to find American Dog Tick. **During this time of social distancing**, many people are escaping to parks to exercise and walk their pets. These areas along park paths where tall grass or brush is present are prime locations to pick up ticks, especially American dog tick, so take care to check yourself and pets upon returning from outdoor activity and use appropriate tick-prevention on your pets. American Dog Tick populations peak April through mid-July so start tick checking!

DEER TICK

On the other hand, Deer Ticks are active 12 months out of the year and can be found even during winter when temperatures allow. Several have been pulled off fellow Extension Educator Christine and her family these past weeks so it was time to put out the alert!

The Deer Tick or Black-Legged Tick is the most notorious of ticks as it is known to vector Lyme Disease. But Lyme is not the only disease it may carry or transmit! Any tick could carry several different disease organisms at once and can transmit multiple disease organisms while feeding.

Deer tick favors forested habitats. As an immature tick or nymph, deer ticks may feed on a variety of forest-dwelling animals such as mice. As adults, they tend to feed on larger mammals including deer. Any stage can feed on humans, which is challenging when self-inspecting for tick attachment. Larval and nymphal Deer Ticks are often translucent to clear grayish-brown until they feed and grow. Young ticks can be the size of a poppyseed and may go unnoticed. Adult Deer Ticks are a chocolate brown and is smaller in size than American Dog Tick. Male Deer Tick measure about 1/16 inch and females around 3/32 inch. When engorged the female can appear grey in color.



Christine Gelley, OSU Extension

PHOTO: DEER TICK 3/23/2020



PHOTO: ENGORGED DEER TICK 4/1/2020

TICK BEHAVIOR:

A common misconception is that ticks FLY or jump out of trees to land on their unsuspecting victim. Ticks CANNOT FLY and do not possess wings. Instead, Ticks exhibit QUESTING behavior. Ticks will climb up to the top of a blade of grass or out to the edge of brush where they hang on with their hind legs and throw their front legs in the air "and wave them like they just don't care".

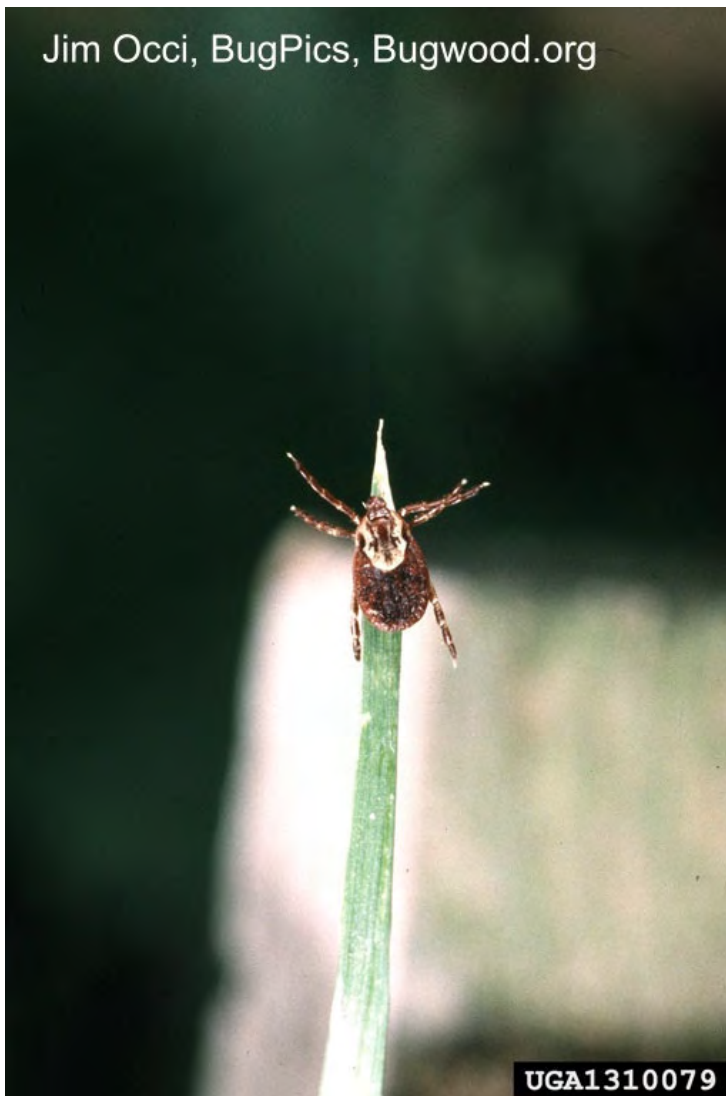


PHOTO: Female American Dog Tick exhibiting questing behavior, courtesy Bugwood.org

They are waiting for a host to walk by. They will attach to any hair, shoelace, or clothing that brushes close enough for them to hitch a ride. This means ticks often attach lower to the ground and climb upward to find an attachment point on the skin. This habit of climbing up is how we often find ticks behind ears or in our hair. This behavior is also why a common tick-prevention strategy is to tuck pants into socks and shirts into pants. The tick will have to cover more ground before finding an attachment point hopefully being noticed before it embeds to feed.



Christine Gelley, OSUE Extension

So what do you do if you find an engorged tick as above? First, please avoid folk-remedies for removing ticks. The best strategy is to use tweezers or a tick-removal tool to grasp the tick as close to the skin as possible near its mouthparts. Pull straight outward with steady even force. Don't twist or yank. This may risk leaving mouthparts embedded in the skin. **If you have questions or other concerns, consult a medical professional.** The primary goal is to remove the tick as soon as possible. The longer it remains attached, the higher the risk of disease transmission. After removal, clean and disinfect the bite site and **SAVE THE TICK!**



Christine Gelley, OSU Extension

It is important to save the tick in a container for proper identification. Your healthcare provider may want to identify the tick or have it sent away to test for the presence of disease causing germs. You yourself may send a tick to be tested too. Some private labs will assist in identifying and testing ticks for the presence of disease organisms including the [University of Massachusetts Amherst of Medical Zoology](http://www.umassmed.edu). Find out more at tickreport.com, the UMASS website for tick testing. Cost is \$50.00.



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The Extension Office in your county is an excellent resource for tick and insect identification. During this period of social distancing, physical Extension Offices are closed at the time of this posting. HOWEVER! We are still here for you! Extension Educators are working virtually and are able to answer your questions or identify insects and ticks by photo sent to your county educator's email, sent to one of the writers on BYGL, or through ASK AN EXPERT at <http://extension.osu.edu/ask-an-expert>.

For more information on these and other ticks, check out the [OSU Factsheet on ticks](#). TICKENCOUNTER.ORG through the University of Rhode Island is the ultimate resource for all things ticks including detailed photos of all stages of tick development. Check them out!

Enjoy the outdoors friends, and check for ticks!

SHOWN HERE: Tick causing the shameful waste of our precious TP resources!!!! GASP! ;)



Christine Gelley, OSU Extension

More Information

OSU Tick Factsheet

<https://ohioline.osu.edu/factsheet/HYG-2073>

Tick Encounter

<https://tickencounter.org/>

A Sentinel Plant Pathologist: Enrico Bonello

Authors

Jim Chatfield

Published on

April 2, 2020



Today's alert focuses on Dr. Enrico Bonello, Professor in the Department of Plant Pathology Department at Ohio State University. Enrico (Pierluigi) is a member of OSU's Extension Nursery Landscape and Turf (and Tree) Team, and I have known him since he came to OSU in 2000, but thought it was time for a profile. Interviewing Enrico, learning "I hardly knew him".

