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PLANT & PEST ADVISORY

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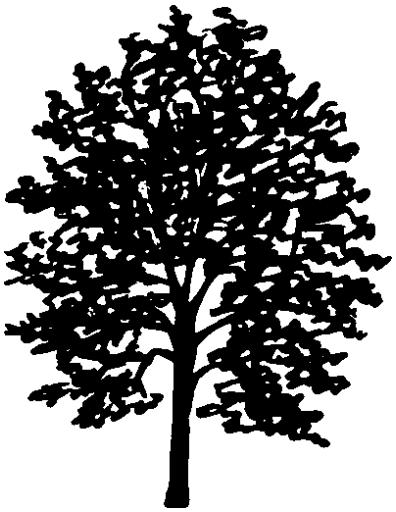

INSIDE

Identifying Clearwinged Borers in Pheromone Traps

Steven K. Rettke, Landscape IPM Program Associate

Clearwing borers comprise one of the most damaging groups of insect pests that attack shade trees and shrubs. Controls must be accurately timed, since larvae tunnel under the bark most of the year, where they are unreachable by pesticides. Artificial pheromones, a synthetic of the sex attractant emitted by many insects, are commercially available. Adult male moths are attracted to the pheromone-baited sticky trap which helps you to determine: 1) *if* these borers are present in an area; and 2) *when* to apply insecticide sprays. Pheromone traps enable landscape managers to more accurately determine the first emergence of these borers so that pesticides can be applied more effectively to susceptible hosts.

Many landscapers today are at least familiar with pheromone traps, even though most have never attempted to use them. Too often those who attempt to use these traps become frustrated, because they are unable to identify with certainty the numerous clearwing species that are caught (six of the more important clearwings include lilac borer, rhododendron borer, peachtree borer, lesser peachtree borer, dogwood borer, and banded ash borer). To compound the problem, many of the clearwings mentioned above are in the same genus and produce similar pheromones, so even though lures are often marketed for specific target borer species, they actually capture a few varieties. Sometimes there may be more non-target borers caught within the trap than the specific borer desired.

This article will demystify the use of pheromone traps when attempting to collect and identify clearwing moth borers present in the landscape. The casual observation of captured moths at the bottom of sticky traps will show "similar" looking insects that are often mangled and distorted. The challenge of identifying individual species, however, is surprisingly easy to overcome when other known information about each moth species is considered. The six most important landscape clearwing borers are caught in the traps in a mostly orderly sequence. By learning the relative emergence times of these half dozen or so clearwings, the identification process is greatly simplified.

The first moths to appear in the traps in the spring are the **lilac borers**. Of all the clearwings that are likely to be attracted and caught in pheromone traps, this moth is the *least* distinctive and colorful. Lilac

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Diseases of Turfgrass

Bruce B. Clarke, Ph.D., Turfgrass Pathology

Brown Patch

This disease, caused by the fungus *Rhizoctonia solani*, continues to be reported on tees, greens, and home lawns due to the warm, humid weather. To reduce the incidence and severity of **brown patch**, avoid nitrogen applications during hot weather, irrigate between midnight and 8 a.m. to reduce the period of leaf wetness, and spray turf with Banner, Chipco 26019, Cleary 3336, Curalan, Daconil, Eagle, Fungo, Heritage, mancozeb, Manicure, Prostar, Sentinel, Thalonil, or Touche per manufacturer's recommendations.

Pythium Blight

With the return to hot, humid weather, **pythium blight** has recently been reported on golf greens and tees. **Pythium** thrives in low or poorly drained areas, especially when the night temperatures are above 68 to 70^{0}F. For best results, improve drainage, water in the early morning hours, avoid over-fertilization, and apply Aliette, Banol, Heritage, Koban, mancozeb, Prodigy, Subdue, or Terraneb SP, Terrazole, according to the manufacturer's recommendations.

Turf Field Days

Landscape Turf Research Field Day has been set for July 29, 1999 at the Plant Science Research Farm in Adelphia, NJ. Registration will begin at 8:00 AM. Guided field tours will commence at 9:00 AM and will conclude at 3:30 PM, "rain or shine". The **Golf Turf Research Field Day** will be held on August 5, 1999 at the Turf Research Farm (Ryders Lane) in North Brunswick, NJ. This event starts at 12:30 PM (registration); field tours will run from 1:30 to 5:00 PM. The cost of registration will be $20 ($30 with lunch) for the July 29 field day and $25 for the August 5 event. Recertification credits will be available at the conclusion of each program. Call (732) 932-9400 Ext. 339 for further information or directions. ❑

Plant Diagnostic Laboratory Highlights

Richard Buckley, Laboratory Coordinator

Turfgrass

Summer heat and drought stress, and their impact on turfgrass is the dominant theme in the golf turf industry again this period. Golf greens with high populations of annual bluegrass continued to thin and yellow. Many of the submissions of golf turf to the laboratory in the last two weeks were diagnosed with summer stress conditions. Compaction, thatch, low mowing, dry spots, and anaerobic soils from over-watering are factors that contribute to the poor performance of the turf. These conditions are ripe for **anthracnose**. The disease was identified on samples from Mercer and Morris Counties, and Pennsylvania. Another stress-related disease of summer, **summer patch**, has reared its ugly head. Normally **summer patch** symptoms show in the field around the fourth of July, so this year the disease is right on schedule. Samples of annual bluegrass with **summer patch** were sent to the laboratory from Burlington and Morris Counties, and Connecticut. The first sample of **pythium blight** found its way to the laboratory from a backyard green this week. Furthermore, **brown patch** is very active on the turf farm at this time. The weather forecast promises an increase in activity of these diseases over the next week. **Slime mold** was found on a golf green for the first time (for our lab) this week. All of those that were involved thought it was **stripe smut** until it got into the laboratory for proper evaluation. During a subsequent phone conversation, one of our esteemed colleagues on the business side of the industry suggested that I was a pain in the @#% for making the diagnosis.

