

Number 7 - June 4, 2009

## **NPDES General Permit Comment Period**

The U.S. Environmental Protection Agency (EPA) has announced the public availability of a draft National Pollutant Discharge Elimination System (NPDES) permit for point source discharges from the application of pesticides to waters of the United States. This Pesticides General Permit (PGP) was developed in response to a decision by the Sixth Circuit Court of Appeals in which the court vacated EPA's 2006 rule that said NPDES permits were not required for applications of pesticides to U.S. waters. EPA estimates that the Sixth Circuit's ruling will affect approximately 365,000 pesticide applicators nationwide who perform 5.6 million pesticide applications annually.

The draft permit covers the following pesticide uses: (1) mosquito and other flying insect pest control; (2) aquatic weed and algae control; (3) aquatic nuisance animal control; and (4) forest canopy pest control. It does not cover terrestrial applications to control pests on agricultural crops or forest floors. EPA is soliciting public comment on whether additional use patterns should be covered by this general permit. EPA will accept written comments on the draft permit for 45 days after its publication in the Federal Register.

Three public meetings, a public hearing and a webcast will be held to present the proposed requirements of the permit, the basis for those requirements and to answer questions. The public hearings will be held in Albuquerque, NM, Boise, ID, Boston, MA, and Washington, D.C. The webcast will be broadcast on June 17, 2010, from 1:00 p.m. to 3:00 p.m. Eastern Standard Time (EST).

NPDES permits are issued by the agency within each state that is responsible for enforcing the Clean Water Act. In Illinois, this is the Illinois Environmental Protection Agency (IEPA). The intent of this PGP is that it will be used as a template by IEPA and similar agencies in other states for their permits, but state agencies can develop their own permits.

The PGP is also intended to cover pesticide applications near waters. EPA is interpreting this to refer to the unavoidable discharge to waters of the U.S. in order to target pests in close proximity to water, for example, treating weeds along the bank of a ditch though which water is flowing. Stormwater runoff that may contain pesticides is not required to obtain NPDES permit coverage unless it was already required to do so exclusive of the *National Cotton Council, et al. v. EPA* court case. Existing NPDES stormwater permits for runoff from construction, industrial activities, and municipal separate storm sewers

already consider pesticides as part of the permit development process.

In 1987, Congress amended the Clean Water Act to exempt agricultural stormwater and irrigation return flow from NPDES permitting requirements. The Court's ruling does not affect these exemptions. EPA is seeking comment on whether additional pesticide application activities may involve unavoidable point-source discharges to waters of the United States. EPA is requesting comment on whether this general permit should provide coverage for any such activities. If, after considering comments, EPA expands coverage of this permit, the effluent limitations for the additional use patterns would likely be similar to what is being proposed in this draft permit.

An overview of this issue and court case was published in the July/August 2009 issue of the Illinois Pesticide Review Newsletter which is available at [http://web.extension.illinois.edu/ipr/i6172\\_829.html](http://web.extension.illinois.edu/ipr/i6172_829.html) More information on the NPDES General Pesticide Permit is available at [http://cfpub.epa.gov/npdes/home.cfm?program\\_id=410](http://cfpub.epa.gov/npdes/home.cfm?program_id=410) and <http://cfpub.epa.gov/npdes/index.cfm> -  
*--Phil Nixon, added to and modified from the Agriculture and Natural Resources News Forum and EPA websites*

## **Emerald Ash Borer Treatments**

The recent discoveries of additional infestations of emerald ash borer in Illinois and surrounding states have

increased concern among tree owners of the need to treat their ash trees with insecticide to protect them from this pest. Part of this concern arises from no known cases of survival of untreated ash trees when attacked by this insect. Over 100 million trees have died from attack by emerald ash borer.

University of Illinois Extension, as well as other midwestern state Extension services, does not recommend the preventative insecticidal treatment of emerald ash borer unless it has been found within 15 miles of that location. This distance is based on how far the insect flies under normal and outbreak situations, the likelihood of new infestations not being discovered in an area for up to six years, and a large margin of error. Even trees that are treated after becoming infested have a high percentage of survival.