Part of the impetus for focusing on Enrico was a recent article by Gabriel Popkin in *Science News* (March 25), in the prestigious journal *Science* titled: "Scientists plant 'sentinel trees' to warn of devastating pests."

The basic idea for a series of Sentinel projects is to read the warning signs of potentially invasive plant pathogens and pests by establishing research plots of plants from one part of the world in other parts of the world. Of course, botanic gardens already have plants from different continents, but not in controlled research plots to assess pest and pathogen susceptibility.

In retrospect, for example, if plots of North American ashes were monitored in China in the late 20th century, and had become devastated there by emerald ash borer (*Agrilus planipennis*) might plant and animal inspection services have been more alert to inspecting shipment of Asian ash products to North America?

With estimates of losses of hundreds of millions to billions of dollars from emerald ash borer killing our North American ashes, this sentinel warning system merits research resources. Multiply this for other plant/pest and pathogen interactions and you get the picture.

Here is where Enrico and others enter the picture. As the *Science News* article notes, among a number of other projects worldwide: “The U.S. Forest Service (USFS) is funding several projects, including one led by Ohio State University, Columbus, plant pathologist Enrico Bonello that, in April, is scheduled to plant the first sentinel trees from Asia and Europe—including beeches, hollies, maples, and pines—in Ohio and New Hampshire.”

Fellow researchers on this project include Dr. Francesca Hand in the Plant Pathology Department at OSU, Dave Shetlar of the OSU Department of Entomology and Isabel Munck of the U.S. Forest Service in Durham, New Hampshire. Collaborators have already planted North American and Asian trees in Sweden and Italy.

So, let us take a look at the plant pathological career of Enrico Bonello. His hometown is Padua, Italy, where at the University of Padua he got his combined B.S./M.S. degree in forest sciences. He worked on cypress canker disease on Italian cypress (*Cupressus sempervirens*), caused by the fungus *Seiridium cardinale*. It is thought to be a North American pathogen, occurring on Monterey cypress, with the fungus possibly arriving in Europe on cypress ammunition boxes in World War II.

This canker disease is more severe on the Italian cypresses that did not evolve in the caldron of natural selection with this foreign (to Italy) pathogen. In this we can perhaps trace Enrico’s phytopathological passion for studying mechanisms of plant resistance to pathogens.

The pathogen and diseases on cypress is now widespread around the globe, as indicated from this torn-from-the-headlines in a different context quote from a 2017 article in the journal *Plant Disease* (Published Online: 15 Aug 2017 <https://doi.org/10.1094/PDIS-05-17-0746-PDN>) by J. Della Rocca.

“Cypress canker is a pandemic disease of cupressaceous plants caused by Seiridium cardinale (Wagener) Sutton & Gibson, a fungus recently shown to be native to California.”

I encourage bygl-alert readers to spend some time in our current exile to learn about mechanisms of disease resistance, of secondary metabolites such as terpenes, about the role of natural selection. The use of terms such as “pandemic” and the roles of natural selection and the evolution of disease resistance over time are quite apropos to all of our current crash course in infectious disease biology.

Next, Enrico headed for Oxford (not Ohio) for his PhD work, studying basic mechanisms of resistance of Scots pine to an array of soilborne plant pathogenic fungi and oomycetes (known as water mold fungi at the time). Pathogens studied included *Cylindrocarpon destructans* and *Pythium* species. Aren’t plant pathogen names wonderful?

Enrico’s globe-trotting then took him to Munich, and then California. In Munich at the German Research Center for Environmental Health (Helmholtz Zentrum München) he studied how the effects of ozone pollution affects Scots pine resistance/susceptibility to *Heterobasidium annosum*, the cause of Annosum root rot, considered to be the most damaging forest disease in the Northern Hemisphere, perhaps causing over \$1 billion damage in the U.S.

In California, at the University of California-Berkeley, Enrico continued with his research on the mechanisms of plant disease resistance, looking at the Ponderosa pine patho-system with *Heterobasidium annosum* and interactions with an insect pest, the western pine beetles, *Dendroctonus brevicomis*.

Then at the University of California-Davis, he studied Ponderosa pine and pitch canker, *Fusarium circinatum*. While at UC-Davis, Enrico first became involved in work on the oomycete pathogen, *Phytophthora ramorum* and Sudden Oak Death (SOD), an emerging major problem on oaks (*Quercus* spp.) and tanoaks (*Lithocarpus* spp.).



Jim Chatfield, OSUE

Diplodia tip blight of pine. Note browning and stunting of the new growth. New shoots are above the spent male strobili.

You are beginning to see why OSU was interested in Enrico's wide background in forest pathology and the forefront of research on the mechanisms of disease resistance. He started at OSU in 2000 and began researching *Diplodia* tip blight of Austrian pine, a major two-needled landscape pine planted extensively in Ohio and the eastern U.S. One avenue of this research was on the emerging investigations of "systemic acquired resistance": how does a plant react in one part of the plant when challenged with inoculation with the pathogen in another part of the plant?



Jim Chatfield, OSUE

Diplodia tip blight of pine. Note dieback on lower branches on early years of infection.



Jim Chatfield, OSUE

Diplodia tip blight of pine. Note the stunted, blighted needles. Notice the unsheathed needle with tiny black fruiting bodies of the fungus

Enrico also soon became re-involved with *Phytophthora ramorum* and SOD. The pathogen was an important regulatory problem since there was great concern that this invasive pathogen (thought to originate in Europe) and now killing tens of thousands of oaks and tanoaks in the Pacific Northwest, could become an issue in the Eastern U.S. through contaminated nursery stock. There was even a well-publicized case of a California nursery that had to destroy millions of dollars of nursery stock because a wide range of hosts were infected with *Phytophthora ramorum*.



Sudden oak death on the West Coast. From Wikipedia

Some nursery plants from the West had escaped regulatory efforts and were sent Eastward. Which brings up a name issue. Rhododendrons, lilacs, camellias, California buckeye (!) and many other hosts, all are susceptible to *Phytophthora ramorum* (*Phytophthora* means “plant destroyer”, and *ramorum* means “of the branches”). This resulted in confusion.

The disease was called Sudden Oak Death and was a killer on oaks, but often resulted just in leaf spots and twig dieback on other hosts. This no doubt is part of why it was missed in regulatory inspections, since these other hosts were not dying. But the disease name was Sudden Oak Death, focusing on the oak hosts. We now encourage the use of the moniker PRAM disease or Phytophthora Ramorum Disease on, for example Rhododendron, helping make the distinction as to which host plant is affected.

At any rate, with this experience, Enrico became involved here in Ohio with efforts to assess whether the disease was a problem in the eastern U.S. He soon was the coordinator of a regional lab to check for the presence

of *Phytophthora ramorum*. To date, two decades later, the pathogen is not known to have become established in Ohio or elsewhere in the East, but it has escaped inspections of Pacific northwest nursery stock (rhododendrons, lilacs, etc.) several times including a well-publicized episode this summer in which infected West Coast nursery plants were sent to Oklahoma and then on to Ohio and other states.

Over the years the pathogen has been found in non-oak hosts in nurseries in the East, traced from these escapes in nursery stock shipped Eastward, with plants subsequently destroyed. There have been no known infestations of oaks in the eastern United States, presumably because we do not have the Environmental Conditions Conducive to Disease as found in the fog forests and other humid areas of the Pacific Northwest.

