

Kansas Insect Newsletter

For Agribusinesses, Applicators, Consultants and Extension Personnel



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August 6, 2010 No. 20

Cicada Killers

With dog day cicada (*Tibicen pruinosus*) populations singing in trees we should start noticing hordes of large wasps flying around. These are primarily the eastern cicada killer, *Sphecius speciosus*, which is actually considered a beneficial insect because it regulates cicada populations. This wasp gets its common name from the fact that it hunts and provisions each cell within its nest with a cicada, which is the food source for young cicada killers or larvae. Cicada killers are an urban nuisance pest, especially when nesting, sometimes in large numbers, in a bare area or area around a structure. People get concerned because cicada killers resemble giant yellowjackets.

Cicada killers are approximately 2.0 inches in length and black to red in color, with yellow-banded markings on the abdomen. The head and transparent wings are reddish brown. They are not dangerous, but they are intimidating. Cicada killers are ground-nesting solitary wasps, with the female digging a 6 to 10-inch burrow (1/2 inch in diameter) in the ground, which is usually present in sandy or loose soil. A pile of soil or sand, depending on the soil type, typically surrounds the entrance. The female locates and stings a large insect such as a cicada or katydid and then brings the “prize” back to the burrow. Observing a cicada killer female dragging a large, immobilized cicada across the ground to a nest is a very impressive natural event ☺.

The female then places the paralyzed insect into a chamber and lays an egg on the surface of the paralyzed insect; sometimes she places two paralyzed insects in a burrow but lays an egg on only one. The female cicada killer eventually covers the burrow, digs another, and repeats the process. The egg hatches into a grub-like, legless larva that consumes the paralyzed insect. Full-grown larvae overwinter in the burrow, pupate in the spring, and emerge as an adult during the summer—usually July and August.

Male cicada killers establish aerial territories and patrol for intruders. A male cicada killer wards off other males that enter his territory and attempt to mate with females. Anyone else, such as a human, walking into the territory is typically confronted by a very large wasp, which hovers in front of the face and “zips” to the side and back. However, after determining that the “intruder” is not a rival, the male cicada killer ignores the individual. Unfortunately, as a person walks across a lawn, fairway, or other area where these wasps are nesting, the process is repeated through each male’s territory. Cicada killers are unlikely to sting a person. Wasp and bee stingers are modified egg-laying devices (=ovipositors), so males are unable to sting. Females may sting if crushed, either by being stepped on with bare feet or grabbed with bare hands.

Cicada killers are more common in areas with bare soil, so mulching, planting ground covers, or sodding may reduce associated problems. However, they can also be a problem in well-maintained (e.g., irrigated and fertilized regularly) turfgrass. Cicada killers become a major problem when nesting in areas accessible to or frequented by the public. Applying carbaryl (Sevin) or a pyrethroid-based insecticide containing the active ingredient permethrin, bifenthrin, cyfluthrin, and/or lambda-cyhalothrin to the burrowed area should kill

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females in golf course sand traps. Once the females are gone, males eventually leave. In home yards, sandboxes should be covered with a tarp when not in use since this deters cicada killers (and also keeps cats out). Sand below swings, jungle gyms, or other playground equipment can be replaced with bark mulch or shredded tires.

Managing cicada killers in volleyball courts and baseball infields is more of a challenge because people with minimal clothing and much exposed skin are diving and sliding onto the ground. This makes it difficult to recommend using an insecticide on a volleyball court. In these cases, the use of a geotextile fabric placed beneath the sand may create enough of a barrier to prevent cicada killers from creating burrows. Of course the recommendations mentioned above will only be effective if cicada killer populations are not excessive. For example, I remember when an individual informed me he had to discontinue working at a golf course because of the difficulty associated with managing the excessive populations of cicada killers.



Raymond Cloyd

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Emerald Ash Borer and Thousand Cankers Disease....Welcome To Tennessee!!

