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Malcolm C. Shurtleff

Malcolm C. Shurtleff, former author of this newsletter and many University of Illinois Extension publications, died on May 29, 2010 in Pearland Texas. He was almost 88 years of age at the time of death. He died after a short illness. Mal served as a Merchant Marine during World War II. He grew up in Rhode Island and was an assistant extension professor of plant pathology at the University of Rhode Island for four years. In 1954, he became an associate professor of plant pathology at Iowa State University before moving to the University of Illinois in 1961 as an extension professor of plant pathology. He entered mandatory retirement in 1992, but continued to remain active in plant pathology for many years after that.

Mal was a prolific writer. While an associate professor at Iowa State, he wrote the book, *How to Control Plant Diseases*, printed by Iowa State University Press in Ames Iowa. This book is still used by many pathologists and extension people around the world. Shurtleff also coauthored the three editions of *Controlling Turfgrass Pests* - a Reston Book by Prentice-Hall Inc., New Jersey. This book is used in turf courses at the University of Illinois as well as other colleges and universities. Among other books he wrote or co-authored are *The Plant Disease Clinic and Field Diagnosis of Abiotic Diseases* and *Diagnosing Plant Diseases Caused by*

Nematodes. At the time of his death, Mal was working on a web publication with Charles W. Averre III of North Carolina State University. Malcolm's daughter is hoping to complete the work necessary for this publication to become a free web publication. These are just several of the 1,650+ publications, books, compendia, bulletins and articles he wrote during his life. While at the University of Illinois, he wrote, edited, or co-authored most of the Report on Plant Disease (RPD's) fact sheets. With some revisions, they are still used today.

He was an active member of the American Phytopathological Society. He served as the editor of the *Compendium of Corn Diseases*, which was the first publication printed by APS Press; and Mal was the first editor of *Phytopathology News*. He was also selected as the first chairman of the Extension Committee of the International Society of Plant Pathology. Mal was honored with many awards. As with being first with several publications, he was also the first Extension Plant Pathologist to be elected a Fellow of APS (1971). He was the only extension specialist recognized with the Adventures in Agricultural Science Award of Distinction (1979). Shurtleff received the prestigious USDA Distinguished Service Award in 1986, the first plant pathology extension specialist to ever receive that honor. Another first was Shurtleff being

selected a Senior University Scholar by the University of Illinois Foundation in 1987. The University of Illinois awarded Mal with the Paul A. Funk Award for excellence in service to agriculture (1975). Illinois State Senate resolution No. 176 honored Drs. Shurtleff and Hooker during the southern leaf blight epidemic of 1970-1971. Shurtleff was awarded the E.C. Stakman Award of October 27, 1999, by the Department of Plant Pathology of the University of Minnesota.

Off campus students may have taken one of the disease classes he taught in various locations around the state. Even though I already had my Masters of Science degree in Plant Pathology, I had the honor of auditing one of the classes Mal taught in Oakbrook. Readers who are still professional horticulturists may have listened to him in the early years of the Pesticide Education Safety Program when it was still called Pesticide Applicator Training (P.A.T.). Additionally, he also taught plant disease information to Master Gardeners when this program was first started in the mid 70's in Illinois.

Malcolm Shurtleff loved plant pathology. He wrote about various diseases as part of his job and on his own time as a way to relax. Many did not know that Mal also loved amateur art. He was a behind the scene supporter.

Shurtleff is survived by his wife, a brother, a sister, three children, three stepchildren, three grandchildren and six stepgrandchildren.

For those who would like to make a donation in his name, you may send a contribution to the American

Phytopathological Society Foundation, Malcolm C. Shurtleff Student Travel Award or to the American Cancer Society.--*Jim Schuster, Extension Specialist, PSEP-Plant Pathology*

Scouting Watch

Japanese beetle continues to be numerous in most areas of the state. Reports of high numbers have been submitted from the Collinsville, Champaign, Lincoln, Peoria, Rockford, and other areas. Remember that protecting plants early to prevent leaf damage provides more control than just later treatments as the beetles are attracted throughout the balance of the summer to damaged foliage.

Pine spittlebug has been reported in the Peoria area. This insect is usually found primarily in northeastern Illinois. In scouting, trees look like someone has spit on the small branches. Under the spittle, there will be the oval spittlebug nymph that produced the spittle mass. Various species of pines are attacked, and there is a small amount of dieback under the bark where the spittlebug has fed. Scattered spittle masses do not represent a problem, but several bugs per foot of twig can result in dieback. Most contact insecticides will provide control, but the spittle must be washed off of the twigs to get the insecticide to the nymphs. Washing off the spittle with water may be necessary before treatment. If the water is applied forcefully enough to knock off the spittlebug nymphs, an insecticide spray should not be needed.