Meanwhile, Enrico has studied and published on a number of other tree diseases here in Ohio. One of these is a disease called oak decline, thought to be due to another species of *Phytophthora* that is common to this area, *Phytophthora cinnamomi*. In addition, because of his expertise in researching disease resistance mechanisms in trees, Enrico is a major partner in studying resistance to an insect, the emerald ash borer, working with entomologists Dan Herms of OSU and now the VP of research with the Davey Tree Expert Company, and Don Cipollini of Wright State University.

Other projects include working again on SOD with West Coast colleagues, developing non-destructive techniques for identifying resistance in California live oak (*Quercus agrifolia*), working with European colleagues on resistance systems of European ashes to ash dieback there (*Hymenoscyphus fraxineus*) and looking at white pine blister rust (*Cronartium ribicola*) on one of the five-needled western U.S. pines, the ecologically important whitebarked pine (*Pinus albicaulis*).



Jim Chatfield, OSUE

White pine blister rust at the Dan and Cathy Herms cabin in Michigan

Gotta love those Latin binomials: for example, *Cronartium ribicola*, of which the second part of the binomial, the specific epithet, refers to the fact that the alternate host for this rust fungus are certain species of currants and gooseberries in the genus – *Ribes*.

Enrico has continued to work on the *Diplodia* tip blight of pine pathosystem and many other projects, but an important new focus in his OSU lab is working with his PhD student Carrie Ewing in investigating a new disease of beeches: Beech Leaf Disease.

This disease, with symptoms of yellow and green banding on leaves, leaf blistering, brown leaf blotching, twig dieback and proceeding in some cases to canopy thinning and even tree death was first noticed in 2013 by biologist John Pojacnik of Ohio's Lake (County) Metroparks. It has now been found at a number of sites in northeast Ohio, Ontario, Long Island Sound in New York, and across the waters there in Connecticut.



Jim Chatfield, OSUE

Note the banding on American beech foliage from Beech Leaf Disease



Jim Chatfield, OSUE

Leaf puckering symptom of Beech Leaf Disease



Jim Chatfield, OSUE

Foliar discoloration and necrotic spots from Beech Leaf Disease on Long Island in New York

We still do not know what causes this disease, but foliar nematodes are associated with it (the Ohio Department of Agriculture was key in this observation), and many theories abound as to whether or not the disease complex includes other plant pathogens such as viruses or fungi, and eriophyid mites. We have seen it in woodlands on American beech (*Fagus grandifolia*) and European and Asian beeches in nurseries. Nematodes are associated with what seems to be a similar problem on beeches in Asia. As they say on our news feeds: this is a developing story.

So, plenty to whet your curiosity about one of the key international players in forest health, OSU's Dr. Enrico Bonello. We look forward to more from the front lines of understanding mechanisms of plant disease and pest resistance, including the research in years to come from the Sentinel Project.



Enrico Bonello casts a long shadow at an OSU Extension program on oak wilt. Picnic beetles shown are vectors of the fungus that causes the oak wilt vascular wilt

Turfgrass Times, 03.27.2020

Authors

Amy Stone

Published on

April 1, 2020



Here is your link to the video update from the OSU Turfgrass Team. Updates are from Dr. David Shetlar, aka The Bug Doc; Dr. David Gardner; Dr. Ed Nangle; Dr. Pamela Sherratt; Joe Rimelspach; Dr. Zane Raudenbush; and Mike O'Keefe. This is the first one of the season and packed full of great information for all - homeowners to turf professionals.

<https://youtu.be/jaDEiLdxTxY>

These updates give us a pulse of what is happening in turfgrass across the state from OSU experts. You will get a taste of insects, diseases, weeds and more! Stay tuned for future videos as well.

Late Winter & Spring Turfgrass Diseases

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Published on

April 1, 2020



Remember the majority of turfgrass problems are not caused by diseases but are the result of two key factors.

#1. Adverse weather conditions that are not conducive for growing cool-season grasses.

#2. Injury or damage to the turfgrass plants from use and wear and/or maintenance procedure that were not properly executed.

Here the focus will be on some of the common infectious diseases that can occur in Ohio and the Midwest in spring. These are caused by fungi and often weather conditions are the driving factor for development and degree of severity. Keep in mind that the different grasses that make up a lawn, sport field, golf course, park, etc. will vary in their susceptibility to different diseases.

Snow Molds:

Coming out of a wet mild winter, it is a good bet we are going to have some pink snow mold issues. Raking affected areas and make sure there is adequate fertilizer to heal damaged turfgrass. This disease is primarily on creeping bentgrass on golf course.



Pink snow mold, occurs without snow and is often referred to as *Microdochium* patch or *Fusarium* Patch, caused by the fungus *Microdochium nivale*. Here the disease is in creeping bentgrass. In spring the disease appears

similarly on other grasses. (Photo by J. W. Rimelspach)



Early spring pink snow mold in a perennial ryegrass baseball infield. The ryegrass was planted the previous fall and went into winter in a juvenile, lush, highly susceptible state. (Photo by J. W. Rimelspach)



Pink snow mold in perennial ryegrass under wet conditions. Note the slimy collapsed leaf tissue, in this case the crowns are still alive and have the potential to recover. As the turf and site dry out the affected patch will become a crusty mat of dead leaf tissue. Check the condition of the crowns to see if alive. (Photo by J. W. Rimelspach)

Red Thread:

Cool, mild temperatures, humid, overcast periods typical to Ohio's wet springs provide the best environment for disease development. Prolonged leaf wetness and slow turfgrass growth also contribute to disease development and severity. Red thread is most severe under low Nitrogen and / or low Phosphorous levels. In Ohio, Red thread has been recorded as being active in every month of the year but in most year's spring and early summer or the fall is when the disease is most active.

Management and Control Strategy –

- In general, any practice that encourages optimal growth of turf should be employed such as maintenance of a balanced fertility program, good drainage, good light, etc. Increased N and P fertility has been correlated to decreased red thread susceptibility.

- Adequate phosphorous is critical to minimize and manage red thread. Soil test to know what available phosphorous levels are and correct if needed.

- Varieties with different levels of red thread susceptibility are listed at the National Turfgrass Evaluation Program web site: www.ntep.org



Over-all view of symptoms of red thread in Kentucky bluegrass and perennial ryegrass turfgrass. (Photo by J. W. Rimelspach)



Affected "spot" with red thread in a lawn of bluegrass and ryegrass. (Photo by J. W. Rimelspach)



Close up of the red thread fungus growing out of the end of a perennial ryegrass leaf. The color of the fungus can vary from a red to pink or coral color. As the fungus ages and dries out the color will be dull pink or more tan. (Photo by J. W. Rimelspach)

Leaf spots:

Another early spring problem that occurs is leaf spot. During the last several years it has been an ever increasing problem. The reason leaf spot is such a recurring problem is that there are so many types of leaf spot pathogens. They span the temperature range from warm to cold but have one thing in common, excesses water. Long periods of wet leaves is ideal for the disease. Spring showers bring more than May flowers!

Management and Control Strategy –

To manage consider the following. Raise cutting height, mow frequently to avoid stressing turf, avoid excessive nitrogen but provide adequate complete fertilization, avoid frequent watering and wet turf and select more resistant cultivars to the disease.



