NC STATE UNIVERSITY COLLEGE OF AGRICULTURE & LIFE SCIENCES

North Carolina Pest News

Departments of Entomology and Plant Pathology

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CAUTION !

The information and recommendations in this newsletter are applicable to North Carolina and may not apply in other areas.

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In This Week's Issue . . .

See current and archived issues of the *North Carolina Pest News* on the Internet at: http://ipm.ncsu.edu/current_ipm/pest_news.html

ANNOUNCEMENTS AND GENERAL INFORMATION

Welcome to the 2014 *North Carolina Pest News*

Welcome to the first issue of *North Carolina Pest News* for 2014. *North Carolina Pest News* is a newsletter published in electronic form by the Departments of Entomology and Plant Pathology at North Carolina State University, and contains up-to-date information on the status of disease and insect pests in North Carolina from Extension specialists in the two departments.

From now until the middle of September, new issues of *North Carolina Pest News* will be available every Monday morning at 8:00 a.m. via electronic mail to county Extension agents, University specialists, and others. By Monday afternoon, the newsletter will be available on the Internet at http://ipm.ncsu.edu/current_ipm/pest_news.html.

We hope that *North Carolina Pest News* will meet your individual needs for information on the occurrence of diseases and insect pests in North Carolina.

FRUIT AND VEGETABLES

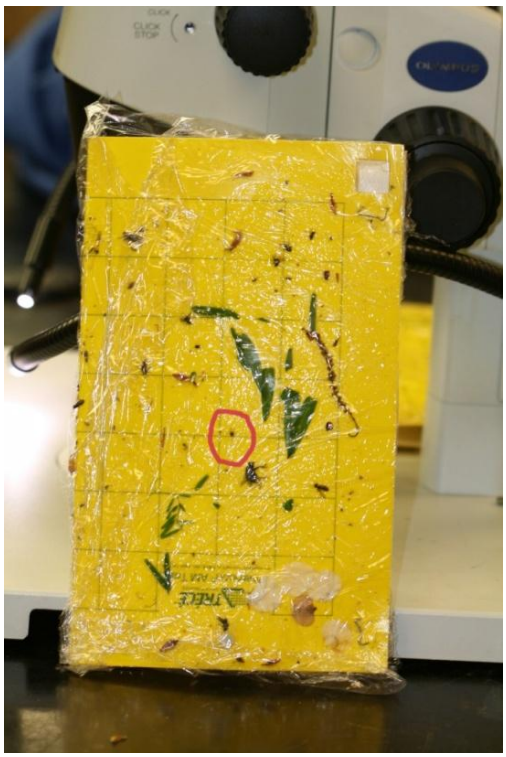
From: Hannah Burrack, Extension Entomologist

What to Watch for: Strawberry Clippers Active in Central North Carolina

This year, we've begun a project to determine the frequency and significance of strawberry clipper damage in annual plasticulture strawberries growing in the southeast. Female strawberry clipper weevils injure developing buds by laying their eggs in them and partially chewing through the peduncle (or stem supporting the flower). These injured buds will not develop into flowers or fruit, and growers are often concerned about the potential for this injury to result in yield loss. However, previous research in matted row strawberry production and observations from annual plasticulture fields in North Carolina heavily injured by clippers in 2013 suggest that plants may compensate for bud loss. The goal of our project is to determine if clippers are actually causing damage and, if so, how widespread this damage is.

Buds damaged by strawberry clipper weevil, and (inset) strawberry clipper weevil egg inside bud. Photo: Hannah Burrack.

As part of this project, graduate student Doug McPhie is monitoring clipper populations and damage at 10 strawberry farms in North Carolina, and we are collaborating with colleagues in Virginia to monitor another field there. Doug is testing whether yellow sticky traps placed in fields can detect adult weevils before clipped buds occur, as well as tracking injury on plants to determine if yield is affected.



Strawberry clipper weevil adult (circled) on yellow sticky trap. Photo: Hannah Burrack.

Last week, we started catching beetles in traps and also observing them active on plastic at three monitoring sites and we started to observe clipped buds at one site.