One final note on golf turf. There have already been several **gray leaf spot** scares this season. In each case the turf was covered with the fungus *Alternaria*. *Alternaria* is not a pathogen of turf, but is common on any dead plant tissue. To an untrained eye, the conidia might resemble *Pyricularia grisea*, so if you are a cart-path pathologist or new to microscope use, be sure to use caution when making a diagnosis. Furthermore, epidemics of any disease depend on the onset of favorable environmental conditions. A huge problem last season does not mean that we will have a huge problem this year. Know what you are dealing with before making unnecessary and expensive fungicide treatments! With that said, be sure to closely monitor ryegrass stands on your course over the next few weeks. Pay particular attention to higher cutting heights, heat sink areas, and irrigated turf. We think that infection periods for **gray leaf spot** occur in July, however, in the past we did not get samples in our laboratory until mid-August. It is very dry, so be alert to the possibility of a repeat season.

Landscape

Dutch elm disease has been a problem in the Princeton area. Two large specimen trees were diagnosed with the disease this week. Limbs began to die back in early June. After they were pruned, discolored streaks were discovered in the sapwood. Streaking in the sapwood is a good indication that the tree is infected. Furthermore, the submission of streaked sapwood is absolutely necessary for accurate diagnosis of any wilt disease in the laboratory. Don't be afraid to hack up a branch to look for this symptom when you suspect diseases like **Dutch elm**, **verticillium wilt**, or **mimosa wilt**. Other diseases of note this week include: **juniper tip blight** from everybody, **cytospora canker** on

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borers are about 1 ½", with a relatively robust body and resemble the paper wasp. They have a drab black and brown coloration and have forewings that are more opaque than most of the other clearwing species. When using a general purpose clearwing lure, the lilac borer is often the most common moth captured. Another of the earliest appearing moths caught in the spring is the **oak borer**. Although not generally considered a major pest in the landscape, the 1" to 1 ½" adult males of these moths have a remarkably close appearance to that of the yellow jacket wasp. The prominent yellow markings make this species dissimilar to other clearwings, and therefore, easy to identify.

Rhododendron borers are typically the next moths to be captured in late spring, followed very closely by **peachtree borers**. The rhododendron borers are exceptionally easy to distinguish, because of their significantly smaller size. The **dogwood borer moth** is even smaller in size, but this borer has a history of unreliable trapping in the Northeast. (Even when using lures marketed specifically for dogwood borers, chances are other clearwing species will be trapped in higher numbers.) Both of these smaller moths have two pairs of wings that contain very few scales, and therefore, are mostly clear in appearance. If both are being caught in the same trap, counting the number of yellow colored bands around the abdomen helps differentiate between these two similar looking adults. The rhododendron borer has three yellow bands circling the abdomen, whereas the dogwood borer has only two.

As mentioned above, **peachtree borer** moths appear in the traps almost simultaneously with the rhododendron borers. Although their peak numbers will have declined, the lilac borer adults will continue to be caught after these other species begin to emerge. The peachtree borer is about the same length as the lilac borer, but the former is more slender in the body. Distinguishing between these two species should not be a problem, because of the striking difference of the mostly clear wings of the peachtree borer compared to the more opaque wings of the lilac borer.

Another clearwing moth species important to landscapers not yet discussed are the **lesser peachtree borers**. The lures required to attract this species often have the most narrow or specific activity. The chemical compound or synthetically produced pheromone is relatively unique compared to the lures used to attract the other previously mentioned clearwing moths. Additionally, the lesser peachtree borers are known to have two distinct generations of male flight periods. Since the peachtree and lesser peachtree borers are very similar in appearance and have mostly overlapping flight periods, they are the most difficult clearwings to distinguish from each other. The best way to tell them apart is to examine the head region under magnification. If the area between the eyes has a whitish coloration, then it is the peachtree borer.

Remember, unless the lure is specifically stated to attract lesser peachtree borers, distinguishing between these two closely appearing species will *not* be a problem, because the other lures will not trap the lesser peachtree species. Although the host trees of both species is the same (peach, cherry, plum, etc.), the location of the treatment is important, because peachtree borers lay eggs mostly from ground-level to the lower scaffold branches, while the lesser peachtree borers generally lay eggs at the lower scaffold branches and higher up the trunk.

The final problematic clearwing borer species in the urban landscape are the **banded ash clearwing borers**. With the exception of a single narrow yellow band across the abdomen, this species is similar looking to the lilac borer moth. The banded ash clearwing, however, could never be confused with the lilac clearwing, because their adult flight periods are at completely different times of the year. The banded ash clearwing has one of the latest flight periods of the season, usually occurring during September and October. The adult lilac borer, as stated previously, is active primarily in May and June.

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Japanese maple and mountain ash from Ocean and Middlesex Counties, **phytophthora root** and **crown rot** on rhododendron from Bergen County, **fire blight** on crabapple from Mercer County, and **lophodermium needlecast** on pine from Morris County.

Nursery

Cylindrocladium crown rot and branch dieback was identified on rhododendron from a Morris County grower and on leucothoe from a Salem County operation. A Cumberland County grower had problems with **botryosphaeria canker** in his rhododendron. A flower producer in Burlington County submitted samples of delphinium that were diagnosed with **cucumber mosaic virus**. In Morris County huge **aphid** populations were the problem with a geranium crop. The root infecting fungi *Phytophthora* and *Pythium* are active in nurseries at this time. **Phytophthora root rot** was diagnosed on peony from a Sussex County garden center and **pythium root rot** was identified in ginseng from a Somerset County grower. ❑

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