

Magnolia Scale

Magnolia scale (*Neolecanium carnuparvum*) is a pest of magnolia, including star, cucumbertree, saucer and lily magnolias in northern and central Illinois. This insect can produce a large amount of honeydew, making leaves and branches shiny and sticky. The honeydew can promote sooty mold growth on the affected area, turning leaves and branches dark gray or black. If large populations of scales are present, honeydew can also coat lawn furniture or cars below the magnolia tree causing additional nuisance.



Sooty mold on magnolia, Sarah Vanek, Bugwood.org (Left), Magnolia Scale (*Neolecanium carnuparvum*), William Fountain, University of Kentucky, Bugwood.org (Right)

The female scales can be easily identified because they are among the largest scales in Illinois, growing up to ½ inch in diameter, though many do not reach maximum size. The color of the scales are variable ranging from white or yellow to light brown or gray. The scales are usually round or slightly oblong. Magnolia scale has one generation per year with adults appearing during the summer. Young crawlers hatch and begin to emerge from beneath the female scales in late summer to early fall. The crawler grow and feed on the plants for a time, overwinter and begin to feed again in the spring.

Treatments are most effective when applied to young crawlers when they emerge in late summer to early fall. Inspect the underside of one and two year old branches for crawlers, they can be identified as small gray to reddish-brown specks moving on the branches. If crawlers are present, you can treat for magnolia scale. Because magnolia scale overwinters in the crawler stage, there is also an opportunity to treat in the spring, at bud break, if you miss the fall emergence window.

As with other scale species, some of the best treatments are summer oils and insecticidal soaps. Coverage is key to ensuring the crawlers come in contact with the treatments, especially in areas like the undersides of twigs where crawlers are most abundant.

Chemical controls like acephate (Orthene, Lepitect) can be applied as a foliar spray or soil drench. However, neonicotinoid treatments like imidacloprid (Merit, others) and dinotefuran (Safari) are not recommended to treat magnolia scale because they have not shown to consistently control this pest and pose a risk to non-target insects that visit magnolias.

Remember that existing adult scales will remain attached to the tree even if the scale below is dead, so don't be discouraged if scales are still visible after treatment. Treatment of crawlers prevents additional adult scale from accumulating on the magnolia.

[\(Sarah Hughson\)](#)

Oak lace bug

It was stippling on the oak leaves (a visible insect feeding pattern) that caused me to stop and take a closer look. I thought it might be spider mites. Frass (insect excrement) in the form of black droplets on the underside of the leaf told me this was a phloem feeder. Then the culprits moved when I poked at them. They were oak lace bugs (*Corythucha arcuata*). Oak lace bugs are about 1/4 inch long with clear to white wings that are flat rectangular-shaped with dark brown markings that give the appearance a miniature cut square of lace.



Stippling on oak leaf resulting from Oak Lace Bug feeding

Per their name, oak lace bugs feed on oaks; there are separate lace bug species that attack sycamore, hawthorn, elm and even sunflowers. The feeding injury is caused by their piercing and sucking mouth-parts feeding on the phloem (the part of the plant that conducts sugars for plant growth). Lace bug eggs can easily be mistaken for frass because they are often covered in frass. The eggs are small black dots that can be differentiated from frass because they are arranged in a circular pattern. The nymphs are smaller than adults, darker and oval in shape and do not have wings. While young, the nymphs congregate on the underside of leaves. There are multiple generations per year and they overwinter as adults in protected locations like bark crevices.



Oak Lace Bug Eggs



Oak Lace Bug Nymphs

Although there was a very large population of these little creatures, in all their stages, controlling them with a spray is usually unnecessary. The trees were healthy and vigorous. It is common not to notice them until August or September. A daily water spray can be highly effective in reducing the population and can be repeated until the population is under control. The University of Illinois suggests treating them with horticulture oil, insecticidal soap, neem oil, pyrethroids or imidacloprid, although lace bug populations usually do not grow large enough to warrant treatment. Treatments are ideally applied in spring and early summer. Spraying in late summer or early fall will not correct damage that has already been done to the leaves. If the population is high enough to cause significant injury and oil or insecticidal soap treatment have not been effective, a spring treatment of pyrethroids or imidacloprid can be applied. Pyrethroids are contact insecticides and should be applied to the underside of leaves where lace bugs are present. Imidacloprid is a systemic pesticide that is taken up by the tree and delivered to the affected areas, so it must be applied early in the season for control. The chemical remains effective for two or three months after application.