Common leaf spot (*Drechsler* &/or *Bipolaris* spp.) infecting Kentucky bluegrass

Common Mullein- Mother Nature's Answer to Our Toilet Paper Shortage?

Authors

Erik Draper

Published on

April 1, 2020



Common Mullein Article- Authored by David Marrison

Coshocton County Extension Educator

When the news broke that we would need to retreat to our homes due to Coronavirus-19, the run on milk, eggs, bread and toilet paper began at our local grocery stores. I have been especially fascinated by the hoarding of toilet paper. Every time I have been out to get food and supplies, the toilet paper shelves have been completely bare.

As my wife Emily and I were out taking a Sunday evening walk, I noticed along the ditches some green, soft-looking plants which appeared to be the lambs-ear plant, with which many of us are familiar. After closer inspection, the plant we were looking at was Common mullein or *Verbascum thapsus*. Emily was quick to respond that locals refer to the plant as **Cowboy's Toilet Paper**. Then the light bulb went off---could this be Mother Nature's answer to our COVID-19 toilet paper shortage?



©David Marrison, OSU Extension

Common Mullein with suggested possible use...

Besides Cowboy's Toilet Paper, you may have heard it referred to as Quaker's rouge, candle wick, flannel leaf, velvet dock, big taper, bunny's ear, miner's candle, or poor man's blanket. These names commonly reflect some characteristic the plant exhibits, such as the flower stalk or leaf texture. If you read survival guides, this plant is mentioned as an emergency roadside toilet paper due to the large, fuzzy leaf of this botanical wonder. One word of caution however, the fuzzy leaf may cause some skin irritation when used as toilet paper.



©David Marrison, OSU Extension

Common Mullein- Note the extremely dense pubescence on leaves

The history of this plant is fascinating. Common mullein traces its roots back to Europe as it was planted in gardens for its medicinal purposes as an expectorant, diuretic, pain relief and healing of abrasions. Interesting enough, since Quaker women weren't allowed to wear make-up, they would rub the hairy leaves on their cheeks to create a homemade blush look. Hence the name Quaker's Rouge. However, its major claim to fame is definitely its use as a toilet paper.



©David Marrison, OSU Extension

Common Mullein rosette

Like many plants, it escaped the confines of cultivation and is now a weed which can be found across the United States. In Ohio, we tend to see it in disturbed areas such as railroad right-of-ways, roadsides, fence rows, ditches, and pastures. In fact, it is one of the first weeds to germinate when an area is disturbed. It prefers sunny, hot, dry conditions. It grows quicker than native plants so it can quickly take over a newly disturbed area. Common mullein is a minor problem in cropping systems because it is unable to survive cultivation and is intolerant of shade. However, it can persist and remain problematic in overgrazed pastures due to it generally being avoided by livestock.

Common mullein is a spring-germinating biennial. In the first year, it produces a large basal rosette (7 to 24 inches) of large, fuzzy leaves with a substantial crown. The leaves are covered by dense hairs, making it similar to felt fabric. Those hairs make it very undesirable to livestock and wildlife that might feed on the foliage of the plant. The rosette overwinters, and in the second year, it produces a single, thick, erect flowering stem with yellow flowers reaching upwards to 5 feet in height.



1479045

Common Mullein flower stalk

The flowers are present from June through September. The flowers are sessile on 1 or 2 terminal cylindrical spikes (7-19 inches in length by 1 3/16 inches wide). Individual flowers are just under 1 inch in diameter and have fused yellow petals with 5 lobes. A single plant can produce up to 175,000 seeds and those seeds can remain viable up to 100 years. The seeds have wavy ridges alternating with deep grooves that resemble corn cobs. The seeds are typically 1/32 inch in length. After flowering, the plant dies leaving the tall stem and the dead stems can persist for more than a year.



©David Marrison, OSU Extension

Common Mullein seed heads

Common mullein is difficult to eradicate once established, due to its long-lived seed bank, but there are several options for management. One simple method is to ensure good open space competition by encouraging good groundcover, since this weed is one of the first to germinate in bare ground. Hand pulling is an effective method, if

plants are pulled before seed production. Similarly, removing plants with a hoe, making sure to cut through the crown, can control common mullein.



©David Marrison, OSU Extension

Common Mullein seed head up close

Chemically, one-year old rosettes can be controlled easily using non-selective herbicides such as glyphosate products applied directly to the plant. Greater care must be taken when applying these products to the upright, two-year old plants, in order to reduce drift onto non-target plants. It is important to use a surfactant in conjunction with the herbicide. Control with herbicide is considered difficult due to hairs on the foliage, which can reduce herbicide absorption. However, using a surfactant can alleviate that problem. Refer to the pesticide manufacturer's label for specific information and restrictions regarding proper herbicide use.



Common Mullein rosettes

French author, Marcel Proust, once said “The real voyage of discovery is not in seeking new landscapes but in having new eyes.” The coronavirus pandemic is providing us an opportunity to see the world with a new set of eyes. As we distance ourselves socially, I encourage you to get outside and take a walk. You never know when you will stumble across a plant like Common Mullein which could be the answer to our toilet paper shortage!

More Information

Common Mullein, Hammond, V.

<https://communityenvironment.unl.edu/common-mullein>

Common mullein (*Verbascum thapsus*) Montana State University

[http://www.msuinvasiveplants.org/documents/extension/weed_posts/2016/December%2...](http://www.msuinvasiveplants.org/documents/extension/weed_posts/2016/December%2016/2016%20December%2016%20Common%20Mullein.pdf)

Plant Conservation Alliance. Fact Sheet: Common Mullein.

<https://www.invasive.org/weedcd/pdfs/wgw/commonmullein.pdf>

Callery Pear: the Jekyll and Hyde Tree

Authors

Joe Boggs

Published on

March 30, 2020

"Field of Pears" 2020
13.5 Acres



Last year, I vowed not to take any more pictures of blooming Callery pear (*Pyrus calleryana*). I have hundreds of pictures including some that I've labeled "Field of Pears." It's a 13.5-acre former farm field along I-75 just north of the exit for SR 129. The field is covered with *escaped* pears; no trees had ever been planted there. I've been taking shots of the field since 2010.