Magnolia scale is becoming noticeable in the northern half of the state. Little

can be done until fall when the crawlers are out and susceptible to contact insecticide sprays. Systemic insecticides, such as imidacloprid (Merit, Xytect, Imicide, Pointer, others) or dinotefuran (Safari) may be effective. If you try a systemic, let me know how it works.
--Phil Nixon

Pythium Root Rot of Garden Plants

Root rot problems are often difficult to diagnose and can be confused with environmental stress. Above-ground root rot symptoms might include stunted growth, smaller than normal leaves, poor foliar color, dieback of stems, or sudden wilt and death of plants. Additionally, any factor that limits root growth might produce nutrient stress symptoms. Dig up an affected plant, dip it in a bucket of water several times to gently wash soil off the roots, and then assess root health.

Plants with *Pythium* root rot will have blackened root tips or soft, dark rot of the outer (cortex layer) of the roots. *Pythium* typically leaves the center of the root (stele) white and firm. A diagnostic tip for *Pythium* root rot involves holding the infected root and gently pulling. The outer, rotted tissue easily slides off the stele. The image shows chrysanthemum roots with *Pythium* root rot. *Phytophthora* root rot tends to turn the entire root brown or black, inside and out. *Fusarium* root rot and *Rhizoctonia* root rot cause dry rots and turn roots reddish brown.

Environmental factors can cause symptoms similar to those caused by root rots. Excess water, drought

conditions, or low nitrogen conditions can produce similar symptoms. The excessively wet conditions of the past weeks can injure roots, causing decline even before root rot pathogens invade. Add to this the fact that *Pythium* and *Phytophthora* are water molds, infecting roots in wet conditions.

Pythium infects young feeder roots or root tips first. It then moves into the rest of the root system or basal stems. There are many species of *Pythium* in the soil, some aggressive root invaders and some infecting only dead plant material (saprophytes). *Pythium* may survive for several years in soil and plant refuse as thick-walled spores called chlamydospores or oospores.

You won't be able to cure a plant infected with *Pythium* root rot, but an accurate diagnosis will help you manage the disease and possibly keep it from spreading. Most plant labs can identify this pathogen fairly rapidly. Oospores and sporangia may appear in incubated tissue within 24 hours. The image shows an oospore in infected chrysanthemum roots. Cultures take longer to develop but provide more evidence of the pathogen's presence.

Chemical options are used to protect nearby plants. Chemicals that have efficacy against *Pythium* include mefenoxam (Fenox, Mefenoxam, Subdue), propamocarb (Banol), etridiazole (Truban, Terrazole, Banrot) and aluminum tris (Aliette, Fosetyl). Some greenhouse growers have found that *Pythium* can develop resistance to mefenoxam. The same can be true of propamocarb. Fungicide resistance can be avoided by rotating chemical classes, especially in greenhouses where

frequent fungicide applications are necessary. Always read the label of any chemical used to be certain it is cleared for use on the targeted host. Most importantly, improve drainage on the site to move water out of the planting bed quickly. Be selective when buying plants and choose only those with healthy looking roots.

Plants that often host Pythium Root Rot include geranium, chrysanthemum, celosia, dianthus, marigold, and others that do not grow well in wet conditions.
--*Nancy Pataky*

Watch for Oak Wilt

As the season progresses, we see many oaks that look stressed. How do we know the cause of the stress? Some possible causes include Armillaria root rot, root compaction or injury, severe oak anthracnose, bacterial leaf scorch, and oak wilt. If the oak in question is in the white oak group, symptoms for all of these problems might appear for several years. If the tree is in the red oak group, oak wilt will kill it in about one year. That distinction, at least, is fairly distinct.

As I have written in many newsletters, oak wilt begins as scorching of the foliage, often in sections of the tree rather than uniformly over the tree. The scorched foliage has a half leaf symptom, with scorching starting at the tip of the leaf and moving toward the base of the leaf. Sometimes the scorching is severe enough that only the base of the leaf is green. The most diagnostic symptom is vascular streaking. Both the scorch symptom and vascular streaking are shown in the images.

Vascular streaking will extend the length of the stem and into the larger branches that are showing symptoms. Injuries and secondary canker fungi can also stain wood, but that stain will not extend more than about 12" on either side of the canker. If you have seen lots of oak wilt and have cut into many stems, you can probably diagnose this disease based on symptoms. Still, the only way to make a positive diagnosis is to sample live, symptomatic wood showing vascular streaking and have a lab prepare cultures to isolate the oak wilt fungus. I am asked this question often by oak owners who have been told they must remove a tree infected with oak wilt. They want to be certain they are doing the right thing by removing the tree. Culturing is the only way to be sure. The oak wilt fungus is a bit slow to develop spores in culture. Expect a positive diagnosis to take 10-14 days in the lab.