Assassin bugs, spiders, predatory mites and lacewing larvae (lace bug = bad bug, lacewing = good bug) prey on these garden pests.

If you have significant lace bug populations this year, look out for stippling early next season while the populations are low and sprays may be effective. However, be sure to scout for the good guys and follow the directions on the label before spraying any pesticide.

[*\(Kelly Allsup\)*](#)

Mulberry Tree Seedlings in the Lawn and Landscape

My relationship with mulberry is bittersweet. I have fond memories of picking the berry-like fruits as a child and using them to decorate the mud pies we had made. My own children love picking and eating the fruits as well. However, as an adult, my love of mulberry has soured a bit and my children are sad when I express my strong disdain for it. The fact is that white mulberry (*Morus alba*) is a weedy species and as a gardener with mulberry trees in the neighborhood, I have removed hundreds if not thousands of young mulberry seedlings from my property over the last 20 years. Perhaps my children should assist with those efforts in order to gain a new understanding of the downsides to having mulberry trees nearby.

The birds and certain mammals, however, are quite fond of mulberry. They feed on the tasty fruits and spread the seeds wherever they fly. Seeds are tiny but numerous. Each white mulberry seed is capable of growing into a 20-50 ft. or larger tree. This native to China is related to our native red mulberry. White mulberry has hairless leaves, red-brown buds, and yellow-brown bark, however, the two can hybridize. Mulberry can be difficult to identify overall due to the variations in leaf shape. One branch may produce both leaves that are lobed and leaves that are unlobed. Younger trees tend to have more irregularly-lobed leaves while older trees tend to have no lobing. Leaves are shiny and bright to light green on the upper surface. The underside is pale green and smooth except for hairs along the main veins. Leaves are alternate, simple and 2-4 in. long. The leaf margins are toothed.



Mulberry seedlings.



Both lobed and unlobed leaves are present on this branch.

Mulberry is common along woodland edges and will grow along roadsides, in wastelands, and in landscapes. Seedlings and young trees can typically be found growing in the nearby vicinity of mature mulberry trees. Mulberry cannot tolerate shade but can tolerate poor soils and dry conditions. I have seen it grow in a lawn that had gone dormant due to hot dry conditions.

What can you do about these situations? Mulch can be used to help prevent weed seed germination. However, I am a faithful mulch user and I still find mulberry capable of sprouting in spite of mulch. Once seedlings appear in a landscape bed they can be pulled somewhat easily by hand. Wear gloves as the milky sap in the stems can irritate skin. If the stems are broken off, the plant will return. Remove the roots if at all possible. Seedlings are best removed after a rain when the soil is moist. Larger plants may

need to be dug up or cut back with clippers. A brush killer herbicide such as triclopyr can then be painted on the cut surface or perhaps applied to the bark. Read and follow all label directions very carefully.



Mulberry growing at the edge of bushes in a landscape.



Left to grow in a landscape, mulberry will develop into a small tree or shrub form within a few years.

In lawns, simply mow seedlings off relatively soon. Do not wait for them to grow several inches. Mowing regularly should take care of the problem. Alternatively, broadleaf herbicides labeled for use on lawns may be used. Of course, eliminating the source of the seeds with one sharp cut would be effective. It is, however, important to maintain a good relationship with your neighbors. Bear in mind that what you see as a weed, may instead be seen as a source of joy to them, eliciting childhood memories of pies.

[\(Michelle Wiesbrook\)](#)

Books used as sources:

Bur Oak Blight

The U of I Plant Clinic has received several tree samples suspected to be infected with bur oak blight (BOB). So far, for 2019, the plant clinic has confirmed BOB on two samples, originating in Cook and Henry counties. While still considered a relatively newly pathogen, we have seen an increase in awareness of this disease compared to just a few years ago.