The most effective way to reduce the spread of emerald ash borer is to only use firewood that was cut within 50 miles of your location. When vacationing, use locally-produced firewood and do not bring any of it back with you. When purchasing firewood, look for the USDA firewood certification stamp which will be on each certified firewood bundle.

Information about emerald ash borer and recommendations for its treatment are available at <http://ipm.illinois.edu/landturf/insects/index.html>

Feel free to use this article in your public information or to send to newspapers for local publication.--*Phil Nixon*

## European Elm Flea Weevil

European elm flea weevil, *Orchestes alni*, is feeding throughout the state. This is a tiny insect, about only 1/16 inch long. It is reddish, with black spots on the wing covers, and has an elongated snout with tiny mouthparts at the end. Adults overwinter, emerging in the spring to feed on leaves of Eurasian elms, including Siberian elm, where the damage is most noticeable. Hybrids of elms bred for Dutch elm disease resistance tend to be heavily attacked, but Morton Accolade and Morton Glossy were lightly attacked in research recently published by the University of Kentucky. It also feeds on American elm, but less so than those from Eurasia.

Adult feeding occurs initially as pinhead-sized, round holes in the foliage. These holes enlarge through additional feeding and/or dieback into larger, more noticeable holes. Many holes are produced, making them the easiest way to detect this weevil's presence. Close examination reveals the tiny weevils on the leaf. When disturbed, they jump and fly, earning them the flea in their name.

Flea weevils mate in the spring. Mated females chew holes partway through the leaf tissue and then turn around and lay an egg in the hole. These hatch into legless, white larvae that mine through the mesophyll leaf tissue at the leaf tips, creating leaf tips that are initially whitish but soon turn brown.

When fully grown, the larvae pupate within the mine and emerge as adults in June. After feeding for several weeks, they seek overwintering sites in

protected locations. They emerge in the spring to feed on the new foliage.

Control of both insects is primarily directed against the adults. Sprays of acephate (Orthene), imidacloprid (Merit), bifenthrin (Onyx. Talstar), or carbaryl (Sevin) should provide control. Soil injection of acephate (Lepitech) or imidacloprid should also be effective. --  
*Phil Nixon*

## Fire Blight of Ornamental Pear

This has been the week for symptom expression of fire blight on ornamental pear, at least in parts of Illinois. I have heard of multiple samples in Champaign, Sangamon, and Vermilion counties. We have received physical samples from Champaign and St. Clair counties. Symptoms seen now were initiated by infections from 5 to 30 days ago.

Fire blight is caused by a bacterium, *Erwinia amylovora*. In fact, the first person to prove a bacterium can cause plant disease was Dr. T.J. Burrill from the University of Illinois. He did this in the late 1870's with fire blight. Since then, we have understood that fire blight is the limiting factor in pear production in this state. Ornamental pears are popular trees in the Midwest, but they are also susceptible to fire blight. 'Bradford' callery pear is fairly resistant to this disease, but it is not immune. 'Aristocrat' is more susceptible. 'Chanticleer' is reported to have good resistance. 'Redspire' is susceptible. I have found conflicting reports on resistance and susceptibility to this disease. It is most likely that trials for limited times and too few locations of

these trials may be the reason for conflicting reports.

The fire blight bacterium infects in warm (>60 degree F), humid conditions. The primary mode of entry into the plant is via flowers, so the critical infection period is during bloom. Infection can also occur via wounds, especially after wind or hail storms. The bacterium moves systemically in plants to shoot tips. Blighted leaves and blossoms near twig tips appear first. Leaves may wilt and turn brown or black. The image shows an infected tree this spring, courtesy of Sandy Pepper. Typical shepherd's crooks at stem tips are evident in her second image. Stem cankers develop as sunken, cracked areas on stems. The bacterial pathogen may live over winter in these cankers. The bacterium oozes from these cankers in the spring, attracting insects. The insects spread the bacteria to blossoms, fruit, or other plant parts. Water may also spread the bacteria. We also contribute to spread via pruning tools.

When severe stem death occurs, the major concern is what can be done now. There is no effective management option for infected trees. Prune out infected wood in the dormant season, if you can wait. If not, prune in an extended dry period and disinfect pruning tools after every cut. The bacterium may have extended down the stem ahead of the canker. Unfortunately this means wood should be removed 8-10 inches below the edge of the visible canker. Chemical options are limited for home growers because the timing of sprays is so critical. Commercial growers apply copper products in the dormant season and streptomycin at 4-5 day intervals throughout bloom. Don't

try to fix this problem with fertilization and watering. You will promote lush growth which is more susceptible to infection by the fire blight bacterium.