Female strawberry clipper weevil. Photo: Doug McPhie.

This means that strawberry clippers are now active in central North Carolina, but we are still somewhat cautious about recommending any action against them. After the first year of this project, we will have a much better sense of if treatment is necessary for clippers, and if the traps we are testing can be used to time treatments. What we do know is that materials currently recommended to treat clippers come with some real risks. They are broad spectrum, which means they may be risky for pollinators and some materials may flare twospotted spider mites, one of our major strawberry pests. We will post updates as clipper observations continue.

This project is supported by the Southern Region Small Fruit Consortium and the NC Strawberry Association.

More information
Seeking sites to monitor strawberry clipper – Entomology Portal

(Originally posted at: http://entomology.ces.ncsu.edu/2014/04/what-to-watch-for-strawberry-clippers-active-in-central-north-carolina/)

ORNAMENTALS AND TURF

From: Steve Frank, Extension Entomologist

Ambrosia Beetles

Ambrosia beetle activity has been sporadic this year due to the cool spring, but now we are catching quite a few beetles. I have also had confirmation of ambrosia beetles active in the foothills.

Ambrosia beetle management starts with reducing plant stress. In particular we have found that trees with too much water are preferentially attacked. It is easy to overwater this time of year when transpiration and evaporation are low. The next step is preventive applications of permethrin. Apply permethrin to tree trunks and try to avoid spraying the canopy. Our research shows that spraying tree canopies results in spider mite outbreaks later in the year (see the article listed: http://ecoipm.files.wordpress.com/2012/02/franksadof2011reprint.pdf).

'Frass toothpick' formed as ambrosia beetles push out frass as they bore into trees. These are characteristics of ambrosia beetle attacks, but are easily washed away by rain and irrigation. Photo: S. D. Frank.

Cankerworms Hatching

I found the first cankerworms of the year a couple days ago. Cankerworms were very abundant last spring and we predict the same this year. Cankerworms eggs were laid over the winter and just started hatching in Raleigh last week. You can see the tiny caterpillars if you shake branches or just watch for them dangling below trees. They feed on many hardwood tree species, but willow oaks seem to be damaged most heavily. We have written a lot on the biology and management of these critters. See a recent article in American Nurseryman (http://ecoipm.files.wordpress.com/2013/03/an_feb13_planthealth.pdf). You can find information and links to other articles on our dedicated Cankerworm Project webpage (http://ecoipm.com/research/cankerworm-project-home/cankerworm-project/). The important thing to remember is that they only feed for 4 to 6 weeks and only have one generation per year. By the time they get big and start defoliating trees they are about to quit and pupate in the soil until fall. The best management tactic is tree banding in the fall when adults are active. This time of year there is not much to do especially for large trees.

Young cankerworms eating young willow oak leaves. Photo: S. D. Frank.

Eastern Tent Caterpillars

Eastern tent caterpillars hatched in the past couple weeks and have already established big nests. The easiest way to deal with tent caterpillars is to prune out the nests. Eastern tent caterpillars make nests in the crotch of trees. (Fall webworms make nests at the end of branches.) So if you can't remove the nest, you can poke it with a pole pruner. This destroys the nest so many caterpillars fall to the ground and others get eaten by birds. Opening the nest also lets parasitoids in to kill the caterpillars. For severe infestations there are some insecticide options. Products containing *Bacillus thuringiensis* (*Bt*) are effective against caterpillars. Other active ingredients labeled for caterpillar control include spinosad, *Beauveria bassiana*, acetamiprid, acephate, azadirachtin, and bifenthrin. Keep in mind that these caterpillars spend most of their time in a water-proof nest so contacting them is difficult. This limits the efficacy of many insecticide applications.

Eastern tent caterpillar nest in flowering crabapple. Photo: S. D. Frank.