Bur Oak Blight is a leaf disease caused by the fungus *Tubakia iowensis*. Several species of *Tubakia* are known to infect oak and cause minor leaf spots. However, *Tubakia iowensis* is the only species known to attack leaf petioles. Additionally, the pathogen will only infect Bur oak, particularly *Quercus macrocarpa* var. *oliviformis*. Dr. Tom Harrington of Iowa State University was first to identify BOB pathogen. Results from his research suggest that the pathogen is likely native to the region and has only recently become problematic due to a significant environmental change. Wet springs, with significantly more precipitation, have likely created a favorable environment for disease development. His research lab has also been keeping track of counties and states with trees confirmed to have BOB. A map with the current disease distribution can be found at the following link:
<http://www.public.iastate.edu/~tcharrin/BOB.html>.

Symptoms

Bur oak blight is a late-season leaf blight. The earliest symptoms of Bur Oak Blight first appear in June as purple-brown spots on the underside leaf veins. In July, the spots expand, and purplish necrotic veins become noticeable on the upper leaf surface (Image 1). The most notable symptoms appear in August and September as leaf veins are killed as the infection progresses and a characteristic wedge-shaped necrotic area develops on the leaf blade (Image 2). Coalescing lesions and expanding vein necrosis may cause the leaf to die. Severely affected trees may have significant leaf mortality and/or leaves with scorched appearance (Image 3). Extensive premature defoliation is common, but many diseased leaves remain attached to the tree into the winter, well after healthy Bur oaks have dropped their leaves.

The retention of diseased leaves favors the pathogen and its spread because overwintering pustules remain attached to the tree and never lose contact with the host. In late April and May, fungal spores are produced and released from the pustules about the same time as new leaves are developing and expanding. Wet conditions promote spore dispersal to newly expanding leaves. Infection occurs before the leaves are fully developed. However, there is a latent period between infection and when the first symptoms appear in June.

Initially, infections may be limited to the lower branches. Symptoms intensify from year to year and progress from the lower limbs throughout the canopy.



Image 1. Purple-brown necrotic veins on the upper leaf surface associated with Bur Oak Blight



Image 2. Wedge-shape lesion characteristic of Bur Oak Blight



Image 3. Bur oak with lower canopy affected by Bur Oak Blight

Diseased leaf retention is currently one of the best ways to identify this disease in the field. Look for leaves and petioles attached from the previous growing season. Infected petioles will have black pustules or scars from previously attached pustules (Image 4). The other species of *Tubakia* that infect Bur oak are not known to produce these overwintering pustules.

Several successive years of severe infection and defoliation may severely weaken the host tree. Tree mortality has been attributed to secondary invaders such as the two-lined chestnut borer. Trees infected with BOB appear to have increased susceptibility to these secondary invaders.



Image 4. Branch with diseased petiole still attached from the previous growing season. Note the small black pustules.

Management Strategies

Fortunately, not all bur oaks will be affected by this disease. Many bur oak trees have a resistance to this pathogen. It's not uncommon to observe a healthy unaffected tree growing near a severely infected tree.

If you suspect a BOB infection, have the disease diagnosis confirmed by a laboratory. The leaf blight and scorching symptoms of BOB can be confused with other common disease such as: oak wilt, oak anthracnose, and environmental stresses. Disease confirmation is important for providing accurate disease control strategies and recommendations. Suspect BOB samples can be submitted to the

University of Illinois Plant Clinic. Information on general sample submission can be found on the plant clinic website (<http://web.extension.illinois.edu/plantclinic/>). For Bur Oak Blight sampling, collect branches and twigs with symptomatic and healthy leaves. Be sure to include branches with petioles from previous growing season still attached (See Image 4 for example)

Raking diseased leaves will have little effect on controlling the disease. The primary infection occurs from the abundant spores produced from diseased petioles that remain attached to the tree.

Boosting tree vigor may help the tree to limit and prevent secondary invaders. Pruning and removing branch dieback has been suggested to help reduce borer populations

For high-value trees, Iowa State University found trunk injections of propiconazole to be effective at controlling the disease. Applications require specialized equipment and will need to be made by a certified professional.

Injections should be made in late May or early June just after the leaves have fully expanded

The recommended application rate is 8-10 mls per 1"DBH. Higher applications rates reportedly resulted in phytotoxicity to leaves. The rate will also need to be adjusted if the tree has significant branch dieback in the canopy.

One application should last several years. Iowa State currently recommends repeat application only after a severe outbreak re-occurs.