A University of Illinois report on plant disease (#801) discussing fire blight can be found at <http://www.aces.uiuc.edu/~vista/abstracts/a801.html>. For those interested in the commercial epidemiological aspects of fire blight, consult this March, 2010 article in Plant Management Network, <http://www.plantmanagementnetwork.org/php/elements/sum.aspx?id=8666&photo=4828>  
--Nancy Pataky

### **Cryptodiaporthe Canker of Pagoda Dogwood**

Pagoda dogwood is one of the most beautiful dogwoods available. The species, *Cornus alternifolia*, has a distinct horizontal branching pattern that is accentuated by the flat topped cymes of white flowers in May.

Although resistant to most diseases, pagoda dogwood usually succumbs to *Cryptodiaporthe* canker when it reaches the ripe age of 20-25 years. *Cryptodiaporthe* canker is also known as the golden canker, due to the yellow-orange color of infected bark. The fungus causes dieback of twigs and cankers of larger branches, as seen in the image. As far as we know, *Cryptodiaporthe corni* only attacks pagoda dogwoods (*Cornus alternifolia*). More importantly, it seems to be present in trees that are stressed from heat and drought. As is the case with many canker fungi, *Cryptodiaporthe* continues to spread when the tree is dormant,

killing girdled branches. When the trunk is infected, tree death usually results. It is likely that spores of the fungus are present on orange cankers in the spring, but the infection cycle is not well understood.

To manage this disease, use sound horticultural practices to keep your pagoda dogwood healthy. This species does best in partial shade with moist, well drained soil. Slightly acidic conditions are best. Some dogwoods can tolerate exposed, dry sites, but pagoda dogwoods in such locations will likely succumb quickly to *Cryptodiaporthe* canker. Irrigate in periods of drought to help tree vitality.--*Nancy Pataky*

### **Rhododendrons Limited by More than Phytophthora Root Rot**

I have always said that the two most limiting factors to rhododendron production in Illinois are alkaline/clay soil conditions and *Phytophthora* root rot. That thought did not originate with me but I certainly agree with it based on what I have seen in the clinic over the years (30+). If you have a rhododendron that is suffering but does not have *Phytophthora* root rot, consider the possibilities of *Botryosphaeria* canker or *Armillaria* root rot. Also consider noninfectious possibilities such as poor drainage, wet conditions, deep or shallow planting, and other abiotic factors. Diseases are not always the problem.

Some *Phytophthora* species can also affect rhododendron foliage. In issue 1 of 2010 we discussed Ramorum blight (SOD), which can infect rhododendron

foliage. There are also non-exotic foliar *Phytophthora* pathogens of rhododendron. This article, however, is focused on *Phytophthora* root rot and its look-a-likes.

**Phytophthora root rot** can be caused by many species, the most common being *Phytophthora cinnamomi*. Most plant clinics cannot identify this pathogen to the exact species. When it is critical to know the species, the sample or isolate can be outsourced to specialty labs.

*Phytophthora* infected roots will be reddish brown rather than healthy white. Roots die and the reduced root mass cannot absorb enough water or nutrients to support top growth. Often the top of the plant quickly turns dull green and foliage rolls as seen in the image.

You will not be able to save infected plants, but proper identification of the problem can go a long way in preventing spread to other rhododendrons. Since poorly drained soils allow disease development even in some resistant rhododendrons, obviously proper soil preparation and good drainage are keys to disease control. Composted hardwood bark media has been used to suppress growth of *Phytophthora cinnamomi*. Chemical drenches are available for commercial growers to help prevent disease spread in the planting. For more on *Phytophthora* of rhododendrons, consult RPD No. 664, *Phytophthora root rot or wilt of rhododendron and azaleas in the Midwest*, available at <http://www.aces.uiuc.edu/~vista/abstracts/a664.html>.

As you might imagine, any root or stem related problem could produce similar top symptoms of dull green, rolled foliage. Flooding, drought, mechanical or chemical injury to roots could cause similar symptoms.