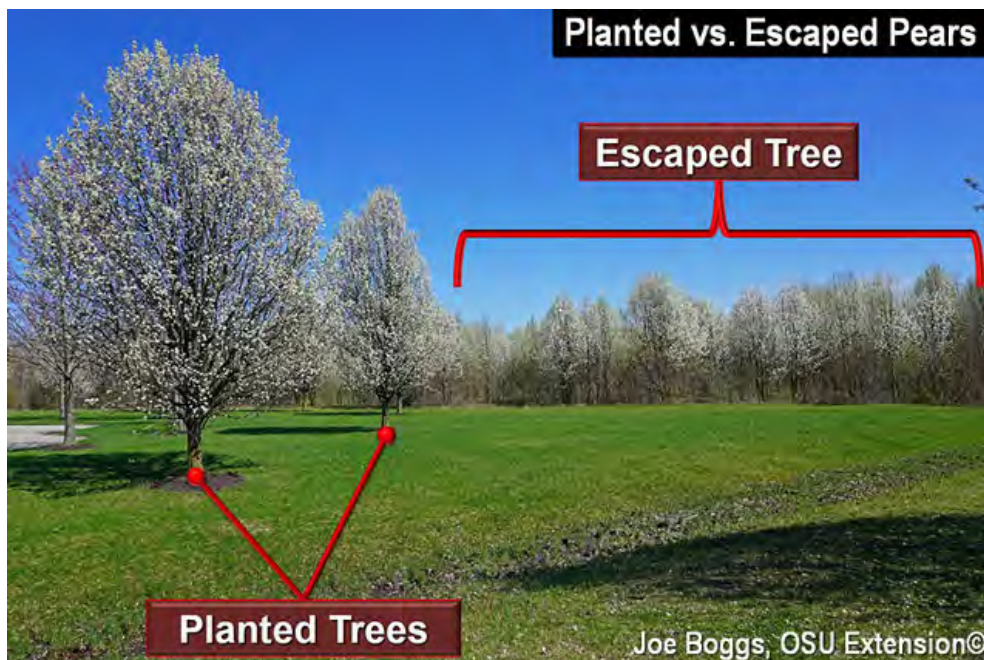
**"Field of Pears" 2012
13.5 Acres**



**"Field of Pears" 2016
3.5 Acres**



I broke my vow yesterday. The current widespread floral display in southwest Ohio is just too dramatic to ignore. It's one of the best blooms in years and truly reveals the Jekyll and Hyde nature of this good tree gone bad.



Escaped Callery Pears

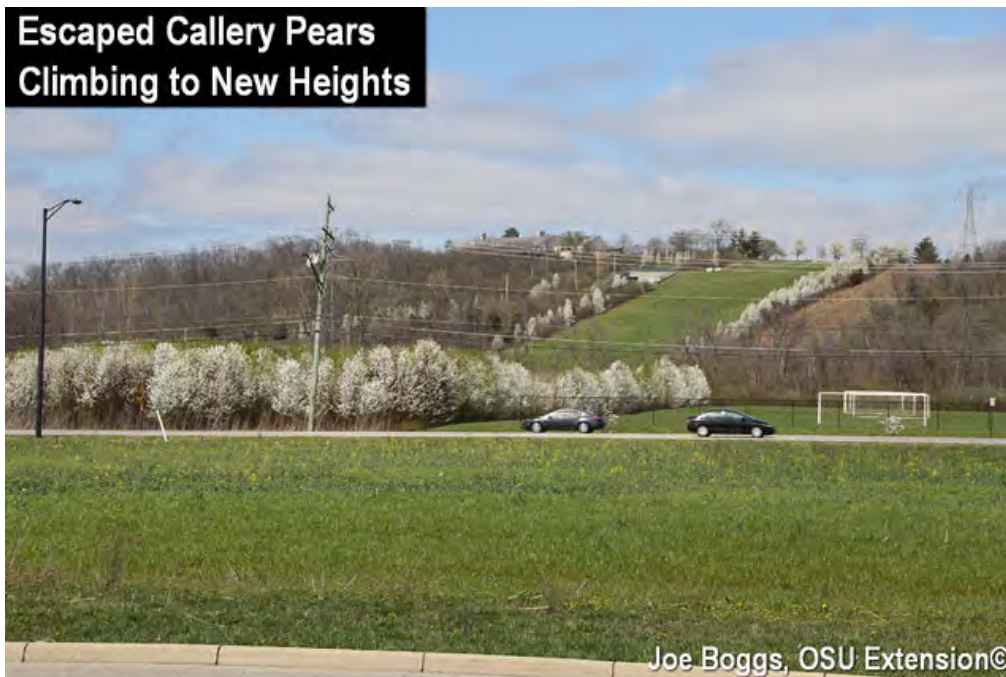


Joe Boggs, OSU Extension©

Escaped Callery Pears



Joe Boggs, OSU Extension©



What Happened?

The Callery pear origin story is rife with unintended consequences at almost every turn. It epitomizes the saying, "*The road to perdition is paved with good intentions.*"

Callery pears are native to Asia. The species is named for a French missionary, Joseph Callery, who first collected the tree in 1858. As with all pears, Callery pears belong to the rose family, Rosaceae.

However, unlike many family members, Callery pears showed good resistance to bacterial fireblight. The disease wreaked havoc on the common fruiting pear (*P. communis*).

The original Callery pears were brought to the U.S. to provide an infusion of genes into fruiting pears with the goal to enhance fireblight resistance. Although the crosses fared poorly relative to fruit pears, the USDA researchers made the serendipitous discovery that some crosses showed intriguing characteristics that could be of interest to the nursery/landscape industry. The cultivar *Pyrus calleryana* 'Bradford' grew out of this plant breeding project and was the first Callery pear to be introduced into U.S. landscapes. It's why many of us still occasionally lapse into referring to all Callery pears as Bradford pears.

Bradford was an immediate hit with its snowy white flowers, lustrous green leaves, glossy-red fall color, and because of genetic self-incompatibility, it didn't produce fruit meaning there was no mess. Dr. Jekyll strongly approved.





The icing on the cake was its tolerance of bacterial fireblight. Infections seldom advanced beyond the fruit spurs and seasonal recovery was impressive. Adding to this, the trees were tolerant of a wide range of environmental insults; it would grow almost anywhere. Mr. Hyde was lurking on our doorsteps.



However, Bradfords revealed their Achilles heel as they matured. Arborists noted that the crotch angles were weak which resulted in a lot of storm damage. The wind damage was so common some arborists still refer to storms with high winds as "pear storms" because of the added cleanup. Soon, many street tree commissions demanded "no more pears."



Of course, in an early manifestation of "*we have an app for that*," many (including me!) came to the defense of Callery pears by noting that newer cultivars such as 'Aristocrat' and 'Cleveland Select' had better branch structure. We said don't throw the baby out with the bathwater. Callery pears were the "go-to" tree for locations where other trees failed to establish and thrive. Fast-growing pears planted in Devil's strips quickly produced tree-lined streets.



Enter Mr. Hyde

However, many began to note that the "no fruit" feature of Callery pears appeared to be changing. More and more fruits were showing up on the trees. They were generally treated as oddities and we were mostly concerned with the increased mess beneath heavily fruiting trees. We didn't recognize the fruits were a sinister portent of things to come.



Teresa Culley (Professor, Department Head, Biological Sciences, University of Cincinnati) reported exactly what was going on in her ground-breaking paper, "*The Beginning of a New Invasive Plant: A History of the Ornamental Callery Pear in the United States*" published in 2007 in *BioScience* (see More Information below). Teresa would play the role of Gabriel John Utterson in keeping with Robert Louis Stevenson's *Strange Case of Dr Jekyll and Mr Hyde*.

'Bradford' Callery pear was still largely self-incompatible. However, Teresa established that other cultivars originating from slightly different plants (e.g. better branch structure) and then cloned, were crossing. Birds were then eating the small fruits and pooping out nascent pears far beyond the parent trees. Thus, Callery pears began to populate road right-of-ways, abandoned fields, and many natural areas including wetlands.



Driving Ohio's highways this spring will reveal the genie is truly out of the bottle. Escaped trees are simply too widespread and too well established for Callery pears to be wiped away particularly with the continued infusion of new seed from the many housing developments, parks, towns, and cities where the pears represent a significant portion of tree plantings.

Many of us of a certain age played an unwitting role in the pear trajectory; we recommended their planting. Of course, hindsight is 20-20. On the other hand, the plight of the pears can also serve as an effective educational cautionary tale.



As I was taking pictures yesterday of an impressive bloom display lining the entrance to a housing development, a couple out for a walk asked what I thought about their "beautiful trees." I answered that beauty is in the eye of the beholder; hoping they didn't notice the nervous tick at the corner of my right eye. I then launched into the full "Pear Story."