References and Further Reading

2017 Video Presentation by Dr. Tom Harrington: <https://vimeo.com/229174467/f19476b2a7>

Published Research Article-- Harrington T, McNew D, Hye Young Y. Bur oak blight, a new disease on *Quercus macrocarpa* caused by *Tubakia iowensis* sp. nov. *Mycologia* January 2012;104(1):79-92.

(Travis Cleveland)

Who P'd There?: Phosphorus Law Reminder for Illinois Turf Managers

Are you an applicator for hire who applies fertilizer to lawns? Does the fertilizer you use contain phosphorus? What is the big deal about phosphorous? Phosphorous (P) is a critical macro nutrient required for plant growth. It aids in processes like photosynthesis, it plays a role with diseases incidences, and it is also involved in the reproduction process. With adequate phosphorous spring green up is better. Without P turf grass plants are spindly and dwarfed, and often they will have a purple discoloration along the leaf blade as the deficiency progresses. It is second to nitrogen as an essential plant nutrient that ensures plant function and health. These functions enable the lawn/turf to be healthy and dense. Knowing that P is important, we must also be aware of legislation that can affect

your ability to apply P to lawns. In 2010, Illinois Legislature passed a bill that restricts any applicator for hire from applying phosphorus-containing fertilizers to a lawn unless a recently conducted soil test indicates a phosphorus deficiency. Notably, homeowners are exempt from this requirement. Areas that are exempt include commercial farms, lands classified as agricultural lands, and golf courses. Product exemptions are discussed below. An Illinois Department of Agriculture Inspector noted that they have found applicators that were in violation of applying phosphorus. Violators can find themselves charged with a penalty of \$250 for the first violation. Penalties increase to \$500 and \$1,000 for second and subsequent violations, respectively.

It is not uncommon to fertilize our lawns throughout the growing season. It is encouraged as it promotes growth resulting in a healthy vigorous lawn. In general, bagged fertilizer for lawns commonly contains phosphorus so it's important to be mindful of this law. Look on the bag to see what the N-P-K ratio is. The "P" stands for phosphorus. It should be 0 if the product is to be applied to established turf. As mentioned, there are exemptions. According to the act, lawn repair products are exempt. Manure naturally contains a small amount of phosphorus but is exempt as long as phosphorus has not been added to it. Additionally, the product label (provided there is one) must say it is "manure". The terms "natural" and "organic" are not enough to allow the application. Manure is mentioned specifically in the act.

What's the big deal? When phosphorus is applied in excess, run-off can occur. High levels of phosphorus in lakes and streams can lead to toxic-algae blooms. A dozen or so states have similar laws.

In cities and suburbs, the incremental runoff of phosphorus from sources like lawn fertilizer—whether organic or conventional—is a serious concern because it feeds algae and weeds in waterways. When it rains, paved roads, sidewalks and roofs rush pollutants into storm drains that lead to waterways. Research suggests that just one pound of phosphorus can feed 300-500 pounds of algae in a water body. While most algae blooms are generally harmless to humans, decomposing algae and weeds take up oxygen in the water that is vital to fish and other animals. Furthermore, algae and weeds discourage swimmers, anglers, and boaters—and even lower property values. Phosphorus also feeds toxic blooms of blue-green algae (cyanobacteria) that are occasionally found in lakes and rivers in Illinois. As recently as June of this year, algae blooms have caused beach closings and health alerts in central Illinois. As stated before, applications of any phosphorus containing fertilizer may be made commercially if soil test results justify the need. For more information on the standards for P fertilization for lawn turfs in Illinois, consult this article by Dr. Bruce Branham:

http://web.extension.illinois.edu/ipr/i7514_829.html#107588.

According to the rule, the required soil test shall be conducted no more than 36 months before the intended application. The Lawn Care Products Application and Notice Act (commonly referred to as the Lawn Care Act) can be found here:

<http://www.ilga.gov/legislation/ilcs/ilcs3.asp?ActID=1597&ChapterID=36>

Section 5a discusses fertilizer application restrictions.

Certainly, P may be applied at the time of establishment without a required soil test. Perhaps any large stocks can be utilized in this manner. Please keep in mind that in accordance with the Lawn Care Act,

phosphorus can be used on newly established lawns for a maximum of 2 growing cycles. Then a soil test would be necessary.

[Michelle Wiesbrook](#) and [Maria Turner](#)