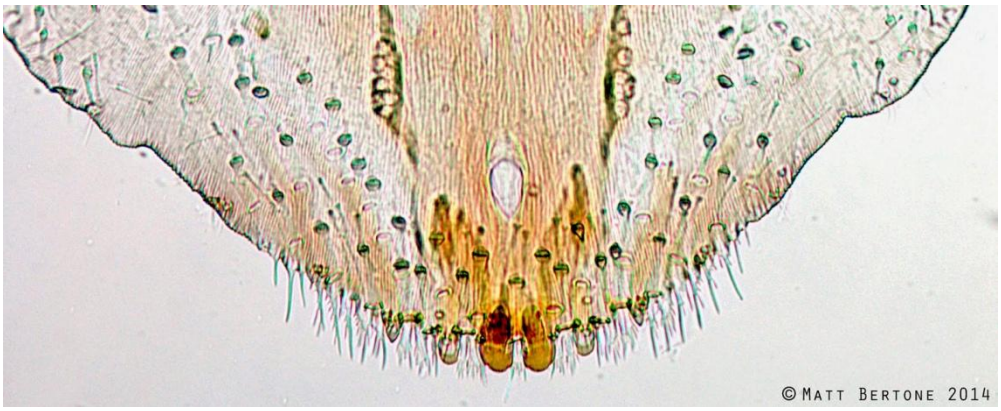
Extension Resources Online

We have many extension resources such as factsheets, articles, pest news, and presentations consolidated as links on my website http://ecoipm.com/. In addition, you can visit the site to read my blog or twitter feeds. You can also sign up to follow my pest alert Twitter feed *@OrnaPests* and my general ecology and IPM twitter feed *@ecoIPM* via Twitter or by clicking the 'Follow' buttons on my website. *@Ornapests* provides short timely alerts when new pests become active in the field accompanied by pictures and links to management information. I recently posted "pdf" files of articles I have written for industry magazines and a new free book on the management of tree pests in nurseries and landscapes (http://ecoipm.com/extension/extension-resources/).

From: Matt Bertone, Extension Entomologist

A. destructor

Armored scales (Diaspididae) are one of the most common insect pests of ornamentals. More like diseases than insects, these sedentary bugs (literally – they are in the Order Hemiptera) sit and suck the sweet fluids of plants, all the while taking energy from their host and replicating as big sacs of eggs. Their babies, called "crawlers", infest new areas and settle in for the long haul of motherhood (or the short, but free, life of a winged male).



This may look like the toothy mouthparts of some sinister little animal, but it's really the posterior end of an armored scale (Diaspididae). Photo: Matt Bertone.

Over the past month or so we received two samples of different plants that had an interesting armored scale infestation. The first was poet's laurel (*Danae racemosa*), that looked as if it was a variegated variety from the amount of chlorosis associated with the scales:

Poet's laurel (*Danae racemosa*) leaves with yellow and brown areas due to scale insect pressure. Photo: Matt Bertone.

Looking under the microscope, I noticed two types of armored scales. The first, and less common, were some typical brown, oyster-shaped fern scales (*Pinnaspis aspidistrae*). However, the most noticeable scale was one I did not recognize. It had a very thin, translucent test that resembled delicate wax paper with a bright yellow scale underneath:

Although it may look like these scales are under the epidermis of the plant, they are really hiding under a thin test (the covering common to armored scales, to which they owe their name). Photo: Matt Bertone.

When lifted off, the scales underneath looked like this:

Scales with their test removed (top one is facing right and bottom one is facing left). Photo: Matt Bertone.

The scale certainly had the rounded shape characteristic of most members of the subfamily Aspidiotinae (as opposed to the elongate shape of most Diaspidinae, such as the previously mentioned fern scale), but what was it? Well, I have to confess that our friend and former clinic member Dave Stephan took a peek during a visit and thought it looked like the genus *Aspidiotus*. Luckily, he said that because the scale

book I most often reference first, *Scale Insects of Northeastern North America* by Michael Kosztarab, does not cover this genus which is primarily Southern in distribution. So I referenced another great resource Ferris's *Atlas of the Scale Insects of North America*. Lo and behold, Dave Stephan was right – the scale keyed out to the genus *Aspidiotus* and further to the species *A. destructor*, the coconut scale.