When I got to the point about Callery pears escaping their landscape confines to spread into surrounding fields, one of them looked past me and asked, "*you mean like that?*" I turned around and saw a field across the road full of itinerant pears and answered, "*Exactly like that.*" It was a satisfying educational moment.



More Information

The Beginning of a New Invasive Plant: A History of the Ornamental Callery Pear...

https://www.researchgate.net/publication/232682928_The_Beginning_of_a_New_Invas...

Loebner Magnolias Bloom in Columbus

Authors

Jim Chatfield

Published on

March 29, 2020

**Claudia Winslett, 3410**

Loebner Magnolia Article

Authored by Claudia Winslett

This is the first bygl-alert over the next several weeks from students in the Horticulture and Crop Science 3410 class, "Sustainable Landscape Maintenance", now meeting virtually. This alert text and images are by Claudia Winslett (the posting indicates the author is Jim Chatfield; we are working on changing this as students begin submitting these articles). The pictures are from Columbus, Ohio with its Growing Degree-Days of 99 as of this Sunday. *Magnolia stellata*, one of the parents of Loebner magnolia, shows first bloom at 83.

Loebner Magnolia (*Magnolia xloebneri*), a hybrid between *Magnolia kobus* and *Magnolia stellata*, is a group of cultivars of a small woody tree that blooms in early- to mid-spring. The blooms range in size from 4-6 inches and are whitish-pink. The petals are very thin and overlap. The blooms occur on naked branches before leaves emerge. The plants are often grown multi-trunked as the layering appearance is attractive.



Claudia Winslett, 3410

Flower of Loebner magnolia now opening in Columbus.

The flowers are breathtaking and when in full bloom the Loebner Magnolia is striking as it stands out with its white and pink against the landscape. However, protecting these plants from late frosts and harsh winds while in bloom will prolong the beautiful spectacle. Even though magnolias are hardy plants, the delicate petals are susceptible to frost damage.

The trunks twist and tangle around each other, as do the branches. This gives the plants a unique look as the flowers appear around these branches and trunks in early to mid spring. Small suckers can also appear at the base of the trunks each year. Loebner magnolias grow well in well-drained soil and in full to partial sun.



Claudia Winslett, 3410

Lovely flower bud of Loebner magnolia.

The buds of these magnolias are relatively pink and their white color appears as the blooms open. The buds also have small hairs around the outer protective covering that encases the bud. After flowering, this small deciduous tree puts out leaves for the summer, and eventually small cone-like red fruits appear at the end of the growing season.



Overall structure of Loebner magnolia on OSU Campus.

Squirrely - and Other Behavior

Authors

Jim Chatfield

Published on

March 28, 2020



Jim Chatfield, OSUE

First, Something Entirely Different. This from someone we have all come to know and love from our various news feeds: Amy Acton, the Director of Health for the Ohio Department of Health, earlier this Saturday afternoon, strongly recommended (with appropriate social distancing) the crucial benefits to our health right now of:



Jim Chatfield, OSUE

An Urban garden, actually from Denver Colorado last year.

GARDENING!



Jim Chatfield, OSUE

For vegetable gardeners, a list of where our common vegetables originated. From a poster on the wall of the OPGC Plant Germplasm Center on the OSU Campus.

After reading the recent bygl-alert “Bark Stripper Squirrels” (<https://00bygl.osu.edu/index.php/node/1466>), I realized I wanted to get in on squirrel talk. We ourselves may all begin exhibiting squirrely behavior soon enough. The following example reminds us, as we digest medical and epidemiological studies like never before, that we need to take care in interpretations and in defining our terms.

Since BYGL-Writers work in the science-based fields of horticulture, botany, plant pathology, entomology, natural resources, etc. we enjoy keeping myself and others on their toes relative to these information interpretations. A factoid I have enjoyed using recently is from a set of essays “A Naturalist At Large: The Best Essays of Bern Heinrich”. It was from “Nutcracker Sweets”, published in the excellent popular nature magazine ‘Natural History’ and concerns the squirrely behavior of *Tamiasciurus hudsonicus* – the red squirrel.

Heinrich details the behavior of said squirrels in the winter on his Maine farm, gracefully scaling the trunks of maple trees, with preference for sugar maples, making little incisions, inducing sap flow, then moving on, returning sometime later to lap at the incisions. He deduces that they are after the sugar in the sap, with the gap in time of their visits resulting in evaporation of water and higher concentrations of sugar. Squirrels with their natural maple syrup evaporation system!



Jim Chatfield, OSUE

How mere humans collect maple sap. From a black maple at Secret Arboretum. Collected by David Wiesenberg.



Jim Chatfield, OSUE

Early to late maple syrup grades. Syrup made by Bob Romig.

Cool stuff. Heinrich then makes an interesting statement: he says that research shows that red squirrels have high energy needs in winter, in fact consuming an average of 117,000 calories a day. Huh? Even I, weighing approximately 100 kilograms could only imagine eating that many cheeseburgers and donuts daily and red squirrels only weigh a pound or so. What gives – can squirrels really eat that much? Pause for a moment.



Is this squirrel desperately trying to get calories from a pink donut? Or is it a tiny squirrel eating a Fruit Loop? Image from squirrelrefuge.net

Have you given it some thought? Aha, 117,000 calories is *really* only 117 kilocalories (kCal) and it is kilocalories that we mean when we speak of calories, for example, in our diets. So, a small “c” calorie is only 1/1000 of what we think of as a large “C” calorie or kilocalorie. 117,000 calories are only 117 kilocalories. I did find a scientific article suggesting this 117 kCal number for red squirrels is realistic for certain times of year though a little high. A lot of grains, seeds and buds of trees hazelnuts, spruces, and other tree seeds. Citing the 117,000 calorie figure in the essay differently or with more translation would have increased communication clarity, but – would be less fun for us.



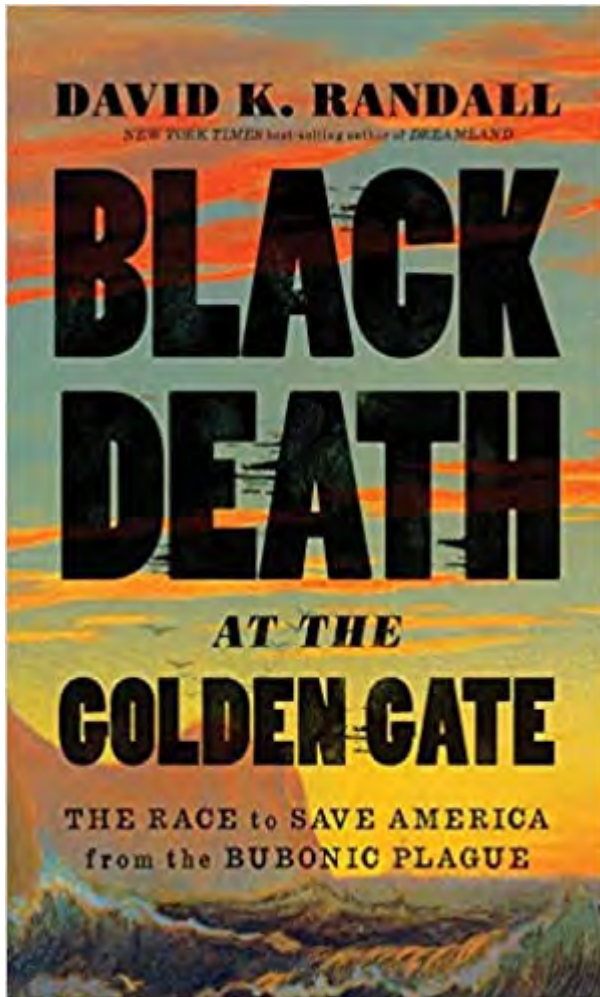
A very hot and tired squirrel I saw at the Fort Worth Botanic Garden one August

Now for more of the story, including a side of squirrels (no, not for me, especially no squirrel brains) I had never known before, from Marne Titchenell, OSU Extension's Wildlife Specialist:

"Jim, I was just talking about red squirrels in your class today, Jim (great group of students, by the way)! We were talking about their [not my students] carnivorous side (bird eggs, nestlings, and in other parts of the country – young snowshoe hares)! They are primarily granivorous, however. Though in the Cascade Mts they've been documented eating over 45 species of mushrooms!"