If you have not heard the “bad news,” the state of Tennessee received a “double whammy” with both emerald ash borer (EAB) and thousand cankers disease (TCD) detected in the state the same week. Also, the emerald ash borer was detected in two more counties in New York: Steuben and Ulster. This demonstrates that fact that although humans “think” they can regulate these two organisms with quarantines or other regulatory processes—*they will do exactly what they want*. The thousand cankers disease detection is a concern because we had considered the most western expansive limits to be Rocky Ford, CO in Otero County. Furthermore, based on the extent of the infestation in Tennessee, it appears that the disease may have been present in the state for more than a decade, which suggests that future detections beyond the western portions of Colorado are likely probable.

The emerald ash borer find means that this insect has been detected and positively identified in 15 states (Illinois, Indiana, Iowa, Kentucky, Maryland, Michigan, Minnesota, Missouri, New York, Ohio, Pennsylvania, Tennessee, Virginia, West Virginia, and Wisconsin) and two Canadian provinces. This invasive insect pest has caused the death or decline of over 40 million ash trees since it was discovered in Michigan in 2002. The insect will attack green, white, blue, and black ash trees, and can cause tree death within three years although this is dependent on tree health and the density of larvae inside the tree.



Thousand cankers disease is a disease of black walnut (*Juglans nigra*) caused by a fungus (*Geosmithia morbida*) that is vectored by the walnut twig beetle (*Pityophthorus juglandis*). The beetle is actually native to North America, and has been detected in Arizona, Colorado, Idaho, New Mexico, Oregon, Utah, and Washington. The disease has been confirmed in California, Colorado, Idaho, New Mexico, Oregon, Utah and Washington. When the beetle tunnels into black walnut trees it introduces the fungus, and the fungus expands in advance of beetle feeding. Beetle larvae reside in the phloem (food-conducting tissues) and bark tissues. Beetles

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overwinter as adults, and a generation may be completed in 6 to 7 weeks. The cankers caused by the disease eventually coalesce and girdle branches, which restricts the movement of water and nutrients—eventually starving the tree. Infested black walnut trees may die within 2 to 3 years after external symptoms (e.g., leaf yellowing and thinning of the upper crown of the tree) have been observed.

The primary means by which these two organisms are spread is by the movement of infested wood products (e.g., firewood or fresh logs with bark). As a result, more restrictive quarantines and intensive monitoring may be required to “prevent” or slow the spread of both emerald ash borer and thousand cankers disease, which have not yet been detected in Kansas.



Raymond Cloyd

Insect Update for Alfalfa and Soybeans

Garden webworms continue to be very active in central Kansas, and are voraciously foraging on some alfalfa fields. Many fields sampled this week had significant populations of pea aphids, potato leafhoppers and garden webworms. Fortunately, there were also many predators, i.e. lady beetles and lacewings, which are helping to control the aphids. Webworms are present in late larval and adult stages. Their feeding has turned some fields' silvery (see photos), much like alfalfa weevils in the spring if not treated. Adults (see photo) are very common also. Expect larval feeding to continue for another 7-10 days from the more mature larvae. Then, as eggs continue to hatch, more foliage feeding by the next generation. There may not be a noticeable demarcation between generations as it seems this year they are all blending together with all different stages present at any one time. Swathing, if possible, will help but regrowth needs to be monitored because of all the pest activity still present and the stress this adds to the crop. If insecticide applications are utilized, please remember to check the label for the targeted pest and preharvest interval (PHI).

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Garden webworms are also infesting soybeans but fields with well-established canopies seem to show very little affect from larval feeding and the fields we scouted this week are easily able to compensate for leaf feeding. No other significant insect populations were observed. As beans reach the mid to late reproductive stages (R3-R7) however, monitoring for pod-feeding insects needs to be continued, especially for corn earworms, adult bean leaf beetles and stink bugs. We still have not seen nor received any reports of soybean aphids.

Jeff Whitworth

Holly Davis

Nippers, Laceraters, Jabbers --- Insects Put the Bite on People

I received a recent phone call reporting that a person had been bitten by a certain type of insect. And the caller then said that he wasn't aware that this insect was a biting insect. Well, in theory, if anything has a mouth, it can bite.

According to different sources, the insect world consists of between 850,000 to over a million separate species. One of the simplicities of being a human is that we (as a single species) are of a single general form/pattern. For example, the mouths of humans are all of a single design. On the other hand, insect mouths/mouthparts vary greatly depending on feeding habits which also reflect upon their life styles.