Luckily, I had identified that sample, because the same day there was an image of aucuba (*Aucuba japonica*) that was submitted with a potential scale infestation. Although I was not able to ID the species from the pictures, when the sample came in I recognized the similarities with *A. destructor*:

The yellow spots on this aucuba leaf are intentional variegation – not chlorosis attributed to the scales. Photo: Matt Bertone.

Close up of different-sized coconut scales (*Aspidiotus destructor*). Photo: Matt Bertone.

After clearing some specimens, I was able to definitively ID them as the same scale. Was this a coincidence? Probably, but who knows whether these scales are becoming more abundant. Our clinic records show that *A. destructor* was only submitted and identified four times in the 14 years prior to

these two samples. Does that mean that we will be seeing more of this scale? I am not ready to conclude that, but if more are submitted this year we may have to investigate what's going on.

Aspidiotus destructor was described by Signoret in 1869 and goes by several common names including bourbon scale and transparent scale (I am assuming based on the thin test). The scale appears to be Southeast Asian/Pacific in origin, but has been spread throughout the world. Although mainly a pest of coconut and banana, it is extremely polyphagous being found on over 60 ***families*** of plants. The genus is characterized by the following traits that can be seen in the title image (Ferris, 1938):

- absence of paraphyses or intersegmental scleroses
- three pairs of lobes with no indication of a fourth pair
- plates long, flat and fringed (two between median lobes, two between median and second lobes, three between second and third lobes, and a variable number beyond third lobe)
- characteristic sclerotization on dorsum of pygidium

The scale can cause significant economic damage at high densities (which can be common), stunting plants and eventually killing them if enough of the leaves become unable to undergo photosynthesis. Treatments can include chemical control (http://www.ces.ncsu.edu/depts/ent/notes/O&T/shrubs/note157/note157.html), but there is also a diversity of natural enemies known to attack the species including various fungi, ladybugs, thrips, mites and several parasitoid wasps, most of which are in the family Aphelinidae. In fact, after clearing the scales from the aucuba, I noticed some sinister-looking aliens inside a few of the scales that are certainly wasp larvae and likely a species of Aphelinidae (below "A"):

A cleared female coconut scale showing a parasitoid wasp larva (A), mouthparts/stylets (B), scale egg (C) and pygidium (D). [Thanks to Mike Munster for helping take pictures of the scale under the microscope.]

I don't know whether or not the wasps are able to keep these scales in check alone, but there were at least a few being eaten by these tiny larvae. Every bit helps I guess!

References:

Ferris, G.F. 1938. Atlas of the scale insects of North America. Series 2. Stanford University Press, Palo Alto, California.

Signoret, V. 1869. [Essay on the gall forming insects (Homoptera – Coccidae) – 3rd Part.] Essai sur les cochenilles ou gallinsectes (Homoptères – Coccides), 3e partie. Annales de la Societe entomologique de France (serie 4) 9: 97-104.

RESIDENCES, STRUCTURES AND COMMUNITIES

From: Mike Waldvogel, Extension Entomologist

Kudzu Bugs

Kudzu bugs and brown marmorated stink bugs are going to be on the move with these warm temperatures. The stink bugs have a broad host range and are often found on *Paulownia* ("empress tree"), *Ailanthus* ("tree of heaven") and crabapple among others, but at this point in the year (particularly in western North Carolina), a lot of the activity may depend on the availability of foliage on those host plants. A lot of this current activity is simply a response to the warmer temperature and you'll see the insects on non-host sites, such as house siding, cars, etc. Kudzu bugs will aggregate on almost anything and so you will see them on wisteria and other plants (even if there isn't much foliage), plus houses and early-planted beans in people's gardens, etc. But even on plants with foliage the insects will simply be hanging out rather than feeding.

I'm talking strictly from a residential (rather than agricultural/horticultural) perspective about these insects. Dominic Reisig and Hannah Burrack will be putting out information about kudzu bugs (and stink bugs, depending on the crops of concern) in the ensuing months and you can watch for their updates through Twitter postings or visit "http://www.nccrops.com".