Calories per day varies dependent on season; in the fall as they prepare for winter they are consuming richer foods to build up fat reserves. During winter, they are eating twice as much to keep body temps up. One of my books said – "non-reproducing red squirrels expend 165-240 kJ/day," which would be what...almost 40-60 calories/day."

Note: Speaking of rodents, including ground squirrels, and more directly of infectious diseases, I recently read a fascinating book, "Black Death at the Golden Gate: The Race to Save American from the Bubonic Plague" (2019) by David K. Randall. It is about the plague in the late 19th century and early 20th century in San Francisco (the second time a resurgence after the San Francisco Earthquake in 1906), with some additional cases in Los Angeles County in the later outbreak.



fascinating book about infectious disease, public health as a discipline, and politics

The story is different from our current infectious disease dilemma, of course. The pathogen was a bacterium (*Yersinia pestis*) rather than our current coronavirus (SARS-CoV-2). There were rodents that harbored human-biting fleas as the source of spread for the plague, which is very different from the current COVID-19 disease. There were many less cases and death with that outbreak of the plague than with our COVID-19 problem, though the plague pathogen was much more virulent for individual cases, and of course, more horrific overall historically.

What is relevant for today, however, is the detailing of how information spread and was denied and became part of economic and political narratives at a time when the San Francisco and California officials were very concerned

with the economic effects of the disease. The world and the nation were also just at the dawn of understanding infectious disease and the germ theory of disease emerging from the 1870s on.

Public health service doctors and officials were often dismissed at the time, after all they were looking at invisible-to-the-naked-eye pathogens, looking into microscopes, how odd!. The blame game was part of the narrative as well. There was a much more massive plague epidemic in Asia earlier, and sailors from there to Hawaii, which resulted in the burning down of the Chinese community there, then made it to San Francisco on ships.

The Chinese and their poverty conditions in San Francisco then resulted in many saying that it was just a problem of Chinese, though clearly others were also infected and dying. Some people comfortably said it would only affect the Chinese, and perhaps other immigrants such as Italians. In the second wave in San Francisco, with rubble from the earthquake providing hiding places for the flea-infested rats, communities throughout the city were affected – except Chinatown.

Public health sanitation measures (such as raising structures off the ground) had been enacted in Chinatown during the earlier outbreak and that community did not have cases the second time around. A third outbreak occurred in the countryside with another rodent, the California ground squirrel (*Otospermophilus beecheyi*) being the source for the flea vectors of *Yersinia pestis*. BTW: There are 62 species of ground squirrels, defined as squirrels living in the ground rather than trees. Again, a fascinating book.

And, remember, you can find so much on the web. I was actually able to read a paper titled “Plague among the ground squirrels of California”, by Wm. W. Wheeler, in the December 18, 1908 edition of *The Journal of Infectious Diseases*.

Final Note: Now that we are talking about animals, another shout out for Marne Titchenell. The other night about 1:30am, channeling my night owl habit, I heard the hooty calls of an owl. This is not unusual that time of night in my farmhouse neighborhood, and it never fails to thrill me, but the hoots came much more frequently than usual. So, I e-mailed Marne: Two owls? What type of owl? Mating calls? Territorial calls? What was going on?



This was not the owl I heard the other night, but it is the only owl I have a picture of; you get the picture.

Marne's response:

"Hooty owls are usually great-horned owls. They hoot for several reasons: mating as you accurately guessed, communication between mates, and territorial defense. So which is it? Well, great-horned owls are our earliest of owl breeders, and usually mating calls are heard Dec – February. By this time, the pair is usually sitting on eggs or even has hatchlings by now. (Young may hatch as early as late February.) So I think you heard either mates communicating to one another or perhaps a territorial call. As they are sitting on eggs or caring for young right now, they are definitively territorial.

Hard to say, though, exactly what it was. For fun, you might do a search of your nearby treetops and look for nests. Great-horned owls typically use old stick nests from other raptors or crows, making the nests pretty easy to spot. Occasionally they use tree cavities. Below are some calls – give them a listen and let me know what you determine. If the calls don't match, check out barred owls on the same site.

Great-horned owl - https://www.allaboutbirds.org/guide/Great_Horned_Owl/sounds - listen to the first 3.

The Cornell link is great. They were the Great Horned Owl (*Bubo virginianus*).

Secrest Arboretum: Marches On

Authors

Jim Chatfield

Published on

March 27, 2020



Jim Chatfield, OSUE

Spring moved along in the last few days at Secrest, with Growing Degree Days this past Thursday at 59, with more to come in the next few days. Remember, if the high temperature is 60, then 5 GDDs are added ($60 - 50 / 2 = 5$). We are still a way from star magnolia at 83, and may just get there before it cools next week and stays put (GDDs never go down). Check it out for your Zip Code at <https://www.oardc.ohio-state.edu/gdd/CalendarView>.

So what is cookin' right now?



Jim Chatfield, OSUE

The lovely exfoliating bark of river birch, *Betula nigra*.

River Birch. The male flower catkins and twig finery of *Betula nigra* is always wonderful in Winter and early Spring before leaves arrive. The cinnamon and whites of young exfoliating bark is another outstanding ornamental feature. Let's take a look at Little King™ 'Fox Valley' river birch. This birch is often described as a shrub with height and spread in the 8-10 feet range. The sample I noticed at Secrest this past Thursday was more like 15 feet tall after 10+ years at Secrest. Lovely bark, dense branching, good fall color. Prefers acid, organic soils with good soil moisture. So, a small river birch with great bark.



Jim Chatfield, OSUE

A mature 'Fox Valley' river birch at Secrest Arboretum.



Jim Chatfield, OSUE

The lovely bark of the 'Fox Valley' river birch cultivar.

Marcescent Beech Leaves. Lovely, but coming to an end soon as new leaves arrive. Though I learned of this cool word decades ago when talking to a forester in Oregon, I learned a good bit more about “marcescence” this time around. One definition from Wikipedia is “(of leaves or fronds) withering but remaining attached to the stem” and this stems from the Latin roots “*marcere*”, meaning to wither. We most obviously know of marcescent leaves in our part of the world from beeches and oaks, especially pin oaks, and certain maples. Other plants include witchhazels, and the increasingly planted Oriental spicebush (*Lindera angustifolia*). Some observers note that some plants produce marcescent leaves only when they are young.



Jim Chatfield, OSUE

The marcescent leaves of beech in late March at Secrest Arboretum. Note also the characteristic pointed buds of beech (*Fagus*).