Nippers: Chewing mouthparts are the most basic form. They are used to cut/clip/grind/macerate their food. Most insect species possess chewing mouthparts. A typical example is that of a female dobsonfly (Figure 1).



Figure 1

Whether plant feeders or predators, they nip-and-cut. Despite her size (3-inches in length), the female dobsonfly is harmless. If you insert a calloused fingertip into her "ferocious jaws" she will clamp down and you will just feel pressure. However, if you carelessly hold her in your hand and she grabs the tender skin between the base of your fingers, you will likely let out a yelp, AND SHE MAY ACTUALLY DRAW BLOOD! Any larger insect with chewing mouthparts (if carelessly handled) is merely doing what it can to defend itself in the only way it knows how.

While people view lady beetles as beneficial insects, they sometimes report that they have been bitten by lady beetles ---- in which case lady beetles are viewed as "bad". In this situation, they weren't even handling the lady beetles. Rather the lady beetles "attacked them". In actuality, ever-hungry insects (they don't have to be lady beetles) sometimes land on a person and take-a-taste to see if they have landed on a favorable food source. In these instances, they won't even draw blood. Rather, their "taste buds" tell them to look elsewhere.

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Laceraters: Some flies possess blade/bayonet-like stylets. Examples include blackflies/buffalo gnats, stable flies, deer flies and horse flies (Figure 2).



Figure 2

Female horse flies, deer flies and stable flies are common fly species which have the annoying habit of lacerating the skin and allowing blood to well out of the wound. Not only are their mouth parts designed for cutting, but their mouths also are equipped with narrow furrows. By placing their mouthparts into the pooled blood, the blood moves into the insect's oral opening via passive capillary action. The blood in this instance is not for the nourishment of the insect per se, but rather serves as an essential component necessary for the production of viable eggs.

These blood-feeding flies usually derive their blood meals from livestock and wildlife, or perhaps family pets. If people happen to be available, they become fair game. The "cut" of a large horsefly is (I am told) painful. The bite of tiny stable flies is more of an annoyance ---- we swat and swing at them as we mow our lawns, hand weed, work in our gardens and work around home perimeters. One of the most common breeding grounds for stable flies are the accumulated piles of grass clippings often times discarded along the backs of our properties.

Jabbers: The mouthparts of some insects are modified (and classified) as piercing-sucking in function. Two former orders, Hemiptera (true bugs) and Homoptera are now recognized as the single Hemiptera. All Hemipterans possess piercing-sucking mouthparts.

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These insects insert their mouthparts into plant or animal tissues (depending on their host preferences). This is done slowly (in the instances of aphids and scale insects which have long delicate stylets) or with a forceful jab by those insects with more stout mouth parts (exemplified by the giant water bug – Figure 3).



Figure 3

Plant feeders such as lace bugs occasionally land on people. And as described for lady bugs, plant feeders “take-a-taste” to see if they have landed on a favorable food source.

Many predators capture and “jab” their prey. They then withdraw the liquefied elements thereof. Predators range in size from the giant water bug (2 ½ -inches long) to the minute pirate bug (barely visible at 1 mm in length).

While these insects bite people, none of them derive nourishment from their victim. Rather, in these instances, bites are “exploratory” (minute pirate bugs landing on your arms or legs) or purely defensive (the careless handling of giant water bugs, robber flies, assassin bugs such as wheel bugs). The bigger the insect, the more painful the bite.

Accompanying a bite may be a stinging sensation. This is due to a salivary secretion accompanying the bite. The severity of a bite reaction may be dependent upon an individual’s sensitivity the injected secretion.

While the aforementioned “jabbers” do not depend on blood for nourishment, there are insects which are blood feeders: sucking lice (formerly in the Order Anoplura but now a suborder of the newly designated Order Phthiraptera); fleas(Order Siphonaptera); biting midges and mosquitoes (Order Diptera) and bloodsucking conenoses and bed bugs (Order Hemiptera). In some instances, both sexes derive nourishment from blood meals while in others, only the females are blood feeders.

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Déjà vu? ----- Crickets

In the previous issue of the Kansas Insect Newsletter, the subject of ground beetle activities was addressed in response to reports of invasions in and around homes and building. In this issue, crickets are the focus.