We have had a few positive cases of oak wilt at the Plant Clinic already this year. It is not too early to watch for this disease. Oak wilt is a disease you want to diagnose as early as possible to prevent further spread. Information on oak wilt can be found in the University of Illinois Report on Plant Disease #618 on the internet at <http://www.aces.uiuc.edu/~vista/abstracts/a618.html>.--*Nancy Pataky*

Pine Wilt

Pine Wilt is the only vascular disease of pines. It is much like Verticillium wilt on deciduous trees except the pathogen is a nematode rather than a fungus. Pinewood nematode is the cause of Pine Wilt. It moves from tree to tree by way

of sawyer beetles. It does not move through the soil. It does not move by branch contact or by other mechanical means. The only method of infecting pines with the nematodes is via one of the sawyer beetles.

Pine Wilt can be seen clearly now on many Scotch and Austrian pines. Look for pines like the ones in the first image. These trees will not recover. They first turned gray/green, then brown. The progression from green to brown can be as short as a month. You will not see green needles on the stem tips or on older growth. Occasionally a section of the tree is infected, but it always infests entire branches. There is no recovery once a tree has pine wilt. The only pine grown in Illinois that is not susceptible to Pine Wilt is white pine. When white pines look like the symptoms described here, usually white pine decline (see issue #2, 2010) is the cause, not nematodes.

To test a pine for the presence of pinewood nematodes, take sample branches that are 2" in diameter and about 12" long. The branches should be from an area having brown needles. The testing lab will cut off discs of wood and float them in water overnight, as seen in the image. Nematodes will move out of the wood and into the water where they can be viewed with a dissecting microscope. Trees that appear like the ones in the image will not recover. Do not allow them to remain in the landscape for long. Doing so increases the risk that the beetles will feed on your tree, pick up pinewood nematodes, and spread it to other trees. There is no chemical control for this pathogen.

For more information on Pine Wilt, consult Report on Plant Disease #1104 at <http://www.aces.uiuc.edu/~vista/abstracts/a1104.html>. --Nancy Pataky

Transporting Invasive Species – What's hiding in your tree?

The recent storms that have swept across the state have left destruction in their wake – including downed trees and limbs. We've received numerous calls about what can be done with this green waste. Many cities have organized storm pick up or maybe even a green waste recycling center. But are you aware of the dangers associated with invasive species and moving this debris and firewood? The recent emerald ash borer finds near Loda and in Loves Park brings the movement of ash trees to the forefront of some minds.

Non-native insects and diseases that have found their way into the United States are being transported long distances as "hitch-hikers" in firewood. On their own, these pests move very slowly--only a couple of miles or less per year. Unfortunately, people are innocently providing a ready means of dispersal, often several hundred miles per day, by bringing infested firewood from home to their camping, sporting, or second home destinations. Moving storm debris could have the same devastating affect.

Insects such as the gypsy moth and emerald ash borer are just two of the many different pests that are moved in firewood and wood debris. The presence of emerald ash borer in the state of Illinois has changed how firewood and

forest products can be moved within our state.

Firewood Regulations in Illinois

State and federal quarantines regulate the movement of invasives in commercial forest products. The federal government has [quarantined the entire state of Illinois](#), making it illegal to move ash products (ash trees, parts of ash trees) as well as all hardwood firewood outside of the state without federal certification. The state of Illinois has also [quarantined infested areas within the state](#), making it illegal to move these materials out of those infested areas.

The quarantine prohibits the removal of the following items from the respective quarantine areas:

- The emerald ash borer in any living stage of development
- Ash trees of any size
- Ash limbs and branches
- Any cut, non-coniferous firewood
- Bark from ash trees and wood chips larger than 1 inch from ash trees
- Ash logs and lumber with either the bark or the outer 1 inch of sapwood, or both, attached
- Any item made from or containing the wood or the ash tree that is capable of spreading the emerald ash borer
- Any other article, product or means of conveyance determined by the Illinois Department of Agriculture to present a risk of spreading the beetle infestation.

So, as you get ready to head out to your favorite camping destinations, please remember these firewood tips.

If you purchase firewood:

- Buy it close to where it will be burned
- Make sure it is labeled with required information (commercially bought)
- Make sure it has the federal shield (examples of the USDA shield can be found [in this document](#) [Adobe PDF])

If you have your own firewood:

- Burn it close to where it was harvested/cut down

As you clean up from the recent storms, please keep in mind, the following:

- Don't move wood products across state lines
- Know if you are in the state quarantined area – and don't move wood products across these boundaries
- If you are not in the quarantined area, please still take care to not move wood products if possible.
- Also, if you are cleaning up fallen ash trees, take a look for signs and symptoms (<http://www.emeraldashborer.info/files/E-2938.pdf>) of the emerald ash borer. Homeowners are often the first to find this invasive in their own back yard!