I have asked students in my Sustainable Landscape Maintenance class over the years to present ideas on why certain plants have these marcescent leaves that persist in the fall after other leaves have fully abscised and fallen, and then into the winter, and into spring until new leaves arrive. They have provided their own ideas and checked out the popular and peer-reviewed scientific literature.

No one appears to have provided enough evidence to seal the deal regarding evolutionary explanations, but ideas, including some new ones to me as I review article and papers include this: to protect buds from foraging animals. This is supported by the fact that at least for many plants the marcescent leaves are on the lower

branches of the plant, where foraging animals might feed. I even watched a Youtube: "[Youtube.com: Marcescence \(video with narration\)](https://www.youtube.com/watch?v=...)" from an R. Griffith.

From his accent and examples he is presumably from the British Isles, and he cited European beech hedges (common there) that have all marcescent leaves while non-hedged specimens have marcescent leaves only on the lower branches. He also used a pronunciation that I heard for the first time: "mark-ess-ence" instead of "mar-sess-ence".

One source suggested that some plants that are not typically marcescent may be so if an early freeze interferes with normal leaf drop. I think I have seen this in some Autumns and early Winters on Callery pears. Other ideas include: marcescent leaves falling at the base of the tree in spring may add a useful mulch then, leaves that trap snow that then melts and provides moisture at times other than would be available from other soil moisture, protection of leaf buds from drying out, etc. All fascinating. Doing this bygl-alert also led me to find the cool ARBlog from Harvard's Arnold Arboretum and Nancy Rose's "When Leaves Don't Leave".

Hickory Phomopsis Gall & Horned Oak Galls. While walking to the north of Secrest proper this week in the area cut off by a highway in the 1980s, my wife and I came upon a shingle oak (*Quercus imbricaria*), with marcescent leaves, and large golf-ball sized galls caused by the horned oak gall wasp (*Callirhytis cornigera*). Last week in the midway of the Arboretum overlooking the Streeter Amphitheatre, I noticed similar-looking woody blobs, a bit larger, some more than 2 ½ inches in diameter. These were galls of a very different sort, *Phomopsis* spp. fungal galls – on hickory.



Jim Chatfield, OSUE

Phomopsis fungal galls on bitternut hickory at Secrest Arboretum.

How can you tell the difference? Well, obviously the oak galls were on – oak, and the *Phomopsis* galls were on bitternut hickory (*Carya cordiformis*). I have had a good bit of fun over the years leading even arborist groups up to the hickory and asking what the hundreds of large galls were on this tree. Almost always, except if there is a ringer or second-timer, they say horned oak gall. Then we have fun with plant ID.



Jim Chatfield, OSUE

Horned oak gall on shingle oak at Secrest Arboretum.

In addition, cut open the galls: the fungal galls are just unorganized tissue to the naked eye. Some insect galls, when you cut them open will have larvae of the insect that induced the gall, though often not, and sometimes there are even other insects that had nothing to do with what induced the gall. But even if insects are not present, with horned oak gall eventually horns may protrude through the gall and contain a larva that eventually becomes a female insect.

And even without the projection which may take almost three years to develop with horned oak galls, there are internal chambers, giving that gall a different appearance from the apparently unorganized appearance of the interior of fungal galls. By the way, why do I say that the galls on this shingle oak are horned oak galls rather than gouty oak galls, caused by a the related *Callirhytis quercuspunctata* gouty oak gall wasp? Joe Boggs assures me that, though young horned oak galls look like gouty oak galls, in his experience, in Ohio, we are dealing almost always with horned oak galls. I believe him, provisionally.



Horned oak gall at Secest Arboretum in late March.

Joe Boggs and I have often spoke of these galls and used them at plant diagnostic workshops and bygl-alerts (e.g. “Woody Phomopsis Galls” <https://bygl.osu.edu/index.php/node/1261>) One errant statement I have often made is that these *Phomopsis* galls on hickories are very uncommon. To me, anyway, as I have seen them only on this tree at Secest and one other location.

But this is apparently not true, at least in other areas. In a small search on the web I noted that they are listed as common in Minnesota, Wisconsin, Illinois, and New York, sometimes listed as the most common gall in Wisconsin. *Phomopsis* galls (there are hundreds of species of the fungus), occur on a number of woody plants, including forsythia, maple, blueberry, and – oak. Now that would be fun at a diagnostic workshop, if we included a *Phomopsis* gall on oak in the Diag-mosh-tics pit! As ever, much to learn.



Jim Chatfield, OSUE

A mass of *Phomopsis* galls on bitternut hickory at Secrest. Gets worse every year, but tree seems ok.

I was planning on including a number of evergreen sitings, especially in the “other” Land That Time Forgot Secrest, accessible by a bridge over the bypass or more daringly via the culvert hell-mouth (for Buffy the Vampire Slayer fans) under the bypass.



Jim Chatfield, OSUE

Buffy's hell-mouth underneath Secrest.

But this bygl-alert is already long enough, so for now, we will simply leave you with the current look of the Secrest Weeping White Pine Arch.



The new White Pine Archway welcomes you at Secrest. Keep your social distance, but get some exercise.

Other Articles

Plant American Persimmon in Your Edible Landscape

MEGHAN SHINN

MAR 31, 2020

- Source: <https://www.hortmag.com/plants/american-persimmon>

Virtues: American persimmon (*Diospyros virginiana*) is an eastern US-native tree with ornamental and edible appeal. It is a hardy, problem-free, medium-size tree that produces two-inch fruits that ripen to bright orange in the fall. These are attractive to birds and other wildlife, and they can be used in jams, jellies and desserts. The thick, dark gray bark is segmented into blocks, making this an interesting and easily identifiable tree in the winter.



The fruit of the American persimmon tree ripens in the fall.

Common name: American persimmon, possumwood, common persimmon, eastern persimmon, possum apple

Botanical name: *Diospyros virginiana*

Exposure: Full sun to part shade

Flowers: Small, fragrant, greenish-yellow flowers appear in late spring. Male and female flowers occur on separate trees, so one of each is needed for fruiting.

Fruit: One- to two-inch-round fruits follow flowering and will ripen to bright orange or dark red in the fall. Prior to ripening they are very astringent, but once ripe they have a sweet flavor. The fully ripe fruits are very soft and not suitable for shipping, so the way to experience them is to grow your own. They can be eaten fresh or used in jellies, jams, puddings, pies and other sweet recipes.

Foliage: The long oval leaves are dark green through summer and then turn a warm yellow in the fall. Deciduous.

Habit: American persimmon is variable in size depending upon the conditions in which it grows. In a garden setting, it typically reaches between 35 and 60 feet tall, with a spread of 25 to 35 feet. It may spread by suckers to form a thicket.

Origin: Dry woods, clearings and old fields of the American Midwest, Mid-Atlantic, Northeast and South.

How to grow it: Plant American persimmon in full sun or part shade. It is best in well-drained, sandy soil with regular moisture, but it can adapt to other soil types and it tolerates drought. If spread is unwanted, remove suckers when they appear. USDA Zones 4–9.

An American persimmon tree would be a good candidate for an ornamental landscape or wildlife garden, but it's also a fine choice for a "food forest"—a landscape based on trees and perennials with edible elements. If you're interested in exploring food forests and permaculture gardens, I recommend reading [*The Food Forest Handbook*](#) by Darrell Frey and Michelle Czolba.

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