Homeowners may want to spray (or have someone sprays) the exterior of their houses. We don't have kudzu bugs listed under residential pests in the *North Carolina Agricultural Chemicals Manual*, but they can use any of the common products containing chemicals such as bifenthrin which are used for pests such as millipedes, boxelder bugs, etc. However, also remind people not to have high expectations of success. There's a big difference between "killing" individual bugs and "controlling" a population of them when these bugs are essentially a "moving target" in terms of where and when they'll show up. Remind people that this is not identical to the situation in the fall where these insects were looking to get into their houses in order to survive the winter. Now, their attention is to head to the great outdoors and look for food and to lay eggs. So, spraying aggregations (e.g., clusters on a wisteria plant) will kill a bunch but it's not going to make them go away. Remind people also that if they're going to spray trees and shrubs in their yards (rather than spraying the exterior of their houses), they need to make sure they're using products labeled for use on those plants. If they decide to spray the exterior of their houses, remind them about **safe** application of pesticides particularly if they are spraying up over their heads. The laws of gravity apply as much to chemicals as to Newton's apple. The droplets fall back down onto them as well as drift with the wind and so it's important that before spraying outdoors, you look around and cover or remove items such as children's toys (and children), pet food/water bowls, etc. and watch

out for any spraying near decorative fish ponds and hard or impervious surfaces such as sidewalks, pavement, etc. where chemical washed of the house by rain can easily end up in storm sewers and end up contaminating bodies of water.

We have information for residential settings at: http://insects.ncsu.edu/Urban/kudzubug.htm

Getting a Buzz on Bees and Wasps?

Overwintering paper wasps (*Polistes*) queens are starting to become active. I saw a number of them both on campus and around the exterior of my house. As you know, many of them have passed the winter in wall voids, attics, and crawlspaces. As a result, some of the wasps may stray indoors accidentally and people assume that there is a nest in their wall, attic or crawlspace. They are usually slow moving (you would be, too if you had slept all winter!) and they're not aggressive because these are not workers defending a nest. So, they are an easy target for a rolled-up newspaper which (unless you dislike splattered wasp guts on a surface) is far safer than unloading a can of insecticide spray on them . . . and yourself and everything else in your house. Foggers ("total release aerosols") are worthless and potentially hazardous.

Those wasps that make it to the great outdoors (or what hiding out under bark, tarps, etc.) will often be seen hovering near chimneys and other vertical objects. The wasps are busy scoping out perspective nesting sites. In most cases, they are too high up to make any sensible (i.e., "safe and effective") attempt at chemical control. However, they would an easy target should you decide it's time to pressure-wash the siding on your house. With the early nests, there will only be few workers. So, the likelihood of getting stung is minimal. People who are very concerned about getting stung can spray any nest with one of those aerosol wasp and hornet sprays that propels the chemical about 15 to 20 feet (preferably not directly over their heads). But, remind them that these wasps are actually beneficial and east caterpillars and other insects that would likely be chomping down on their flower or vegetable garden later in the year. If you want something to pass along to customers, you can send them to this page:
http://insects.ncsu.edu/Urban/paperwasp.htm

Carpenter Bees

It's finally (really) Spring and a male carpenter bee's thoughts are turning to finding the girl bee of his dreams. So, right now you'll see the males buzzing about. Carpenter bees do look like bumble bees, but lack the yellow hairs on their abdomens. You can actually identify the males because they're often hovering in areas and you can see a white-colored spot on the middle of the face. The males can buzz people sitting on benches, porches, etc., but they're harmless (male bees do not have stingers). The males do not make galleries either. When the lady bees make their appearance, they'll mate with the males and then the females will excavate new galleries or possibly use an existing one (which is another reason to seal up the old ones). There are no magic bullets (or regular bullets!) that are truly effective (i.e., meet the expectations of homeowners to stop the bees from drilling holes).