Visit the Illinois CAPS blog (www.illinoiscapsprogram.blogspot.com) for all the latest news on invasive pests in Illinois or contact Kelly Estes (kcook8@illinois.edu) with any questions.--*Kelly Estes*

Saltcedar: Watch Out for This Weed!

Saltcedar (*Tamarix ramosissima*) is an invasive weed that poses a large threat to native ecosystems and local water tables. This plant is a native of Asia and Europe and was originally brought over in the early 1800's to be used as an ornamental and later for erosion control and wind breaks. This plant is of concern because once established it is very aggressive. Saltcedar will overrun an area, crowd out native vegetation, and eventually deposit salt into the soil making the soil uninhabitable for most other plants. Salt cedars also suck up a lot of water with large tap roots that can easily penetrate and drain water tables.

Saltcedar is well established in parts of the U.S. outside of Illinois, particularly out west. It is not known if Saltcedar is found in Illinois yet. Since early action is required to control this plant efficiently, being able to identify this plant is crucial. Saltcedar grows in the form of a shrub or small tree usually no more than 15 feet tall. Saltcedar's small, scale like leaves are similar to many native cedar trees like Eastern Redcedar. However, there are many notable differences between native cedars and Saltcedar. Unlike native cedars, Saltcedar has very bright pink flowers and has very loosely packed foliage and branches. To compare the shape and form of Eastern Redcedar, a native and desirable plant, to Saltcedar, please visit these fact sheets. [redcedar: <http://www.cnr.vt.edu/dendro/dendrology/syllabus/factsheet.cfm?ID=97> saltcedar: <http://www.nps.gov/plants/alien/fact/tama1.htm>]

Saltcedar can spread through shoots growing out from the root system or

seeds transported on animals or humans. Likely places for Saltcedar to grow are in saturated soils with a lot of sun. Saltcedar is not shade tolerant, so well shaded areas are unlikely to become infested. If an infestation is identified, common removal methods include cutting and herbicide. The procedure for herbicide use will depend on the size and location of the infestation and the herbicide being used. In the event that herbicide is being applied to cut stumps, it is important to note that the herbicide should be applied to the stump immediately after the cut is made. Within as little as a minute after the cut is made, the wound will have healed enough to significantly reduce herbicide penetration. If you think you have seen Saltcedar in Illinois or have any questions about this weed, please contact the Illinois Cooperative Agricultural Pest Survey (CAPS). [<http://www.inhs.illinois.edu/research/CAPS/contacts.html>]--Irenka Carney

Aquatic Invasives: Brazilian Elodea and Hydrilla

There are two invasive species threatening America's waterways- Brazilian elodea (*Egeria densa*) and hydrilla (*Hydrilla verticillata*). Hydrilla is a persistent problem throughout North America while Brazilian elodea only survives in the north. Aquarium dealers still sell Brazilian elodea; be sure to purchase alternatives such as Canadian Elodea or American Waterweed when stocking your aquarium.

These plants look fairly similar. They are both light green, with long slender stems and leaves growing in whorls. Brazilian elodea has leaves growing in whorls of

4-6 and the leaves are much larger and smoother. Leaves on hydrilla grow in whorls of 5 and have small teeth on the underside of the midrib. Hydrilla also produces tubers (yellowish bulbs attached to the root tips) and turions (buds in the leaf axils). Both grow submerged in freshwater habitats.

Since these plants lack any natural predators in this country, they are able to easily outcompete native plants and quickly dominate an area, filling up the body of water, and “topping out” at the surface as large mats. Once established, hydrilla and Brazilian elodea can clog irrigation and flood control canals. Stands of the plants also interfere with boating and can be spread further if fragments of the plants get attached to a boat or trailer.

There are several options for control of hydrilla. Drawdown, a process that

removes water from a lake or pond and allows the plants to die before water is let back in, and mechanical harvesting using chopping machines are possible options. Herbicides have been shown to be temporarily effective but will not completely eliminate the problem. Brazilian elodea has proven to be more difficult to control; mechanical harvesting will simply allow the plants to spread. However, Brazilian Elodea can be controlled by herbicides. Grass carp (right) has been suggested as a possible control because of their large appetite for plants. However, once placed in the ecosystem, grass carp is very difficult to recapture and can cause further problems for native plants. If you suspect you have either of these plants on your property, contact : Illinois Cooperative Pest Survey (<http://www.inhs.illinois.edu/research/CAPS/contacts.html>)--*Stephanie McLaughlin*