The Déjà vu? A cut-and-past of the 2008 cricket feature. Although this appears 3 weeks earlier than addressed in 2008, crickets have begun appearing in most areas ---- especially evident at night especially in lighted areas. And like ground beetles, they will confound people who ask what and why.

The most familiar crickets are the relatively large “field” crickets which are up to an inch in length (with their long ovipositors, females measure up to another ¾-inch). While most are all black, some may have a lighter appearance due to their coppery-colored wings (Figure 4).

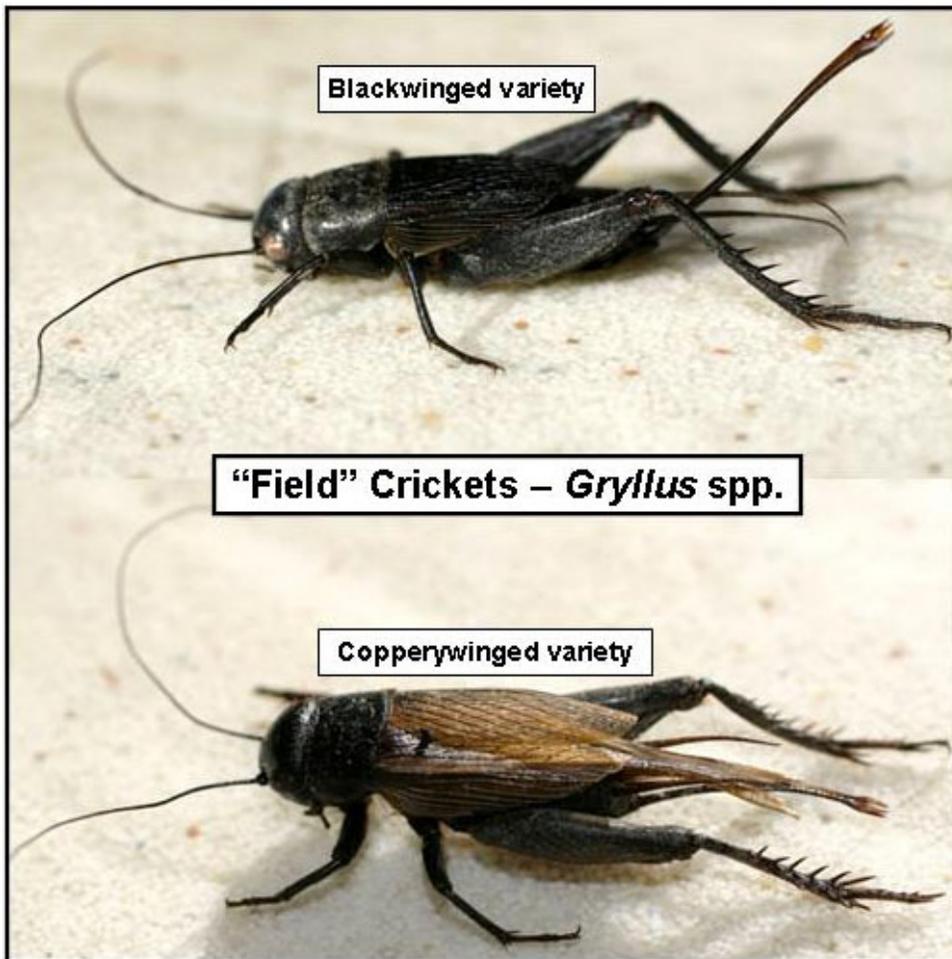


Figure 4

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Field crickets seldom cause concern until the onset of cold weather when they seek indoor shelter. Suddenly, what was once considered (outdoor) melodious music-of-the-night, becomes what is regarded as an incessant and annoying/distracting indoor chirping.

The crickets causing the current “distress” are striped ground crickets . In comparison to “field” crickets, these are miniature in size (approximately ½-inch in length). Being more brownish to brownish-red in color, they are aptly named for their prominent body stripes (Figure 5).