We have information online at: http://insects.ncsu.edu/Urban/carpenterbees.htm

Termites, Mosquitoes and Ticks

It's finally Spring (at least in theory!). Rain earlier in the week coupled with our warmer temperatures is a great prelude to termite swarming. Most of what people see are termite swarms outdoors which, as I have said in numerous past years, is just nature's way of reminding you that termites are all around you. It does **not** mean that you should spray your yard (which won't really help anyway); not does it mean you need to have your house treated. **However**, if you haven't had your house treated or inspected in recent years, then having it inspected might be a good idea. You can do the inspection yourself if you're confident (i.e., you're sure you know what to look for) and careful about checking the foundation (crawlspace and exterior) which may require pushing back fiberglass insulation so you can check wood framing that rests on the foundation. You should also check "critical areas" around plumbing. Calling a professional to inspect your house has its obvious advantages in that they can probably be efficient in inspecting your home. Remember, a termite treatment isn't **needed** unless you find evidence of termite activity, although some people may decide to act proactively and have one done if they feel more comfortable knowing that they have a treatment in place.

On the other hand, if termites swarm indoors, then you most likely have an infestation that should be addressed within a few weeks. Bear in mind, that even if you find swarmers, you don't need to rush a decision. Call in a few companies and get their assessment of any problem and an estimate of the cost to treat the house (if needed). Depending on the size and nature of our home's construction, termite treatments can cost $500 or exceed $2,000. Take the time to make an informed well-founded decision about the type of treatment and warranty being offered. Damage repair warranties sound great, but read the contract and understand that the warranty excludes "existing damage" which means it excludes damage that is identified as already present at the time of their initial inspection (and should be noted on the diagram they present to you with a proposal to treat the house) **or** damage that wasn't visible at the time of the inspection (e.g., inside a wall) and there are no live termites present when the damage is discovered. While that may sound unfair, it's simply a matter that the company can't be accountable for damage that wasn't visible/accessible when they initiated the warranty and so there's no way to know when it occurred.

Serious termite damage takes years to occur. Many companies can take 7 to 14 days to get around to treating a customer during peak termite activity. So, if your floor was going to fall in because of termite damage, it would happen regardless of whether you have the house treated today or in 2 to 3 weeks. However, if there is significant structural damage due to termites, then you may want to do repairs **before** proceeding with any treatment in case the repairs require any soil excavation (which could also disrupt any termite treatment in the process).

We have information about termites at: http://insects.ncsu.edu/wood.htm

You may get calls from the news media inquiring about the cool/cold wet weather's impact on pests such as mosquitoes and whether that means we'll have fewer mosquitoes. Tell them to call you back in July because we have a lot of time between now and then for either drought or adequate/heavy rains to impact on mosquito populations. And, we can usually count on some tropical storms in the fall of the year to help boost mosquito populations. You will see mosquitoes out there even with some of our projected cooler temperatures, but those mosquitoes are species that overwinter as adults and respond more quickly to rises in air temperature.

In most of North Carolina, our major problem is the Asian tiger mosquito and it spends the winter as an egg which means it needs water (for the larvae to use as a habitat), plus temperature (water and air temperature) and an increasing day length to trigger Asian tiger mosquito activity. So, we still have time before we start seeing any real problems. However, this is the time of year for people to be thinking "habitat modification" which simply means a bunch of things you need to add to your list of spring chores:

- Get rid of (or repair) those objects that collect water. Fix tarps covering boats, cars, etc. so they don't collect water. If you're going to use rain barrels to collect and conserve water for use in your garden, make sure they have been cleaned of all leaf debris and other organic matter and that you cover them with screening to keep out debris and exclude mosquitoes.

- Clean out your gutters which trap water along with leaves and organic debris that attract mosquitoes (for egg-laying purposes).

- Clean out drainage ditches in front of your property. They're meant to catch and drain run-off, not become breeding pools for mosquitoes.

And convince your neighbors to do the same because mosquito control takes a community effort. Mosquito control is a good example of the phrase "It takes a village" because everyone has to participate and it only takes one proverbial "village idiot" to make the collective effort fail.

We're still a few months away from "tick season", but that doesn't mean some ticks won't start wandering about looking for a meal. Tell people to mow those taller weeds on the fringe of the yards to cut back on habitat favoring field mice and other hosts of the common ticks that we have here. When they're finished mowing/trimming back those weeds, don't forget to check yourself for ticks. Better safe than being tick food!