**Botryosphaeria dieback** is another disease look-a-like. Many of you have seen *Botryosphaeria dieback* in trees. The fungal pathogen is known to invade stressed or injured wood, causing cankers at the base of branches. On rhododendron, the foliage on cankered branches turns off-color and rolls, just as with *Phytophthora* root rot. *Botryosphaeria* is characterized by black pin-head sized fruiting bodies in the cankers on older wood. Infected branches may be removed to help plant recovery. *Botryosphaeria* typically follows drought stress whereas *Phytophthora* follows wet weather.

**Armillaria root rot** of rhododendron has been reported to cause similar looking top symptoms to what has been discussed above. *Armillaria* may form mushrooms that help in pathogen ID. It may form shoestring-like structures as well. Rotted roots may be covered in white mycelium that can be diagnostic in the lab. For details on *Armillaria* root rot, consult the University of Illinois disease report at <http://www.aces.uiuc.edu/~vista/abstracts/a602.html>.

Hopefully you will now look at wilted rhododendrons a bit more judiciously. *Phytophthora* is not always the cause of declining rhododendrons.--Nancy Pataky

## On the Watch for Gypsy Moth

One of the most notorious hitchhiking insects, the gypsy moth, is also one of the most destructive forest pests in the United States. This defoliator is a voracious eater; and when populations are high, they can devour all of the leaves from the trees and plants in a neighborhood. It is during this time of year we start to turn our eyes to the tree tops looking for this leaf-eating creature.

Each larva can be from one to two inches long with hairs running down its entire body. The larvae are grayish in color with five pairs of blue spots and six pairs of red spots on their body with yellow markings on their heads. They transform into the pupal stage in mid-summer and emerge as adults, usually beginning in July. Male moths are light tan to dark brown with wavy bands and have a wingspan of about an inch. Females are almost all white with faint darker wavy bands on the forewings and have a wingspan up to two inches. Female gypsy moths do not fly and will typically lay their eggs near areas where they were feeding (including picnic tables, firewood, grills, and even cars). When these items are moved, these "hitchhikers" move with them! Larvae emerge from the mass the following spring (hatch generally occurs when most hardwood trees are starting to bud).

Oaks (*Quercus spp.*) are their preferred meal but they will feed on over 500 shrub and tree species. When large populations build up, 1000 egg masses per hectare, the damage can become quite extensive. This could lead to



entire forests being stripped of their foliage. Healthy trees can usually withstand the loss of one flush of leaves. If this happens continuously throughout the year, in consecutive years, defoliation will mean almost certain failure, especially when coupled with other insect, disease, and environmental conditions.

The gypsy moth trapping program in Illinois is a cooperative effort between the Illinois Department of Agriculture and USDA-APHIS-PPQ. The goal of this survey is to determine the spread and dispersal of the gypsy moth in Illinois. Illinois is considered a transition state and is part of the Slow the Spread (STS) program (<http://www.gmsts.org/operations/>). STS is one of the largest monitoring and action programs in the nation targeting the gypsy moth. Illinois Department of Agriculture is placing ~ 6,000 traps in the STS area (northeastern Illinois – where higher populations are more common). USDA-APHIS-PPQ heads the detection part of the trapping and is placing ~6,000 traps in 85 central and southern Illinois counties where this insect is not known to occur.--*Kelly Estes*

## **Know Your Invasives: More Native Plant Resources**

I received some great feedback from my article on Learning to Identify Locally Invasive Plants (<http://hyg.ipm.illinois.edu/article.php?id=172>), particularly on supplying some resources on alternative planting for gardens. Following that same theme, here are some resources that I've provided over time on our Illinois Cooperative Agricultural Pest Survey Program blog (<http://www.illinoiscapsprogram.blogspot.com/>) where you can find some of the latest news on invasives in Illinois.

- USDA Plants Database (<http://plants.usda.gov/>)
- Going Native: Urban Landscaping for Wildlife with Native Plants (<http://www.ncsu.edu/goingnative/>)
- Native Plant (<http://www.plantnative.org/>)
- US EPA – Green Landscaping (provides links to lots of web pages!) (<http://www.epa.gov/greenacres/>)

Good luck with your native planting!  
--*Kelly Estes*