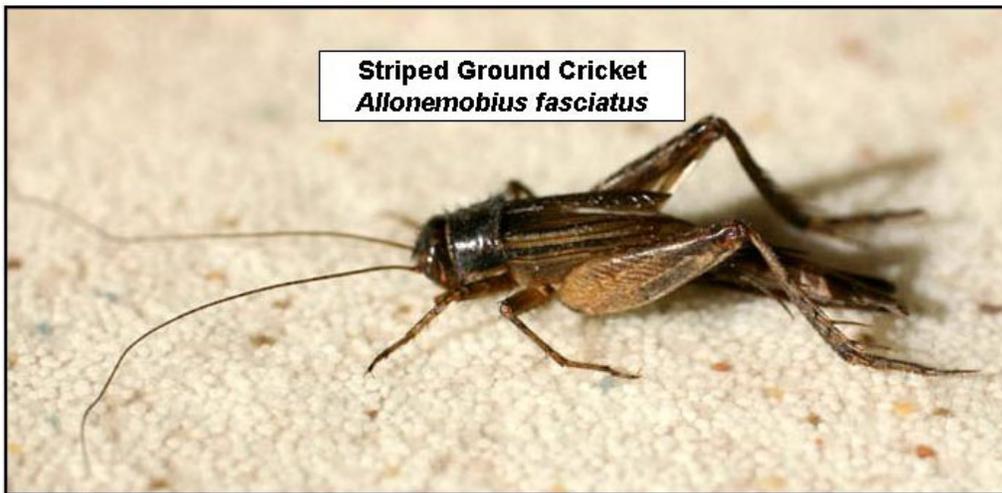


Figure 5

Why (now) are these crickets such a nuisance? One needs to go back to “then” to explain “now”. “Then” was last fall when the 2009 generation of striped ground crickets deposited eggs for overwintering. The 2010 hatch (speculatively) occurred in early June. Though not seen/evident, nymphal development has progressed primarily in abundant moist environments such as poorly drained marsh and pasture areas, and grassy sites along creeks/streams/rivers and lakes and ponds. By the end of July, nymphs underwent their final molt and became winged adults.

These highly mobile adults are attracted to illuminated areas. Whether from outside the city limits (as you drive at night, you can readily observe the glow of city lights) or within the confines of the city, large movements of crickets orientate/gravitate towards areas of high light intensity such as store and business fronts which are protected by bright security lights. While many homeowners may be spared this onslaught (porch lights are not significantly attractive), a trip down to the local “gas pump” for a late night fill-up will serve to alert one as to the presence of crickets. And the first order of business for some shopkeepers/storeowners and workers upon arriving at work will be clearing the sidewalks and entryways of dying or dead crickets ----- live crickets having temporarily departed for protective cover from the new day’s light-of-day.

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There is little else to be done against cricket aggregations. At least at this time of year, cricket movement “indoors” is minimal because they are not seeking out “heated quarters” as they would be later in the fall with the approach of cooler temperatures.

Bob Bauernfeind

Report from the Kansas State University Insect Diagnostic Laboratory:

The following samples were submitted to the Insect Diagnostic Laboratory from July 30th to August 5th.

July 30 2010 – Pratt County – Whitelined sphinx moth caterpillars in crops
July 30 2010 – Wyandotte County – Dung beetles in yard
July 30 2010 – Leavenworth County – Oak kermes scale and oak flake gall on pin oak
July 30 2010 – Barber County – Bagworms on cedar
August 2 2010 – Ness County – Yellow-collared scape moth on ivy
August 3 2010 – Nemaha County – Saddleback caterpillar on English walnut
August 3 2010 – Republic County – Spiny-backed orb weaver spider in yard
August 3 2010 – Ford County – Tenebrionid beetles (*Apocrypha* sp.) in home
August 4 2010 – Jackson County – Rove beetles in home
August 4 2010 – Jefferson County – Drugstore beetles in home
August 4 2010 – Pratt County – Aphids on flowering quince
August 4 2010 – Cheyenne County – Wolf spider in tree
August 5 2010 – Marshall County – Garden webworms in asters
August 5 2010 – Ness County – Codling moth larvae in apples
August 5 2010 – Pratt County – Spider mites on black walnut
August 5 2010 – Cheyenne County – Insect feeding damage on pear tree

If there are any questions regarding these samples or about the identification of any arthropod please contact the Insect Diagnostician at (785) 532-4739 or GotBugs@ksu.edu.

Holly Davis

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Sincerely,

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